



[REDACTED]
[REDACTED]
Planning Enforcement and Environment Team
Safer Communities and Housing
London Borough of Ealing
Perceval House
14/16 Uxbridge Road
London W5 2HL

22nd November 2021

Our ref. [REDACTED]

Dear [REDACTED]

Re: Independent Testing of Clean Cover System at The Green Quarter Housing Development, Southall Waterside – Phase I Block G

Introduction

This letter report summarises the findings of the independent soil testing undertaken at The Green Quarter Development in Southall in accordance with our quotation Ref. [REDACTED]. [REDACTED] instructed by LB Ealing on [REDACTED] via Purchase Order [REDACTED].

The newly constructed development was accessed via Accolade Avenue and Samara Drive off Beaconsfield Road, Southall, UB1 1FN and comprised part of Phase I of the redevelopment of the former Southall Gasworks.

Site Work

Leap attended site on 11th November 2021. At the time of the visit Block G was fully constructed, landscaped and planted with the exception of a small area of soft landscaping on the southern side which was being completed at the time of the visit. The works area and sample locations are shown on Figures 1 and 2, Appendix A. The Leap engineer was accompanied by representatives of Berkeley Homes (the developer), Atkins (environmental consultant to the developer) and Ealing Council (the Local Authority).

The engineer from Atkins was in attendance to sample the clean cover soils and assess the suitability of the clean cover systems against the specification within the Remediation Method Statement agreed with the Local Authority as part of the planning process. Atkins will produce a remediation verification report to support the discharge of planning condition 38.

The Atkins engineer hand excavated the 4 No. trial holes (one on each of the northern, southern, eastern and western sides of the building in areas of soft landscaping) to the base of the clean cover. The Leap engineer logged the soils, took photographs of the depths of the clean cover (Appendix B), noted the presence of any membranes and took soil samples as instructed by the LB Ealing representative. Soils were placed in laboratory supplied containers and kept in a cool box with ice packs prior to dispatch to the laboratory. The clean cover soils were reinstated by the Atkins engineer prior to moving to the next location.

Clean Cover Observations

Table 1: Summary of soils encountered

Location	Topsoil Description	Topsoil thickness (m)	Subsoil Description	Subsoil thickness (m)	Notes
West	Dark brown silty sand loam with rare fine timber and flint gravel	0.5 (0.0-0.5 m bgl)	Orangish brown silty medium sand and flint gravel	0.24 (0.5-0.74 m bgl)	Orange geotextile at base
North		0.2 (0.0-0.2 m bgl)		0.2 (0.2-0.4m bgl)	
East	1) Dark brown silty sand loam with rare fine timber and flint gravel 2) Mid brown medium to coarse sand with timber fragments	0.41 (0.0-0.26 m bgl) (0.26-0.41m bgl)	Orangish brown silty medium sand and flint gravel	0.09 (0.41-0.5m bgl)	Located over basement car park podium* Grey membrane at base overlying a granular drainage layer (thickness unproven)
South	Dark brown silty sand loam with rare fine timber and flint gravel	0.35 (0.0-0.35m bgl)	Locally clayey orangish brown silty medium sand and flint gravel	0.1 (0.35-0.45m bgl)	Located on the edge of the basement car park podium

*no minimal required thickness of clean cover as not in contact with natural, underlying soils



No visual or olfactory evidence of contamination or anthropogenic material was observed in any of the trial holes.

Soil Sampling

Table 2: Summary of samples collected for laboratory analysis

Location	Depth (m)	Topsoil / subsoil	Determinants scheduled
West	0.00-0.50	Topsoil	Heavy metals and PAH suites, free cyanide, phenol, asbestos, TOC, pH
West	0.50-0.74	Subsoil	
North	0.00-0.20	Topsoil	
East	0.00-0.26	Topsoil	Heavy metals and PAH suites, free cyanide, phenol, asbestos, TOC, pH, TPHCWG, BTEX, VOC suite
East	0.26-0.41	Topsoil	
South	0.35-0.45	Subsoil	

Samples were scheduled following discussion with the LB Ealing representative. Fifty percent were scheduled for the full suite of determinants as presented in the Remediation Method Statement whilst fifty percent were scheduled for a reduced suite (excluding some organics). It was ensured that each soil type was subjected to testing and that at least one sample of topsoil and subsoil was subjected to the full suite of testing. Samples were sent to the Environmental Laboratory at their facility in East Sussex.

Results and Conclusion

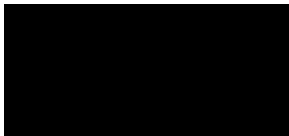
The laboratory test results were screened against the site-specific assessment criteria (SSAC) as presented in the Remediation Method Statement. The screening table is presented prior to the laboratory certificate in Appendix C. There were no exceedances recorded (although the site specific assessment criteria [SSAC] is below the laboratory limit of detection [LOD] for vinyl chloride).

From a geo-chemical perspective, and based on the representative samples collected, the soils are in compliance with the requirements of the Remediation Method Statement.



