APPENDIX A

Exploratory Hole Location Plan

PROJECT: LAND AT BLISS HOUSE

JOB No. G-16-381

APPENDIX B

Borehole Logs

SPT RESULTS							SOIL	DESCRIPTION
SOIL SAMPLES/TEST DEPTH(m)	TYPE	SPT VALUE	FIELD RECORDS	WELL	SHEAR VANE kN/m2	DEPTH (m)	SOIL REF	
						0.2	A	MADE GROUND: Tarmac, hardcore, gravel and brick
1.00-1.45	C1	N = 10	2,2/2,2,2,4			1.0		
2.00-2.45	C2	N = 11	3,3/3,3,2,3			2.0	B	Firm brown silty CLAY.
						2.7		
3.00-3.45	C3	N = 10	1,1/2,2,3,3			3.0		
4.00-4.45	C4	N = 10	2,1/2,2,3,3			4.0	C	Firm brown SILT.
						5.0		End of borehole @ 4.0m
						6.0		

Remarks: 1. Borehole carried out by Competitor 130 Window Sample Rig
2.
3.
4.

Key: ▽ - Water Strike
D - Disturbed Sample
B - Bulk Sample
C - Cone (SPT Test)

ORIGINAL DRAWING SIZE A4

NOT TO SCALE

Site Date	Site Engineer	Job No	
02.11.2016	MH/PB	G-16-381	
Drawn	Checked	Drawing No	Issue
AG	RR	BH1	A

Title
BOREHOLE No. 1

Project
LAND AT BLISS HOUSE

Shiregeotechnical
The Chapel Barnsley Hall Road
BROMSGROVE Worcestershire B61 0SZ
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e : info@shire-uk.com
w : www.shire-uk.com

SPT RESULTS							SOIL	DESCRIPTION
SOIL SAMPLES/TEST DEPTH(m)	TYPE	SPT VALUE	FIELD RECORDS	WELL	SHEAR VANE kN/m2	DEPTH (m)	SOIL REF		
						0.3	A		MADE GROUND: Tarmac, hardcore, gravel and brick
1.00-1.45	C1	N = 13	2,2/3,3,3,4			1.0	B		Brown silty CLAY.
						1.5	C		Firm brown clayey SILT.
2.00-2.45	C2	N = 15	3,3/2,4,4,5			2.0	D		Firm damp brown SILT.
3.00-3.45	C3	N = 15	2,3/4,3,3,5			3.0			
4.00-4.45	C4	N = 12	3,2/3,3,2,4			4.0			
						5.0			End of borehole @ 4.0m
						6.0			

Remarks: 1. Borehole carried out by Competitor 130 Window Sample Rig
2.
3.
4.

Key: ▽ - Water Strike
D - Disturbed Sample
B - Bulk Sample
C - Cone (SPT Test)

ORIGINAL DRAWING SIZE A4

NOT TO SCALE

Site Date	Site Engineer	Job No	
02.11.2016	MH/PB	G-16-381	
Drawn	Checked	Drawing No	Issue
AG	RR	BH2	A

Title
BOREHOLE No. 2

Project
LAND AT BLISS HOUSE

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SPT RESULTS							SOIL	DESCRIPTION
SOIL SAMPLES/TEST DEPTH(m)	TYPE	SPT VALUE	FIELD RECORDS	WELL	SHEAR VANE kN/m2	DEPTH (m)	SOIL REF		
						0.5	A		MADE GROUND: Tarmac, hardcore, gravel and brick
1.00-1.45	C1	N = 1	1,0/0,0,0,1			1.0	B		Very soft dark brown to black PEAT with organic materials and wood.
						1.5			
2.00-2.45	C2	N = 19	4,4/4,5,5,5			2.0	C		Stiff brown CLAY.
3.00-3.45	C3	N = 14	2,2/2,4,3,5			3.0	D		Stiff becoming firm brown clayey SILT.
4.00-4.45	C4	N = 15	3,2/3,4,3,5			4.0			
5.00-5.45	C5	N = 13	-,-/3,3,3,4			5.0			
						6.0			End of borehole @ 5.0m

Remarks: 1. Borehole carried out by Competitor 130 Window Sample Rig
2.
3.
4.

