APPENDIX B

CGL borehole logs

BOREHOLE LOG

Project				BOREHOLE No
Camden Lock Village, London				**BH2**
Job No	Date	Ground Level (m)	Co-Ordinates (m)	
CG/18067A	29-10-14	26.16	E 528,836.9 N 184,261.6	
Client				Sheet
Walsh Group				1 of 4

SAMPLES & TESTS			Water	STRATA				Instrument /Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
				25.96		0.20	Concrete. [MADE GROUND]	
0.20-0.60	B1							
0.20	D2			25.56		0.60	Soft dark brown sandy gravelly silt. Sand is fine to coarse. Gravel is fine to coarse subrounded to subangular of brick and flint. [MADE GROUND]	
0.60	D3						Firm dark orange brown occasionally mottled grey slightly silty CLAY. [WEATHERED LONDON CLAY FORMATION]	
1.50-1.95	U100	14 blows						
2.00	D5							
2.25	D6							
2.50-2.95	D7							
2.50		N7						
3.00-3.50	B8							
3.50-3.95	U100	12 blows						
4.00	D10							
4.25	D11							
4.50-4.95	D12							
4.50		N10				(8.70)		
5.50-5.90	D13						5.50 - 5.90 Mudstone noted.	
6.00-6.45	U100	19 blows						
6.50	D15							
7.00-7.50	B16							
7.50-7.95	D17							
7.50		N13						
8.50	D18							

Boring Progress and Water Observations

Date	Comment	Strike Depth	Casing Depth	Casing Dia. mm	Standing Depth

General Remarks

1. No groundwater encountered in borehole.

2. ES= environmental samples, D= disturbed sample, B= bulk sample, N= SPT 'N' value, U100= U100 sample.

3. Installation details: 0.0-1.0mbgl: plain pipe with bentonite backfill; 1.0-10.0mbgl: slotted pipe with gravel backfill; 10.0-11.0mbgl: bentonite backfill; 11.0-30.5mbgl: arisings backfill. Gas tap, bung and flush cover installed.

Method/ Plant Used	Field Crew	Logged By	Checked By
Cable percussion	Gary Wheeler Drilling Ltd	JJM	DWM

BOREHOLE LOG

Project				BOREHOLE No
Camden Lock Village, London				**BH2**
Job No	Date	Ground Level (m)	Co-Ordinates (m)	
CG/18067A	29-10-14	26.16	E 528,836.9 N 184,261.6	
Client				Sheet
Walsh Group				2 of 4

SAMPLES & TESTS			Water	STRATA				Instrument /Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
9.00-9.45	U100	25 blows		16.86		9.30		
9.50	D20						Stiff dark grey CLAY. Frequent fine selenite crystals noted. [LONDON CLAY FORMATION]	
10.00	D21							
10.50-10.95	D22							
10.50		N23						
11.50	D23							
12.00-12.45	U100	24 blows						
12.50	D25							
13.00	D26							
13.50-13.95	D27							
13.50		N22						
14.00-15.00	B28							
15.00-15.45	U100	29 blows						
15.50	D30							
16.00	D31							
16.50-16.95	D32							
16.50		N22						
17.50	D33							

Boring Progress and Water Observations

Date	Comment	Strike Depth	Casing Depth	Casing Dia. mm	Standing Depth

General Remarks

1. No groundwater encountered in borehole.

2. ES= environmental samples, D= disturbed sample, B= bulk sample, N= SPT 'N' value, U100= U100 sample.

3. Installation details: 0.0-1.0mbgl: plain pipe with bentonite backfill; 1.0-10.0mbgl: slotted pipe with gravel backfill; 10.0-11.0mbgl: bentonite backfill; 11.0-30.5mbgl: arisings backfill. Gas tap, bung and flush cover installed.

Method/ Plant Used	Field Crew	Logged By	Checked By
Cable percussion	Gary Wheeler Drilling Ltd	JJM	DWM

BOREHOLE LOG

Project				BOREHOLE No
Camden Lock Village, London				**BH2**
Job No	Date	Ground Level (m)	Co-Ordinates (m)	
CG/18067A	29-10-14	26.16	E 528,836.9 N 184,261.6	
Client				Sheet
Walsh Group				3 of 4

SAMPLES & TESTS			Water	STRATA				Instrument /Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
18.00-18.45	U100	29 blows					Stiff dark grey CLAY. Frequent fine selenite crystals noted. [LONDON CLAY FORMATION] *(continued)*	
18.50	D35							
19.00	D36							
19.50-19.95	D37							
19.50		N28				(21.20)		
20.00-21.00	B38							
21.00-21.45	U100	38 blows						
21.50	D40							
22.00	D41							
22.50-22.95	D42							
22.50		N38						
23.50	D43							
24.00-24.45	U100	34 blows						
24.50	D45							
25.00	D46							
25.50-25.95	D47							
25.50		N41						
26.00-27.00	B48							

Boring Progress and Water Observations

Date	Comment	Strike Depth	Casing Depth	Casing Dia. mm	Standing Depth

General Remarks

1. No groundwater encountered in borehole.

2. ES= environmental samples, D= disturbed sample, B= bulk sample, N= SPT 'N' value, U100= U100 sample.

3. Installation details: 0.0-1.0mbgl: plain pipe with bentonite backfill; 1.0-10.0mbgl: slotted pipe with gravel backfill; 10.0-11.0mbgl: bentonite backfill; 11.0-30.5mbgl: arisings backfill. Gas tap, bung and flush cover installed.

Method/ Plant Used	Field Crew	Logged By	Checked By
Cable percussion	Gary Wheeler Drilling Ltd	JJM	DWM

BOREHOLE LOG

Project				BOREHOLE No
Camden Lock Village, London				**BH2**
Job No	Date	Ground Level (m)	Co-Ordinates (m)	
CG/18067A	29-10-14	26.16	E 528,836.9 N 184,261.6	
Client				Sheet
Walsh Group				4 of 4

SAMPLES & TESTS			Water	STRATA				Instrument /Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
27.00-27.45	U100	40 blows					Stiff dark grey CLAY. Frequent fine selenite crystals noted. [LONDON CLAY FORMATION] *(continued)*	
27.50	D50							
28.00	D51							
28.50-28.95	D52							
28.50		N55						
29.50	D53							
30.00-30.45	U100	34 blows						
30.50	D55			-4.34		30.50	*(Borehole terminated at 30.5m)*	

Boring Progress and Water Observations

Date	Comment	Strike Depth	Casing Depth	Casing Dia. mm	Standing Depth

General Remarks

1. No groundwater encountered in borehole.

2. ES= environmental samples, D= disturbed sample, B= bulk sample, N= SPT 'N' value, U100= U100 sample.

3. Installation details: 0.0-1.0mbgl: plain pipe with bentonite backfill; 1.0-10.0mbgl: slotted pipe with gravel backfill; 10.0-11.0mbgl: bentonite backfill; 11.0-30.5mbgl: arisings backfill. Gas tap, bung and flush cover installed.

Method/ Plant Used	Field Crew	Logged By	Checked By
Cable percussion	Gary Wheeler Drilling Ltd	JJM	DWM

BOREHOLE LOG

Project				BOREHOLE No
Camden Lock Village, London				BH3
Job No	Date	Ground Level (m)	Co-Ordinates (m)	
CG/18067A	28-10-14	26.16		
Client				Sheet
Walsh Group				1 of 2

SAMPLES & TESTS			Water	STRATA				Instrument /Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
				25.86		0.30	Concrete. [MADE GROUND]	
0.30	D1			25.56		0.60	Soft dark brown very sandy gravelly silt. Sand is fine to coarse. Gravel is fine to coarse subrounded to subangular of brick. Occasional cobble of brick. Occasional ash noted. [MADE GROUND]	
0.30-0.60	B2							
0.40	ES115							
0.60	D3							
1.20-1.65	D4						Firm dark orange brown occasionally mottled grey slightly silty CLAY. [WEATHERED LONDON CLAY FORMATION]	
1.20		N9						
1.80	ES116							
2.00-2.50	B5							
2.50-2.95	U100	16 blows						
3.00	D7							
3.25	D8							
3.50-3.95	D9							
3.50		N12						
4.25	D10							
4.50-4.95	U100	17 blows						
5.00	D12							
5.00-6.00	B13					(9.50)		
6.00-6.45	D14							
6.00		N14						
6.50-6.80	D15						6.50 Mudstone noted.	
7.00	D16							
7.50-7.95	U100	26 blows						
8.00	D18							
8.50	D19							

Boring Progress and Water Observations

Date	Comment	Strike Depth	Casing Depth	Casing Dia. mm	Standing Depth

General Remarks

1. No groundwater encountered in borehole.

2. ES= environmental samples, D= disturbed sample, B= bulk sample, N= SPT 'N' value, U100= U100 sample.

3. Installation details: 0.0-1.0mbgl: plain pipe with bentonite backfill; 1.0-5.0mbgl: slotted pipe with gravel backfill; 5.0-15.45mbgl: arisings backfill. Gas tap, bung and flush cover installed.

Method/ Plant Used	Field Crew	Logged By	Checked By
Cable percussion	Gary Wheeler Drilling Ltd	JJM	DWM

BOREHOLE LOG

Project				BOREHOLE No
Camden Lock Village, London				BH3
Job No	Date	Ground Level (m)	Co-Ordinates (m)	
CG/18067A	28-10-14	26.16		
Client				Sheet
Walsh Group				2 of 2

SAMPLES & TESTS			Water	STRATA				Instrument /Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
9.00-9.45	D20						Firm dark orange brown occasionally mottled grey slightly silty CLAY. [WEATHERED LONDON CLAY FORMATION] *(continued)*	
9.00		N26						
				16.06		10.10		
10.00-10.50	B21						Stiff dark grey CLAY. Frequent fine selenite crystals noted. [LONDON CLAY FORMATION]	
10.50-10.95	U100	29 blows					10.40 Becoming stiff dark grey CLAY. Frequent fine selenite crystals noted.	
11.00	D23						10.50 Claystone noted.	
11.50	D24							
12.00-12.45	D25							
12.00		N29				(5.35)		
13.00	D26							
13.50-13.95	U100	29 blows						
14.00	D28							
14.50	D29							
15.00-15.45	D30							
15.00		N31						
				10.71		15.45	*(Borehole terminated at 15.45m)*	

Boring Progress and Water Observations

Date	Comment	Strike Depth	Casing Depth	Casing Dia. mm	Standing Depth

General Remarks

1. No groundwater encountered in borehole.

2. ES= environmental samples, D= disturbed sample, B= bulk sample, N= SPT 'N' value, U100= U100 sample.

3. Installation details: 0.0-1.0mbgl: plain pipe with bentonite backfill; 1.0-5.0mbgl: slotted pipe with gravel backfill; 5.0-15.45mbgl: arisings backfill. Gas tap, bung and flush cover installed.

Method/ Plant Used	Field Crew	Logged By	Checked By
Cable percussion	Gary Wheeler Drilling Ltd	JJM	DWM

BOREHOLE LOG

Project				BOREHOLE No
Camden Lock Village, London				**BH4**
Job No	Date	Ground Level (m)	Co-Ordinates (m)	
CG/18067A	17-11-14 18-11-14	27.37	E 528,783.9 N 184,238.5	
Client				Sheet
Walsh Group				1 of 3

SAMPLES & TESTS			Water	STRATA				Instrument /Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
				27.12		0.25	Concrete. No rebar noted. [MADE GROUND]	
0.20 0.20-0.50 0.50 0.50-1.20	D1 B2 D3 B4					(1.15)	Soft dark brown very sandy gravelly silt. Sand is fine to coarse. Gravel is fine to coarse subrounded to subangular of brick. Occasional cobbles of brick noted. [MADE GROUND]	
1.20-2.95 1.20	D5	N6		25.97		1.40	Firm dark orange brown slightly silty CLAY. Occasional fine selenite crystals noted. [WEATHERED LONDON CLAY FORMATION]	
2.25-3.00	D6							
2.50-2.95	U100	11 blows						
3.00 3.00-3.50	D8 B9							
3.50-3.95 3.50	D10	N11						
4.25	D11							
4.50-4.95	U100	16 blows						
5.00	D13							
5.50-6.00	B14							
6.00-6.45 6.00	D15	N14				(9.80)		
7.00	D16							
7.50-7.95	U100	21 blows						
8.00	D18							

Boring Progress and Water Observations

Date	Comment	Strike Depth	Casing Depth	Casing Dia. mm	Standing Depth

General Remarks

1. No groundwater encountered in borehole.

2. Down hole magnetrometer testing undertaken at 2m intervals for first 5m of drilling.

3. D= disturbed sample, B= bulk sample, N= SPT 'N' sample, U100= U100 sample.

4. Installation details; 0.0-1.5mbgl: plain pipe with bentonite backfill; 1.5-9.0mbgl: slotted pipe with gravel backfill; 9.0-10.0mbgl: bentonite backfill; 10.0-25.0mbgl: arisings backfill. Gas tap, bung and flush cover installed.

Method/ Plant Used	Field Crew	Logged By	Checked By
Pilcon	Gary Wheeler Drilling Ltd	JJM	DRAFT

BOREHOLE LOG

Project				BOREHOLE No
Camden Lock Village, London				**BH4**
Job No	Date	Ground Level (m)	Co-Ordinates (m)	
CG/18067A	17-11-14 18-11-14	27.37	E 528,783.9 N 184,238.5	
Client				Sheet
Walsh Group				2 of 3

SAMPLES & TESTS			Water	STRATA				Instrument /Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
8.50-9.00	B19						Firm dark orange brown slightly silty CLAY. Occasional fine selenite crystals noted. [WEATHERED LONDON CLAY FORMATION] *(continued)*	
9.00-9.45	D20							
9.00		N33						
9.50-9.70	D21							
10.00	D22							
10.50-10.95	U100	25 blows						
11.00	D24			16.17		11.20		
11.50-12.00	B25						Stiff closely fissured dark grey slightly silty CLAY. Occasional fine selenite crystals noted. [LONDON CLAY FORMATION]	
12.00-12.45	D26							
12.00		N28						
13.00	D27							
13.50-13.95	U100	27 blows						
14.00	D29							
14.50-15.00	B30							
15.00	D31							
15.00		N31						
16.00	D32							
16.50-16.95	U100	25 blows						

Boring Progress and Water Observations

Date	Comment	Strike Depth	Casing Depth	Casing Dia. mm	Standing Depth

General Remarks

1. No groundwater encountered in borehole.

2. Down hole magnetrometer testing undertaken at 2m intervals for first 5m of drilling.

3. D= disturbed sample, B= bulk sample, N= SPT 'N' sample, U100= U100 sample.

4. Installation details; 0.0-1.5mbgl: plain pipe with bentonite backfill; 1.5-9.0mbgl: slotted pipe with gravel backfill; 9.0-10.0mbgl: bentonite backfill; 10.0-25.0mbgl: arisings backfill. Gas tap, bung and flush cover installed.

Method/ Plant Used	Field Crew	Logged By	Checked By
Pilcon	Gary Wheeler Drilling Ltd	JJM	DRAFT

BOREHOLE LOG

Project				BOREHOLE No
Camden Lock Village, London				**BH4**
Job No	Date	Ground Level (m)	Co-Ordinates (m)	
CG/18067A	17-11-14 18-11-14	27.37	E 528,783.9 N 184,238.5	
Client				Sheet
Walsh Group				3 of 3

SAMPLES & TESTS			Water	STRATA				Instrument /Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
17.00	D34						Stiff closely fissured dark grey slightly silty CLAY. Occasional fine selenite crystals noted. [LONDON CLAY FORMATION] *(continued)*	
17.50-18.00	B35							
18.00-18.45 18.00	D36	N28				(13.80)		
19.00	D37							
19.50-19.95	U100	27 blows						
20.00	D39							
20.50-21.00	B40							
21.00-21.45 21.00	D41	N34						
22.00	D42							
22.50-22.95	U100	28 blows						
23.00	D44							
23.50-24.00	B45							
24.00-24.45 24.00	D46	N37						
				2.37		25.00		
25.00	D47						*(Borehole terminated at 25m)*	

Boring Progress and Water Observations

Date	Comment	Strike Depth	Casing Depth	Casing Dia. mm	Standing Depth

General Remarks

1. No groundwater encountered in borehole.

2. Down hole magnetrometer testing undertaken at 2m intervals for first 5m of drilling.

3. D= disturbed sample, B= bulk sample, N= SPT 'N' sample, U100= U100 sample.

4. Installation details; 0.0-1.5mbgl: plain pipe with bentonite backfill; 1.5-9.0mbgl: slotted pipe with gravel backfill; 9.0-10.0mbgl: bentonite backfill; 10.0-25.0mbgl: arisings backfill. Gas tap, bung and flush cover installed.

Method/ Plant Used	Field Crew	Logged By	Checked By
Pilcon	Gary Wheeler Drilling Ltd	JJM	DRAFT

BOREHOLE LOG

Project				BOREHOLE No
Camden Lock Village, London				BH5
Job No	Date	Ground Level (m)	Co-Ordinates (m)	
CG/18067A	10-11-14 12-11-14	27.36	E 528,775.3 N 184,211.1	
Client				Sheet
Walsh Group				1 of 5

SAMPLES & TESTS			Water	STRATA				Instrument /Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.15-0.60	B1					(0.50)	Brick paving over light orange brown fine to medium sand. [MADE GROUND]	
				26.86		0.50		
				26.72		0.64	Soft dark green grey slightly sandy gravelly silt. Sand is fine to coarse. Gravel is fine to coarse subrounded to subangular of brick. [MADE GROUND]	
0.65-1.00	B2						Firm dark orange brown slightly silty CLAY. [WEATHERED LONDON CLAY FORMATION]	
1.25	D3							
1.50-1.95	U100	16 blows						
2.00	D5							
2.25	D6							
2.50-2.95	D7							
2.50		N8						
3.00-3.50	B8							
3.50-3.95	U100	16 blows						
4.00	D10							
4.25	D11							
4.50-4.94	D12							
4.50		N16						
						(9.16)		
5.50	D13							
6.00-6.45	U100	17 blows						
6.50	D15							
7.00	D16							
7.50-7.95	D17							
7.50		N17						

Boring Progress and Water Observations

Date	Comment	Strike Depth	Casing Depth	Casing Dia. mm	Standing Depth

General Remarks

1. No groundwater encountered in borehole.

2. Down hole magnetrometer testing undertaken at 2m intervals for first 5m of drilling.

3. D= disturbed sample, B= bulk sample, N= SPT 'N' sample, U100= U100 sample.

4. Installation details; 0.0-1.0mbgl: plain pipe with bentonite backfill; 1.0-7.0mbgl: slotted pipe with gravel backfill; 7.0-8.0mbgl: bentonite backfill; 8.0-39.0mbgl: arisings backfill. Gas tap, bung and flush cover installed.

Method/ Plant Used	Field Crew	Logged By	Checked By
Pilcon	Gary Wheeler Drilling Ltd	JJM	DRAFT

BOREHOLE LOG

Project				BOREHOLE No
Camden Lock Village, London				BH5
Job No	Date	Ground Level (m)	Co-Ordinates (m)	
CG/18067A	10-11-14 12-11-14	27.36	E 528,775.3 N 184,211.1	
Client				Sheet
Walsh Group				2 of 5

SAMPLES & TESTS			Water	STRATA				Instrument /Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
8.50-9.00	B18						Firm dark orange brown slightly silty CLAY. [WEATHERED LONDON CLAY FORMATION] *(continued)*	
9.00-9.45	U100	28 blows						
9.50	D20			17.56		9.80		
10.00	D21						Stiff closely fissured dark grey silty CLAY. Frequent fine selenite crystals noted. [LONDON CLAY FORMATION]	
10.50-10.95 10.50	D22	N24						
11.50-12.00	B23							
12.00-12.45	U100	24 blows						
12.50	D25							
13.00	D26							
13.50-13.95 13.50	D27	N27						
14.50-15.00	B28							
15.00-15.45	U100	30 blows						
15.50	D30							
16.00	D31							
16.50-16.95 16.50	D32	N28						

Boring Progress and Water Observations

Date	Comment	Strike Depth	Casing Depth	Casing Dia. mm	Standing Depth

General Remarks

1. No groundwater encountered in borehole.

2. Down hole magnetrometer testing undertaken at 2m intervals for first 5m of drilling.

3. D= disturbed sample, B= bulk sample, N= SPT 'N' sample, U100= U100 sample.

4. Installation details; 0.0-1.0mbgl: plain pipe with bentonite backfill; 1.0-7.0mbgl: slotted pipe with gravel backfill; 7.0-8.0mbgl: bentonite backfill; 8.0-39.0mbgl: arisings backfill. Gas tap, bung and flush cover installed.

Method/ Plant Used	Field Crew	Logged By	Checked By
Pilcon	Gary Wheeler Drilling Ltd	JJM	DRAFT

BOREHOLE LOG

Project				BOREHOLE No
Camden Lock Village, London				**BH5**
Job No	Date	Ground Level (m)	Co-Ordinates (m)	
CG/18067A	10-11-14 12-11-14	27.36	E 528,775.3 N 184,211.1	
Client				Sheet
Walsh Group				3 of 5

SAMPLES & TESTS			Water	STRATA				Instrument /Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
							Stiff closely fissured dark grey silty CLAY. Frequent fine selenite crystals noted. [LONDON CLAY FORMATION] *(continued)*	
17.50-18.00	B33							
18.00-18.45	U100	31 blows						
18.50	D35							
19.00	D36							
19.50-19.95	D37							
19.50		N38						
20.50-21.00	B38							
21.00-21.45	U100	28 blows						
21.50	D40							
22.00	D41							
22.50-22.95	D42							
22.50		N40						
23.50-24.00	B43							
24.00-24.45	U100	31 blows						
24.50	D45					(29.70)		
24.90-25.20	D46							

Boring Progress and Water Observations

Date	Comment	Strike Depth	Casing Depth	Casing Dia. mm	Standing Depth

General Remarks

1. No groundwater encountered in borehole.

2. Down hole magnetrometer testing undertaken at 2m intervals for first 5m of drilling.

3. D= disturbed sample, B= bulk sample, N= SPT 'N' sample, U100= U100 sample.

4. Installation details; 0.0-1.0mbgl: plain pipe with bentonite backfill; 1.0-7.0mbgl: slotted pipe with gravel backfill; 7.0-8.0mbgl: bentonite backfill; 8.0-39.0mbgl: arisings backfill. Gas tap, bung and flush cover installed.