Please contact the undersigned should you need any further clarification.

Yours Sincerely,



For Leap Environmental Ltd.



Appendix A – Figures

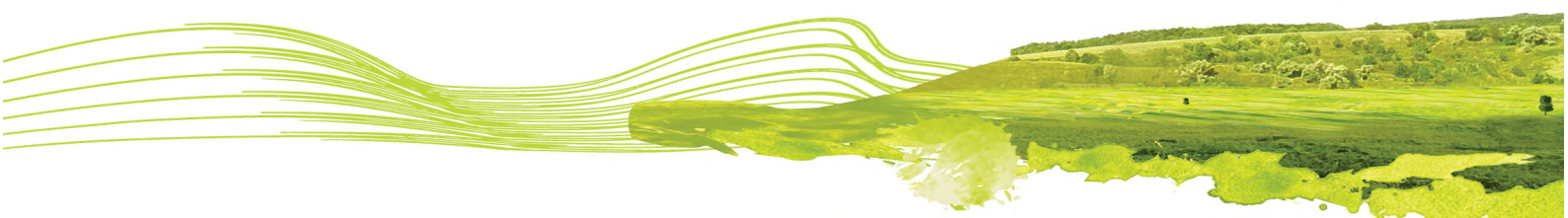


Figure 1: Phase 1, Building G Location Plan

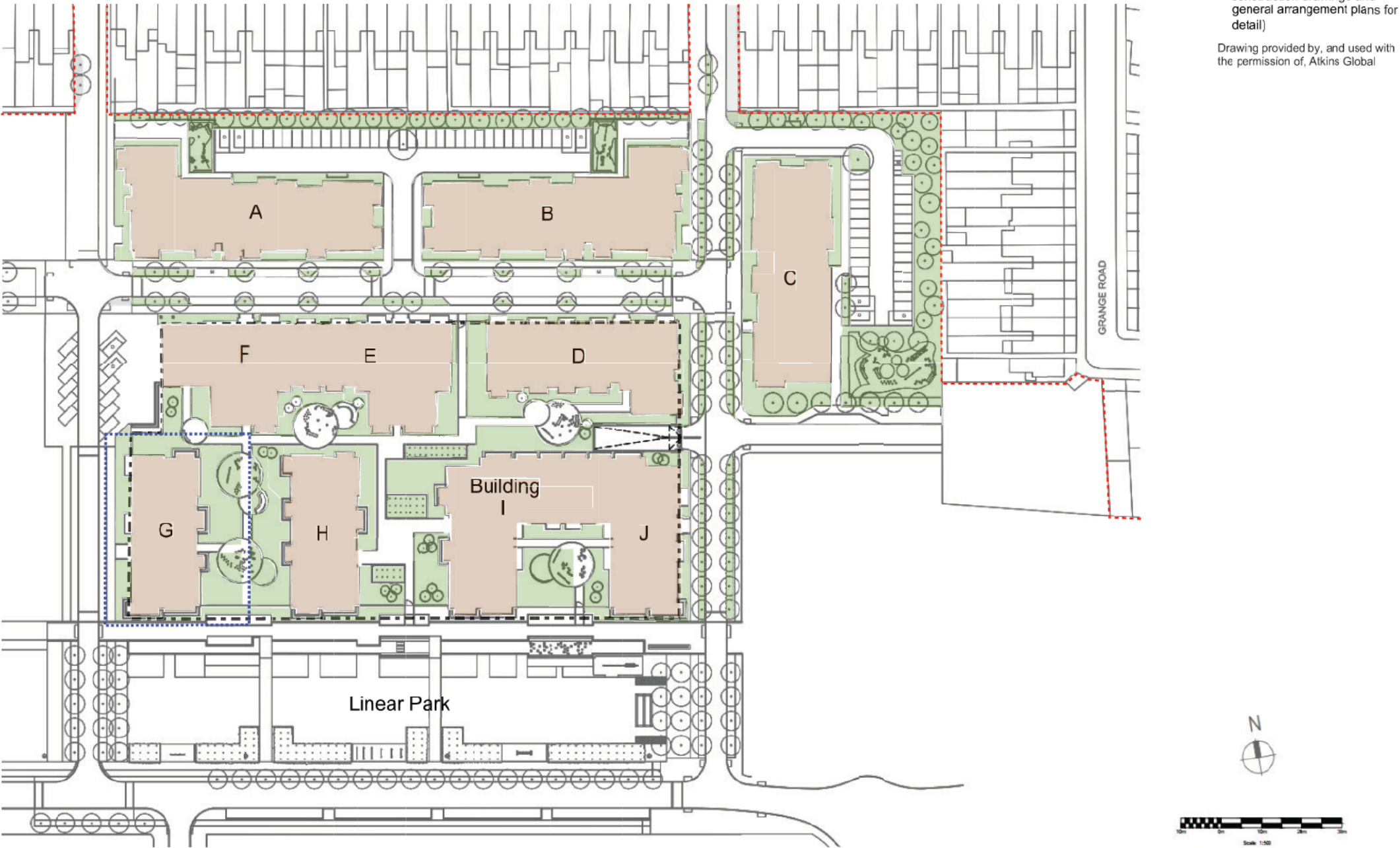
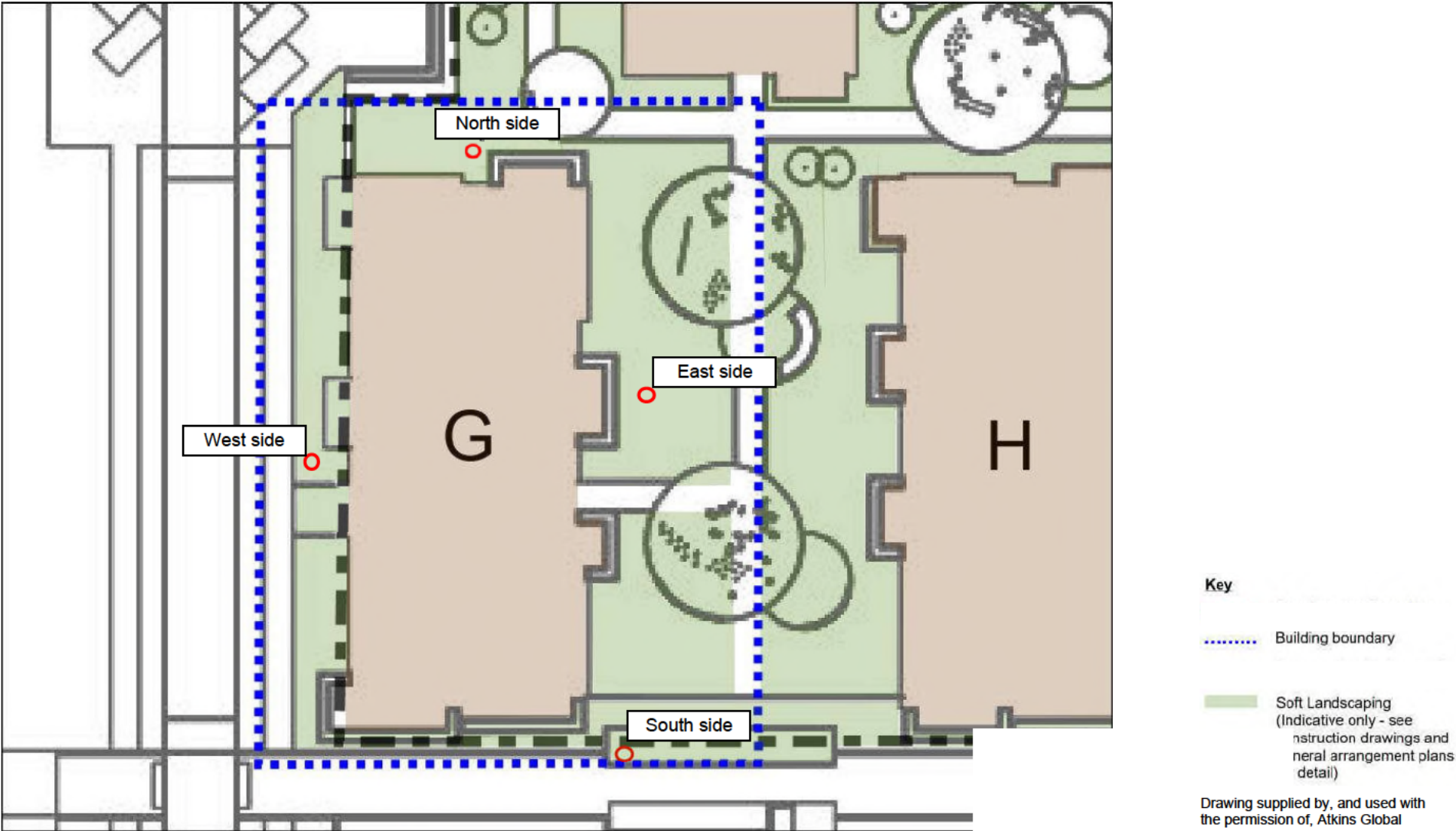


Figure 2
Building G Sample Location Plan



THE GREEN QUARTER
WEST LONDON



Appendix B – Photographs





Plate 1: West side – general area



Plate 2: West side – soil arisings. Top left – topsoil. Bottom right - subsoil



Plate 3: West side – thickness of clean cover. 0.50m topsoil underlain by 0.24m of subsoil with orange geotextile membrane



Plate 4: North side – general area



Plate 5: North side – soil arisings



Plate 6: North side – trial hole 0.2m of topsoil and 0.2m of subsoil (location on a podium over the basement car park)



Plate 7: East side – general area



Plate 8: East side – soil arisings



Plate 9: East side - trial hole. 0.41m of topsoil and 0.09m of subsoil (location on a podium over the basement car park)



Plate 10: South side – general area



Plate 11: South side – soil arisings



Plate 12: South side – trial hole. 0.35m topsoil underlain by 0.1m of subsoil with orange geotextile membrane