Key: ▽ - Water Strike
D - Disturbed Sample
B - Bulk Sample
C - Cone (SPT Test)

ORIGINAL DRAWING SIZE A4

NOT TO SCALE

Site Date	Site Engineer	Job No	
02.11.2016	MH/PB	G-16-381	
Drawn	Checked	Drawing No	Issue
AG	RR	BH3	A

Title
BOREHOLE No. 3

Project
LAND AT BLISS HOUSE

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SPT RESULTS							SOIL	DESCRIPTION
SOIL SAMPLES/TEST DEPTH(m)	TYPE	SPT VALUE	FIELD RECORDS	WELL	SHEAR VANE kN/m2	DEPTH (m) / SOIL REF		
						0.3 A		MADE GROUND: Tarmac, hardcore, gravel and brick
1.00-1.45	C1	N = 12	1,2/2,3,3,4			1.0 B		Firm brown CLAY.
						1.5		
2.00-2.45	C2	N = 17	3,4/4,4,4,5			2.0 C		Firm brown CLAY with occasional gravel
3.00-3.45	C3	N = 17	3,3/3,5,4,5			3.0 D		Firm becoming stiff reddish brown CLAY with black minerals.
4.00-4.45	C4	N = 23	2,4/6,6,5,6			4.0 E		Stiff reddish brown clayey SILT.
						5.0		End of borehole @ 4.0m
						6.0		

Remarks: 1. Borehole carried out by Competitor 130 Window Sample Rig
2.
3.
4.

Key: ▽ - Water Strike
D - Disturbed Sample
B - Bulk Sample
C - Cone (SPT Test)

ORIGINAL DRAWING SIZE A4

NOT TO SCALE

Site Date	Site Engineer	Job No	
02.11.2016	MH/PB	G-16-381	
Drawn	Checked	Drawing No	Issue
AG	RR	BH4	A

Title
BOREHOLE No. 4

Project
LAND AT BLISS HOUSE

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w : www.shire-uk.com

SPT RESULTS							SOIL	DESCRIPTION
SOIL SAMPLES/TEST DEPTH(m)	TYPE	SPT VALUE	FIELD RECORDS	WELL	SHEAR VANE kN/m2	DEPTH (m)	SOIL REF		
						0.5	A		MADE GROUND: Brown clayey TOPSOIL with brick fragments and roots.
1.00-1.45	C1	N = 18	3,4/4,5,4,5			1.0			
2.00-2.45	C2	N = 12	3,3/2,3,3,4			2.0	B		Stiff becoming firm dry brown CLAY with occasional rounded gravel.
						2.3			
3.00-3.45	C3	N = 19	3,2/3,4,5,7			3.0	C		Firm becoming stiff brown silty CLAY.
4.00-4.45	C4	N = 17	3,4/3,4,5,5			4.0	D		Stiff brown silty CLAY with occasional rounded gravel.
5.00-5.45	C5	N = 7	1,2/1,2,1,3			5.0	E		Stiff reddish brown SILT.
6.00-6.45	C6	N = 19	3,4/4,4,5,6			6.0	F		Soft becoming stiff reddish brown silty CLAY with occasional gravel.

Remarks: 1. Borehole carried out by Competitor 130 Window Sample Rig
2.
3.
4.