Method/ Plant Used	Field Crew	Logged By	Checked By
Pilcon	Gary Wheeler Drilling Ltd	JJM	DRAFT

BOREHOLE LOG

Project				BOREHOLE No
Camden Lock Village, London				**BH5**
Job No	Date	Ground Level (m)	Co-Ordinates (m)	
CG/18067A	10-11-14 12-11-14	27.36	E 528,775.3 N 184,211.1	
Client				Sheet
Walsh Group				4 of 5

SAMPLES & TESTS			Water	STRATA				Instrument /Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
25.50-25.95 25.50	D47	N49					Stiff closely fissured dark grey silty CLAY. Frequent fine selenite crystals noted. [LONDON CLAY FORMATION] *(continued)*	
26.50-27.00	B48							
27.00-27.45	U100	47 blows						
27.50	D50							
28.00	D51							
28.50-28.95 28.50	D52	N50/ 246 mm						
29.50-30.00	B51a							
30.00-30.45	U100	44 blows						
30.50	D53							
31.00	D54							
31.50-31.95 31.50	D55	N50/ 279 mm						
32.50-33.00	B56							
33.00-33.45	U100	47 blows						

Boring Progress and Water Observations

Date	Comment	Strike Depth	Casing Depth	Casing Dia. mm	Standing Depth

General Remarks

1. No groundwater encountered in borehole.

2. Down hole magnetrometer testing undertaken at 2m intervals for first 5m of drilling.

3. D= disturbed sample, B= bulk sample, N= SPT 'N' sample, U100= U100 sample.

4. Installation details; 0.0-1.0mbgl: plain pipe with bentonite backfill; 1.0-7.0mbgl: slotted pipe with gravel backfill; 7.0-8.0mbgl: bentonite backfill; 8.0-39.0mbgl: arisings backfill. Gas tap, bung and flush cover installed.

Method/ Plant Used	Field Crew	Logged By	Checked By
Pilcon	Gary Wheeler Drilling Ltd	JJM	DRAFT

BOREHOLE LOG

Project				BOREHOLE No
Camden Lock Village, London				**BH5**
Job No	Date	Ground Level (m)	Co-Ordinates (m)	
CG/18067A	10-11-14 12-11-14	27.36	E 528,775.3 N 184,211.1	
Client				Sheet
Walsh Group				5 of 5

SAMPLES & TESTS			Water	STRATA				Instrument /Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
33.50	D58						Stiff closely fissured dark grey silty CLAY. Frequent fine selenite crystals noted. [LONDON CLAY FORMATION] *(continued)*	
34.00	D59							
34.50-34.95 34.50	D60	N51						
35.50-36.00	B61							
36.00-36.45	U100	48 blows						
37.00	D63							
37.50 37.50	D64	N50/ 252 mm						
38.50-39.00	B65							
39.00-39.50	U100	56 blows						
				-12.14		39.50	*(Borehole terminated at 39.5m)*	

Boring Progress and Water Observations

Date	Comment	Strike Depth	Casing Depth	Casing Dia. mm	Standing Depth

General Remarks

1. No groundwater encountered in borehole.

2. Down hole magnetrometer testing undertaken at 2m intervals for first 5m of drilling.

3. D= disturbed sample, B= bulk sample, N= SPT 'N' sample, U100= U100 sample.

4. Installation details; 0.0-1.0mbgl: plain pipe with bentonite backfill; 1.0-7.0mbgl: slotted pipe with gravel backfill; 7.0-8.0mbgl: bentonite backfill; 8.0-39.0mbgl: arisings backfill. Gas tap, bung and flush cover installed.

Method/ Plant Used	Field Crew	Logged By	Checked By
Pilcon	Gary Wheeler Drilling Ltd	JJM	DRAFT

BOREHOLE LOG

Project				BOREHOLE No
Camden Lock Village, London				**BH6**
Job No	Date	Ground Level (m)	Co-Ordinates (m)	
CG/18067A	13-11-14 14-11-14	27.96	E 528,747.0 N 184,197.8	
Client				Sheet
Walsh Group				1 of 3

SAMPLES & TESTS			Water	STRATA				Instrument /Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
				27.71		0.25	Concrete. No rebar noted. [MADE GROUND]	
0.25	D1						Dark brown silty sandy fine to coarse subrounded to subangular gravel of brick. Frequent cobbles of brick noted. [MADE GROUND]	
0.25-1.20	B2							
0.30	ES220					(1.15)		
1.20-1.65	D3			26.56		1.40		
1.20		N5					Firm dark orange brown slightly silty CLAY. Occasional fine selenite crystals noted. [WEATHERED LONDON CLAY FORMATION]	
2.00-2.50	B4							
2.20	ES221							
2.50-2.95	U100	12 blows						
3.00	D6							
3.25	D7							
3.50-3.95	D8							
3.50		N13						
4.00-4.50	B9							
4.50-4.95	U100	20 blows						
5.00	D11							
5.50	D12							
6.00-6.45	D13							
6.00		N17				(9.80)		
7.00-7.50	B14							
7.50-7.95	U100	19 blows						
8.00	D16							

Boring Progress and Water Observations

Date	Comment	Strike Depth	Casing Depth	Casing Dia. mm	Standing Depth

General Remarks

1. No groundwater encountered in borehole.

2. Down hole magnetrometer testing undertaken at 2m intervals for first 5m of drilling.

3. D= disturbed sample, B= bulk sample, N= SPT 'N' sample, U100= U100 sample.

4. Installation details; 0.0-1.5mbgl: plain pipe with bentonite backfill; 1.5-8.5mbgl: slotted pipe with gravel backfill; 8.5-9.5mbgl: bentonite backfill; 9.5-25.0mbgl: arisings backfill. Gas tap, bung and flush cover installed.

Method/ Plant Used	Field Crew	Logged By	Checked By
Pilcon	Gary Wheeler Drilling Ltd	JJM	DRAFT

BOREHOLE LOG

Project				BOREHOLE No
Camden Lock Village, London				**BH6**
Job No	Date	Ground Level (m)	Co-Ordinates (m)	
CG/18067A	13-11-14 14-11-14	27.96	E 528,747.0 N 184,197.8	
Client				Sheet
Walsh Group				2 of 3

SAMPLES & TESTS			Water	STRATA				Instrument /Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
8.50	D17						Firm dark orange brown slightly silty CLAY. Occasional fine selenite crystals noted. [WEATHERED LONDON CLAY FORMATION] *(continued)*	
9.00-9.45 9.00	D18	N21						
10.00-10.50	B19							
10.50-10.95	U100	23 blows						
11.00	D21			16.76		11.20		
11.50	D22						Stiff closely fissured dark grey silty CLAY. Occasional fine selenite crystals noted. [LONDON CLAY FORMATION]	
12.00-12.45 12.00	D23	N26						
13.00-13.50	B24							
13.50-13.95	U100	25 blows						
14.00	D25							
14.50	D26							
15.00-15.45 15.00	D27	N27						
16.00	B28							
16.50-16.95	U100	22 blows						

Boring Progress and Water Observations

Date	Comment	Strike Depth	Casing Depth	Casing Dia. mm	Standing Depth

General Remarks

1. No groundwater encountered in borehole.

2. Down hole magnetrometer testing undertaken at 2m intervals for first 5m of drilling.

3. D= disturbed sample, B= bulk sample, N= SPT 'N' sample, U100= U100 sample.

4. Installation details; 0.0-1.5mbgl: plain pipe with bentonite backfill; 1.5-8.5mbgl: slotted pipe with gravel backfill; 8.5-9.5mbgl: bentonite backfill; 9.5-25.0mbgl: arisings backfill. Gas tap, bung and flush cover installed.

Method/ Plant Used	Field Crew	Logged By	Checked By
Pilcon	Gary Wheeler Drilling Ltd	JJM	DRAFT

BOREHOLE LOG

Project				BOREHOLE No
Camden Lock Village, London				**BH6**
Job No	Date	Ground Level (m)	Co-Ordinates (m)	
CG/18067A	13-11-14 14-11-14	27.96	E 528,747.0 N 184,197.8	
Client				Sheet
Walsh Group				3 of 3

SAMPLES & TESTS			Water	STRATA				Instrument /Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
17.00	D30						Stiff closely fissured dark grey silty CLAY. Occasional fine selenite crystals noted. [LONDON CLAY FORMATION] *(continued)*	
17.50	D31							
18.00-18.45 18.00	D32	N30				(13.80)		
19.00-19.50	B33							
19.50-19.95	U100	26 blows						
20.50	D35							
21.00-21.24 21.00	D36	N31						
22.00-22.50	B37							
22.50-22.95	U100	36 blows						
23.00	D39							
23.50	D41							
24.00-24.45 24.00	D42	N37						
				2.96		25.00		
25.00	D43						*(Borehole terminated at 25m)*	

Boring Progress and Water Observations

Date	Comment	Strike Depth	Casing Depth	Casing Dia. mm	Standing Depth

General Remarks

1. No groundwater encountered in borehole.

2. Down hole magnetrometer testing undertaken at 2m intervals for first 5m of drilling.

3. D= disturbed sample, B= bulk sample, N= SPT 'N' sample, U100= U100 sample.

4. Installation details; 0.0-1.5mbgl: plain pipe with bentonite backfill; 1.5-8.5mbgl: slotted pipe with gravel backfill; 8.5-9.5mbgl: bentonite backfill; 9.5-25.0mbgl: arisings backfill. Gas tap, bung and flush cover installed.

Method/ Plant Used	Field Crew	Logged By	Checked By
Pilcon	Gary Wheeler Drilling Ltd	JJM	DRAFT

BOREHOLE LOG

Project				BOREHOLE No
Camden Lock Village, London				**BH7**
Job No	Date	Ground Level (m)	Co-Ordinates (m)	
CG/18067A	31-10-14 04-11-14	25.79		
Client				Sheet
Walsh Group				1 of 4

SAMPLES & TESTS			Water	STRATA				Instrument /Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
				25.66		0.13	Paving slab over light orange brown fine to medium sand. [MADE GROUND]	
0.13	D1			25.41		0.38	Concrete [MADE GROUND]	
0.38	D2						Soft light brown grey clayey silt with frequent claystone inclusions. [MADE GROUND]	
0.50-1.00	B3					(1.12)		
1.20-1.65	D4							
1.20		N6		24.29		1.50	Firm to stiff light orange brown slightly gravelly silty CLAY. Gravel is fine rounded of flint. [WEATHERED LONDON CLAY FORMATION]	
1.70-2.20	B5							
1.70	D6							
2.20-2.65	U100	12 blows						
2.70	D8							
3.00	D9							
3.20-3.65	D10							
3.20		N10						
4.00-4.50	B11							
4.50-4.95	U100	19 blows				(7.40)		
5.50	D13							
6.00-6.45	D14							
6.00		N16						
6.90-7.40	B15						6.90 - 7.40 Claystone band and seepage	
7.50-7.95	U100	19 blows						
8.00	D17							

Boring Progress and Water Observations

Date	Comment	Strike Depth	Casing Depth	Casing Dia. mm	Standing Depth

General Remarks

1. No groundwater encountered in borehole.

2. Down hole magnetrometer testing undertaken at 2m intervals for first 5m of drilling.

3. D= disturbed sample, B= bulk sample, N= SPT 'N' sample, U100= U100 sample.

4. Installation details; 0.0-2.0mbgl: plain pipe with bentonite backfill; 2.0-7.5mbgl: slotted pipe with gravel backfill; 7.5-8.5mbgl: bentonite backfill; 8.5-30.5mbgl: arisings backfill. Gas tap, bung and flush cover installed.

Method/ Plant Used	Field Crew	Logged By	Checked By
Pilcon	Gary Wheeler Drilling Ltd	TOP	DRAFT

BOREHOLE LOG

Project				BOREHOLE No
Camden Lock Village, London				BH7
Job No	Date	Ground Level (m)	Co-Ordinates (m)	
CG/18067A	31-10-14 04-11-14	25.79		
Client				Sheet
Walsh Group				2 of 4

SAMPLES & TESTS			Water	STRATA				Instrument /Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
8.50-9.00	B18						Firm to stiff light orange brown slightly gravelly silty CLAY. Gravel is fine rounded of flint.	
				16.89		8.90	[WEATHERED LONDON CLAY FORMATION] *(continued)*	
9.00-9.45	D19						Stiff closely fissured dark grey silty CLAY.	
9.00		N23					[LONDON CLAY FORMATION]	
10.00	D20							
10.50-10.95	U100	24 blows						
11.00	D22							
11.50-12.00	B23							
12.00-12.45	D24							
12.00		N22						
13.00	D25							
13.50-13.95	U100	31 blows						
14.00	D27							
14.50-15.00	B28							
15.00-15.45	D29							
15.00		N29						
16.00	D30							
16.50-16.95	U100	30 blows						

Boring Progress and Water Observations

Date	Comment	Strike Depth	Casing Depth	Casing Dia. mm	Standing Depth

General Remarks

1. No groundwater encountered in borehole.

2. Down hole magnetrometer testing undertaken at 2m intervals for first 5m of drilling.

3. D= disturbed sample, B= bulk sample, N= SPT 'N' sample, U100= U100 sample.

4. Installation details; 0.0-2.0mbgl: plain pipe with bentonite backfill; 2.0-7.5mbgl: slotted pipe with gravel backfill; 7.5-8.5mbgl: bentonite backfill; 8.5-30.5mbgl: arisings backfill. Gas tap, bung and flush cover installed.

Method/ Plant Used	Field Crew	Logged By	Checked By
Pilcon	Gary Wheeler Drilling Ltd	TOP	DRAFT

BOREHOLE LOG

Project				BOREHOLE No
Camden Lock Village, London				BH7
Job No	Date	Ground Level (m)	Co-Ordinates (m)	
CG/18067A	31-10-14 04-11-14	25.79		
Client				Sheet
Walsh Group				3 of 4

SAMPLES & TESTS			Water	STRATA				Instrument /Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
17.00	D32						Stiff closely fissured dark grey silty CLAY. [LONDON CLAY FORMATION] *(continued)*	
17.50-18.00	B33							
18.00-18.45 18.00	D34	N30						
19.00	D41							
19.50-19.95	U100	31 blows				(21.60)		
20.00	D43							
20.50-21.00	B45							
21.00-21.45 21.00	D46	N35						
22.00	D47							
22.50-22.95	U100	34 blows						
23.00	D49							
23.50-24.00	B50							
24.00-24.45 24.00	D51	N36						
25.00	D52							

Boring Progress and Water Observations

Date	Comment	Strike Depth	Casing Depth	Casing Dia. mm	Standing Depth

General Remarks

1. No groundwater encountered in borehole.

2. Down hole magnetrometer testing undertaken at 2m intervals for first 5m of drilling.

3. D= disturbed sample, B= bulk sample, N= SPT 'N' sample, U100= U100 sample.

4. Installation details; 0.0-2.0mbgl: plain pipe with bentonite backfill; 2.0-7.5mbgl: slotted pipe with gravel backfill; 7.5-8.5mbgl: bentonite backfill; 8.5-30.5mbgl: arisings backfill. Gas tap, bung and flush cover installed.

Method/ Plant Used	Field Crew	Logged By	Checked By
Pilcon	Gary Wheeler Drilling Ltd	TOP	DRAFT

BOREHOLE LOG

Project				BOREHOLE No
Camden Lock Village, London				**BH7**
Job No	Date	Ground Level (m)	Co-Ordinates (m)	
CG/18067A	31-10-14 04-11-14	25.79		
Client				Sheet
Walsh Group				4 of 4

SAMPLES & TESTS			Water	STRATA				Instrument /Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
25.50-25.95	U100	31 blows					Stiff closely fissured dark grey silty CLAY. [LONDON CLAY FORMATION] *(continued)*	
26.00	D54							
26.50-27.00	B55							
27.00-27.45 27.00	D56	N34						
28.00	D57							
28.50-28.95	U100	34 blows						
29.00	D59							
29.50	D60							
30.00-30.45 30.00	D61	N44		-4.71		30.50		
							(Borehole terminated at 30.5m)	

Boring Progress and Water Observations

Date	Comment	Strike Depth	Casing Depth	Casing Dia. mm	Standing Depth

General Remarks

1. No groundwater encountered in borehole.

2. Down hole magnetrometer testing undertaken at 2m intervals for first 5m of drilling.

3. D= disturbed sample, B= bulk sample, N= SPT 'N' sample, U100= U100 sample.

4. Installation details; 0.0-2.0mbgl: plain pipe with bentonite backfill; 2.0-7.5mbgl: slotted pipe with gravel backfill; 7.5-8.5mbgl: bentonite backfill; 8.5-30.5mbgl: arisings backfill. Gas tap, bung and flush cover installed.

Method/ Plant Used	Field Crew	Logged By	Checked By
Pilcon	Gary Wheeler Drilling Ltd	TOP	DRAFT

BOREHOLE LOG

Project				BOREHOLE No
Camden Lock Village, London				**BH8**
Job No	Date	Ground Level (m)	Co-Ordinates (m)	
CG/18067A	01-12-14			
Client				Sheet
Walsh Group				1 of 3

SAMPLES & TESTS			Water	STRATA				Instrument /Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
						0.15	Tarmac	
						0.30	[MADE GROUND]	
							Concrete. 60:40 aggregate to cement. No rebar noted. [MADE GROUND]	
						(0.90)	Soft dark brown very gravelly sandy silt. Sand is fine to coarse. Gravel is fine to coarse subrounded to subangular of brick and occasional tarmac. Frequent cobbles of brick.	
						1.20	[MADE GROUND]	
							Firm to stiff dark grey brown silty CLAY. [WEATHERED LONDON CLAY FORMATION]	
						(4.80)		
						6.00		
							Stiff dark grey silty CLAY. [LONDON CLAY FORMATION]	

Boring Progress and Water Observations

Date	Comment	Strike Depth	Casing Depth	Casing Dia. mm	Standing Depth

General Remarks

1. Drilled using rotary open hole.

2. This is a draft log and further information, including samples and monitoring installation details, will be added once the driller's logs are recieved.

Method/ Plant Used	Field Crew	Logged By	Checked By
Comacchio	TOR drilling	JJM	DRAFT

BOREHOLE LOG

Project				BOREHOLE No
Camden Lock Village, London				**BH8**
Job No	Date	Ground Level (m)	Co-Ordinates (m)	
CG/18067A	01-12-14			
Client				Sheet
Walsh Group				2 of 3

SAMPLES & TESTS			Water	STRATA				Instrument /Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
							Stiff dark grey silty CLAY. [LONDON CLAY FORMATION] *(continued)*	
						(19.00)		

Boring Progress and Water Observations

Date	Comment	Strike Depth	Casing Depth	Casing Dia. mm	Standing Depth

General Remarks

1. Drilled using rotary open hole.

2. This is a draft log and further information, including samples and monitoring installation details, will be added once the driller's logs are recieved.

Method/ Plant Used	Field Crew	Logged By	Checked By
Comacchio	TOR drilling	JJM	DRAFT

BOREHOLE LOG

Project				BOREHOLE No
Camden Lock Village, London				**BH8**
Job No	Date	Ground Level (m)	Co-Ordinates (m)	
CG/18067A	01-12-14			
Client				Sheet
Walsh Group				3 of 3

SAMPLES & TESTS			Water	STRATA				Instrument /Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
							Stiff dark grey silty CLAY. [LONDON CLAY FORMATION] *(continued)*	
						25.00	*(Borehole terminated at 25m)*	

Boring Progress and Water Observations

Date	Comment	Strike Depth	Casing Depth	Casing Dia. mm	Standing Depth

General Remarks

1. Drilled using rotary open hole.

2. This is a draft log and further information, including samples and monitoring installation details, will be added once the driller's logs are recieved.

Method/ Plant Used	Field Crew	Logged By	Checked By
Comacchio	TOR drilling	JJM	DRAFT

BOREHOLE LOG

Project				BOREHOLE No
Camden Lock Village, London				**BH9**
Job No: CG/18067A	Date: 24-11-14 17-12-14	Ground Level (m)	Co-Ordinates (m)	
Client: Walsh Group				Sheet: 1 of 4

SAMPLES & TESTS			Water	STRATA				Instrument /Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
						0.20	Tarmac [MADE GROUND]	
						0.30	Concrete. 60:40 aggregate to cement. No rebar noted. [MADE GROUND]	
						(0.90)	Dark brown silty sandy fine to coarse subrounded to subangular gravel of flint and brick. Sand is fine to coarse. Frequent cobbles of brick and concrete. [MADE GROUND]	
						1.20	Soft to firm dark grey black to grey brown gravelly silty clay. Gravel is fine to medium subangular to subrounded of brick. Organic odour noted. [MADE GROUND]	
						(0.60)		
						1.80	Firm to stiff dark grey brown silty CLAY. [WEATHERED LONDON CLAY FORMATION]	
						(7.20)		

Boring Progress and Water Observations

Date	Comment	Strike Depth	Casing Depth	Casing Dia. mm	Standing Depth

General Remarks

1. Drilled using rotary open hole.

2. This is a draft log and further information, including samples and monitoring installation details, will be added once the driller's logs are recieved.

Method/ Plant Used	Field Crew	Logged By	Checked By
Comacchio	TOR drilling	JJM	DRAFT

BOREHOLE LOG

Project				BOREHOLE No
Camden Lock Village, London				BH9
Job No: CG/18067A	Date: 24-11-14 17-12-14	Ground Level (m)	Co-Ordinates (m)	
Client: Walsh Group				Sheet: 2 of 4

SAMPLES & TESTS			Water	STRATA				Instrument /Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
						9.00	Firm to stiff dark grey brown silty CLAY. [WEATHERED LONDON CLAY FORMATION] *(continued)*	
							Stiff dark grey silty CLAY. [LONDON CLAY FORMATION]	

Boring Progress and Water Observations

Date	Comment	Strike Depth	Casing Depth	Casing Dia. mm	Standing Depth

General Remarks

1. Drilled using rotary open hole.

2. This is a draft log and further information, including samples and monitoring installation details, will be added once the driller's logs are recieved.