Appendix C – Laboratory Certificate



Screening of results against the SSAC

Customer Reference					Topsoil		Subsoil		Topsoil		Topsoil 1		Topsoil 2		Subsoil			
					SOIL		SOIL		SOIL		SOIL		SOIL		SOIL			
					Sample Location		Phase I, Block G West side		Phase I, Block G West side		Phase I, Block G North side		Phase I, Block G East side		Phase I, Block G East side		Phase I, Block G South side	
					Sample Depth (m)		0.00 - 0.50		0.50 - 0.74		0.00 - 0.20		0.00 - 0.26		0.26 - 0.41		0.35 - 0.45	
Sampling Date					11/11/2021		11/11/2021		11/11/2021		11/11/2021		11/11/2021		11/11/2021			
Determinand	Units	LOD	SSAC [1% SOM]	Max														
Metals																		
Arsenic	mg/kg	1	40	23.1	17.4	19.4	10.6	17	23.1	18.5								
Cadmium	mg/kg	0.5	150	1.2	< 0.5	< 0.5	1.2	< 0.5	< 0.5	< 0.5								
Chromium	mg/kg	5	15,500	56.6	36.4	51.8	20.2	31.9	39.8	56.6								
Copper	mg/kg	5	8,370	43.2	33.7	25.3	36.7	35.5	43.2	24.2								
Lead	mg/kg	5	310	77	63.4	33.9	77	63.4	74.2	30.8								
Mercury	mg/kg	0.5	238	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5								
Nickel	mg/kg	5	130	34.2	23.4	34.2	13.3	21.6	29	31.2								
Selenium	mg/kg	1	595	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0								
Zinc	mg/kg	5	46,800	170	107	76.4	170	109	141	79.4								
Anions																		
Water Soluble Sulphate	g/l	0.02	—	0.13	0.11	0.05	0.11	0.07	0.13	0.07								
Inorganics																		
Free Cyanide	mg/kg	1	34	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0								
Hexavalent Chromium	mg/kg	0.8	21	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8								
Total Sulphide	mg/kg	2	—	< 2	< 2	< 2	< 2	< 2	< 2	< 2								
Total Cyanide	mg/kg	1	—	2.4	< 1.0	< 1.0	2.4	1.4	1.9	< 1.0								
Miscellaneous																		
pH	pH units	0.1	—	8.2	8.1	8	8.1	8.2	8.2	8								
Total Organic Carbon	%	0.01	—	6.5	4.1	1.1	4.4	3.2	6.5	1.3								
Soil Organic Matter (Calculated)	%	0.01	—	11.18	7.05	1.89	7.57	5.50	11.18	2.24								
Asbestos - presence and identification	% wt	—	<0.001	—	NAD	NAD	NAD	NAD	NAD	NAD								
Phenols																		
Phenol	mg/kg	1	262	< 1	< 1	< 1	< 1	< 1	< 1	< 1								
M,P-Cresol	mg/kg	1	—	< 1	< 1	< 1	< 1	< 1	< 1	< 1								
O-Cresol	mg/kg	1	—	< 1	< 1	< 1	< 1	< 1	< 1	< 1								
3,4-Dimethylphenol	mg/kg	1	—	< 1	< 1	< 1	< 1	< 1	< 1	< 1								
2,3-Dimethylphenol	mg/kg	1	—	< 1	< 1	< 1	< 1	< 1	< 1	< 1								
2,3,5-trimethylphenol	mg/kg	1	—	< 1	< 1	< 1	< 1	< 1	< 1	< 1								
Total Monohydric Phenols	mg/kg	5	—	< 5	< 5	< 5	< 5	< 5	< 5	< 5								
Polyaromatic hydrocarbons																		
Naphthalene	mg/kg	0.1	0,598	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1								
Acenaphthylene	mg/kg	0.1	—	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1								
Acenaphthene	mg/kg	0.1	4,710	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1								
Fluorene	mg/kg	0.1	3180	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1								
Phenanthrene	mg/kg	0.1	—	0.3	0.2	< 0.1	0.3	0.2	< 0.1	< 0.1								
Anthracene	mg/kg	0.1	22,000	0.1	< 0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.1								
Fluoranthene	mg/kg	0.1	3110	1	0.6	< 0.1	1	0.2	< 0.1	< 0.1								
Pyrene	mg/kg	0.1	2330	0.8	0.4	< 0.1	0.8	0.1	< 0.1	< 0.1								
Benzo(a)anthracene	mg/kg	0.1	5,42	0.5	0.2	< 0.1	0.5	0.1	< 0.1	< 0.1								