Key: ▽ - Water Strike
D - Disturbed Sample
B - Bulk Sample
C - Cone (SPT Test)

ORIGINAL DRAWING SIZE A4

NOT TO SCALE

Site Date	Site Engineer	Job No	
02.11.2016	MH/PB	G-16-381	
Drawn	Checked	Drawing No	Issue
AG	RR	BH5	A

Title
BOREHOLE No. 5

Project
LAND AT BLISS HOUSE

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w : www.shire-uk.com

SPT RESULTS							SOIL	DESCRIPTION
SOIL SAMPLES/TEST DEPTH(m)	TYPE	SPT VALUE	FIELD RECORDS	WELL	SHEAR VANE kN/m2	DEPTH (m)	SOIL REF		
7.00-7.45	C7	N = 19	4,4/4,4,5,6			7.0	G		Stiff reddish brown clayey SILT.
						8.0			End of borehole @ 7.0m
						9.0			
						10.0			
						11.0			
						12.0			

Remarks: 1. Borehole carried out by Competitor 130 Window Sample Rig
2.
3.
4.

Key: ▽ - Water Strike
D - Disturbed Sample
B - Bulk Sample
C - Cone (SPT Test)

ORIGINAL DRAWING SIZE A4

NOT TO SCALE

Site Date	Site Engineer	Job No	
02.11.2016	MH/PB	G-16-381	
Drawn	Checked	Drawing No	Issue
AG	RR	BH5	A

Title
BOREHOLE No. 5

Project
LAND AT BLISS HOUSE

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w : www.shire-uk.com

SPT RESULTS							SOIL	DESCRIPTION
SOIL SAMPLES/TEST DEPTH(m)	TYPE	SPT VALUE	FIELD RECORDS	WELL	SHEAR VANE kN/m2	DEPTH (m)	SOIL REF	
						0.5	A	Brown clayey TOPSOIL with occasional gravel.
1.00-1.45	C1	N = 10	2,2/2,2,2,4			1.0	B	
2.00-2.45	C2	N = 6	1,1/1,1,2,2			2.0		Firm becoming soft dry brown SILT.
						2.5		
3.00-3.45	C3	N = 13	2,2/2,3,3,5			3.0	C	
4.00-4.45	C4	N = 15	3,3/3,3,4,5			4.0		Firm brown slightly clayey SILT.
5.00-5.45	C5	N = 10	1,2/2,2,3,3			5.0		
						6.0		End of borehole @ 5.0m

Remarks: 1. Borehole carried out by Competitor 130 Window Sample Rig
2.
3.
4.

Key: ▽ - Water Strike
D - Disturbed Sample
B - Bulk Sample
C - Cone (SPT Test)

ORIGINAL DRAWING SIZE A4

NOT TO SCALE

Site Date	Site Engineer	Job No	
02.11.2016	MH/PB	G-16-381	
Drawn	Checked	Drawing No	Issue
AG	RR	BH6	A

Title
BOREHOLE No. 6

Project
LAND AT BLISS HOUSE

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APPENDIX C

Laboratory Test Results

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UKAS TESTING 2683

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number:	16-09358
Issue:	1
Date of Issue:	09/11/2016
Contact:	Rob Ray
Customer Details:	Shire Consulting The Chapel Bromsgrove WorcestershireB61 OSZ
Quotation No:	Q14-00098
Order No:	Not Supplied
Customer Reference:	G-16-381
Date Received:	07/11/2016
Date Approved:	09/11/2016
Details:	Land at Bliss House
Approved by:	[redacted]

John Wilson, Operations Manager

Any comments, opinions or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683

Sample Summary

Report No.: 16-09358

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
79459	BH1 0.20	02/11/2016	07/11/2016	Silty loam	
79460	BH2 0.20	02/11/2016	07/11/2016	Sandy silty loam & stones	
79461	BH3 0.30	02/11/2016	07/11/2016	Sandy silty loam	
79462	BH4 0.20	02/11/2016	07/11/2016	Silty loam	
79463	BH5 0.20	02/11/2016	07/11/2016	Silty loam	
79464	BH6 0.20	02/11/2016	07/11/2016	Silty loam	
79465	BH3 1.50	02/11/2016	07/11/2016	Silty clayey loam	c
79466	BH1 2.00	02/11/2016	07/11/2016	Silty loam	
79467	BH5 2.00	02/11/2016	07/11/2016	Silty loam	