Method/ Plant Used	Field Crew	Logged By	Checked By
Comacchio	TOR drilling	JJM	DRAFT

BOREHOLE LOG

Project				BOREHOLE No
Camden Lock Village, London				**BH9**
Job No: CG/18067A	Date: 24-11-14 17-12-14	Ground Level (m)	Co-Ordinates (m)	
Client: Walsh Group				Sheet: 3 of 4

SAMPLES & TESTS			Water	STRATA				Instrument /Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
						(21.00)	Stiff dark grey silty CLAY. [LONDON CLAY FORMATION] *(continued)*	

Boring Progress and Water Observations

Date	Comment	Strike Depth	Casing Depth	Casing Dia. mm	Standing Depth

General Remarks

1. Drilled using rotary open hole.

2. This is a draft log and further information, including samples and monitoring installation details, will be added once the driller's logs are recieved.

Method/ Plant Used	Field Crew	Logged By	Checked By
Comacchio	TOR drilling	JJM	DRAFT

BOREHOLE LOG

Project				BOREHOLE No
Camden Lock Village, London				**BH9**
Job No	Date	Ground Level (m)	Co-Ordinates (m)	
CG/18067A	24-11-14 17-12-14			
Client				Sheet
Walsh Group				4 of 4

SAMPLES & TESTS			Water	STRATA				Instrument /Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
							Stiff dark grey silty CLAY. [LONDON CLAY FORMATION] *(continued)*	
						30.00	*(Borehole terminated at 30m)*	

Boring Progress and Water Observations					
Date	Comment	Strike Depth	Casing Depth	Casing Dia. mm	Standing Depth

General Remarks

1. Drilled using rotary open hole.

2. This is a draft log and further information, including samples and monitoring installation details, will be added once the driller's logs are recieved.

Method/ Plant Used	Field Crew	Logged By	Checked By
Comacchio	TOR drilling	JJM	DRAFT

BOREHOLE LOG

Project				BOREHOLE No
Camden Lock Village, London				**BH10**
Job No	Date	Ground Level (m)	Co-Ordinates (m)	
CG/18067A	01-12-14			
Client				Sheet
Walsh Group				1 of 3

SAMPLES & TESTS			Water	STRATA				Instrument /Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
						0.20	Tarmac [MADE GROUND]	
						0.43	Concrete. 40:60 aggregate to cement. 8mm and 5mm diameter rebar noted at 0.4mbgl. Day joint at 0.3mbgl. [MADE GROUND]	
						(0.97)	Soft to firm dark orange brown slightly gravelly clay. Gravel is fine to coarse subrounded to subangular of brick and tarmac. [MADE GROUND]	
						1.40		
						(4.60)	Firm dark orange brown slightly silty CLAY. [WEATHERED LONDON CLAY FORMATION]	
						6.00		
							Stiff dark grey silty CLAY. [LONDON CLAY FORMATION]	

Boring Progress and Water Observations

Date	Comment	Strike Depth	Casing Depth	Casing Dia. mm	Standing Depth

General Remarks

1. Drilled using rotary open hole.

2. This is a draft log and further information, including samples and monitoring installation details, will be added once the driller's logs are recieved.

Method/ Plant Used	Field Crew	Logged By	Checked By
Comacchio	TOR drilling	JJM	DRAFT

BOREHOLE LOG

Project				BOREHOLE No
Camden Lock Village, London				**BH10**
Job No	Date	Ground Level (m)	Co-Ordinates (m)	
CG/18067A	01-12-14			
Client				Sheet
Walsh Group				2 of 3

SAMPLES & TESTS			Water	STRATA				Instrument /Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
							Stiff dark grey silty CLAY. [LONDON CLAY FORMATION] *(continued)*	
						(19.00)		

Boring Progress and Water Observations

Date	Comment	Strike Depth	Casing Depth	Casing Dia. mm	Standing Depth

General Remarks

1. Drilled using rotary open hole.

2. This is a draft log and further information, including samples and monitoring installation details, will be added once the driller's logs are recieved.

Method/ Plant Used	Field Crew	Logged By	Checked By
Comacchio	TOR drilling	JJM	DRAFT

BOREHOLE LOG

Project				BOREHOLE No
Camden Lock Village, London				**BH10**
Job No	Date	Ground Level (m)	Co-Ordinates (m)	
CG/18067A	01-12-14			
Client				Sheet
Walsh Group				3 of 3

SAMPLES & TESTS			Water	STRATA				Instrument /Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
							Stiff dark grey silty CLAY. [LONDON CLAY FORMATION] *(continued)*	
						25.00	*(Borehole terminated at 25m)*	

Boring Progress and Water Observations

Date	Comment	Strike Depth	Casing Depth	Casing Dia. mm	Standing Depth

General Remarks

1. Drilled using rotary open hole.

2. This is a draft log and further information, including samples and monitoring installation details, will be added once the driller's logs are recieved.

Method/ Plant Used	Field Crew	Logged By	Checked By
Comacchio	TOR drilling	JJM	DRAFT

WINDOW SAMPLE LOG

Project				HOLE No
Camden Lock Village, London				**WS4**
Job No	Date	Ground Level (m)	Co-Ordinates (m)	
CG/18067A	22-10-14	26.29	E 528,852.3 N 184,236.6	
Client				Sheet
Walsh Group				1 of 1

SAMPLES & TESTS			Water	STRATA				Instrument /Backfill
Depth	Type No	Test Result (N/kPa/ppm)		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
				26.14		0.15	Paving slab over fine to medium orange sand. [MADE GROUND]	
0.30	ES109					(0.95)	Soft dark black brown slightly sandy clay. Moderate hydrocarbon odour noted. [MADE GROUND]	
				25.19		1.10		
							Firm to stiff dark orange brown silty CLAY. [WEATHERED LONDON CLAY FORMATION]	
2.00	ES112					(2.10)		
							2.50 Becoming stiff mottled grey.	
				23.09		3.20		
							(Window sample terminated at 3.2m)	

Boring Progress and Water Observations

Date	Strike depth	Casing depth	Comment	Time measured	Standing Depth

General Remarks

1. No groundwater encountered in borehole.

2. ES= environmental samples, D= disturbed sample, B= bulk sample, N= SPT 'N' value, U100= U100 sample.

3. Installation details: 0.0-0.2mbgl: plain pipe with bentonite backfill; 0.2-1.2mbgl: slotted pipe with gravel backfill; 1.2-3.2mbgl: arisings backfill. Gas tap, bung and flush cover installed.

Method/ Plant Used	Field Crew	Logged By	Checked By
Hand held window sampler	RP Drilling	JJM	DWM

WINDOW SAMPLE LOG

Project				HOLE No
Camden Lock Village, London				WS5
Job No	Date	Ground Level (m)	Co-Ordinates (m)	
CG/18067A	21-10-14	26.14	E 528,824.0 N 184,288.4	
Client				Sheet
Walsh Group				1 of 1

SAMPLES & TESTS			Water	STRATA				Instrument /Backfill
Depth	Type No	Test Result (N/kPa/ppm)		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.20	ES105			25.64		(0.50) 0.50	Paving slab over soft dark brown slightly sandy slightly gravelly silty clay. Sand is fine to coarse. Gravel is fine to coarse subrounded to subangular of brick, ceramic and occasional flint. [MADE GROUND]	
1.20	ES106			23.44		(2.20) 2.70	Firm dark orange brown slightly silty CLAY. [WEATHERED LONDON CLAY FORMATION] 1.50 Becoming stiff.	
							(Window sample terminated at 2.7m)	

Boring Progress and Water Observations

Date	Strike depth	Casing depth	Comment	Time measured	Standing Depth

General Remarks

1. No groundwater encountered in borehole.

2. ES= environmental samples, D= disturbed sample, B= bulk sample, N= SPT 'N' value, U100= U100 sample.

3. Installation details: 0.0-1.0mbgl: plain pipe with bentonite backfill; 1.0-2.5mbgl: slotted pipe with gravel backfill; 2.5-2.7mbgl: arisings backfill. Gas tap, bung and flush cover installed.

Method/ Plant Used	Field Crew	Logged By	Checked By
Hand held window sampler	RP Drilling	JJM	DWM

WINDOW SAMPLE LOG

Project				HOLE No
Camden Lock Village, London				WS6
Job No	Date	Ground Level (m)	Co-Ordinates (m)	
CG/18067A	10-11-14	27.06	E 528,815.0 N 184,232.7	
Client				Sheet
Walsh Group				1 of 1

SAMPLES & TESTS			Water	STRATA				Instrument /Backfill
Depth	Type No	Test Result (N/kPa/ppm)		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
				26.86		0.20	Concrete. No rebar noted. [MADE GROUND]	
0.40	ES1					(0.70)	Loose dark brown silty gravelly sand. Sand is fine to coarse. Gravel is fine to coarse angular to subrounded of brick, concrete, glass, slate and ceramic. [MADE GROUND]	
0.70	ES2			26.16		0.90		
1.20		N4				(0.90)	Firm dark green grey silty CLAY with frequent organic matter. [REWORKED WEATHERED LONDON CLAY FORMATION]	
1.40	ES3			25.26		1.80		
2.00		N8				(3.20)	Firm to stiff light orange brown mottled grey silty CLAY with frequent selenite crystals. [WEATHERED LONDON CLAY FORMATION]	
3.00		N7						
4.00		N11						
				22.06		5.00		
5.00		N10					*(Window sample terminated at 5m)*	

Boring Progress and Water Observations

Date	Strike depth	Casing depth	Comment	Time measured	Standing Depth

General Remarks

1. No groundwater encountered in borehole.

2. ES= environmental sample, N= SPT 'N' value.

3. Installation details; 0.0-1.0mbgl: plain pipe with bentonite backfill; 1.0-2.0mbgl: slotted pipe with gravel backfill; 2.0-5.0mbgl: arisings backfill. Gas tap, bung and flush cover installed.

Method/ Plant Used	Field Crew	Logged By	Checked By
Tracked window sample rig	RP Drilling	TOP	DRAFT

WINDOW SAMPLE LOG

Project				HOLE No
Camden Lock Village, London				WS7
Job No	Date	Ground Level (m)	Co-Ordinates (m)	
CG/18067A	10-11-14	27.06		
Client				Sheet
Walsh Group				1 of 1

SAMPLES & TESTS			Water	STRATA				Instrument /Backfill
Depth	Type No	Test Result (N/kPa/ppm)		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
				27.01		0.05	Concrete. No rebar noted. [MADE GROUND]	
0.20	215					(0.45)	Soft dark brown gravelly very sandy clay. Sand is fine to coarse. Gravel is fine to coarse subrounded to subangular of brick. [MADE GROUND]	
				26.56		0.50		
0.60	216					(0.50)	Soft to firm grey clay. Occasional fine to coarse gravel of brick. [MADE GROUND]	
				26.06		1.00		
1.20	217						Firm dark orange brown mottled grey silty CLAY. Occasional fine selenite crystals noted. [WEATHERED LONDON CLAY FORMATION]	
1.20		N6						
							1.80 - 1.90 Occasional fine to medium gravel of mudstone.	
2.00		N9						
3.00		N12				(4.00)		
4.00		N16						
				22.06		5.00		
5.00		N17					*(Window sample terminated at 5m)*	

Boring Progress and Water Observations

Date	Strike depth	Casing depth	Comment	Time measured	Standing Depth

General Remarks

1. No groundwater encountered in borehole.

2. ES= environmental sample, N= SPT 'N' value.

3. Installation details; 0.0-0.5mbgl: plain pipe with bentonite backfill; 0.5-2.0mbgl: slotted pipe with gravel backfill; 2.0-5.0mbgl: arisings backfill. Gas tap, bung and flush cover installed.

Method/ Plant Used	Field Crew	Logged By	Checked By
Tracked window sample rig	RP Drilling	JJM	DRAFT

WINDOW SAMPLE LOG

Project				HOLE No
Camden Lock Village, London				**WS8**
Job No	Date	Ground Level (m)	Co-Ordinates (m)	
CG/18067A	10-11-14	26.99	E 528,807.0 N 184,206.8	
Client				Sheet
Walsh Group				1 of 1

SAMPLES & TESTS			Water	STRATA				Instrument /Backfill
Depth	Type No	Test Result (N/kPa/ppm)		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
				26.84		0.15	Concrete. 5mm rebar noted at 0.1mbgl [MADE GROUND]	
0.20	210			26.59		(0.25) 0.40	Soft dark brown sandy very gravelly silt. Sand is fine to coarse. Gravel is fine to coarse subrounded to subangular of brick and shell. [MADE GROUND]	
0.60	211			25.99		(0.60) 1.00	Soft dark grey slightly gravelly silty clay. Gravel is fine to medium subrounded to subangular of brick. [MADE GROUND]	
1.20		N5					Firm dark orange brown mottled grey silty CLAY. Occasional fine selenite crystals noted. [WEATHERED LONDON CLAY FORMATION]	
2.00		N11						
2.50	214							
3.00		N16				(4.00)		
4.00		N18						
				21.99		5.00		
5.00		N18					*(Window sample terminated at 5m)*	

Boring Progress and Water Observations

Date	Strike depth	Casing depth	Comment	Time measured	Standing Depth

General Remarks

1. No groundwater encountered in borehole.

2. ES= environmental sample, N= SPT 'N' value.

3. Installation details; 0.0-0.5mbgl: plain pipe with bentonite backfill; 0.5-2.0mbgl: slotted pipe with gravel backfill; 2.0-5.0mbgl: arisings backfill. Gas tap, bung and flush cover installed.

Method/ Plant Used	Field Crew	Logged By	Checked By
Tracked window sample rig	RP Drilling	JJM	DRAFT

WINDOW SAMPLE LOG

Project				HOLE No
Camden Lock Village, London				WS9
Job No	Date	Ground Level (m)	Co-Ordinates (m)	
CG/18067A	10-11-14	25.79		
Client				Sheet
Walsh Group				1 of 1

SAMPLES & TESTS			Water	STRATA				Instrument /Backfill
Depth	Type No	Test Result (N/kPa/ppm)		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
				25.59		0.20	Paving slab over light orange brown fine to medium sand. [MADE GROUND]	
0.30	201					(0.80)	Soft dark brown slightly gravelly very sandy silt. Sand is fine to coarse. Gravel is fine to coarse subrounded to subangular of brick. Occasional cobbles of brick noted. [MADE GROUND]	
			1	24.79		1.00		
1.20		N0					Soft to firm dark brown gravelly clayey SILT. Gravel is fine to coarse subrounded to subangular of mudstone. [REWORKED WEATHERED LONDON CLAY FORMATION] 1.20 - 3.00 Very wet	
2.00	202					(2.00)		
2.00		N1						
				22.79		3.00		
3.00		N7					Firm dark orange brown silty CLAY. [WEATHERED LONDON CLAY FORMATION]	
4.00		N11				(2.00)		
				20.79		5.00		
5.00		N12					*(Window sample terminated at 5m)*	

Boring Progress and Water Observations

Date	Strike depth	Casing depth	Comment	Time measured	Standing Depth
	1				

General Remarks

1. Groundwater encountered at 1.0mbgl to 3.0mbgl.

2. ES= environmental sample, N= SPT 'N' value.

3. Installation details: 0.0-1.0m: plain pipe with bentonite backfill; 1.0-3.0mbgl: slotted pipe with gravel backfill; 3.0-5.0mbgl: arisings backfill. Gas tap, bung and flush cover installed.

Method/ Plant Used	Field Crew	Logged By	Checked By
Tracked window sample rig	RP Drilling	JJM	DRAFT

APPENDIX C

Ground gas and groundwater monitoring records

GAS MONITORING RECORD SHEET

JOB DETAILS			
Site:	Camden Lock Village, London	Job No:	CG/18067A
Date:	05/11/2014	Engineer:	TOP
Time:	am	Client	Walsh Group

METEOROLOGICAL & SITE INFORMATION

State of ground:	Dry	X	Moist		Wet			
Wind:	Calm		Light	X	Moderate		Strong	
Cloud cover:	None		Slight		Cloudy		Overcast	X
Precipitation:	None	X	Slight		Moderate		Heavy	

Barometric pressure (mb): 999 to 1004 Local pressure system*: Rising Air temperature (°C): 7

Well No.	Time (s)	Flow (l/hr)	dA (PA)	O_2 (% vol. in air)	CO_2 (% vol. in air)	CH_4 (% vol. in air)	PID (ppm)	Depth to GW (mbgl)	Comments
BH2	0	NR	NR	NR	NR	NR	NR	NR	Borehole covered by parked cars - unable to monitor
	15								
	30								
	45								
	60								
	90								
	120								
	150								
	180								
	240								
	300								
BH3	0	2.2	8.0	13.7	1.6	<0.1	NR	4.10	Base of borehole at 5.10mbgl
	15	0.4	1.0	13.6	1.6	<0.1			
	30	0.2	1.0	13.5	1.7	<0.1			Audible flow on opening gas tap (hiss of gas)
	45	0.3	1.0	13.7	1.6	<0.1			
	60	0.2	0.0	13.9	1.6	<0.1			
	90	0.1	0.0	14.5	1.4	<0.1			
	120	0.3	0.0	15.1	1.2	<0.1			
	150			16.3	0.8	<0.1			
	180			16.7	0.7	<0.1			
	240			17.2	0.6	<0.1			
	300			18.2	0.2	<0.1			
BH4	0	NR	NR	NR	NR	NR	NR	NR	Borehole not completed at time of visit
	15								
	30								
	45								
	60								
	90								
	120								
	150								
	180								
	240								
	300								
BH5	0	NR	NR	NR	NR	NR	NR	NR	Borehole not completed at time of visit
	15								
	30								
	45								
	60								
	90								
	120								
	150								
	180								
	240								
	300								

Notes:

The measurement of hydrogen sulphide and hydrocarbon free product is undertaken on a site specific basis, if deemed necessary.
** With reference to the Met Office rolling weather archive for* Northolt *weather station.*

GAS MONITORING RECORD SHEET

JOB DETAILS			
Site:	Camden Lock Village, London	Job No:	CG/18067A
Date:	05/11/2014	Engineer:	TOP
Time:	am	Client	Walsh Group

METEOROLOGICAL & SITE INFORMATION

State of ground:	Dry	X	Moist		Wet			
Wind:	Calm		Light	X	Moderate		Strong	
Cloud cover:	None		Slight		Cloudy		Overcast	X
Precipitation:	None	X	Slight		Moderate		Heavy	

Barometric pressure (mb): 999 to 1004 Local pressure system*: Rising Air temperature (°C): 7

Well No.	Time (s)	Flow (l/hr)	dA (PA)	O_2 (% vol. in air)	CO_2 (% vol. in air)	CH_4 (% vol. in air)	PID (ppm)	Depth to GW (mbgl)	Comments
BH6	0	NR	NR	NR	NR	NR	NR	NR	Borehole not completed at time of visit
	15								
	30								
	45								
	60								
	90								
	120								
	150								
	180								
	240								
	300								
BH7	0	NR	NR	NR	NR	NR	NR	NR	Borehole not completed at time of visit
	15								
	30								
	45								
	60								
	90								
	120								
	150								
	180								
	240								
	300								
WS4	0	<0.1	0.0	16.0	2.3	<0.1	NR	0.92	Base of borehole at 1.30mbgl
	15	<0.1	0.0	15.6	2.4	<0.1			
	30	<0.1	0.0	15.5	2.4	<0.1			
	45	<0.1	0.0	15.4	2.5	<0.1			
	60	<0.1	0.0	15.3	2.5	<0.1			
	90	<0.1	0.0	15.3	2.6	<0.1			
	120	<0.1	0.0	15.3	2.6	<0.1			
	150			15.3	2.6	<0.1			
	180			15.3	2.6	<0.1			
	240			15.4	2.5	<0.1			
	300			15.5	2.4	<0.1			
WS5	0	<0.1	0.0	18.7	2.0	<0.1	NR	2.15	Base of borehole at 2.67mbgl
	15	<0.1	0.0	18.5	2.0	<0.1			
	30	<0.1	0.0	18.4	2.1	<0.1			
	45	<0.1	0.0	18.3	2.2	<0.1			
	60	<0.1	0.0	18.3	2.2	<0.1			
	90	<0.1	0.0	18.1	2.3	<0.1			
	120	<0.1	0.0	18.0	2.6	<0.1			
	150			18.0	2.6	<0.1			
	180			18.0	2.6	<0.1			
	240			18.1	2.4	<0.1			
	300			18.5	2.0	<0.1			

Notes:

The measurement of hydrogen sulphide and hydrocarbon free product is undertaken on a site specific basis, if deemed necessary.
** With reference to the Met Office rolling weather archive for* Northolt *weather station.*

GAS MONITORING RECORD SHEET

JOB DETAILS			
Site:	Camden Lock Village, London	Job No:	CG/18067A
Date:	05/11/2014	Engineer:	TOP
Time:	am	Client	Walsh Group

METEOROLOGICAL & SITE INFORMATION

State of ground:	Dry	X	Moist		Wet			
Wind:	Calm		Light	X	Moderate		Strong	
Cloud cover:	None		Slight		Cloudy		Overcast	X
Precipitation:	None	X	Slight		Moderate		Heavy	

Barometric pressure (mb): 999 to 1004 Local pressure system*: Rising Air temperature (°C): 7

Well No.	Time (s)	Flow (l/hr)	dA (PA)	O_2 (% vol. in air)	CO_2 (% vol. in air)	CH_4 (% vol. in air)	PID (ppm)	Depth to GW (mbgl)	Comments
WS6	0	NR	NR	NR	NR	NR	NR	NR	Borehole not completed at time of visit
	15								
	30								
	45								
	60								
	90								
	120								
	150								
	180								
	240								
	300								
WS7	0	NR	NR	NR	NR	NR	NR	NR	Borehole not completed at time of visit
	15								
	30								
	45								
	60								
	90								
	120								
	150								
	180								
	240								
	300								
WS8	0	NR	NR	NR	NR	NR	NR	NR	Borehole not completed at time of visit
	15								
	30								
	45								
	60								
	90								
	120								
	150								
	180								
	240								
	300								
WS9	0	NR	NR	NR	NR	NR	NR	NR	Borehole not completed at time of visit
	15								
	30								
	45								
	60								
	90								
	120								
	150								
	180								
	240								
	300								

Notes:

The measurement of hydrogen sulphide and hydrocarbon free product is undertaken on a site specific basis, if deemed necessary.
** With reference to the Met Office rolling weather archive for* Northolt *weather station.*

GAS MONITORING RECORD SHEET

JOB DETAILS			
Site:	Camden Lock Village, London	Job No:	CG/18067A
Date:	19/11/2014	Engineer:	TOP
Time:	08:30	Client	Walsh Group

METEOROLOGICAL & SITE INFORMATION

State of ground:	Dry		Moist	X	Wet			
Wind:	Calm	X	Light		Moderate		Strong	
Cloud cover:	None		Slight		Cloudy	X	Overcast	
Precipitation:	None	X	Slight		Moderate		Heavy	