Chrysene	mg/kg	0.1	852	0.5	0.3	< 0.1	0.5	< 0.1	< 0.1	< 0.1								
Benzo(b)fluoranthene	mg/kg	0.1	9,68	0.7	0.2	< 0.1	0.7	< 0.1	< 0.1	< 0.1								
Benzo(k)fluoranthene	mg/kg	0.1	99.7	0.8	0.2	< 0.1	0.8	< 0.1	< 0.1	< 0.1								
Benzo(a)pyrene	mg/kg	0.1	5.3	0.7	0.2	< 0.1	0.7	< 0.1	< 0.1	< 0.1								
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	9.53	0.5	0.2	< 0.1	0.5	< 0.1	< 0.1	< 0.1								
Dibenzo(a,h)anthracene	mg/kg	0.1	0.949	0.1	< 0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.1								
Benzo(g,h,i)perylene	mg/kg	0.1	102	0.4	0.2	< 0.1	0.4	< 0.1	< 0.1	< 0.1								
Total PAH(16)	mg/kg	0.4	—	6.4	2.9	< 0.4	6.4	0.7	< 0.4	< 0.4								
BTEX																		
Benzene	ug/kg	10	3300	< 10.0	n/t	n/t	n/t	< 10.0	< 10.0	< 10.0								
Toluene	ug/kg	10	219000	< 10.0	n/t	n/t	n/t	< 10.0	< 10.0	< 10.0								
Ethylbenzene	ug/kg	10	59700	< 10.0	n/t	n/t	n/t	< 10.0	< 10.0	< 10.0								
Xylenes	ug/kg	10	18900	< 10.0	n/t	n/t	n/t	< 10.0	< 10.0	< 10.0								
MTBE	ug/kg	10	—	< 10.0	n/t	n/t	n/t	< 10.0	< 10.0	< 10.0								
TPH CWG																		
>C5-C6 Aliphatic (HS_ID_MS)	mg/kg	0.01	30.2	< 0.01	n/t	n/t	n/t	< 0.01	< 0.01	< 0.01								
>C6-C8 Aliphatic (HS_ID_MS)	mg/kg	0.01	70	< 0.01	n/t	n/t	n/t	< 0.01	< 0.01	< 0.01								
>C8-C10 Aliphatic (EH_CU_ID_AL)	mg/kg	1	9.8	< 1.0	n/t	n/t	n/t	< 1.0	< 1.0	< 1.0								
>C10-C12 Aliphatic (EH_CU_ID_AL)	mg/kg	1	49.9	< 1.0	n/t	n/t	n/t	< 1.0	< 1.0	< 1.0								
>C12-C16 Aliphatic (EH_CU_ID_AL)	mg/kg	1	1,800	< 1.0	n/t	n/t	n/t	< 1.0	< 1.0	< 1.0								
>C16-C21 Aliphatic (EH_CU_ID_AL)	mg/kg	1	—	< 1.0	n/t	n/t	n/t	< 1.0	< 1.0	< 1.0								
>C21-C35 Aliphatic (EH_CU_ID_AL)	mg/kg	1	146,000	14	n/t	n/t	n/t	9.4	14	< 1.0								
>C35-C40 Aliphatic (EH_CU_ID_AL)	mg/kg	1	—	2.7	n/t	n/t	n/t	2.7	2.7	< 1.0								
>C5-C7 Aromatic (HS_ID_MS)	mg/kg	0.01	3.3	< 0.01	n/t	n/t	n/t	< 0.01	< 0.01	< 0.01								
>C7-C8 Aromatic (HS_ID_MS)	mg/kg	0.01	219	< 0.01	n/t	n/t	n/t	< 0.01	< 0.01	< 0.01								
>C8-C10 Aromatic (EH_CU_ID_AR)	mg/kg	1	16	< 1.0	n/t	n/t	n/t	< 1.0	< 1.0	< 1.0								
>C10-C12 Aromatic (EH_CU_ID_AR)	mg/kg	1	97.7	< 1.0	n/t	n/t	n/t	< 1.0	< 1.0	< 1.0								
>C12-C16 Aromatic (EH_CU_ID_AR)	mg/kg	1	1,800	< 1.0	n/t	n/t	n/t	< 1.0	< 1.0	< 1.0								
>C16-C21 Aromatic (EH_CU_ID_AR)	mg/kg	1	1,330	1	n/t	n/t	n/t	< 1.0	1	< 1.0								
>C21-C35 Aromatic (EH_CU_ID_AR)	mg/kg	1	1,330	18.4	n/t	n/t	n/t	18.4	10.7	2								
>C35-C40 Aromatic (EH_CU_ID_AR)	mg/kg	1	—	19.3	n/t	n/t	n/t	19.3	2.9	2								
Total (>C5-C40) Ali/Aro (HS_ID_MS+EH_CU_ID_Total)	mg/kg	1	—	49.7	n/t	n/t	n/t	49.7	31.4	4								
VOC																		
Heptane	ug/kg	10	—	< 10.0	n/t	n/t	n/t	< 10.0	< 10.0	< 10.0								
Octane	ug/kg	10	—	< 10.0	n/t	n/t	n/t	< 10.0	< 10.0	< 10.0								
Nonane	ug/kg	10	—	< 10.0	n/t	n/t	n/t	< 10.0	< 10.0	< 10.0								
Benzene	ug/kg	10	3300	< 10.0	n/t	n/t	n/t	< 10.0	< 10.0	< 10.0								
Toluene	ug/kg	10	219000	< 10.0	n/t	n/t	n/t	< 10.0	< 10.0	< 10.0								
Ethylbenzene	ug/kg	10	59700	< 10.0	n/t	n/t	n/t	< 10.0	< 10.0	< 10.0								
m+p-xylene	ug/kg	10	—	< 10.0	n/t	n/t	n/t	< 10.0	< 10.0	< 10.0								
o-xylene	ug/kg	10	18900	< 10.0	n/t	n/t	n/t	< 10.0	< 10.0	< 10.0								
cis-1,2-dichloroethene	ug/kg	10	40.3	< 10.0	n/t	n												