Results Summary

Report No.: 16-09358

			ELAB Reference	79459	79460	79461	79462	79463	79464
			Customer Reference						
			Sample ID						
			Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Sample Location	BH1	BH2	BH3	BH4	BH5	BH6
			Sample Depth (m)	0.20	0.20	0.30	0.20	0.20	0.20
			Sampling Date	02/11/2016	02/11/2016	02/11/2016	02/11/2016	02/11/2016	02/11/2016
Determinand	**Codes**	**Units**	**LOD**						
Metals									
Arsenic	M	mg/kg	1	6.8	^ 12.2	11.3	5.3	6.0	6.9
Cadmium	M	mg/kg	0.5	< 0.5	^ < 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chromium	M	mg/kg	5	32.6	^ 36.0	32.5	27.6	27.3	31.9
Copper	M	mg/kg	5	19.0	^ 51.4	34.1	18.5	18.1	18.8
Lead	M	mg/kg	5	31.2	^ 35.0	59.6	26.1	31.7	23.2
Mercury	M	mg/kg	0.5	< 0.5	^ < 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Nickel	M	mg/kg	5	31.8	^ 25.4	29.8	28.0	29.3	34.6
Selenium	M	mg/kg	1	< 1.0	^ < 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc	M	mg/kg	5	84.6	^ 118	170	88.4	86.3	79.9
Anions									
Water Soluble Sulphate	M	g/l	0.02	0.06	^ 0.03	0.17	0.10	0.03	0.03
Miscellaneous									
pH	M	pH units	0.1	7.4	^ 7.9	9.1	8.1	6.8	6.7
Soil Organic Matter	U	%	0.1	2.1	3.3	2.5	2.1	1.6	0.8
Organics									
>C8-C10 BCB	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C10-C12 BCB	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C12-C16 BCB	N	mg/kg	1	< 1.0	< 1.0	16.0	2.2	< 1.0	< 1.0
>C16-C21 BCB	N	mg/kg	1	< 1.0	8.0	89.4	53.9	< 1.0	< 1.0
>C21-C35 BCB	N	mg/kg	1	5.9	172	729	1060	< 1.0	1.9
>C35-C40 BCB	N	mg/kg	1	< 1.0	40.2	112	224	< 1.0	< 1.0
Total (>C8-C40) BCB	N	mg/kg	1	5.9	220	946	1340	< 1.0	1.9
Polyaromatic hydrocarbons									
Naphthalene	M	mg/kg	0.1	< 0.1	^ < 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	M	mg/kg	0.1	< 0.1	^ < 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	M	mg/kg	0.1	< 0.1	^ < 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	M	mg/kg	0.1	< 0.1	^ < 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	M	mg/kg	0.1	< 0.1	^ < 0.1	0.2	< 0.1	< 0.1	< 0.1
Anthracene	M	mg/kg	0.1	< 0.1	^ < 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	M	mg/kg	0.1	< 0.1	^ < 0.1	0.1	< 0.1	< 0.1	< 0.1
Pyrene	M	mg/kg	0.1	< 0.1	^ < 0.1	0.3	0.2	< 0.1	< 0.1
Benzo(a)anthracene	M	mg/kg	0.1	< 0.1	^ < 0.1	0.1	< 0.1	< 0.1	< 0.1
Chrysene	M	mg/kg	0.1	< 0.1	^ < 0.1	0.6	0.2	< 0.1	< 0.1
Benzo (b) fluoranthene	M	mg/kg	0.1	< 0.1	^ < 0.1	0.5	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	M	mg/kg	0.1	< 0.1	^ < 0.1	0.8	< 0.1	< 0.1	< 0.1
Benzo (a) pyrene	M	mg/kg	0.1	< 0.1	^ < 0.1	0.7	0.2	< 0.1	< 0.1
Indeno (1,2,3-cd) pyrene	M	mg/kg	0.1	< 0.1	^ < 0.1	< 0.1	0.3	< 0.1	< 0.1
Dibenzo(a,h)anthracene	M	mg/kg	0.1	< 0.1	^ < 0.1	< 0.1	0.2	< 0.1	< 0.1
Benzo[g,h,i]perylene	M	mg/kg	0.1	< 0.1	^ < 0.1	< 0.1	0.2	< 0.1	< 0.1
Total PAH(16)	M	mg/kg	0.4	< 0.4	^ < 0.4	3.6	1.1	< 0.4	< 0.4