Barometric pressure (mb): 1016-1019 Local pressure system*: Rising Air temperature (°C): 8

Well No.	Time (s)	Flow (l/hr)	dA (PA)	O_2 (% vol. in air)	CO_2 (% vol. in air)	CH_4 (% vol. in air)	PID (ppm)	Depth to GW (mbgl)	Comments
BH2	0	NR	NR	NR	NR	NR	NR	NR	Unable to access borehole
	15								
	30								
	45								
	60								
	90								
	120								
	150								
	180								
	240								
	300								
BH3	0	1.3	2.0	13.8	1.8	<0.1	NR	3.31	Base of borehole at 5.06mbgl
	15	<0.1	0.0	13.5	1.9	<0.1			
	30	<0.1	0.0	13.3	1.9	<0.1			
	45	<0.1	0.0	13.6	1.6	<0.1			
	60	<0.1	0.0	14.6	1.5	<0.1			
	90	<0.1	0.0	14.4	1.5	<0.1			
	120	<0.1	0.0	15.6	1.2	<0.1			
	150			16.6	0.9	<0.1			
	180			16.8	0.9	<0.1			
	240			17.5	0.7	<0.1			
	300			17.9	0.7	<0.1			
BH4	0	NR	NR	NR	NR	NR	NR	NR	Unable to access borehole
	15								
	30								
	45								
	60								
	90								
	120								
	150								
	180								
	240								
	300								
BH5	0	NR	NR	NR	NR	NR	NR	NR	Unable to access borehole
	15								
	30								
	45								
	60								
	90								
	120								
	150								
	180								
	240								
	300								

Notes:

The measurement of hydrogen sulphide and hydrocarbon free product is undertaken on a site specific basis, if deemed necessary.
** With reference to the Met Office rolling weather archive for* Northolt *weather station.*

GAS MONITORING RECORD SHEET

JOB DETAILS			
Site:	Camden Lock Village, London	Job No:	CG/18067A
Date:	19/11/2014	Engineer:	TOP
Time:	08:30	Client	Walsh Group

METEOROLOGICAL & SITE INFORMATION

State of ground:	Dry		Moist	X	Wet				
Wind:	Calm	X	Light		Moderate		Strong		
Cloud cover:	None		Slight		Cloudy	X	Overcast		
Precipitation:	None	X	Slight		Moderate		Heavy		

Barometric pressure (mb): 1016-1019 Local pressure system*: Rising Air temperature (°C): 8

Well No.	Time (s)	Flow (l/hr)	dA (PA)	O_2 (% vol. in air)	CO_2 (% vol. in air)	CH_4 (% vol. in air)	PID (ppm)	Depth to GW (mbgl)	Comments
BH6	0	NR	NR	NR	NR	NR	NR	NR	Unable to access borehole
	15								
	30								
	45								
	60								
	90								
	120								
	150								
	180								
	240								
	300								
BH7	0	<0.1	0.0	17.0	1.0	<0.1	NR	7.45	Base of borehole at 7.5mbgl
	15	<0.1	0.0	16.8	1.3	<0.1			
	30	<0.1	0.0	16.0	1.6	<0.1			
	45	<0.1	0.0	15.6	1.7	<0.1			
	60	<0.1	0.0	15.4	1.7	<0.1			
	90	<0.1	0.0	15.2	1.8	<0.1			
	120	<0.1	0.0	15.1	1.8	<0.1			
	150			15.1	1.8	<0.1			
	180			15.0	1.8	<0.1			
	240			15.0	1.8	<0.1			
	300			15.0	1.8	<0.1			
WS4	0	<0.1	0.0	15.9	2.3	<0.1	NR	0.65	Base of borehole at 1.30mbgl
	15	<0.1	0.0	15.7	2.3	<0.1			
	30	<0.1	0.0	15.6	2.3	<0.1			
	45	<0.1	0.0	15.5	2.3	<0.1			
	60	<0.1	0.0	15.5	2.3	<0.1			
	90	<0.1	0.0	15.5	2.3	<0.1			
	120	<0.1	0.0	15.5	2.3	<0.1			
	150			15.5	2.3	<0.1			
	180			15.6	2.3	<0.1			
	240			15.8	2.3	<0.1			
	300			15.9	2.3	<0.1			
WS5	0	<0.1	0.0	18.0	0.2	<0.1	NR	2.26	Base of borehole at 2.59mbgl
	15	<0.1	0.0	17.9	0.2	<0.1			
	30	<0.1	0.0	17.8	0.2	<0.1			
	45	<0.1	0.0	17.8	0.2	<0.1			
	60	<0.1	0.0	17.8	0.2	<0.1			
	90	<0.1	0.0	7.7	0.3	<0.1			
	120	<0.1	0.0	17.7	0.4	<0.1			
	150			17.7	0.4	<0.1			
	180			17.8	0.4	<0.1			
	240			18.0	0.4	<0.1			
	300			18.4	0.4	<0.1			

Notes:

The measurement of hydrogen sulphide and hydrocarbon free product is undertaken on a site specific basis, if deemed necessary.
** With reference to the Met Office rolling weather archive for* Northolt *weather station.*

GAS MONITORING RECORD SHEET

JOB DETAILS			
Site:	Camden Lock Village, London	Job No:	CG/18067A
Date:	19/11/2014	Engineer:	TOP
Time:	08:30	Client	Walsh Group

METEOROLOGICAL & SITE INFORMATION

State of ground:	Dry		Moist	X	Wet			
Wind:	Calm	X	Light		Moderate		Strong	
Cloud cover:	None		Slight		Cloudy	X	Overcast	
Precipitation:	None	X	Slight		Moderate		Heavy	

Barometric pressure (mb): 1016-1019 Local pressure system*: Rising Air temperature (°C): 8

Well No.	Time (s)	Flow (l/hr)	dA (PA)	O_2 (% vol. in air)	CO_2 (% vol. in air)	CH_4 (% vol. in air)	PID (ppm)	Depth to GW (mbgl)	Comments
WS6	0	<0.1	0.0	18.2	3.1	<0.1	NR	0.62	Base of borehole at 2.06mbgl
	15	<0.1	0.0	17.9	3.6	<0.1			
	30	<0.1	0.0	17.7	4.0	<0.1			
	45	<0.1	0.0	17.7	4.2	<0.1			
	60	<0.1	0.0	17.4	4.4	<0.1			
	90	<0.1	0.0	17.3	4.4	<0.1			
	120	<0.1	0.0	17.4	4.2	<0.1			
	150			17.5	4.1	<0.1			
	180			17.4	4.3	<0.1			
	240			18.1	2.1	<0.1			
	300			19.3	0.0	<0.1			
WS7	0	NR	NR	NR	NR	NR	NR	NR	Unable to access borehole
	15								
	30								
	45								
	60								
	90								
	120								
	150								
	180								
	240								
	300								
WS8	0	<0.1	0.0	19.2	0.1	<0.1	NR	0.46	Base of borehole at 2.06mbgl
	15	<0.1	0.0	19.5	<0.1	<0.1			
	30	<0.1	0.0	19.6	<0.1	<0.1			
	45	<0.1	0.0	19.6	<0.1	<0.1			
	60	<0.1	0.0	19.8	<0.1	<0.1			
	90	<0.1	0.0	19.7	<0.1	<0.1			
	120	<0.1	0.0	19.7	<0.1	<0.1			
	150			19.7	<0.1	<0.1			
	180			19.7	<0.1	<0.1			
	240			19.7	<0.1	<0.1			
	300			19.7	<0.1	<0.1			
WS9	0	<0.1	0.0	19.9	<0.1	<0.1	NR	1.20	Base of borehole at 2.93mbgl
	15	<0.1	0.0	19.9	<0.1	<0.1			
	30	<0.1	0.0	19.9	<0.1	<0.1			
	45	<0.1	0.0	19.9	<0.1	<0.1			
	60	<0.1	0.0	19.9	<0.1	<0.1			
	90	<0.1	0.0	19.9	<0.1	<0.1			
	120	<0.1	0.0	19.9	<0.1	<0.1			
	150			19.9	<0.1	<0.1			
	180			19.7	0.1	<0.1			
	240			19.5	0.5	<0.1			
	300			19.7	0.3	<0.1			

Notes:

The measurement of hydrogen sulphide and hydrocarbon free product is undertaken on a site specific basis, if deemed necessary.
** With reference to the Met Office rolling weather archive for* Northolt *weather station.*

GAS MONITORING RECORD SHEET

JOB DETAILS			
Site:	Camden Lock Village, London	Job No:	CG/18067A
Date:	01/12/2014	Engineer:	TOP
Time:	06:30	Client	Walsh Group

METEOROLOGICAL & SITE INFORMATION

State of ground:	Dry	X	Moist		Wet			
Wind:	Calm		Light		Moderate	X	Strong	
Cloud cover:	None		Slight		Cloudy		Overcast	X
Precipitation:	None	X	Slight		Moderate		Heavy	

Barometric pressure (mb): 1014 Local pressure system*: Rising Air temperature (°C): 8

Well No.	Time (s)	Flow (l/hr)	dA (PA)	O_2 (% vol. in air)	CO_2 (% vol. in air)	CH_4 (% vol. in air)	PID (ppm)	Depth to GW (mbgl)	Comments
BH2	0	<0.1	0.0	12.3	2.2	<0.1	NR	7.60	Base of borehole at 9.93mbgl
	15	<0.1	0.0	12.6	2.1	<0.1			
	30	<0.1	0.0	13.1	1.6	<0.1			
	45	<0.1	0.0	16.3	0.9	<0.1			
	60	<0.1	0.0	16.4	0.8	<0.1			
	90	<0.1	0.0	17.2	0.4	<0.1			
	120	<0.1	0.0	17.6	0.7	<0.1			
	150			17.9	0.6	<0.1			
	180			18.0	0.6	<0.1			
	240			18.8	0.4	<0.1			
	300			18.8	0.4	<0.1			
BH3	0	<0.1	0.0	16.6	1.7	<0.1	NR	2.80	Base of borehole at 5.05mbgl
	15	<0.1	0.0	16.3	1.7	<0.1			
	30	<0.1	0.0	16.3	1.7	<0.1			
	45	<0.1	0.0	16.4	1.7	<0.1			
	60	<0.1	0.0	16.3	1.7	<0.1			
	90	<0.1	0.0	16.3	1.8	<0.1			
	120	<0.1	0.0	16.2	1.8	<0.1			
	150			16.2	1.9	<0.1			
	180			16.2	1.9	<0.1			
	240			16.1	2.0	<0.1			
	300			16.0	2.1	<0.1			
BH4	0	<0.1	0.0	18.9	0.3	<0.1	NR	1.18	Base of borehole at 8.98mbgl
	15	<0.1	0.0	18.9	0.2	<0.1			
	30	<0.1	0.0	18.9	0.2	<0.1			
	45	<0.1	0.0	19.0	0.2	<0.1			
	60	<0.1	0.0	19.0	0.2	<0.1			
	90	<0.1	0.0	19.1	0.2	<0.1			
	120	<0.1	0.0	19.2	0.2	<0.1			
	150			19.2	0.1	<0.1			
	180			19.3	0.1	<0.1			
	240			19.3	0.1	<0.1			
	300			19.3	0.1	<0.1			
BH5	0	<0.1	0.0	18.5	0.9	<0.1	NR	4.79	Base of borehole at 7.56mbgl
	15	<0.1	0.0	17.1	1.3	<0.1			
	30	<0.1	0.0	16.1	1.7	<0.1			
	45	<0.1	0.0	15.0	2.3	<0.1			
	60	<0.1	0.0	14.2	2.7	<0.1			
	90	<0.1	0.0	13.7	2.9	<0.1			
	120	<0.1	0.0	13.5	3.0	<0.1			
	150			13.4	3.0	<0.1			
	180			13.4	3.1	<0.1			
	240			13.4	3.1	<0.1			
	300			13.4	3.1	<0.1			

Notes:

The measurement of hydrogen sulphide and hydrocarbon free product is undertaken on a site specific basis, if deemed necessary.
** With reference to the Met Office rolling weather archive for* Northolt *weather station.*

GAS MONITORING RECORD SHEET

JOB DETAILS			
Site:	Camden Lock Village, London	Job No:	CG/18067A
Date:	01/12/2014	Engineer:	TOP
Time:	06:30	Client	Walsh Group

METEOROLOGICAL & SITE INFORMATION

State of ground:	Dry	X	Moist		Wet			
Wind:	Calm		Light		Moderate	X	Strong	
Cloud cover:	None		Slight		Cloudy		Overcast	X
Precipitation:	None	X	Slight		Moderate		Heavy	

Barometric pressure (mb): 1014 Local pressure system*: Rising Air temperature (°C): 8

Well No.	Time (s)	Flow (l/hr)	dA (PA)	O_2 (% vol. in air)	CO_2 (% vol. in air)	CH_4 (% vol. in air)	PID (ppm)	Depth to GW (mbgl)	Comments
BH6	0	NR	NR	NR	NR	NR	NR	NR	Unable to access borehole
	15								
	30								
	45								
	60								
	90								
	120								
	150								
	180								
	240								
	300								
BH7	0	<0.1	0.0	14.9	2.3	<0.1	NR	7.24	Base of borehole at 7.52mbgl
	15	<0.1	0.0	14.6	2.4	<0.1			
	30	<0.1	0.0	14.6	2.4	<0.1			
	45	<0.1	0.0	14.5	2.4	<0.1			
	60	<0.1	0.0	14.5	2.4	<0.1			
	90	<0.1	0.0	14.5	2.4	<0.1			
	120	<0.1	0.0	14.5	2.4	<0.1			
	150			14.5	2.4	<0.1			
	180			14.5	2.4	<0.1			
	240			14.4	2.4	<0.1			
	300			14.4	2.4	<0.1			
WS4	0	<0.1	0.0	15.5	2.3	<0.1	NR	0.67	Base of borehole at 1.3mbgl
	15	<0.1	0.0	15.4	2.3	<0.1			
	30	<0.1	0.0	15.4	2.3	<0.1			
	45	<0.1	0.0	15.4	2.3	<0.1			
	60	<0.1	0.0	15.3	2.3	<0.1			
	90	<0.1	0.0	15.3	2.3	<0.1			
	120	<0.1	0.0	15.3	2.3	<0.1			
	150			15.4	2.2	<0.1			
	180			15.4	2.2	<0.1			
	240			15.6	2.1	<0.1			
	300			15.8	2.1	<0.1			
WS5	0	<0.1	0.0	18.8	2.3	<0.1	NR	2.03	Base of borehole at 2.67mbgl
	15	<0.1	0.0	18.9	2.4	<0.1			
	30	<0.1	0.0	18.4	2.4	<0.1			
	45	<0.1	0.0	17.9	2.5	<0.1			
	60	<0.1	0.0	17.9	2.5	<0.1			
	90	<0.1	0.0	17.9	2.5	<0.1			
	120	<0.1	0.0	17.9	2.5	<0.1			
	150			17.9	2.4	<0.1			
	180			18.0	2.3	<0.1			
	240			18.5	1.9	<0.1			
	300			18.9	1.5	<0.1			

Notes:

The measurement of hydrogen sulphide and hydrocarbon free product is undertaken on a site specific basis, if deemed necessary.
** With reference to the Met Office rolling weather archive for* Northolt *weather station.*

GAS MONITORING RECORD SHEET

JOB DETAILS			
Site:	Camden Lock Village, London	Job No:	CG/18067A
Date:	01/12/2014	Engineer:	TOP
Time:	06:30	Client	Walsh Group

METEOROLOGICAL & SITE INFORMATION

State of ground:	Dry	X	Moist		Wet			
Wind:	Calm		Light		Moderate	X	Strong	
Cloud cover:	None		Slight		Cloudy		Overcast	X
Precipitation:	None	X	Slight		Moderate		Heavy	

Barometric pressure (mb): 1014 Local pressure system*: Rising Air temperature (°C): 8

Well No.	Time (s)	Flow (l/hr)	dA (PA)	O_2 (% vol. in air)	CO_2 (% vol. in air)	CH_4 (% vol. in air)	PID (ppm)	Depth to GW (mbgl)	Comments
WS6	0	<0.1	0.0	16.6	5.4	<0.1	NR	0.65	Base of borehole at 2.09mbgl
	15	<0.1	0.0	16.5	5.3	<0.1			
	30	<0.1	0.0	16.8	4.7	<0.1			
	45	<0.1	0.0	17.2	4.2	<0.1			
	60	<0.1	0.0	17.4	3.9	<0.1			
	90	<0.1	0.0	18.0	3.1	<0.1			
	120	<0.1	0.0	18.4	2.2	<0.1			
	150			18.7	1.8	<0.1			
	180			18.9	1.5	<0.1			
	240			19.3	0.9	<0.1			
	300			19.5	0.6	<0.1			
WS7	0	<0.1	0.0	16.9	2.6	<0.1	NR	1.27	Base of borehole at 2.08mbgl
	15	<0.1	0.0	17.9	1.0	<0.1			
	30	<0.1	0.0	18.5	1.0	<0.1			
	45	<0.1	0.0	18.5	1.0	<0.1			
	60	<0.1	0.0	18.5	1.0	<0.1			
	90	<0.1	0.0	18.5	1.0	<0.1			
	120	<0.1	0.0	18.5	1.0	<0.1			
	150								
	180								
	240								
	300								
WS8	0	<0.1	0.0	19.0	<0.1	<0.1	NR	0.51	Base of borehole at 2.06mbgl
	15	<0.1	0.0	19.0	<0.1	<0.1			
	30	<0.1	0.0	19.0	<0.1	<0.1			
	45	<0.1	0.0	18.9	<0.1	<0.1			
	60	<0.1	0.0	18.9	<0.1	<0.1			
	90	<0.1	0.0	18.9	<0.1	<0.1			
	120	<0.1	0.0	18.9	<0.1	<0.1			
	150			18.9	<0.1	<0.1			
	180			18.9	<0.1	<0.1			
	240			18.9	<0.1	<0.1			
	300			18.9	<0.1	<0.1			
WS9	0	<0.1	0.0	19.4	0.1	<0.1	NR	1.25	Base of borehole at 2.78mbgl
	15	<0.1	0.0	19.7	0.1	<0.1			
	30	<0.1	0.0	19.7	0.1	<0.1			
	45	<0.1	0.0	19.8	0.1	<0.1			
	60	<0.1	0.0	19.8	0.1	<0.1			
	90	<0.1	0.0	19.8	<0.1	<0.1			
	120	<0.1	0.0	19.8	<0.1	<0.1			
	150			19.8	<0.1	<0.1			
	180			19.8	<0.1	<0.1			
	240			19.8	<0.1	<0.1			
	300			19.8	<0.1	<0.1			

Notes:

The measurement of hydrogen sulphide and hydrocarbon free product is undertaken on a site specific basis, if deemed necessary.
** With reference to the Met Office rolling weather archive for* Northolt *weather station.*

APPENDIX D

Results of chemical analysis

James Morrice
Card Geotechnics Ltd
4 Godalming Business Centre
Woolsack Way
Godalming
Surrey
GU7 1XW

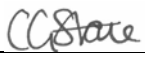
t: 01483 310600
f: 01483 527285
e:

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

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

Analytical Report Number : 14-61909

Project / Site name:	CLV P1 - Building B	**Samples received on:**	23/10/2014
Your job number:	CG-18067	**Samples instructed on:**	23/10/2014
Your order number:	1431	**Analysis completed by:**	03/11/2014
Report Issue Number:	1	**Report issued on:**	03/11/2014
Samples Analysed:	2 soil samples		

Signed: 

Dr Claire Stone
Quality Manager
For & on behalf of i2 Analytical Ltd.

Signed: 

Rexona Rahman
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

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

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

Excel copies of reports are only valid when accompanied by this PDF certificate.

Analytical Report Number: 14-61909

Project / Site name: CLV P1 - Building B
Your Order No: 1431

Lab Sample Number				384775	384776			
Sample Reference				WS5	WS4			
Sample Number				105	109			
Depth (m)				0.20	0.30			
Date Sampled				21/10/2014	22/10/2014			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1			
Moisture Content	%	N/A	NONE	11	27			
Total mass of sample received	kg	0.001	NONE	0.92	1.1			
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected			
General Inorganics								
pH	pH Units	N/A	MCERTS	7.3	7.6			
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1			
Total Sulphate as SO_4	mg/kg	50	ISO 17025	2300	820			
Organic Matter	%	0.1	MCERTS	3.2	2.3			
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0			
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Acenaphthylene	mg/kg	0.1	MCERTS	0.34	< 0.10			
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Fluorene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Phenanthrene	mg/kg	0.1	MCERTS	2.5	< 0.10			
Anthracene	mg/kg	0.1	MCERTS	0.73	< 0.10			
Fluoranthene	mg/kg	0.1	MCERTS	11	< 0.10			
Pyrene	mg/kg	0.1	MCERTS	9.4	< 0.10			
Benzo(a)anthracene	mg/kg	0.1	MCERTS	6.0	< 0.10			
Chrysene	mg/kg	0.05	MCERTS	5.1	< 0.05			
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	6.8	< 0.10			
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	3.2	< 0.10			
Benzo(a)pyrene	mg/kg	0.1	MCERTS	5.8	< 0.10			
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	2.8	< 0.10			
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	0.41	< 0.10			
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	3.1	< 0.05			
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05			
Total PAH								
Total WAC-17 PAHs	mg/kg	1.6	NONE	57	< 1.6			
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	22	12			
Barium (aqua regia extractable)	mg/kg	1	MCERTS	340	110			
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.3	1.3			
Boron (water soluble)	mg/kg	0.2	MCERTS	3.3	3.3			
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.5	< 0.2			
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	25	30			
Copper (aqua regia extractable)	mg/kg	1	MCERTS	130	82			
Lead (aqua regia extractable)	mg/kg	1	MCERTS	1100	190			
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	1.2	< 0.3			
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	22	18			
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0			
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	51	64			
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	370	72			

Analytical Report Number: 14-61909

Project / Site name: CLV P1 - Building B
Your Order No: 1431

Lab Sample Number				384775	384776			
Sample Reference				WS5	WS4			
Sample Number				105	109			
Depth (m)				0.20	0.30			
Date Sampled				21/10/2014	22/10/2014			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0			
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0			
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0			
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	0.4			
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	0.3			
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	20			
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	64			
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	14			
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	34	22			
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	34	120			
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	2.9			
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	2.6	14			
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	36	< 10			
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	83	17			
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	120	34			

Analytical Report Number : 14-61909

Project / Site name: CLV P1 - Building B

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
384775	WS5	105	0.20	Brown sandy topsoil with gravel.
384776	WS4	109	0.30	Brown clay and topsoil with brick.