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THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number: 21-37126

Issue: 1

Date of Issue: 22/11/2021

Contact:

Customer Details: Leap Environmental Ltd
Book House
Glebelands Centre
Dorking
Surrey RH4 3HW

Quotation No: Q14-00063

Order No:

Customer Reference:

Date Received: 15/11/2021

Date Approved: 22/11/2021

Details: The Green Quarter, Southall

Approved by:

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

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Sample Summary

Report No.: 21-37126, issue number 1

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
257574	Phase I, Block G West side Topsoil 0.00 - 0.50	11/11/2021	15/11/2021	Silty loam	
257575	Phase I, Block G West side Subsoil 0.50 - 0.74	11/11/2021	15/11/2021	Loamy sand	
257576	Phase I, Block G North side Topsoil 0.00 - 0.20	11/11/2021	15/11/2021	Silty loam	
257577	Phase I, Block G East side Topsoil 1 0.00 - 0.26	11/11/2021	15/11/2021	Silty loam	
257578	Phase I, Block G East side Topsoil 2 0.26 - 0.41	11/11/2021	15/11/2021	Sandy loam	
257579	Phase I, Block G South side Subsoil 0.35 - 0.45	11/11/2021	15/11/2021	Loamy sand	



Results Summary

2683

Report No.: 21-37126, issue number 1

ELAB Reference				257574	257575
Customer Reference				Topsoil	Subsoil
Sample ID					
Sample Type				SOIL	SOIL
Sample Location				Phase I, Block G West side	Phase I, Block G West side
Sample Depth (m)				0.00 - 0.50	0.50 - 0.74
Sampling Date				11/11/2021	11/11/2021
Determinand	Codes	Units	LOD		
Soil sample preparation parameters					
Moisture Content	N	%	0.1	18.1	11.2
Material removed	N	%	0.1	17.2	27.8
Description of Inert material removed	N		0	Stones	Stones
Metals					
Arsenic	M	mg/kg	1	17.4	19.4
Cadmium	M	mg/kg	0.5	< 0.5	< 0.5
Chromium	M	mg/kg	5	36.4	51.8
Copper	M	mg/kg	5	33.7	25.3
Lead	M	mg/kg	5	63.4	33.9
Mercury	M	mg/kg	0.5	< 0.5	< 0.5
Nickel	M	mg/kg	5	23.4	34.2
Selenium	M	mg/kg	1	< 1.0	< 1.0
Zinc	M	mg/kg	5	107	76.4
Anions					
Water Soluble Sulphate	M	g/l	0.02	0.11	0.05
Inorganics					
Free Cyanide	N	mg/kg	1	< 1.0	< 1.0
Hexavalent Chromium	N	mg/kg	0.8	< 0.8	< 0.8
Total Sulphide	N	mg/kg	2	< 2	< 2
Total Cyanide	M	mg/kg	1	< 1.0	< 1.0
Miscellaneous					
pH	M	pH units	0.1	8.1	8.0
Total Organic Carbon	N	%	0.01	4.1	1.1
Phenols					
Phenol	M	mg/kg	1	< 1	< 1
M,P-Cresol	N	mg/kg	1	< 1	< 1
O-Cresol	N	mg/kg	1	< 1	< 1
3,4-Dimethylphenol	N	mg/kg	1	< 1	< 1
2,3-Dimethylphenol	M	mg/kg	1	< 1	< 1
2,3,5-trimethylphenol	M	mg/kg	1	< 1	< 1
Total Monohydric Phenols	N	mg/kg	5	< 5	< 5



Results Summary

2683

Report No.: 21-37126, issue number 1

ELAB Reference	257574	257575
Customer Reference	Topsoil	Subsoil
Sample ID		
Sample Type	SOIL	SOIL
Sample Location	Phase I, Block G West side	Phase I, Block G West side
Sample Depth (m)	0.00 - 0.50	0.50 - 0.74
Sampling Date	11/11/2021	11/11/2021