Results Summary

Report No.: 16-09358

			ELAB Reference	79465	79466	79467
			Customer Reference			
			Sample ID			
			Sample Type	SOIL	SOIL	SOIL
			Sample Location	BH3	BH1	BH5
			Sample Depth (m)	1.50	2.00	2.00
			Sampling Date	02/11/2016	02/11/2016	02/11/2016
Determinand	**Codes**	**Units**	**LOD**			
Metals						
Arsenic	M	mg/kg	1	6.2	n/t	n/t
Cadmium	M	mg/kg	0.5	< 0.5	n/t	n/t
Chromium	M	mg/kg	5	38.3	n/t	n/t
Copper	M	mg/kg	5	14.8	n/t	n/t
Lead	M	mg/kg	5	19.5	n/t	n/t
Mercury	M	mg/kg	0.5	< 0.5	n/t	n/t
Nickel	M	mg/kg	5	40.1	n/t	n/t
Selenium	M	mg/kg	1	< 1.0	n/t	n/t
Zinc	M	mg/kg	5	79.1	n/t	n/t
Anions						
Water Soluble Sulphate	M	g/l	0.02	0.06	0.04	0.02
Miscellaneous						
pH	M	pH units	0.1	8.2	7.9	7.3
Soil Organic Matter	U	%	0.1	0.6	n/t	n/t
Organics						
>C8-C10 BCB	N	mg/kg	1	c < 1.0	n/t	n/t
>C10-C12 BCB	N	mg/kg	1	c < 1.0	n/t	n/t
>C12-C16 BCB	N	mg/kg	1	c < 1.0	n/t	n/t
>C16-C21 BCB	N	mg/kg	1	c < 1.0	n/t	n/t
>C21-C35 BCB	N	mg/kg	1	c 5.5	n/t	n/t
>C35-C40 BCB	N	mg/kg	1	c < 1.0	n/t	n/t
Total (>C8-C40) BCB	N	mg/kg	1	c 5.5	n/t	n/t
Polyaromatic hydrocarbons						
Naphthalene	M	mg/kg	0.1	c < 0.1	n/t	n/t
Acenaphthylene	M	mg/kg	0.1	c < 0.1	n/t	n/t
Acenaphthene	M	mg/kg	0.1	c < 0.1	n/t	n/t
Fluorene	M	mg/kg	0.1	c < 0.1	n/t	n/t
Phenanthrene	M	mg/kg	0.1	c < 0.1	n/t	n/t
Anthracene	M	mg/kg	0.1	c < 0.1	n/t	n/t
Fluoranthene	M	mg/kg	0.1	c < 0.1	n/t	n/t
Pyrene	M	mg/kg	0.1	c < 0.1	n/t	n/t
Benzo(a)anthracene	M	mg/kg	0.1	c < 0.1	n/t	n/t
Chrysene	M	mg/kg	0.1	c < 0.1	n/t	n/t
Benzo (b) fluoranthene	M	mg/kg	0.1	c < 0.1	n/t	n/t
Benzo(k)fluoranthene	M	mg/kg	0.1	c < 0.1	n/t	n/t
Benzo (a) pyrene	M	mg/kg	0.1	c < 0.1	n/t	n/t
Indeno (1,2,3-cd) pyrene	M	mg/kg	0.1	c < 0.1	n/t	n/t
Dibenzo(a,h)anthracene	M	mg/kg	0.1	c < 0.1	n/t	n/t
Benzo[g,h,i]perylene	M	mg/kg	0.1	c < 0.1	n/t	n/t
Total PAH(16)	M	mg/kg	0.4	c < 0.4	n/t	n/t

Tests marked N are not UKAS accredited.