Analytical Report Number : 14-61909

Project / Site name: CLV P1 - Building B

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073S-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Organic matter in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	MCERTS
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Stones not passing through a 10 mm sieve is determined gravimetrically and reported as a percentage of the dry weight. Sample results are not corrected for the stone content of the sample.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	ISO 17025
TPHCWG (Soil)	Determination of pentane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L076-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

James Morrice
Card Geotechnics Ltd
4 Godalming Business Centre
Woolsack Way
Godalming
Surrey
GU7 1XW

t: 01483 310600
f: 01483 527285
e:

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

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

Analytical Report Number : 14-62846

Project / Site name:	CLV P2	**Samples received on:**	11/11/2014
Your job number:	CG-18067A	**Samples instructed on:**	12/11/2014
Your order number:	1499	**Analysis completed by:**	20/11/2014
Report Issue Number:	1	**Report issued on:**	20/11/2014
Samples Analysed:	6 soil samples		

Signed:

Thurstan Plummer
Organics Technical Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Rexona Rahman
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

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

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

Excel copies of reports are only valid when accompanied by this PDF certificate.

Analytical Report Number: 14-62846

Project / Site name: CLV P2
Your Order No: 1499

Lab Sample Number				390748	390749	390750	390751	390752	390753
Sample Reference				WS9	WS6	WS8	WS8	WS7	WS7
Sample Number				201	204	210	211	215	217
Depth (m)				0.30	0.70	0.20	0.60	0.20	1.20
Date Sampled				10/11/2014	10/11/2014	10/11/2014	10/11/2014	10/11/2014	10/11/2014
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**						
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	12	5.7	7.5	24	27	22
Total mass of sample received	kg	0.001	NONE	1.4	2.0	1.3	1.3	1.4	1.1
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	-	Not-detected	-
General Inorganics									
pH	pH Units	N/A	MCERTS	5.7	11.7	8.0	7.8	7.9	7.9
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1	< 1
Total Sulphate as SO_4	mg/kg	50	ISO 17025	1600	4000	1400	550	490	220
Organic Matter	%	0.1	MCERTS	< 0.1	0.2	< 0.1	0.1	< 0.1	0.1
Total Phenols									
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs									
Naphthalene	mg/kg	0.05	MCERTS	1.6	< 0.05	0.30	< 0.05	< 0.05	0.45
Acenaphthylene	mg/kg	0.1	MCERTS	6.7	0.36	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	mg/kg	0.1	MCERTS	2.7	0.31	0.20	< 0.10	< 0.10	0.18
Fluorene	mg/kg	0.1	MCERTS	7.6	0.29	0.22	0.23	< 0.10	0.20
Phenanthrene	mg/kg	0.1	MCERTS	57	4.9	2.8	0.82	< 0.10	0.30
Anthracene	mg/kg	0.1	MCERTS	16	1.3	0.34	0.14	< 0.10	< 0.10
Fluoranthene	mg/kg	0.1	MCERTS	74	9.0	3.0	0.60	< 0.10	< 0.10
Pyrene	mg/kg	0.1	MCERTS	60	8.4	2.5	0.61	< 0.10	< 0.10
Benzo(a)anthracene	mg/kg	0.1	MCERTS	29	4.7	1.6	0.29	< 0.10	< 0.10
Chrysene	mg/kg	0.05	MCERTS	26	3.3	1.6	0.28	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	28	4.6	1.8	0.27	< 0.10	< 0.10
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	14	1.6	0.78	< 0.10	< 0.10	< 0.10
Benzo(a)pyrene	mg/kg	0.1	MCERTS	26	3.7	1.3	0.24	< 0.10	< 0.10
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	15	2.1	0.65	< 0.10	< 0.10	< 0.10
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	3.4	0.50	0.20	< 0.10	< 0.10	< 0.10
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	15	2.3	0.72	< 0.05	< 0.05	< 0.05
Coronene	mg/kg	0.05	NONE	5.2	1.1	< 0.05	< 0.05	< 0.05	< 0.05
Total PAH									
Total WAC-17 PAHs	mg/kg	1.6	NONE	390	48	18	3.5	< 1.6	< 1.6
Heavy Metals / Metalloids									
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	19	17	9.2	12	7.4	14
Barium (aqua regia extractable)	mg/kg	1	MCERTS	180	120	53	66	69	78
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.3	0.3	0.4	1.8	0.8	1.7
Boron (water soluble)	mg/kg	0.2	MCERTS	3.1	1.3	< 0.2	0.9	0.3	0.5
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	0.6
Chromium (hexavalent)	mg/kg	1.2	MCERTS	-	-	-	< 1.2	-	< 1.2
Chromium (III)	mg/kg	1	NONE	-	-	-	44	-	47
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	20	15	13	44	21	47
Copper (aqua regia extractable)	mg/kg	1	MCERTS	62	30	34	30	35	25
Lead (aqua regia extractable)	mg/kg	1	MCERTS	140	230	100	29	87	17
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	25	11	17	33	16	44
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	57	33	28	77	41	82
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	110	150	43	69	50	65

Analytical Report Number: 14-62846

Project / Site name: CLV P2
Your Order No: 1499

Lab Sample Number				390748	390749	390750	390751	390752	390753
Sample Reference				WS9	WS6	WS8	WS8	WS7	WS7
Sample Number				201	204	210	211	215	217
Depth (m)				0.30	0.70	0.20	0.60	0.20	1.20
Date Sampled				10/11/2014	10/11/2014	10/11/2014	10/11/2014	10/11/2014	10/11/2014
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**						
Monoaromatics									
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons									
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	2.2	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	27	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	210	24	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	190	36	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	430	60	< 10	< 10	< 10	< 10

Analytical Report Number: 14-62846

Project / Site name: CLV P2
Your Order No: 1499

Lab Sample Number							
Sample Reference							
Sample Number							
Depth (m)							
Date Sampled							
Time Taken							
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Stone Content	%	0.1	NONE				
Moisture Content	%	N/A	NONE				
Total mass of sample received	kg	0.001	NONE				
Asbestos in Soil	Type	N/A	ISO 17025				
General Inorganics							
pH	pH Units	N/A	MCERTS				
Total Cyanide	mg/kg	1	MCERTS				
Total Sulphate as SO_4	mg/kg	50	ISO 17025				
Organic Matter	%	0.1	MCERTS				
Total Phenols							
Total Phenols (monohydric)	mg/kg	1	MCERTS				
Speciated PAHs							
Naphthalene	mg/kg	0.05	MCERTS				
Acenaphthylene	mg/kg	0.1	MCERTS				
Acenaphthene	mg/kg	0.1	MCERTS				
Fluorene	mg/kg	0.1	MCERTS				
Phenanthrene	mg/kg	0.1	MCERTS				
Anthracene	mg/kg	0.1	MCERTS				
Fluoranthene	mg/kg	0.1	MCERTS				
Pyrene	mg/kg	0.1	MCERTS				
Benzo(a)anthracene	mg/kg	0.1	MCERTS				
Chrysene	mg/kg	0.05	MCERTS				
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS				
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS				
Benzo(a)pyrene	mg/kg	0.1	MCERTS				
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS				
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS				
Benzo(ghi)perylene	mg/kg	0.05	MCERTS				
Coronene	mg/kg	0.05	NONE				
Total PAH							
Total WAC-17 PAHs	mg/kg	1.6	NONE				
Heavy Metals / Metalloids							
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS				
Barium (aqua regia extractable)	mg/kg	1	MCERTS				
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS				
Boron (water soluble)	mg/kg	0.2	MCERTS				
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS				
Chromium (hexavalent)	mg/kg	1.2	MCERTS				
Chromium (III)	mg/kg	1	NONE				
Chromium (aqua regia extractable)	mg/kg	1	MCERTS				
Copper (aqua regia extractable)	mg/kg	1	MCERTS				
Lead (aqua regia extractable)	mg/kg	1	MCERTS				
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS				
Nickel (aqua regia extractable)	mg/kg	1	MCERTS				
Selenium (aqua regia extractable)	mg/kg	1	MCERTS				
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS				
Zinc (aqua regia extractable)	mg/kg	1	MCERTS				

Analytical Report Number: 14-62846

Project / Site name: CLV P2
Your Order No: 1499

Lab Sample Number							
Sample Reference							
Sample Number							
Depth (m)							
Date Sampled							
Time Taken							
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Monoaromatics							
Benzene	µg/kg	1	MCERTS				
Toluene	µg/kg	1	MCERTS				
Ethylbenzene	µg/kg	1	MCERTS				
p & m-xylene	µg/kg	1	MCERTS				
o-xylene	µg/kg	1	MCERTS				
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS				

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS				
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS				
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS				
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS				
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS				
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS				
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS				
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS				

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS				
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS				
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS				
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS				
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS				
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS				
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS				
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS				

Analytical Report Number : 14-62846

Project / Site name: CLV P2

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
390748	WS9	201	0.30	Light brown clay and sand.
390749	WS6	204	0.70	Non Soil **
390750	WS8	210	0.20	Non Soil **
390751	WS8	211	0.60	Non Soil **
390752	WS7	215	0.20	Non Soil **
390753	WS7	217	1.20	Non Soil **

** Non MCerts Matrix

Analytical Report Number : 14-62846

Project / Site name: CLV P2

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073S-PL	W	MCERTS
chromium III in soil	In-house method by calculation from total Cr and Cr VI.	In-house method	L068-PL	D	NONE
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Organic matter in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	MCERTS
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Stones not passing through a 10 mm sieve is determined gravimetrically and reported as a percentage of the dry weight. Sample results are not corrected for the stone content of the sample.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	ISO 17025
TPHCWG (Soil)	Determination of pentane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L076-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

James Morrice
Card Geotechnics Ltd
4 Godalming Business Centre
Woolsack Way
Godalming
Surrey
GU7 1XW

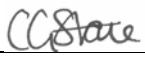
t: 01483 310600
f: 01483 527285
e:

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

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

Analytical Report Number : 14-62807

Project / Site name:	CLV P1 Building W	**Samples received on:**	07/11/2014
Your job number:	CG-18067	**Samples instructed on:**	07/11/2014
Your order number:	1432	**Analysis completed by:**	18/11/2014
Report Issue Number:	1	**Report issued on:**	18/11/2014
Samples Analysed:	1 soil sample		

Signed: 

Dr Claire Stone
Quality Manager
For & on behalf of i2 Analytical Ltd.

Signed: 

Rexona Rahman
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

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

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

Excel copies of reports are only valid when accompanied by this PDF certificate.

Analytical Report Number: 14-62807

Project / Site name: CLV P1 Building W

Your Order No: 1432

Lab Sample Number				390517				
Sample Reference				BH2				
Sample Number				None Supplied				
Depth (m)				0.20-0.60				
Date Sampled				05/11/2014				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1				
Moisture Content	%	N/A	NONE	9.8				
Total mass of sample received	kg	0.001	NONE	0.52				
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected				
General Inorganics								
pH	pH Units	N/A	MCERTS	8.0				
Total Cyanide	mg/kg	1	MCERTS	< 1				
Total Sulphate as SO_4	mg/kg	50	ISO 17025	1600				
Organic Matter	%	0.1	MCERTS	2.0				
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0				
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05				
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10				
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10				
Fluorene	mg/kg	0.1	MCERTS	< 0.10				
Phenanthrene	mg/kg	0.1	MCERTS	1.1				
Anthracene	mg/kg	0.1	MCERTS	0.22				
Fluoranthene	mg/kg	0.1	MCERTS	2.2				
Pyrene	mg/kg	0.1	MCERTS	2.0				
Benzo(a)anthracene	mg/kg	0.1	MCERTS	1.0				
Chrysene	mg/kg	0.05	MCERTS	1.2				
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	1.6				
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	0.76				
Benzo(a)pyrene	mg/kg	0.1	MCERTS	1.1				
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	0.67				
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	0.18				
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.77				
Coronene	mg/kg	0.05	NONE	< 0.05				
Total PAH								
Total WAC-17 PAHs	mg/kg	1.6	NONE	13				
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	23				
Barium (aqua regia extractable)	mg/kg	1	MCERTS	240				
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.5				
Boron (water soluble)	mg/kg	0.2	MCERTS	1.4				
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.3				
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	30				
Copper (aqua regia extractable)	mg/kg	1	MCERTS	110				
Lead (aqua regia extractable)	mg/kg	1	MCERTS	570				
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	8.5				
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	24				
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0				
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	58				
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	300				

Analytical Report Number: 14-62807

Project / Site name: CLV P1 Building W
Your Order No: 1432

Lab Sample Number				390517				
Sample Reference				BH2				
Sample Number				None Supplied				
Depth (m)				0.20-0.60				
Date Sampled				05/11/2014				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	µg/kg	1	MCERTS	< 1.0				
Toluene	µg/kg	1	MCERTS	< 1.0				
Ethylbenzene	µg/kg	1	MCERTS	< 1.0				
p & m-xylene	µg/kg	1	MCERTS	< 1.0				
o-xylene	µg/kg	1	MCERTS	< 1.0				
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0				
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1				
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1				
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1				
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0				
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0				
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0				
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0				
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10				
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1				
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1				
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1				
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0				
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0				
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10				
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	29				
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	29				

Analytical Report Number : 14-62807

Project / Site name: CLV P1 Building W

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
390517	BH2	None Supplied	0.20-0.60	Brown topsoil and sand with gravel.

Analytical Report Number : 14-62807

Project / Site name: CLV P1 Building W

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073S-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Organic matter in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	MCERTS
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Stones not passing through a 10 mm sieve is determined gravimetrically and reported as a percentage of the dry weight. Sample results are not corrected for the stone content of the sample.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	ISO 17025
TPHCWG (Soil)	Determination of pentane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L076-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

James Morrice
Card Geotechnics Ltd
4 Godalming Business Centre
Woolsack Way
Godalming
Surrey
GU7 1XW

t: 01483 310600
f: 01483 527285
e:

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

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

Analytical Report Number : 14-63102

Project / Site name:	CLV P2	**Samples received on:**	17/11/2014
Your job number:	CG-18067A	**Samples instructed on:**	17/11/2014
Your order number:	1499	**Analysis completed by:**	26/11/2014
Report Issue Number:	1	**Report issued on:**	26/11/2014
Samples Analysed:	2 soil samples		

Signed:

Dr Claire Stone
Quality Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Rexona Rahman
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

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

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

Excel copies of reports are only valid when accompanied by this PDF certificate.

Analytical Report Number: 14-63102

Project / Site name: CLV P2

Your Order No: 1499

Lab Sample Number				392525	392526			
Sample Reference				BH6	BH6			
Sample Number				220	221			
Depth (m)				0.30	2.20			
Date Sampled				14/11/2014	14/11/2014			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1			
Moisture Content	%	N/A	NONE	8.8	18			
Total mass of sample received	kg	0.001	NONE	1.3	1.1			
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	Chrysotile- Loose fibres	-			
Asbestos in Soil	Type	N/A	ISO 17025	Detected	-			
General Inorganics								
pH	pH Units	N/A	MCERTS	10.3	7.6			
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1			
Total Sulphate as SO_4	mg/kg	50	ISO 17025	1500	6000			
Organic Matter	%	0.1	MCERTS	3.0	0.2			
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0			
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Acenaphthylene	mg/kg	0.1	MCERTS	2.4	< 0.10			
Acenaphthene	mg/kg	0.1	MCERTS	8.4	< 0.10			
Fluorene	mg/kg	0.1	MCERTS	11	< 0.10			
Phenanthrene	mg/kg	0.1	MCERTS	100	0.61			
Anthracene	mg/kg	0.1	MCERTS	30	0.17			
Fluoranthene	mg/kg	0.1	MCERTS	160	0.87			
Pyrene	mg/kg	0.1	MCERTS	130	0.69			
Benzo(a)anthracene	mg/kg	0.1	MCERTS	78	0.33			
Chrysene	mg/kg	0.05	MCERTS	54	0.36			
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	73	0.30			
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	31	0.21			
Benzo(a)pyrene	mg/kg	0.1	MCERTS	64	0.30			
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	28	< 0.10			
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	5.5	< 0.10			
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	29	< 0.05			
Coronene	mg/kg	0.05	NONE	7.1	< 0.05			
Total PAH								
Total WAC-17 PAHs	mg/kg	1.6	NONE	810	3.8			
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	24	14			
Barium (aqua regia extractable)	mg/kg	1	MCERTS	230	35			
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.8	1.7			
Boron (water soluble)	mg/kg	0.2	MCERTS	1.2	1.6			
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2			
Chromium (hexavalent)	mg/kg	1.2	MCERTS	-	< 1.2			
Chromium (III)	mg/kg	1	NONE	-	46			
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	36	46			
Copper (aqua regia extractable)	mg/kg	1	MCERTS	160	31			
Lead (aqua regia extractable)	mg/kg	1	MCERTS	340	14			
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3			
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	47	45			
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0			
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	67	87			
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	430	87			

Analytical Report Number: 14-63102

Project / Site name: CLV P2
Your Order No: 1499

Lab Sample Number				392525	392526			
Sample Reference				BH6	BH6			
Sample Number				220	221			
Depth (m)				0.30	2.20			
Date Sampled				14/11/2014	14/11/2014			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0			
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0			
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0			
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0			
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	3.8	< 2.0			
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	22	< 8.0			
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	19	< 8.0			
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	45	< 10			
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0			
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	51	< 2.0			
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	490	< 10			
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	650	< 10			
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	1200	< 10			

Analytical Report Number : 14-63102

Project / Site name: CLV P2

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
392525	BH6	220	0.30	Brown sandy topsoil with rubble and brick.
392526	BH6	221	2.20	Light brown clay.

Analytical Report Number : 14-63102

Project / Site name: CLV P2

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073S-PL	W	MCERTS
chromium III in soil	In-house method by calculation from total Cr and Cr VI.	In-house method	L068-PL	D	NONE
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Organic matter in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	MCERTS
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Stones not passing through a 10 mm sieve is determined gravimetrically and reported as a percentage of the dry weight. Sample results are not corrected for the stone content of the sample.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	ISO 17025
TPHCWG (Soil)	Determination of pentane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L076-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

James Morrice
Card Geotechnics Ltd
4 Godalming Business Centre
Woolsack Way
Godalming
Surrey
GU7 1XW

t: 01483 310600
f: 01483 527285
e:

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

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

Analytical Report Number : 14-62702

Project / Site name:	CLV P2	**Samples received on:**	07/11/2014
Your job number:	CG/18067A	**Samples instructed on:**	07/11/2014
Your order number:	1499	**Analysis completed by:**	18/11/2014
Report Issue Number:	1	**Report issued on:**	18/11/2014
Samples Analysed:	2 soil samples		

Signed:

Dr Claire Stone
Quality Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Rexona Rahman
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

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

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

Excel copies of reports are only valid when accompanied by this PDF certificate.

Analytical Report Number: 14-62702

Project / Site name: CLV P2

Your Order No: 1499

Lab Sample Number				389798	389799			
Sample Reference				BH7	BH7			
Sample Number				None Supplied	None Supplied			
Depth (m)				0.50-1.00	1.70-2.20			
Date Sampled				05/11/2014	05/11/2014			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1			
Moisture Content	%	N/A	NONE	25	21			
Total mass of sample received	kg	0.001	NONE	1.4	1.5			
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected			
General Inorganics								
pH	pH Units	N/A	MCERTS	7.4	7.9			
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1			
Total Sulphate as SO_4	mg/kg	50	ISO 17025	1600	430			
Water Soluble Sulphate (Soil Equivalent)	g/l	0.0025	MCERTS	0.76	-			
Water Soluble Sulphate as SO_4 (2:1)	mg/kg	2.5	MCERTS	760	-			
Water Soluble Sulphate (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.38	-			
Total Sulphur	mg/kg	50	NONE	1300	-			
Organic Matter	%	0.1	MCERTS	0.5	< 0.1			
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0			
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Fluorene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Phenanthrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Benzo(a)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Benzo(a)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05			
Total PAH								
Total WAC-17 PAHs	mg/kg	1.6	NONE	< 1.6	< 1.6			
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	48	13			
Barium (aqua regia extractable)	mg/kg	1	MCERTS	370	130			
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	4.7	1.4			
Boron (water soluble)	mg/kg	0.2	MCERTS	10	4.4			
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.6	< 0.2			
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2			
Chromium (III)	mg/kg	1	NONE	52	37			
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	52	37			
Copper (aqua regia extractable)	mg/kg	1	MCERTS	120	22			
Lead (aqua regia extractable)	mg/kg	1	MCERTS	87	20			
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3			
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	77	30			
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0			
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	200	69			
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	170	59			

Analytical Report Number: 14-62702

Project / Site name: CLV P2

Your Order No: 1499

Lab Sample Number				389798	389799			
Sample Reference				BH7	BH7			
Sample Number				None Supplied	None Supplied			
Depth (m)				0.50-1.00	1.70-2.20			
Date Sampled				05/11/2014	05/11/2014			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0			
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0			
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0			
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0			
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0			
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0			
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0			
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10			
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0			
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0			
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10			
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	20			
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	20			

Analytical Report Number : 14-62702

Project / Site name: CLV P2

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
389798	BH7	None Supplied	0.50-1.00	Grey sandy clay.
389799	BH7	None Supplied	1.70-2.20	Light brown clay.

Analytical Report Number : 14-62702

Project / Site name: CLV P2

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073S-PL	W	MCERTS
chromium III in soil	In-house method by calculation from total Cr and Cr VI.	In-house method	L068-PL	D	NONE
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Organic matter in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	MCERTS
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Stones not passing through a 10 mm sieve is determined gravimetrically and reported as a percentage of the dry weight. Sample results are not corrected for the stone content of the sample.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by extraction with water followed by ICP-OES. Results reported corrected for extraction ratio (soil equivalent) as g/l and mg/kg; and upon the 2:1 leachate (g/l).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	ISO 17025
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, and MEWAM 2006 Methods for the Determination of Metals in Soil	L038-PL	D	NONE

Analytical Report Number : 14-62702

Project / Site name: CLV P2

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
TPHCWG (Soil)	Determination of pentane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L076-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

James Morrice
Card Geotechnics Ltd
4 Godalming Business Centre
Woolsack Way
Godalming
Surrey
GU7 1XW

t: 01483 310600
f: 01483 527285
e:

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

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

Analytical Report Number : 14-61911

Project / Site name:	CLV P1 - Building B	**Samples received on:**	23/10/2014
Your job number:	CG-18067	**Samples instructed on:**	23/10/2014
Your order number:	1431	**Analysis completed by:**	03/11/2014
Report Issue Number:	1	**Report issued on:**	03/11/2014
Samples Analysed:	1 wac multi sample		

Signed:

Dr Claire Stone
Quality Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Rexona Rahman
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

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

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

Excel copies of reports are only valid when accompanied by this PDF certificate.