Determinand	Codes	Units	LOD		
Polyaromatic hydrocarbons					
Naphthalene	M	mg/kg	0.1	< 0.1	< 0.1
Acenaphthylene	M	mg/kg	0.1	< 0.1	< 0.1
Acenaphthene	M	mg/kg	0.1	< 0.1	< 0.1
Fluorene	M	mg/kg	0.1	< 0.1	< 0.1
Phenanthrene	M	mg/kg	0.1	0.2	< 0.1
Anthracene	M	mg/kg	0.1	< 0.1	< 0.1
Fluoranthene	M	mg/kg	0.1	0.6	< 0.1
Pyrene	M	mg/kg	0.1	0.4	< 0.1
Benzo(a)anthracene	M	mg/kg	0.1	0.2	< 0.1
Chrysene	M	mg/kg	0.1	0.3	< 0.1
Benzo(b)fluoranthene	M	mg/kg	0.1	0.2	< 0.1
Benzo(k)fluoranthene	M	mg/kg	0.1	0.2	< 0.1
Benzo(a)pyrene	M	mg/kg	0.1	0.2	< 0.1
Indeno(1,2,3-cd)pyrene	M	mg/kg	0.1	0.2	< 0.1
Dibenzo(a,h)anthracene	M	mg/kg	0.1	< 0.1	< 0.1
Benzo[g,h,i]perylene	M	mg/kg	0.1	0.2	< 0.1
Total PAH(16)	M	mg/kg	0.4	2.9	< 0.4
BTEX					
Benzene	M	ug/kg	10	n/t	n/t
Toluene	M	ug/kg	10	n/t	n/t
Ethylbenzene	M	ug/kg	10	n/t	n/t
Xylenes	M	ug/kg	10	n/t	n/t
MTBE	N	ug/kg	10	n/t	n/t
TPH CWG					
>C5-C6 Aliphatic (HS_1D_MS)	N	mg/kg	0.01	n/t	n/t
>C6-C8 Aliphatic (HS_1D_MS)	N	mg/kg	0.01	n/t	n/t
>C8-C10 Aliphatic (EH_CU_1D_AL)	N	mg/kg	1	n/t	n/t
>C10-C12 Aliphatic (EH_CU_1D_AL)	N	mg/kg	1	n/t	n/t
>C12-C16 Aliphatic (EH_CU_1D_AL)	N	mg/kg	1	n/t	n/t
>C16-C21 Aliphatic (EH_CU_1D_AL)	N	mg/kg	1	n/t	n/t
>C21-C35 Aliphatic (EH_CU_1D_AL)	N	mg/kg	1	n/t	n/t
>C35-C40 Aliphatic (EH_CU_1D_AL)	N	mg/kg	1	n/t	n/t
>C5-C7 Aromatic (HS_1D_MS)	N	mg/kg	0.01	n/t	n/t
>C7-C8 Aromatic (HS_1D_MS)	N	mg/kg	0.01	n/t	n/t
>C8-C10 Aromatic (EH_CU_1D_AR)	N	mg/kg	1	n/t	n/t
>C10-C12 Aromatic (EH_CU_1D_AR)	N	mg/kg	1	n/t	n/t
>C12-C16 Aromatic (EH_CU_1D_AR)	N	mg/kg	1	n/t	n/t
>C16-C21 Aromatic (EH_CU_1D_AR)	N	mg/kg	1	n/t	n/t
>C21-C35 Aromatic (EH_CU_1D_AR)	N	mg/kg	1	n/t	n/t
>C35-C40 Aromatic (EH_CU_1D_AR)	N	mg/kg	1	n/t	n/t
Total (>C5-C40) Ali/Aro (HS_1D_MS+EH_CU_1D_Total)	N	mg/kg	1	n/t	n/t



Results Summary

2683

Report No.: 21-37126, issue number 1

ELAB Reference				257576	257577
Customer Reference				Topsoil	Topsoil 1
Sample ID					
Sample Type				SOIL	SOIL
Sample Location				Phase I, Block G North side	Phase I, Block G East side
Sample Depth (m)				0.00 - 0.20	0.00 - 0.26
Sampling Date				11/11/2021	11/11/2021
Determinand	Codes	Units	LOD		
Soil sample preparation parameters					
Moisture Content	N	%	0.1	19.9	17.8
Material removed	N	%	0.1	< 0.1	18.1
Description of Inert material removed	N		0	None	Stones
Metals					
Arsenic	M	mg/kg	1	10.6	17.0
Cadmium	M	mg/kg	0.5	1.2	< 0.5
Chromium	M	mg/kg	5	20.2	31.9
Copper	M	mg/kg	5	36.7	35.5
Lead	M	mg/kg	5	77.0	63.4
Mercury	M	mg/kg	0.5	< 0.5	< 0.5
Nickel	M	mg/kg	5	13.3	21.6
Selenium	M	mg/kg	1	< 1.0	< 1.0
Zinc	M	mg/kg	5	170	109
Anions					
Water Soluble Sulphate	M	g/l	0.02	0.11	0.07
Inorganics					
Free Cyanide	N	mg/kg	1	< 1.0	< 1.0
Hexavalent Chromium	N	mg/kg	0.8	< 0.8	< 0.8
Total Sulphide	N	mg/kg	2	< 2	< 2
Total Cyanide	M	mg/kg	1	2.4	1.4
Miscellaneous					
pH	M	pH units	0.1	8.1	8.2
Total Organic Carbon	N	%	0.01	4.4	3.2
Phenols					
Phenol	M	mg/kg	1	< 1	< 1
M,P-Cresol	N	mg/kg	1	< 1	< 1
O-Cresol	N	mg/kg	1	< 1	< 1
3,4-Dimethylphenol	N	mg/kg	1	< 1	< 1
2,3-Dimethylphenol	M	mg/kg	1	< 1	< 1
2,3,5-trimethylphenol	M	mg/kg	1	< 1	< 1
Total Monohydric Phenols	N	mg/kg	5	< 5	< 5