Method Summary

Report No.: 16-09358

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil					
pH	M	Air dried sample	09/11/2016	113	Electromeric
Aqua regia extractable metals	M	Air dried sample	08/11/2016	118	ICPMS
PAH (GC-FID)	M	As submitted sample	08/11/2016	133	GC-FID
Water soluble anions	M	Air dried sample	08/11/2016	172	Ion Chromatography
Basic carbon banding in soil	N	As submitted sample	08/11/2016	218	GC-FID
Soil organic matter	U	Air dried sample	08/11/2016	BS1377:P3	Titrimetry

Tests marked N are not UKAS accredited

Report Information

Report No.: 16-09358

Key	
U	hold UKAS accreditation
M	hold MCERTS and UKAS accreditation
N	do not currently hold UKAS accreditation
^	MCERTS accreditation not applicable for sample matrix
*	UKAS accreditation not applicable for sample matrix
S	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
I/S	Insufficient Sample
U/S	Unsuitable sample
n/t	Not tested
<	means "less than"
>	means "greater than"

Soil sample results are expressed on an air dried basis
Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
PCB congener results may include any coeluting PCBs
Uncertainty of measurement for the determinands tested are available upon request

Deviation Codes

a	No date of sampling supplied
b	No time of sampling supplied (Waters Only)
c	Sample not received in appropriate containers
d	Sample not received in cooled condition
e	The container has been incorrectly filled
f	Sample age exceeds stability time (sampling to receipt)
g	Sample age exceeds stability time (sampling to analysis)

Where a sample has a deviation code, the applicable test result may be invalid.

Sample Retention and Disposal

All soil samples will be retained for a period of one month
All water samples will be retained for 7 days following the date of the test report
Charges may apply to extended sample storage

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UKAS TESTING 2683

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number:	16-09638
Issue:	1
Date of Issue:	29/11/2016
Contact:	Rob Ray
Customer Details:	Shire Consulting The Chapel Bromsgrove WorcestershireB61 OSZ
Quotation No:	Q14-00098
Order No:	Not Supplied
Customer Reference:	G-16-381
Date Received:	07/11/2016
Date Approved:	29/11/2016
Details:	Land at Bliss House
Approved by:	[redacted]

John Wilson, Operations Manager

Any comments, opinions or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683

Sample Summary

Report No.: 16-09638

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
81323	Composite 1 BH1 - BH4 0.20	02/11/2016	23/11/2016	Sandy silty loam	g
81324	Composite 2 BH5 - BH6 0.20	02/11/2016	23/11/2016	Silty loam	g

Results Summary

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			ELAB Reference	81323	81324
			Customer Reference	BH1 - BH4	BH5 - BH6
			Sample ID		
			Sample Type	SOIL	SOIL
			Sample Location	Composite 1	Composite 2
			Sample Depth (m)	0.20	0.20
			Sampling Date	02/11/2016	02/11/2016
Determinand	**Codes**	**Units**	**LOD**		
Miscellaneous					
Acid Neutralisation Capacity	N	mol/kg	0.1	< 0.1	< 0.1
Loss On Ignition (450°C)	M	%	0.01	2.05	2.61
pH	M	pH units	0.1	7.1	7.0
Total Organic Carbon	N	%	0.01	0.83	0.88
Polyaromatic hydrocarbons					
Total PAH (Including Coronene)	N	mg/kg	2	8	< 2
BTEX					
Total BTEX	M	mg/kg	0.01	g < 0.01	g < 0.01
Total Petroleum Hydrocarbons					
Mineral Oil	U	mg/kg	5	g 1040	g < 5
PCB (ICES 7 congeners)					
PCB (Total of 7 Congeners)	M	mg/kg	0.03	< 0.03	< 0.03