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

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results

Report No:	**14-61911**						
					Client: CARDGEO		
Location	**CLV P1 - Building B**						
Lab Reference (Sample Number)	384782				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	22/10/2014				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	WS4						
Depth (m)	0.30						
Solid Waste Analysis							
TOC (%)**	1.3				3%	5%	6%
Loss on Ignition (%) **	8.7				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg)	< 0.30				1	--	--
Mineral Oil (mg/kg)	120				500	--	--
Total PAH (WAC-17) (mg/kg)	< 1.6				100	--	--
pH (units)**	7.6				--	>6	--
Acid Neutralisation Capacity (mol / kg)	3.4				--	To be evaluated	To be evaluated
Eluate Analysis (BS EN 12457 - 3 preparation utilising end over end leaching procedure)	2:1 mg/l	8:1 mg/l		Cumulative 10:1 mg/kg	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.012	< 0.010		0.082	0.5	2	25
Barium *	0.065	0.064		0.64	20	100	300
Cadmium *	< 0.0005	< 0.0005		< 0.0020	0.04	1	5
Chromium *	< 0.0010	< 0.0010		< 0.0050	0.5	10	70
Copper *	0.0042	0.0038		0.039	2	50	100
Mercury *	< 0.0015	< 0.0015		< 0.010	0.01	0.2	2
Molybdenum *	0.024	0.012		0.13	0.5	10	30
Nickel *	0.0016	< 0.0010		< 0.0050	0.4	10	40
Lead *	0.0066	< 0.0050		0.033	0.5	10	50
Antimony *	0.0059	0.0054		0.054	0.06	0.7	5
Selenium *	< 0.010	< 0.010		< 0.040	0.1	0.5	7
Zinc *	0.0011	< 0.0010		< 0.020	4	50	200
Chloride *	< 4.0	< 4.0		< 15	800	4000	25000
Fluoride	0.33	0.30		3.0	10	150	500
Sulphate *	38	27		280	1000	20000	50000
TDS	240	170		1800	4000	60000	100000
Phenol Index (Monhydric Phenols) *	< 0.13	< 0.13		< 0.50	1	-	-
DOC	45	20		230	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	1.1						
Dry Matter (%)	73						
Moisture (%)	27						
Stage 1							
Volume Eluate L2 (litres)	0.30						
Filtered Eluate VE1 (litres)	0.16						

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and I2 cannot be held responsible for any discrepencies with current legislation

*= UKAS accredited (liquid eluate analysis only)
** = MCERTS accrediited

Analytical Report Number : 14-61911

Project / Site name: CLV P1 - Building B

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
384782	WS4	109	0.30	Brown clay and topsoil with brick.

Analytical Report Number : 14-61911

Project / Site name: CLV P1 - Building B

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe.	In-house method based on Guidance an Sampling and Testing of Wastes to Meet Landfill Waste Acceptance	L046-PL	W	NONE
BTEX (Sum of BTEX compounds) in soil	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260	L073S-PL	W	MCERTS
Chloride in WAC leachate (BS EN 12457-3 Prep)	Determination of chloride in leachate by Gallery discrete analyser.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L082-PL	W	ISO 17025
DOC in WAC leachate (BS EN 12457-3 Prep)	Determination of dissolved organic carbon in leachate by the measurement on a non-dispersive infrared analyser of carbon dioxide released by acidification.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L037-PL	W	NONE
Fluoride in WAC leachate (BS EN 12457-3 Prep)	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L033-PL	W	NONE
Loss on ignition of soil @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L047-PL	D	MCERTS
Metals in WAC leachate (BS EN 12457-3 Prep)	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L039-PL	W	ISO 17025
Mineral Oil in Soil	Determination of dichloromethane/hexane extractable hydrocarbons in soil by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
PCB's by GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	NONE
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
Phenol Index in WAC leachate (BS EN 12457-3 Prep)	Determination of monohydric phenols in leachate by continuous flow analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Seciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Stones not passing through a 10 mm sieve is determined gravimetrically and reported as a percentage of the dry weight. Sample	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate in WAC leachate (BS EN 12457-3 Prep)	Determination of sulphate in leachate by acidification followed by ICP-OES.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L039-PL	W	ISO 17025
TDS in WAC leachate (BS EN 12457-3 Prep)	Determination of total dissolved solids in leachate by electrometric measurement.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L004-PL	W	NONE
Total organic carbon in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	MCERTS

Analytical Report Number : 14-61911

Project / Site name: CLV P1 - Building B

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

James Morrice
Card Geotechnics Ltd
4 Godalming Business Centre
Woolsack Way
Godalming
Surrey
GU7 1XW

t: 01483 310600
f: 01483 527285
e:

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

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

Analytical Report Number : 14-62703

Project / Site name:	CLV P2	**Samples received on:**	07/11/2014
Your job number:	CG/18067A	**Samples instructed on:**	07/11/2014
Your order number:	1499	**Analysis completed by:**	18/11/2014
Report Issue Number:	1	**Report issued on:**	18/11/2014
Samples Analysed:	1 wac multi sample		

Signed:

Dr Claire Stone
Quality Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Rexona Rahman
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

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

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

Excel copies of reports are only valid when accompanied by this PDF certificate.

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

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results

Report No:	**14-62703**						
					Client: CARDGEO		
Location	**CLV P2**						
Lab Reference (Sample Number)	389800				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	05/11/2014				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	BH7						
Depth (m)	0.50-1.00						
Solid Waste Analysis							
TOC (%)**	0.3				3%	5%	6%
Loss on Ignition (%) **	2.9				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg)	< 0.30				1	--	--
Mineral Oil (mg/kg)	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	< 1.6				100	--	--
pH (units)**	7.4				--	>6	--
Acid Neutralisation Capacity (mol / kg)	1.3				--	To be evaluated	To be evaluated
Eluate Analysis (BS EN 12457 - 3 preparation utilising end over end leaching procedure)	2:1 mg/l	8:1 mg/l		Cumulative 10:1 mg/kg	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
Arsenic *	< 0.010	< 0.010		0.081	0.5	2	25
Barium *	0.20	0.14		1.5	20	100	300
Cadmium *	< 0.0005	< 0.0005		< 0.0020	0.04	1	5
Chromium *	0.0023	< 0.0010		< 0.0050	0.5	10	70
Copper *	< 0.0010	< 0.0030		< 0.020	2	50	100
Mercury *	< 0.0015	< 0.0015		< 0.010	0.01	0.2	2
Molybdenum *	0.076	0.013		0.19	0.5	10	30
Nickel *	0.0019	0.0015		0.016	0.4	10	40
Lead *	< 0.0050	< 0.0050		< 0.020	0.5	10	50
Antimony *	0.011	0.010		0.10	0.06	0.7	5
Selenium *	0.16	0.037		0.48	0.1	0.5	7
Zinc *	0.0022	< 0.0010		< 0.020	4	50	200
Chloride *	21	< 4.0		41	800	4000	25000
Fluoride	1.2	0.93		9.5	10	150	500
Sulphate *	370	110		1400	1000	20000	50000
TDS	600	280		3100	4000	60000	100000
Phenol Index (Monhydric Phenols) *	< 0.13	< 0.13		< 0.50	1	-	-
DOC	1.8	1.2		12	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	1.4						
Dry Matter (%)	75						
Moisture (%)	25						
Stage 1							
Volume Eluate L2 (litres)	0.31						
Filtered Eluate VE1 (litres)	0.16						

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and I2 cannot be held responsible for any discrepencies with current legislation

*= UKAS accredited (liquid eluate analysis only)
** = MCERTS accrediited

Analytical Report Number : 14-62703

Project / Site name: CLV P2

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
389800	BH7	None Supplied	0.50-1.00	Grey sandy clay.

Analytical Report Number : 14-62703

Project / Site name: CLV P2

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe.	In-house method based on Guidance an Sampling and Testing of Wastes to Meet Landfill Waste Acceptance	L046-PL	W	NONE
BTEX (Sum of BTEX compounds) in soil	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260	L073S-PL	W	MCERTS
Chloride in WAC leachate (BS EN 12457-3 Prep)	Determination of chloride in leachate by Gallery discrete analyser.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L082-PL	W	ISO 17025
DOC in WAC leachate (BS EN 12457-3 Prep)	Determination of dissolved organic carbon in leachate by the measurement on a non-dispersive infrared analyser of carbon dioxide released by acidification.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L037-PL	W	NONE
Fluoride in WAC leachate (BS EN 12457-3 Prep)	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L033-PL	W	NONE
Loss on ignition of soil @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L047-PL	D	MCERTS
Metals in WAC leachate (BS EN 12457-3 Prep)	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L039-PL	W	ISO 17025
Mineral Oil in Soil	Determination of dichloromethane/hexane extractable hydrocarbons in soil by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
PCB's by GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	NONE
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
Phenol Index in WAC leachate (BS EN 12457-3 Prep)	Determination of monohydric phenols in leachate by continuous flow analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Seciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Stones not passing through a 10 mm sieve is determined gravimetrically and reported as a percentage of the dry weight. Sample results are not corrected for the stone content of the sample.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate in WAC leachate (BS EN 12457-3 Prep)	Determination of sulphate in leachate by acidification followed by ICP-OES.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L039-PL	W	ISO 17025
TDS in WAC leachate (BS EN 12457-3 Prep)	Determination of total dissolved solids in leachate by electrometric measurement.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L004-PL	W	NONE

Analytical Report Number : 14-62703

Project / Site name: CLV P2

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Total organic carbon in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

James Morrice
Card Geotechnics Ltd
4 Godalming Business Centre
Woolsack Way
Godalming
Surrey
GU7 1XW

t: 01483 310600
f: 01483 527285
e:

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

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

Analytical Report Number : 14-62848

Project / Site name:	CLV P2	**Samples received on:**	11/11/2014
Your job number:	CG-18067A	**Samples instructed on:**	12/11/2014
Your order number:	1499	**Analysis completed by:**	20/11/2014
Report Issue Number:	1	**Report issued on:**	20/11/2014
Samples Analysed:	1 wac multi sample		

Signed:

Thurstan Plummer
Organics Technical Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Rexona Rahman
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

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

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

Excel copies of reports are only valid when accompanied by this PDF certificate.

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

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results

Report No:	**14-62848**						
					Client: CARDGEO		
Location	**CLV P2**						
Lab Reference (Sample Number)	390756				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	10/11/2014				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	WS6 204						
Depth (m)	0.70						
Solid Waste Analysis							
TOC (%)**	0.1				3%	5%	6%
Loss on Ignition (%) **	8.5				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg)	< 0.30				1	--	--
Mineral Oil (mg/kg)	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	45				100	--	--
pH (units)**	11.7				--	>6	--
Acid Neutralisation Capacity (mol / kg)	30				--	To be evaluated	To be evaluated
Eluate Analysis (BS EN 12457 - 3 preparation utilising end over end leaching procedure)	2:1 mg/l	8:1 mg/l		Cumulative 10:1 mg/kg	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
Arsenic *	< 0.010	< 0.010		< 0.050	0.5	2	25
Barium *	0.61	0.24		3.0	20	100	300
Cadmium *	< 0.0005	< 0.0005		< 0.0020	0.04	1	5
Chromium *	0.0018	0.0016		0.016	0.5	10	70
Copper *	0.026	0.0076		0.10	2	50	100
Mercury *	< 0.0015	< 0.0015		< 0.010	0.01	0.2	2
Molybdenum *	< 0.0030	< 0.0030		< 0.020	0.5	10	30
Nickel *	0.0049	0.0011		0.016	0.4	10	40
Lead *	< 0.0050	< 0.0050		0.034	0.5	10	50
Antimony *	< 0.0050	< 0.0050		0.027	0.06	0.7	5
Selenium *	< 0.010	< 0.010		< 0.040	0.1	0.5	7
Zinc *	< 0.0010	< 0.0010		< 0.020	4	50	200
Chloride *	63	17		240	800	4000	25000
Fluoride	0.97	0.94		9.4	10	150	500
Sulphate *	8.2	7.5		76	1000	20000	50000
TDS	1700	900		10000	4000	60000	100000
Phenol Index (Monhydric Phenols) *	< 0.13	< 0.13		< 0.50	1	-	-
DOC	42	7.8		130	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	2.0						
Dry Matter (%)	94						
Moisture (%)	5.7						
Stage 1							
Volume Eluate L2 (litres)	0.34						
Filtered Eluate VE1 (litres)	0.26						

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and I2 cannot be held responsible for any discrepencies with current legislation

*= UKAS accredited (liquid eluate analysis only)
** = MCERTS accrediited

Analytical Report Number : 14-62848

Project / Site name: CLV P2

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
390756	WS6	204	0.70	Light brown clay and sand.

Analytical Report Number : 14-62848

Project / Site name: CLV P2

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe.	In-house method based on Guidance an Sampling and Testing of Wastes to Meet Landfill Waste Acceptance	L046-PL	W	NONE
BTEX (Sum of BTEX compounds) in soil	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260	L073S-PL	W	MCERTS
Chloride in WAC leachate (BS EN 12457-3 Prep)	Determination of chloride in leachate by Gallery discrete analyser.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L082-PL	W	ISO 17025
DOC in WAC leachate (BS EN 12457-3 Prep)	Determination of dissolved organic carbon in leachate by the measurement on a non-dispersive infrared analyser of carbon dioxide released by acidification.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L037-PL	W	NONE
Fluoride in WAC leachate (BS EN 12457-3 Prep)	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L033-PL	W	NONE
Loss on ignition of soil @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L047-PL	D	MCERTS
Metals in WAC leachate (BS EN 12457-3 Prep)	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L039-PL	W	ISO 17025
Mineral Oil in Soil	Determination of dichloromethane/hexane extractable hydrocarbons in soil by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
PCB's by GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	NONE
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
Phenol Index in WAC leachate (BS EN 12457-3 Prep)	Determination of monohydric phenols in leachate by continuous flow analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Seciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Stones not passing through a 10 mm sieve is determined gravimetrically and reported as a percentage of the dry weight. Sample results are not corrected for the stone content of the sample.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate in WAC leachate (BS EN 12457-3 Prep)	Determination of sulphate in leachate by acidification followed by ICP-OES.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L039-PL	W	ISO 17025
TDS in WAC leachate (BS EN 12457-3 Prep)	Determination of total dissolved solids in leachate by electrometric measurement.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L004-PL	W	NONE

Analytical Report Number : 14-62848

Project / Site name: CLV P2

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Total organic carbon in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

James Morrice
Card Geotechnics Ltd
4 Godalming Business Centre
Woolsack Way
Godalming
Surrey
GU7 1XW

t: 01483 310600
f: 01483 527285
e:

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

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

Analytical Report Number : 14-62897

Project / Site name:	CLV P1 Building B	**Samples received on:**	12/11/2014
Your job number:	CG-18067	**Samples instructed on:**	12/11/2014
Your order number:	1432	**Analysis completed by:**	20/11/2014
Report Issue Number:	1	**Report issued on:**	20/11/2014
Samples Analysed:	8 soil samples		

Signed:

Thurstan Plummer
Organics Technical Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Rexona Rahman
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

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

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

Excel copies of reports are only valid when accompanied by this PDF certificate.

Analytical Report Number: 14-62897

Project / Site name: CLV P1 Building B
Your Order No: 1432

Lab Sample Number				391089	391090	391091	391092	391093
Sample Reference				BH3	BH3	BH3	BH3	BH2
Sample Number				6	11	17	27	4
Depth (m)				2.50	4.50	7.50	13.50	1.50
Date Sampled				05/11/2014	05/11/2014	05/11/2014	05/11/2014	05/11/2014
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	20	21	20	21	15
Total mass of sample received	kg	0.001	NONE	0.37	0.42	0.39	0.32	0.47
General Inorganics								
pH	pH Units	N/A	MCERTS	7.5	7.5	7.6	7.7	7.7
Total Sulphate as SO_4	mg/kg	50	ISO 17025	29000	15000	1800	1500	1100
Water Soluble Sulphate (Soil Equivalent)	g/l	0.0025	MCERTS	4.6	4.8	1.4	1.3	0.22
Water Soluble Sulphate as SO_4 (2:1)	mg/kg	2.5	MCERTS	4600	4800	1400	1300	220
Water Soluble Sulphate (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	2.3	2.4	0.72	0.65	0.11
Total Sulphur	mg/kg	50	NONE	10000	5900	1400	6400	390

Analytical Report Number: 14-62897

Project / Site name: CLV P1 Building B
Your Order No: 1432

Lab Sample Number				391094	391095	391096		
Sample Reference				BH2	BH2	BH2		
Sample Number				9	14	29		
Depth (m)				3.50	6.00	15.00		
Date Sampled				05/11/2014	05/11/2014	05/11/2014		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1		
Moisture Content	%	N/A	NONE	22	20	18		
Total mass of sample received	kg	0.001	NONE	0.34	0.33	0.56		
General Inorganics								
pH	pH Units	N/A	MCERTS	7.6	7.6	7.7		
Total Sulphate as SO_4	mg/kg	50	ISO 17025	6400	11000	860		
Water Soluble Sulphate (Soil Equivalent)	g/l	0.0025	MCERTS	4.8	5.4	0.81		
Water Soluble Sulphate as SO_4 (2:1)	mg/kg	2.5	MCERTS	4800	5400	810		
Water Soluble Sulphate (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	2.4	2.7	0.40		
Total Sulphur	mg/kg	50	NONE	2700	4100	3200		

Analytical Report Number : 14-62897

Project / Site name: CLV P1 Building B

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
391089	BH3	6	2.50	Light brown clay.
391090	BH3	11	4.50	Light brown clay.
391091	BH3	17	7.50	Light brown clay.
391092	BH3	27	13.50	Brown clay.
391093	BH2	4	1.50	Light brown clay and sand.
391094	BH2	9	3.50	Light brown clay.
391095	BH2	14	6.00	Light brown clay.
391096	BH2	29	15.00	Brown clay.

Analytical Report Number : 14-62897

Project / Site name: CLV P1 Building B

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Stones not passing through a 10 mm sieve is determined gravimetrically and reported as a percentage of the dry weight. Sample	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by extraction with water followed by ICP-OES. Results reported corrected for extraction ratio (soil equivalent) as g/l and mg/kg; and upon the 2:1	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	ISO 17025
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, and MEWAM 2006 Methods for the Determination of Metals in Soil	L038-PL	D	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

James Morrice
Card Geotechnics Ltd
4 Godalming Business Centre
Woolsack Way
Godalming
Surrey
GU7 1XW

t: 01483 310600
f: 01483 527285
e:

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

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

Analytical Report Number : 14-63013

Project / Site name:	CLV P2	**Samples received on:**	14/11/2014
Your job number:	CG18067A	**Samples instructed on:**	14/11/2014
Your order number:	1499	**Analysis completed by:**	25/11/2014
Report Issue Number:	1	**Report issued on:**	25/11/2014
Samples Analysed:	2 soil samples		

Signed:

Dr Claire Stone
Quality Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Rexona Rahman
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

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

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

Excel copies of reports are only valid when accompanied by this PDF certificate.

Analytical Report Number: 14-63013

Project / Site name: CLV P2
Your Order No: 1499

Lab Sample Number				391950	391951			
Sample Reference				BH7	BH7			
Sample Number				None Supplied	None Supplied			
Depth (m)				4.50-4.95	22.50-22.95			
Date Sampled				06/11/2014	06/11/2014			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1			
Moisture Content	%	N/A	NONE	19	14			
Total mass of sample received	kg	0.001	NONE	0.38	0.53			
General Inorganics								
pH	pH Units	N/A	MCERTS	7.2	8.3			
Total Sulphate as SO_4	mg/kg	50	ISO 17025	1600	560			
Water Soluble Sulphate (Soil Equivalent)	g/l	0.0025	MCERTS	1.5	0.55			
Water Soluble Sulphate as SO_4 (2:1)	mg/kg	2.5	MCERTS	1500	550			
Water Soluble Sulphate (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.77	0.28			
Total Sulphur	mg/kg	50	NONE	710	8500			

Analytical Report Number : 14-63013

Project / Site name: CLV P2

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
391950	BH7	None Supplied	4.50-4.95	Light brown clay.
391951	BH7	None Supplied	22.50-22.95	Grey clay.

Analytical Report Number : 14-63013

Project / Site name: CLV P2

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Stones not passing through a 10 mm sieve is determined gravimetrically and reported as a percentage of the dry weight. Sample results are not corrected for the stone content of the sample.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by extraction with water followed by ICP-OES. Results reported corrected for extraction ratio (soil equivalent) as g/l and mg/kg; and upon the 2:1 leachate (g/l)	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	ISO 17025
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, and MEWAM 2006 Methods for the Determination of Metals in Soil	L038-PL	D	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

James Morrice
Card Geotechnics Ltd
4 Godalming Business Centre
Woolsack Way
Godalming
Surrey
GU7 1XW

t: 01483 310600
f: 01483 527285
e:

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

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

Analytical Report Number : 14-63103

Project / Site name:	CLV P2	**Samples received on:**	17/11/2014
Your job number:	CG-18067A	**Samples instructed on:**	17/11/2014
Your order number:	1499	**Analysis completed by:**	26/11/2014
Report Issue Number:	1	**Report issued on:**	26/11/2014
Samples Analysed:	1 wac multi sample		

Signed:

Dr Claire Stone
Quality Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Rexona Rahman
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

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

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

Excel copies of reports are only valid when accompanied by this PDF certificate.

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

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results

Report No:	**14-63103**						
					Client: CARDGEO		
Location	**CLV P2**						
Lab Reference (Sample Number)	392527				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	14/11/2014				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	BH6 220						
Depth (m)	0.30						
Solid Waste Analysis							
TOC (%)**	1.7				3%	5%	6%
Loss on Ignition (%) **	5.7				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg)	< 0.30				1	--	--
Mineral Oil (mg/kg)	45				500	--	--
Total PAH (WAC-17) (mg/kg)	810				100	--	--
pH (units)**	10.3				--	>6	--
Acid Neutralisation Capacity (mol / kg)	14				--	To be evaluated	To be evaluated
Eluate Analysis (BS EN 12457 - 3 preparation utilising end over end leaching procedure)	2:1 mg/l	8:1 mg/l		Cumulative 10:1 mg/kg	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
Arsenic *	< 0.010	< 0.010		0.068	0.5	2	25
Barium *	0.048	0.023		0.27	20	100	300
Cadmium *	< 0.0005	< 0.0005		< 0.0020	0.04	1	5
Chromium *	0.010	0.0032		0.044	0.5	10	70
Copper *	0.030	0.0093		0.13	2	50	100
Mercury *	< 0.0015	< 0.0015		< 0.010	0.01	0.2	2
Molybdenum *	0.0066	< 0.0030		0.035	0.5	10	30
Nickel *	0.0017	< 0.0010		0.0098	0.4	10	40
Lead *	0.025	0.0071		0.10	0.5	10	50
Antimony *	< 0.0050	< 0.0050		0.021	0.06	0.7	5
Selenium *	< 0.010	< 0.010		< 0.040	0.1	0.5	7
Zinc *	0.023	0.0038		0.070	4	50	200
Chloride *	< 4.0	< 4.0		19	800	4000	25000
Fluoride	0.43	0.18		2.2	10	150	500
Sulphate *	19	3.9		65	1000	20000	50000
TDS	60	20		270	4000	60000	100000
Phenol Index (Monhydric Phenols) *	< 0.13	< 0.13		< 0.50	1	-	-
DOC	11	6.4		71	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	1.3						
Dry Matter (%)	91						
Moisture (%)	8.8						
Stage 1							
Volume Eluate L2 (litres)	0.33						
Filtered Eluate VE1 (litres)	0.30						

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and I2 cannot be held responsible for any discrepencies with current legislation

*= UKAS accredited (liquid eluate analysis only)
** = MCERTS accrediited

Analytical Report Number : 14-63103

Project / Site name: CLV P2

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
392527	BH6	220	0.30	Brown sandy topsoil with rubble and brick.

Analytical Report Number : 14-63103

Project / Site name: CLV P2

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe.	In-house method based on Guidance an Sampling and Testing of Wastes to Meet Landfill Waste Acceptance	L046-PL	W	NONE
BTEX (Sum of BTEX compounds) in soil	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260	L073S-PL	W	MCERTS
Chloride in WAC leachate (BS EN 12457-3 Prep)	Determination of chloride in leachate by Gallery discrete analyser.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L082-PL	W	ISO 17025
DOC in WAC leachate (BS EN 12457-3 Prep)	Determination of dissolved organic carbon in leachate by the measurement on a non-dispersive infrared analyser of carbon dioxide released by acidification.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L037-PL	W	NONE
Fluoride in WAC leachate (BS EN 12457-3 Prep)	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L033-PL	W	NONE
Loss on ignition of soil @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L047-PL	D	MCERTS
Metals in WAC leachate (BS EN 12457-3 Prep)	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L039-PL	W	ISO 17025
Mineral Oil in Soil	Determination of dichloromethane/hexane extractable hydrocarbons in soil by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
PCB's by GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	NONE
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
Phenol Index in WAC leachate (BS EN 12457-3 Prep)	Determination of monohydric phenols in leachate by continuous flow analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Seciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Stones not passing through a 10 mm sieve is determined gravimetrically and reported as a percentage of the dry weight. Sample results are not corrected for the stone content of the sample.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate in WAC leachate (BS EN 12457-3 Prep)	Determination of sulphate in leachate by acidification followed by ICP-OES.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L039-PL	W	ISO 17025
TDS in WAC leachate (BS EN 12457-3 Prep)	Determination of total dissolved solids in leachate by electrometric measurement.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L004-PL	W	NONE

Analytical Report Number : 14-63103

Project / Site name: CLV P2

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Total organic carbon in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

James Morrice
Card Geotechnics Ltd
4 Godalming Business Centre
Woolsack Way
Godalming
Surrey
GU7 1XW

t: 01483 310600
f: 01483 527285
e:

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

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

Analytical Report Number : 14-63590

Project / Site name:	CLV P2	**Samples received on:**	25/11/2014
Your job number:	CG-18067A	**Samples instructed on:**	26/11/2014
Your order number:	1500	**Analysis completed by:**	05/12/2014
Report Issue Number:	1	**Report issued on:**	05/12/2014
Samples Analysed:	7 soil samples		

Signed:

Dr Claire Stone
Quality Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Thurstan Plummer
Organics Technical Manager
For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

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

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

Excel copies of reports are only valid when accompanied by this PDF certificate.

Analytical Report Number: 14-63590

Project / Site name: CLV P2
Your Order No: 1500

Lab Sample Number				395404	395405	395406	395407	395408
Sample Reference				BH4	BH4	BH5	BH5	BH5
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				4.50	19.50	3.50	9.00	18.00
Date Sampled				18/11/2014	18/11/2014	12/11/2014	12/11/2014	12/11/2014
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	22	18	22	20	19
Total mass of sample received	kg	0.001	NONE	0.48	0.60	0.40	0.47	0.40
General Inorganics								
pH	pH Units	N/A	MCERTS	7.5	7.9	7.9	7.8	8.1
Total Sulphate as SO_4	mg/kg	50	ISO 17025	1800	870	490	2100	860
Water Soluble Sulphate (Soil Equivalent)	g/l	0.0025	MCERTS	1.7	0.85	0.12	1.6	0.72
Water Soluble Sulphate as SO_4 (2:1)	mg/kg	2.5	MCERTS	1700	850	120	1600	720
Water Soluble Sulphate (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.85	0.43	0.061	0.81	0.36
Total Sulphur	mg/kg	50	NONE	710	4300	170	4200	7200

Analytical Report Number: 14-63590

Project / Site name: CLV P2
Your Order No: 1500

Lab Sample Number				395409	395410			
Sample Reference				BH6	BH6			
Sample Number				None Supplied	None Supplied			
Depth (m)				4.50	16.50			
Date Sampled				14/11/2014	14/11/2014			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1			
Moisture Content	%	N/A	NONE	20	17			
Total mass of sample received	kg	0.001	NONE	0.35	0.50			
General Inorganics								
pH	pH Units	N/A	MCERTS	7.9	8.1			
Total Sulphate as SO_4	mg/kg	50	ISO 17025	19000	940			
Water Soluble Sulphate (Soil Equivalent)	g/l	0.0025	MCERTS	5.6	0.84			
Water Soluble Sulphate as SO_4 (2:1)	mg/kg	2.5	MCERTS	5600	840			
Water Soluble Sulphate (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	2.8	0.42			
Total Sulphur	mg/kg	50	NONE	6200	4400			

Analytical Report Number : 14-63590

Project / Site name: CLV P2

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
395404	BH4	None Supplied	4.50	Light brown clay.
395405	BH4	None Supplied	19.50	Light grey clay.
395406	BH5	None Supplied	3.50	Light brown clay.
395407	BH5	None Supplied	9.00	Light grey clay.
395408	BH5	None Supplied	18.00	Light grey clay.
395409	BH6	None Supplied	4.50	Light brown clay.
395410	BH6	None Supplied	16.50	Light grey clay.

Analytical Report Number : 14-63590

Project / Site name: CLV P2

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Stones not passing through a 10 mm sieve is determined gravimetrically and reported as a percentage of the dry weight. Sample	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by extraction with water followed by ICP-OES. Results reported corrected for extraction ratio (soil equivalent) as g/l and mg/kg; and upon the 2:1	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	ISO 17025
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, and MEWAM 2006 Methods for the Determination of Metals in Soil	L038-PL	D	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

APPENDIX E

Results of geotechnical analysis

SUMMARY OF GEOTECHNICAL TESTING

Sample details					Classification Tests					Density Tests		Undrained Triaxial Compression			Chemical Tests			Other tests and comments
Borehole / Trial Pit	Sample Ref	Depth (m)	Type	Description	MC (%)	LL (%)	PL (%)	PI (%)	<425 • m (%)	Bulk Mg/m³	Dry Mg/m³	Cell Pressure kPa	Deviator Stress kPa	Shear Stress kPa	pH	2:1 W/S SO4 (g/L)	W/S Mg (mg/L)	
BH2	4	1.50-1.95	U	Stiff yellowish brown silty CLAY with occasional fine to medium gravel	21	61	23	38	43	2.03	1.68	29	121	61				
BH2	9	3.50-3.95	U	Mottled brown and grey silty CLAY with occasional gypsum	33	75	27	48	100									
BH2	14	6.00-6.45	U	Stiff fissured brown silty CLAY with rare gypsum	31	73	28	45	99	1.95	1.49	114	222	111				
BH2	19	9.00-9.45	U	Brown mottled orange-brown silty CLAY	29	77	27	50	100									
BH2	24	12.00-12.45	U	Stiff fissured brownish grey silty CLAY	29	75	25	50	100	1.96	1.52	228	174	87				
BH2	29	15.00-15.45	U	Brown fine sandy silty CLAY	24	62	24	38	100									
BH2	34	18.00-18.45	U	Stiff fissured dark brownish grey silty CLAY	25	67	25	42	100	1.99	1.59	342	165	83				
BH2	44	24.00-24.45	U	Very stiff fissured brownish grey silty CLAY	26	79	28	51	100	1.88	1.49	456	598	299				
BH2	54	30.00-30.45	U	Stiff fissured brownish grey silty CLAY	25	75	29	46	99	1.91	1.53	570	434	217				
BH3	6	2.50-2.95	U	Stiff fissured brown silty CLAY	34	76	29	47	99	1.92	1.43	48	140	70				
BH3	11	4.50-4.95	U	Brown mottled grey silty CLAY with rare gypsum	32	73	27	46	99									
BH3	17	7.50-7.95	U	Stiff fissured brown silty CLAY	30	72	25	47	97	1.95	1.50	143	277	138				

Sample type: B (Bulk disturb.) BLK (Block) C (Core) D (Disturbed) LB (Large Bulk dist.) U (Undisturbed)

Checked and Approved by

Senior Technician
26/11/2014

Project Number:

GEO / 21947-2

Project Name:

CAMDEN LOCK VILLAGE PHASE 1
CG/18067

GEOLABS®

SUMMARY OF GEOTECHNICAL TESTING

Sample details					Classification Tests					Density Tests		Undrained Triaxial Compression			Chemical Tests			Other tests and comments
Borehole / Trial Pit	Sample Ref	Depth (m)	Type	Description	MC (%)	LL (%)	PL (%)	PI (%)	<425 • m (%)	Bulk Mg/m³	Dry Mg/m³	Cell Pressure kPa	Deviator Stress kPa	Shear Stress kPa	pH	2:1 W/S SO4 (g/L)	W/S Mg (mg/L)	
BH3	22	10.50-10.95	U	Brown silty CLAY	31	77	27	50	100									
BH3	27	13.50-13.95	U	Stiff fissured greyish brown silty CLAY	30	83	28	55	100	1.94	1.49	257	168	84				

Sample type: B (Bulk disturb.) BLK (Block) C (Core) D (Disturbed) LB (Large Bulk dist.) U (Undisturbed)

Checked and Approved by

S Burke

Senior Technician
26/11/2014

Project Number:

GEO / 21947-2

Project Name:

CAMDEN LOCK VILLAGE PHASE 1
CG/18067

GEOLABS®

BS 1377 : Part 7 : 1990 Clause 8

QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No	BH2
Sample Ref	4
Depth (m)	1.50-1.95
Sample Type	U

Description:

Stiff yellowish brown gravelly silty CLAY. Gravel is fine to medium.

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	201.4
Diameter	(mm)	102.5
Moisture Content	(%)	21
Bulk Density	(Mg/m³)	2.03
Dry Density	(Mg/m³)	1.68
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.83
Axial displacement rate	(%/min)	1.99
Cell pressure	(kPa)	29
Strain at failure	(%)	13.4
Maximum Deviator Stress	(kPa)	121
Shear Stress Cu	(kPa)	61

Mode of failure

Orientation of the sample	Vertical
Distance from top of tube mm	50

Checked and Approved by:

S Burke

Senior Technician
26/11/2014

Project Number:

GEO / 21947-2

Project Name:

CAMDEN LOCK VILLAGE PHASE 1
CG/18067

GEOLABS

UKAS TESTING

BS 1377 : Part 7 : 1990 Clause 8

QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No	BH2
Sample Ref	14
Depth (m)	6.00-6.45
Sample Type	U

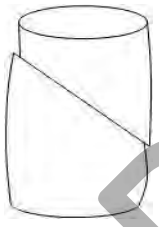
Description:

Stiff fissured brown silty CLAY with rare gypsum

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	201.4
Diameter	(mm)	102.5
Moisture Content	(%)	31
Bulk Density	(Mg/m³)	1.95
Dry Density	(Mg/m³)	1.48
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.55
Axial displacement rate	(%/min)	1.99
Cell pressure	(kPa)	114
Strain at failure	(%)	7.9
Maximum Deviator Stress	(kPa)	222
Shear Stress Cu	(kPa)	111

Mode of failure



Orientation of the sample	Vertical
Distance from top of tube mm	30

Checked and Approved by:

S Burke

Senior Technician
26/11/2014

Project Number:

GEO / 21947-2

Project Name:

CAMDEN LOCK VILLAGE PHASE 1
CG/18067

GEOLABS

UKAS TESTING

BS 1377 : Part 7 : 1990 Clause 8

QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No	BH2
Sample Ref	24
Depth (m)	12.00-12.45
Sample Type	U

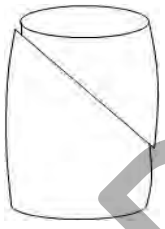
Description:

Stiff fissured brownish grey silty CLAY

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	202.5
Diameter	(mm)	102.7
Moisture Content	(%)	29
Bulk Density	(Mg/m³)	1.96
Dry Density	(Mg/m³)	1.52
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.52
Axial displacement rate	(%/min)	1.98
Cell pressure	(kPa)	228
Strain at failure	(%)	7.4
Maximum Deviator Stress	(kPa)	174
Shear Stress Cu	(kPa)	87

Mode of failure



Orientation of the sample	Vertical
Distance from top of tube mm	90

Checked and Approved by:

S Burke

Senior Technician
26/11/2014

Project Number:

GEO / 21947-2

Project Name:

CAMDEN LOCK VILLAGE PHASE 1
CG/18067

GEOLABS

UKAS TESTING

BS 1377 : Part 7 : 1990 Clause 8

QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No	BH2
Sample Ref	34
Depth (m)	18.00-18.45
Sample Type	U

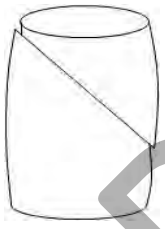
Description:

Stiff fissured dark brownish grey silty CLAY

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	201.7
Diameter	(mm)	102.4
Moisture Content	(%)	25
Bulk Density	(Mg/m³)	1.99
Dry Density	(Mg/m³)	1.59
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.16
Axial displacement rate	(%/min)	1.98
Cell pressure	(kPa)	342
Strain at failure	(%)	2.0
Maximum Deviator Stress	(kPa)	165
Shear Stress Cu	(kPa)	83

Mode of failure



Orientation of the sample	Vertical
Distance from top of tube mm	160

Checked and Approved by:

S Burke

Senior Technician
26/11/2014

Project Number:

GEO / 21947-2

Project Name:

CAMDEN LOCK VILLAGE PHASE 1
CG/18067

GEOLABS

UKAS TESTING

BS 1377 : Part 7 : 1990 Clause 8

QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No	BH2
Sample Ref	44
Depth (m)	24.00-24.45
Sample Type	U

Description:

Very stiff fissured brownish grey silty CLAY

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	201.7
Diameter	(mm)	103.4
Moisture Content	(%)	26
Bulk Density	(Mg/m³)	1.88
Dry Density	(Mg/m³)	1.49
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.55
Axial displacement rate	(%/min)	1.98
Cell pressure	(kPa)	456
Strain at failure	(%)	7.9
Maximum Deviator Stress	(kPa)	598
Shear Stress Cu	(kPa)	299

Mode of failure

Orientation of the sample	Vertical
Distance from top of tube mm	110

Checked and Approved by:

S Burke

Senior Technician
26/11/2014

Project Number:

GEO / 21947-2

Project Name:

CAMDEN LOCK VILLAGE PHASE 1
CG/18067

GEOLABS

UKAS TESTING

BS 1377 : Part 7 : 1990 Clause 8

QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No	BH2
Sample Ref	54
Depth (m)	30.00-30.45
Sample Type	U

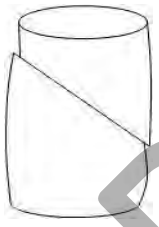
Description:

Stiff fissured brownish grey silty CLAY

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	201.4
Diameter	(mm)	102.6
Moisture Content	(%)	25
Bulk Density	(Mg/m³)	1.91
Dry Density	(Mg/m³)	1.53
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.34
Axial displacement rate	(%/min)	1.99
Cell pressure	(kPa)	570
Strain at failure	(%)	4.5
Maximum Deviator Stress	(kPa)	434
Shear Stress Cu	(kPa)	217

Mode of failure



Orientation of the sample	Vertical
Distance from top of tube mm	120

Checked and Approved by:

S Burke

Senior Technician
26/11/2014

Project Number:

GEO / 21947-2

Project Name:

CAMDEN LOCK VILLAGE PHASE 1
CG/18067

GEOLABS

UKAS TESTING

BS 1377 : Part 7 : 1990 Clause 8

QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No	BH3
Sample Ref	6
Depth (m)	2.50-2.95
Sample Type	U

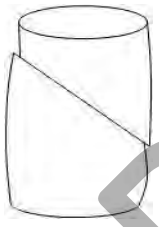
Description:

Stiff fissured brown silty CLAY

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	188.5
Diameter	(mm)	102.4
Moisture Content	(%)	34
Bulk Density	(Mg/m³)	1.92
Dry Density	(Mg/m³)	1.43
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.55
Axial displacement rate	(%/min)	2.12
Cell pressure	(kPa)	48
Strain at failure	(%)	8.0
Maximum Deviator Stress	(kPa)	140
Shear Stress Cu	(kPa)	70

Mode of failure



Orientation of the sample	Vertical
Distance from top of tube mm	50

Checked and Approved by:

S Burke

Senior Technician
26/11/2014

Project Number:

GEO / 21947-2

Project Name:

CAMDEN LOCK VILLAGE PHASE 1
CG/18067

GEOLABS

UKAS TESTING

BS 1377 : Part 7 : 1990 Clause 8

QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No	BH3
Sample Ref	17
Depth (m)	7.50-7.95
Sample Type	U

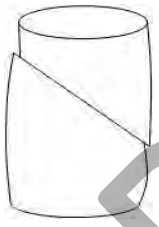
Description:

Stiff fissured brown silty CLAY

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	201.4
Diameter	(mm)	103.4
Moisture Content	(%)	30
Bulk Density	(Mg/m³)	1.95
Dry Density	(Mg/m³)	1.50
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.05
Axial displacement rate	(%/min)	1.99
Cell pressure	(kPa)	143
Strain at failure	(%)	0.5
Maximum Deviator Stress	(kPa)	277
Shear Stress Cu	(kPa)	138

Mode of failure



Orientation of the sample	Vertical
Distance from top of tube mm	120

Checked and Approved by:

S Burke

Senior Technician
26/11/2014

Project Number:

GEO / 21947-2

Project Name:

CAMDEN LOCK VILLAGE PHASE 1
CG/18067

GEOLABS

UKAS TESTING

BS 1377 : Part 7 : 1990 Clause 8

QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No	BH3
Sample Ref	27
Depth (m)	13.50-13.95
Sample Type	U

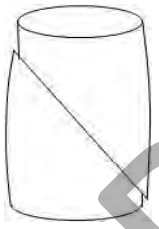
Description:

Stiff fissured greyish brown silty CLAY

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	201.3
Diameter	(mm)	102.6
Moisture Content	(%)	30
Bulk Density	(Mg/m³)	1.94
Dry Density	(Mg/m³)	1.50
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.24
Axial displacement rate	(%/min)	1.99
Cell pressure	(kPa)	257
Strain at failure	(%)	3.0
Maximum Deviator Stress	(kPa)	168
Shear Stress Cu	(kPa)	84

Mode of failure



Orientation of the sample	Vertical
Distance from top of tube mm	30

Checked and Approved by:

S Burke

Senior Technician
26/11/2014

Project Number:

GEO / 21947-2

Project Name:

CAMDEN LOCK VILLAGE PHASE 1
CG/18067

GEOLABS

UKAS TESTING

SUMMARY OF GEOTECHNICAL TESTING

Sample details					Classification Tests					Density Tests		Undrained Triaxial Compression			Chemical Tests			Other tests and comments
Borehole / Trial Pit	Sample Ref	Depth (m)	Type	Description	MC (%)	LL (%)	PL (%)	PI (%)	<425 • m (%)	Bulk Mg/m³	Dry Mg/m³	Cell Pressure kPa	Deviator Stress kPa	Shear Stress kPa	pH	2:1 W/S SO4 (g/L)	W/S Mg (mg/L)	
BH7	7	2.20-2.65	U	Firm to stiff yellow-brown silty CLAY	32	67	25	42	100	1.93	1.46	42	127	64				
BH7	12	4.50-4.95	U	Stiff fissured brown mottled grey silty CLAY	30					1.94	1.49	86	220	110				
BH7	16	7.50-7.95	U	Stiff fissured brown silty CLAY	34	79	29	50	100	1.94	1.45	143	208	104				
BH7	21	10.50-10.95	U	Stiff fissured brownish grey silty CLAY	25					2.03	1.62	200	291	146				
BH7	26	13.50-13.95	U	Dark grey-brown silty CLAY	26	65	27	38	100									
BH7	31	16.50-16.95	U	Very stiff fissured brownish grey silty CLAY	27					2.01	1.58	314	277	139				
BH7	42	19.50-19.95	U	Dark grey-brown silty CLAY	28	73	29	44	100									
BH7	48	22.50-22.95	U	Very stiff fissured brownish grey silty CLAY	24					2.08	1.68	428	688	344				
BH7	58	28.50-28.95	U	Very stiff fissured brownish grey silty CLAY	25					1.97	1.58	542	630	315				