Results Summary

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WAC Analysis								
Elab Ref:	81324					**Landfill Waste Acceptance Criteria Limits**		
Sample Date:	02/11/2016					**Inert Waste Landfill**	**Stable Non-reactive Hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Sample ID:	Composite 2 BH							
Depth (m)	0.2							
Site:	Land at Bliss House							
Determinand		**Code**	**Units**					
Total Organic Carbon		N	%		0.88	3	5	6
Loss on Ignition		M	%		2.6	--	--	10
Total BTEX		M	mg/kg		< 0.01	6	--	--
Total PCBs (7 congeners)		M	mg/kg		< 0.03	1	--	--
TPH Total WAC		M	mg/kg		< 5	500	--	--
Total (of 17) PAHs		N	mg/kg		< 2	100	--	--
pH		M			7.0	--	>6	--
Acid Neutralisation Capacity		N	mol/kg		< 0.1	--	To evaluate	To evaluate
Eluate Analysis			**10:1**		**10:1**	**Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg**		
			mg/l		**mg/kg**			
Arsenic		N	< 0.005		< 0.05	0.5	2	25
Barium		N	< 0.005		< 0.05	20	100	300
Cadmium		N	< 0.001		< 0.01	0.04	1	5
Chromium		N	< 0.005		< 0.05	0.5	10	70
Copper		N	0.010		0.10	2	50	100
Mercury		N	< 0.005		< 0.01	0.01	0.2	2
Molybdenum		N	< 0.005		< 0.05	0.5	10	30
Nickel		N	0.001		< 0.05	0.4	10	40
Lead		N	< 0.001		< 0.05	0.5	10	50
Antimony		N	< 0.005		< 0.05	0.06	0.7	5
Selenium		N	< 0.005		< 0.05	0.1	0.5	7
Zinc		N	0.006		0.06	4	50	200
Chloride		N	< 5		< 50	800	15000	25000
Fluoride		N	< 5		< 10	10	150	500
Sulphate		N	2		16.90	1000	20000	50000
Total Dissolved Solids		N	< 100		1000.00	4000	60000	100000
Phenol Index		N	< 0.01		< 0.10	1	-	-
Dissolved Organic Carbon		N	12.100		121.00	500	800	1000
Leach Test Information								
pH		N	7.7					
Conductivity (uS/cm)		N	40					
Dry mass of test portion (g)			101.000					
Dry Matter (%)			84					
Moisture (%)			19					
Eluent Volume (ml)			950					

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

Results Summary

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WAC Analysis								
Elab Ref:	81323					**Landfill Waste Acceptance Criteria Limits**		
Sample Date:	02/11/2016					**Inert Waste Landfill**	**Stable Non-reactive Hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Sample ID:	Composite 1 BH							
Depth (m)	0.2							
Site:	Land at Bliss House							
Determinand		**Code**	**Units**					
Total Organic Carbon		N	%		0.83	3	5	6
Loss on Ignition		M	%		2.1	--	--	10
Total BTEX		M	mg/kg		< 0.01	6	--	--
Total PCBs (7 congeners)		M	mg/kg		< 0.03	1	--	--
TPH Total WAC		M	mg/kg		1040	500	--	--
Total (of 17) PAHs		N	mg/kg		8.0	100	--	--
pH		M			7.1	--	>6	--
Acid Neutralisation Capacity		N	mol/kg		< 0.1	--	To evaluate	To evaluate
Eluate Analysis			**10:1**		**10:1**	**Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg**		
			mg/l		**mg/kg**			
Arsenic		N	0.016		0.16	0.5	2	25
Barium		N	0.021		0.21	20	100	300
Cadmium		N	< 0.001		< 0.01	0.04	1	5
Chromium		N	< 0.005		< 0.05	0.5	10	70
Copper		N	0.013		0.13	2	50	100
Mercury		N	< 0.005		< 0.01	0.01	0.2	2
Molybdenum		N	0.008		0.08	0.5	10	30
Nickel		N	0.002		< 0.05	0.4	10	40
Lead		N	< 0.001		< 0.05	0.5	10	50
Antimony		N	< 0.005		< 0.05	0.06	0.7	5
Selenium		N	< 0.005		< 0.05	0.1	0.5	7
Zinc		N	0.008		0.08	4	50	200
Chloride		N	8		81.00	800	15000	25000
Fluoride		N	< 5		< 10	10	150	500
Sulphate		N	23		235.00	1000	20000	50000
Total Dissolved Solids		N	180		1800.00	4000	60000	100000
Phenol Index		N	< 0.01		< 0.10	1	-	-
Dissolved Organic Carbon		N	17.600		176.00	500	800	1000
Leach Test Information								
pH		N	8.0					
Conductivity (uS/cm)		N	256					
Dry mass of test portion (g)			102.000					
Dry Matter (%)			89					
Moisture (%)			12					
Eluent Volume (ml)			968					

Results are expressed on a dry weight basis, after correction for moisture content where applicable
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Method Summary

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Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Leachate					
Arsenic*	N		29/11/2016	101	ICPMS
Cadmium*	N		29/11/2016	101	ICPMS
Chromium*	N		29/11/2016	101	ICPMS
Lead*	N		29/11/2016	101	ICPMS
Nickel*	N		29/11/2016	101	ICPMS
Copper*	N		29/11/2016	101	ICPMS
Zinc*	N		29/11/2016	101	ICPMS
Mercury*	N		29/11/2016	101	ICPMS
Selenium*	N		29/11/2016	101	ICPMS
Antimony	N		29/11/2016	101	ICPMS
Barium*	N		29/11/2016	101	ICPMS
Molybdenum*	N		29/11/2016	101	ICPMS
pH Value*	N		29/11/2016	113	Electrometric
Electrical Conductivity*	N		29/11/2016	136	Probe
Dissolved Organic Carbon	N		29/11/2016	102	TOC analyser
Chloride*	N		29/11/2016	131	Ion Chromatography
Fluoride*	N		29/11/2016	131	Ion Chromatography
Sulphate*	N		29/11/2016	131	Ion Chromatography
Total Dissolved Solids	N		29/11/2016	144	Gravimetric
Phenol index	N		29/11/2016	121	HPLC
WAC Solids analysis	N				
pH Value**	M	Air dried sample	29/11/2016	113	Electrometric
Total Organic Carbon	N	Air dried sample	28/11/2016	210	IR
Loss on Ignition**	M	Air dried sample	28/11/2016	129	Gravimetric
Acid Neutralization Capacity to pH 7	N	Air dried sample	29/11/2016	NEN 737	Electrometric
Total BTEX**	M	As submitted sample	25/11/2016	181	GCMS
Mineral Oil**	U	As submitted sample	24/11/2016	117	GCFID
Total PCBs (7 congeners)	M	Air dried sample	25/11/2016	120	GCMS
Total PAH (17)**	N	As submitted sample	25/11/2016	133	GCFID

Tests marked N are not UKAS accredited

Report Information

Report No.: 16-09638

Key

U	hold UKAS accreditation
M	hold MCERTS and UKAS accreditation
N	do not currently hold UKAS accreditation
^	MCERTS accreditation not applicable for sample matrix
*	UKAS accreditation not applicable for sample matrix
S	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
I/S	Insufficient Sample
U/S	Unsuitable sample
n/t	Not tested
<	means "less than"
>	means "greater than"

Soil sample results are expressed on an air dried basis (dried at < 30°C)
Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
PCB congener results may include any coeluting PCBs
Uncertainty of measurement for the determinands tested are available upon request

Deviation Codes

a	No date of sampling supplied
b	No time of sampling supplied (Waters Only)
c	Sample not received in appropriate containers
d	Sample not received in cooled condition
e	The container has been incorrectly filled
f	Sample age exceeds stability time (sampling to receipt)
g	Sample age exceeds stability time (sampling to analysis)

Where a sample has a deviation code, the applicable test result may be invalid.

Sample Retention and Disposal

All soil samples will be retained for a period of one month
All water samples will be retained for 7 days following the date of the test report
Charges may apply to extended sample storage