Sample type: B (Bulk disturb.) BLK (Block) C (Core) D (Disturbed) LB (Large Bulk dist.) U (Undisturbed)

Checked and Approved by

Senior Technician
20/11/2014

Project Number:

GEO / 21953

Project Name:

CAMDEN LOCK VILLAGE PHASE 2
CG/18067a

GEOLABS®

BS 1377 : Part 7 : 1990 Clause 8

QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No	BH7
Sample Ref	7
Depth (m)	2.20-2.65
Sample Type	U

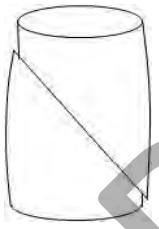
Description:

Firm to stiff yellow-brown silty CLAY

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	201.4
Diameter	(mm)	102.6
Moisture Content	(%)	32
Bulk Density	(Mg/m³)	1.93
Dry Density	(Mg/m³)	1.46
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	1.03
Axial displacement rate	(%/min)	1.99
Cell pressure	(kPa)	42
Strain at failure	(%)	17.9
Maximum Deviator Stress	(kPa)	127
Shear Stress Cu	(kPa)	64

Mode of failure



Orientation of the sample	Vertical
Distance from top of tube mm	120

Checked and Approved by:

S Burke

Senior Technician
20/11/2014

Project Number:

GEO / 21953

Project Name:

CAMDEN LOCK VILLAGE PHASE 2
CG/18067a

GEOLABS

UKAS TESTING

BS 1377 : Part 7 : 1990 Clause 8

QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No	BH7
Sample Ref	12
Depth (m)	4.50-4.95
Sample Type	U

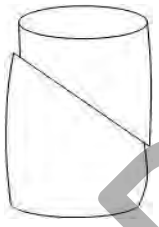
Description:

Stiff fissured brown mottled grey silty CLAY

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	188.2
Diameter	(mm)	103.7
Moisture Content	(%)	30
Bulk Density	(Mg/m³)	1.94
Dry Density	(Mg/m³)	1.50
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.58
Axial displacement rate	(%/min)	2.12
Cell pressure	(kPa)	86
Strain at failure	(%)	8.5
Maximum Deviator Stress	(kPa)	220
Shear Stress Cu	(kPa)	110

Mode of failure



Orientation of the sample	Vertical
Distance from top of tube mm	210

Checked and Approved by:

S Burke

Senior Technician
20/11/2014

Project Number:

GEO / 21953

Project Name:

CAMDEN LOCK VILLAGE PHASE 2
CG/18067a

GEOLABS

BS 1377 : Part 7 : 1990 Clause 8

QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No	BH7
Sample Ref	16
Depth (m)	7.50-7.95
Sample Type	U

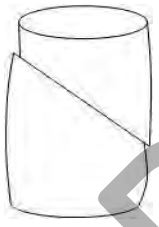
Description:

Stiff fissured brown silty CLAY

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	201.0
Diameter	(mm)	103.7
Moisture Content	(%)	34
Bulk Density	(Mg/m³)	1.94
Dry Density	(Mg/m³)	1.45
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.22
Axial displacement rate	(%/min)	1.99
Cell pressure	(kPa)	143
Strain at failure	(%)	2.7
Maximum Deviator Stress	(kPa)	208
Shear Stress Cu	(kPa)	104

Mode of failure



Orientation of the sample	Vertical
Distance from top of tube mm	110

Checked and Approved by:

S Burke

Senior Technician
20/11/2014

Project Number:

GEO / 21953

Project Name:

CAMDEN LOCK VILLAGE PHASE 2
CG/18067a

GEOLABS

UKAS TESTING

BS 1377 : Part 7 : 1990 Clause 8

QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No	BH7
Sample Ref	21
Depth (m)	10.50-10.95
Sample Type	U

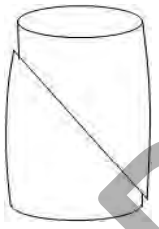
Description:

Stiff fissured brownish grey silty CLAY

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	201.5
Diameter	(mm)	103.6
Moisture Content	(%)	25
Bulk Density	(Mg/m³)	2.03
Dry Density	(Mg/m³)	1.62
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.46
Axial displacement rate	(%/min)	1.98
Cell pressure	(kPa)	200
Strain at failure	(%)	6.5
Maximum Deviator Stress	(kPa)	291
Shear Stress Cu	(kPa)	146

Mode of failure



Orientation of the sample	Vertical
Distance from top of tube mm	80

Checked and Approved by:

S Burke

Senior Technician
20/11/2014

Project Number:

GEO / 21953

Project Name:

CAMDEN LOCK VILLAGE PHASE 2
CG/18067a

GEOLABS

BS 1377 : Part 7 : 1990 Clause 8

QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No	BH7
Sample Ref	31
Depth (m)	16.50-16.95
Sample Type	U

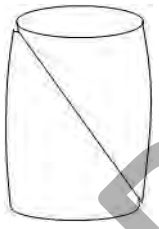
Description:

Very stiff fissured brownish grey silty CLAY

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	202.3
Diameter	(mm)	103.3
Moisture Content	(%)	27
Bulk Density	(Mg/m³)	2.01
Dry Density	(Mg/m³)	1.58
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.22
Axial displacement rate	(%/min)	1.98
Cell pressure	(kPa)	314
Strain at failure	(%)	2.7
Maximum Deviator Stress	(kPa)	277
Shear Stress Cu	(kPa)	139

Mode of failure



Orientation of the sample	Vertical
Distance from top of tube mm	80

Checked and Approved by:

S Burke

Senior Technician
20/11/2014

Project Number:

GEO / 21953

Project Name:

CAMDEN LOCK VILLAGE PHASE 2
CG/18067a

GEOLABS

BS 1377 : Part 7 : 1990 Clause 8

QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No	BH7
Sample Ref	48
Depth (m)	22.50-22.95
Sample Type	U

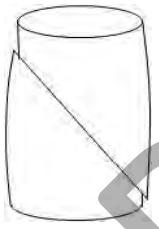
Description:

Very stiff fissured brownish grey silty CLAY

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	188.7
Diameter	(mm)	102.0
Moisture Content	(%)	24
Bulk Density	(Mg/m³)	2.08
Dry Density	(Mg/m³)	1.68
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.31
Axial displacement rate	(%/min)	2.12
Cell pressure	(kPa)	428
Strain at failure	(%)	4.0
Maximum Deviator Stress	(kPa)	688
Shear Stress Cu	(kPa)	344

Mode of failure



Orientation of the sample	Vertical
Distance from top of tube mm	160

Checked and Approved by:

S Burke

Senior Technician
20/11/2014

Project Number:

GEO / 21953

Project Name:

CAMDEN LOCK VILLAGE PHASE 2
CG/18067a

GEOLABS

BS 1377 : Part 7 : 1990 Clause 8

QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No	BH7
Sample Ref	58
Depth (m)	28.50-28.95
Sample Type	U

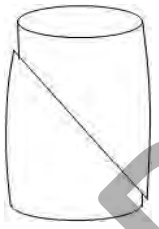
Description:

Very stiff fissured brownish grey silty CLAY

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	201.7
Diameter	(mm)	103.3
Moisture Content	(%)	25
Bulk Density	(Mg/m³)	1.97
Dry Density	(Mg/m³)	1.58
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.24
Axial displacement rate	(%/min)	0.99
Cell pressure	(kPa)	542
Strain at failure	(%)	3.0
Maximum Deviator Stress	(kPa)	630
Shear Stress Cu	(kPa)	315

Mode of failure



Orientation of the sample	Vertical
Distance from top of tube mm	120

Checked and Approved by:

S Burke

Senior Technician
20/11/2014

Project Number:

GEO / 21953

Project Name:

CAMDEN LOCK VILLAGE PHASE 2
CG/18067a

GEOLABS

SUMMARY OF GEOTECHNICAL TESTING

Sample details					Classification Tests					Density Tests		Undrained Triaxial Compression			Chemical Tests			Other tests and comments
Borehole / Trial Pit	Sample Ref	Depth (m)	Type	Description	MC (%)	LL (%)	PL (%)	PI (%)	<425 • m (%)	Bulk Mg/m³	Dry Mg/m³	Cell Pressure kPa	Deviator Stress kPa	Shear Stress kPa	pH	2:1 W/S SO4 (g/L)	W/S Mg (mg/L)	
BH4	7	2.50-2.95	U	Firm fissured brown mottled grey CLAY	31	71	27	44	100	1.92	1.47	48	95	47				
BH4	12	4.50-4.95	U	Brown mottled grey silty CLAY with rare gypsum	31	75	26	49	100									
BH4	23	10.50-10.95	U	Very fissured dark grey CLAY	29					1.90	1.47	200	200	100				
BH4	38	19.50-19.95	U	Brown grey silty CLAY	25	62	26	36	100									
BH4	43	22.50-22.95	U	Very stiff fissured dark grey CLAY	26	63	25	38	100	2.08	1.65	428	312	156				
BH5	4	1.50-1.95	U	Stiff fissured brown CLAY	31	71	27	44	100	1.96	1.50	29	135	67				
BH5	9	3.50-3.95	U	Brown mottled orange silty CLAY with rare fine siltstone	28	67	25	42	98									
BH5	19	9.00-9.45	U	Brown silty CLAY	30	77	31	46	100									
BH5	24	12.00-12.45	U	Very stiff fissured dark grey CLAY	28	71	27	44	100	1.96	1.53	228	210	105				
BH5	34	18.00-18.45	U	Greyish brown slightly fine sandy silty CLAY	26	60	28	32	100									
BH5	39	21.00-21.45	U	Very stiff fissured dark grey silty CLAY	27	63	26	37	100	1.98	1.56	399	324	162				
BH5	49	27.00-27.45	U	Very stiff fissured dark grey silty CLAY	24	68	27	41	100	2.01	1.62	513	1,067	533				

Sample type: B (Bulk disturb.) BLK (Block) C (Core) D (Disturbed) LB (Large Bulk dist.) U (Undisturbed)

Checked and Approved by

S Burke

Senior Technician
09/12/2014

Project Number:

GEO / 21995

Project Name:

CAMDEN LOCK VILLAGE PHASE II
CG/18067A

GEOLABS®

SUMMARY OF GEOTECHNICAL TESTING

Sample details					Classification Tests					Density Tests		Undrained Triaxial Compression			Chemical Tests			Other tests and comments
Borehole / Trial Pit	Sample Ref	Depth (m)	Type	Description	MC (%)	LL (%)	PL (%)	PI (%)	<425 • m (%)	Bulk Mg/m³	Dry Mg/m³	Cell Pressure kPa	Deviator Stress kPa	Shear Stress kPa	pH	2:1 W/S SO4 (g/L)	W/S Mg (mg/L)	
BH5	62	36.00-36.50	U	Brown silty CLAY	20	48	20	28	100									
BH6	5	2.50-2.95	U	Firm to stiff fissured brown CLAY	33	72	26	46	100	1.95	1.47	48	147	73				
BH6	10	4.50-4.95	U	Brown silty CLAY with rare gypsum	31	73	27	46	100									
BH6	20	10.50-10.95	U	Very stiff fissured dark brown CLAY	30					1.95	1.50	200	160	80				
BH6	29	16.50-16.95	U	Brownish grey silty CLAY	25	59	28	31	100									
BH6	34	19.50-19.95	U	Very stiff fissured dark grey CLAY	24	64	25	39	100	1.97	1.59	371	478	239				

Sample type: B (Bulk disturb.) BLK (Block) C (Core) D (Disturbed) LB (Large Bulk dist.) U (Undisturbed)

Checked and Approved by

S Burke

Senior Technician
09/12/2014

Project Number:

GEO / 21995

Project Name:

CAMDEN LOCK VILLAGE PHASE II
CG/18067A

GEOLABS®

BS 1377 : Part 7 : 1990 Clause 8

QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No	BH4
Sample Ref	7
Depth (m)	2.50-2.95
Sample Type	U

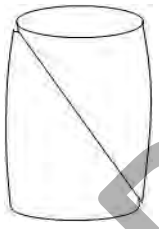
Description:

Firm fissured brown mottled grey CLAY

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	201.6
Diameter	(mm)	103.2
Moisture Content	(%)	31
Bulk Density	(Mg/m³)	1.92
Dry Density	(Mg/m³)	1.46
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.80
Axial displacement rate	(%/min)	1.98
Cell pressure	(kPa)	48
Strain at failure	(%)	12.9
Maximum Deviator Stress	(kPa)	95
Shear Stress Cu	(kPa)	47

Mode of failure



Orientation of the sample	Vertical
Distance from top of tube mm	60

Checked and Approved by:

S Burke

Senior Technician
09/12/2014

Project Number:

GEO / 21995

Project Name:

CAMDEN LOCK VILLAGE PHASE II
CG/18067A

GEOLABS

BS 1377 : Part 7 : 1990 Clause 8

QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No	BH4
Sample Ref	23
Depth (m)	10.50-10.95
Sample Type	U

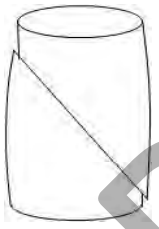
Description:

Very fissured dark grey CLAY

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	202.1
Diameter	(mm)	104.4
Moisture Content	(%)	29
Bulk Density	(Mg/m³)	1.90
Dry Density	(Mg/m³)	1.47
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.27
Axial displacement rate	(%/min)	1.98
Cell pressure	(kPa)	200
Strain at failure	(%)	3.5
Maximum Deviator Stress	(kPa)	200
Shear Stress Cu	(kPa)	100

Mode of failure



Orientation of the sample	Vertical
Distance from top of tube mm	30

Checked and Approved by:

S Burke

Senior Technician
09/12/2014

Project Number:

GEO / 21995

Project Name:

CAMDEN LOCK VILLAGE PHASE II
CG/18067A

GEOLABS

UKAS TESTING

BS 1377 : Part 7 : 1990 Clause 8

QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No	BH4
Sample Ref	43
Depth (m)	22.50-22.95
Sample Type	U

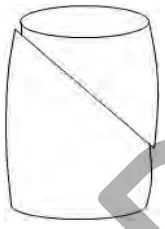
Description:

Very stiff fissured dark grey CLAY

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	202.3
Diameter	(mm)	100.6
Moisture Content	(%)	26
Bulk Density	(Mg/m³)	2.08
Dry Density	(Mg/m³)	1.64
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.41
Axial displacement rate	(%/min)	1.98
Cell pressure	(kPa)	428
Strain at failure	(%)	5.4
Maximum Deviator Stress	(kPa)	312
Shear Stress Cu	(kPa)	156

Mode of failure



Orientation of the sample	Vertical
Distance from top of tube mm	50

Checked and Approved by:

S Burke

Senior Technician
09/12/2014

Project Number:

GEO / 21995

Project Name:

CAMDEN LOCK VILLAGE PHASE II
CG/18067A

GEOLABS

UKAS TESTING

BS 1377 : Part 7 : 1990 Clause 8

QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No	BH5
Sample Ref	4
Depth (m)	1.50-1.95
Sample Type	U

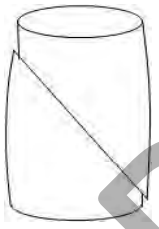
Description:

Stiff fissured brown CLAY

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	201.3
Diameter	(mm)	102.6
Moisture Content	(%)	31
Bulk Density	(Mg/m³)	1.96
Dry Density	(Mg/m³)	1.49
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.16
Axial displacement rate	(%/min)	1.99
Cell pressure	(kPa)	29
Strain at failure	(%)	2.0
Maximum Deviator Stress	(kPa)	135
Shear Stress Cu	(kPa)	67

Mode of failure



Orientation of the sample	Vertical
Distance from top of tube mm	50

Checked and Approved by:

S Burke

Senior Technician
09/12/2014

Project Number:

GEO / 21995

Project Name:

CAMDEN LOCK VILLAGE PHASE II
CG/18067A

GEOLABS

UKAS TESTING

BS 1377 : Part 7 : 1990 Clause 8

QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No	BH5
Sample Ref	24
Depth (m)	12.00-12.45
Sample Type	U

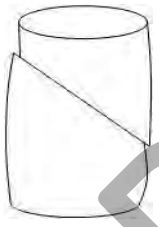
Description:

Very stiff fissured dark grey CLAY

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	201.2
Diameter	(mm)	103.3
Moisture Content	(%)	28
Bulk Density	(Mg/m³)	1.96
Dry Density	(Mg/m³)	1.54
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.12
Axial displacement rate	(%/min)	1.99
Cell pressure	(kPa)	228
Strain at failure	(%)	1.5
Maximum Deviator Stress	(kPa)	210
Shear Stress Cu	(kPa)	105

Mode of failure



Orientation of the sample	Vertical
Distance from top of tube mm	50

Checked and Approved by:

S Burke

Senior Technician
09/12/2014

Project Number:

GEO / 21995

Project Name:

CAMDEN LOCK VILLAGE PHASE II
CG/18067A

GEOLABS

UKAS TESTING

BS 1377 : Part 7 : 1990 Clause 8

QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No	BH5
Sample Ref	39
Depth (m)	21.00-21.45
Sample Type	U

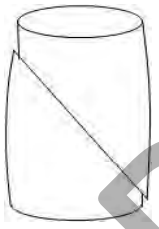
Description:

Very stiff fissured dark grey silty CLAY

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	201.5
Diameter	(mm)	103.7
Moisture Content	(%)	27
Bulk Density	(Mg/m³)	1.98
Dry Density	(Mg/m³)	1.56
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.22
Axial displacement rate	(%/min)	1.98
Cell pressure	(kPa)	399
Strain at failure	(%)	2.7
Maximum Deviator Stress	(kPa)	324
Shear Stress Cu	(kPa)	162

Mode of failure



Orientation of the sample	Vertical
Distance from top of tube mm	60

Checked and Approved by:

S Burke

Senior Technician
09/12/2014

Project Number:

GEO / 21995

Project Name:

CAMDEN LOCK VILLAGE PHASE II
CG/18067A

GEOLABS

UKAS TESTING

BS 1377 : Part 7 : 1990 Clause 8

QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No	BH5
Sample Ref	49
Depth (m)	27.00-27.45
Sample Type	U

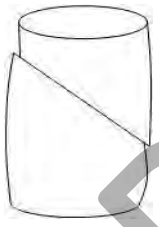
Description:

Very stiff fissured dark grey silty CLAY

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	185.2
Diameter	(mm)	103.6
Moisture Content	(%)	24
Bulk Density	(Mg/m³)	2.01
Dry Density	(Mg/m³)	1.62
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.25
Axial displacement rate	(%/min)	2.16
Cell pressure	(kPa)	513
Strain at failure	(%)	3.2
Maximum Deviator Stress	(kPa)	1067
Shear Stress Cu	(kPa)	533

Mode of failure



Orientation of the sample	Vertical
Distance from top of tube mm	10

Checked and Approved by:

S Burke

Senior Technician
09/12/2014

Project Number:

GEO / 21995

Project Name:

CAMDEN LOCK VILLAGE PHASE II
CG/18067A

GEOLABS

BS 1377 : Part 7 : 1990 Clause 8

QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No	BH6
Sample Ref	5
Depth (m)	2.50-2.95
Sample Type	U

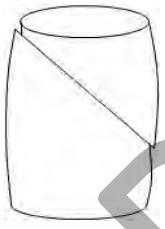
Description:

Firm to stiff fissured brown CLAY

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	200.7
Diameter	(mm)	102.8
Moisture Content	(%)	33
Bulk Density	(Mg/m³)	1.95
Dry Density	(Mg/m³)	1.47
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.53
Axial displacement rate	(%/min)	1.99
Cell pressure	(kPa)	48
Strain at failure	(%)	7.5
Maximum Deviator Stress	(kPa)	147
Shear Stress Cu	(kPa)	73

Mode of failure



Orientation of the sample	Vertical
Distance from top of tube mm	20

Checked and Approved by:

S Burke

Senior Technician
09/12/2014

Project Number:

GEO / 21995

Project Name:

CAMDEN LOCK VILLAGE PHASE II
CG/18067A

GEOLABS

UKAS TESTING

BS 1377 : Part 7 : 1990 Clause 8

QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No	BH6
Sample Ref	20
Depth (m)	10.50-10.95
Sample Type	U

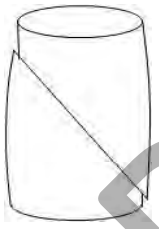
Description:

Very stiff fissured dark brown CLAY

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	201.1
Diameter	(mm)	103.6
Moisture Content	(%)	30
Bulk Density	(Mg/m³)	1.95
Dry Density	(Mg/m³)	1.50
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.16
Axial displacement rate	(%/min)	1.99
Cell pressure	(kPa)	200
Strain at failure	(%)	2.0
Maximum Deviator Stress	(kPa)	160
Shear Stress Cu	(kPa)	80

Mode of failure



Orientation of the sample	Vertical
Distance from top of tube mm	20

Checked and Approved by:

S Burke

Senior Technician
09/12/2014

Project Number:

GEO / 21995

Project Name:

CAMDEN LOCK VILLAGE PHASE II
CG/18067A

GEOLABS

BS 1377 : Part 7 : 1990 Clause 8

QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No	BH6
Sample Ref	34
Depth (m)	19.50-19.95
Sample Type	U

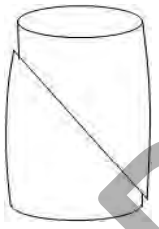
Description:

Very stiff fissured dark grey CLAY

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	200.3
Diameter	(mm)	104.6
Moisture Content	(%)	24
Bulk Density	(Mg/m³)	1.97
Dry Density	(Mg/m³)	1.58
Test Details		
Latex membrane thickness	(mm)	0.30
Membrane correction	(kPa)	0.29
Axial displacement rate	(%/min)	2.00
Cell pressure	(kPa)	371
Strain at failure	(%)	3.7
Maximum Deviator Stress	(kPa)	478
Shear Stress Cu	(kPa)	239

Mode of failure



Orientation of the sample	Vertical
Distance from top of tube mm	60

Checked and Approved by:

S Burke

Senior Technician
09/12/2014

Project Number:

GEO / 21995

Project Name:

CAMDEN LOCK VILLAGE PHASE II
CG/18067A

GEOLABS

UKAS TESTING