Results Summary

2683

Report No.: 21-37126, issue number 1

ELAB Reference	257576	257577
Customer Reference	Topsoil	Topsoil 1
Sample ID		
Sample Type	SOIL	SOIL
Sample Location	Phase I, Block G North side	Phase I, Block G East side
Sample Depth (m)	0.00 - 0.20	0.00 - 0.26
Sampling Date	11/11/2021	11/11/2021

Determinand	Codes	Units	LOD		
Polyaromatic hydrocarbons					
Naphthalene	M	mg/kg	0.1	< 0.1	< 0.1
Acenaphthylene	M	mg/kg	0.1	< 0.1	< 0.1
Acenaphthene	M	mg/kg	0.1	< 0.1	< 0.1
Fluorene	M	mg/kg	0.1	< 0.1	< 0.1
Phenanthrene	M	mg/kg	0.1	0.3	0.2
Anthracene	M	mg/kg	0.1	0.1	< 0.1
Fluoranthene	M	mg/kg	0.1	1.0	0.2
Pyrene	M	mg/kg	0.1	0.8	0.1
Benzo(a)anthracene	M	mg/kg	0.1	0.5	0.1
Chrysene	M	mg/kg	0.1	0.5	< 0.1
Benzo(b)fluoranthene	M	mg/kg	0.1	0.7	< 0.1
Benzo(k)fluoranthene	M	mg/kg	0.1	0.8	< 0.1
Benzo(a)pyrene	M	mg/kg	0.1	0.7	< 0.1
Indeno(1,2,3-cd)pyrene	M	mg/kg	0.1	0.5	< 0.1
Dibenzo(a,h)anthracene	M	mg/kg	0.1	0.1	< 0.1
Benzo[g,h,i]perylene	M	mg/kg	0.1	0.4	< 0.1
Total PAH(16)	M	mg/kg	0.4	6.4	0.7
BTEX					
Benzene	M	ug/kg	10	n/t	< 10.0
Toluene	M	ug/kg	10	n/t	< 10.0
Ethylbenzene	M	ug/kg	10	n/t	< 10.0
Xylenes	M	ug/kg	10	n/t	< 10.0
MTBE	N	ug/kg	10	n/t	< 10.0
TPH CWG					
>C5-C6 Aliphatic (HS_1D_MS)	N	mg/kg	0.01	n/t	< 0.01
>C6-C8 Aliphatic (HS_1D_MS)	N	mg/kg	0.01	n/t	< 0.01
>C8-C10 Aliphatic (EH_CU_1D_AL)	N	mg/kg	1	n/t	< 1.0
>C10-C12 Aliphatic (EH_CU_1D_AL)	N	mg/kg	1	n/t	< 1.0
>C12-C16 Aliphatic (EH_CU_1D_AL)	N	mg/kg	1	n/t	< 1.0
>C16-C21 Aliphatic (EH_CU_1D_AL)	N	mg/kg	1	n/t	< 1.0
>C21-C35 Aliphatic (EH_CU_1D_AL)	N	mg/kg	1	n/t	9.4
>C35-C40 Aliphatic (EH_CU_1D_AL)	N	mg/kg	1	n/t	2.7
>C5-C7 Aromatic (HS_1D_MS)	N	mg/kg	0.01	n/t	< 0.01
>C7-C8 Aromatic (HS_1D_MS)	N	mg/kg	0.01	n/t	< 0.01
>C8-C10 Aromatic (EH_CU_1D_AR)	N	mg/kg	1	n/t	< 1.0
>C10-C12 Aromatic (EH_CU_1D_AR)	N	mg/kg	1	n/t	< 1.0
>C12-C16 Aromatic (EH_CU_1D_AR)	N	mg/kg	1	n/t	< 1.0
>C16-C21 Aromatic (EH_CU_1D_AR)	N	mg/kg	1	n/t	< 1.0
>C21-C35 Aromatic (EH_CU_1D_AR)	N	mg/kg	1	n/t	18.4
>C35-C40 Aromatic (EH_CU_1D_AR)	N	mg/kg	1	n/t	19.3
Total (>C5-C40) Ali/Aro (HS_1D_MS+EH_CU_1D_Total)	N	mg/kg	1	n/t	49.7

Results Summary

2683

Report No.: 21-37126, issue number 1

ELAB Reference	257578	257579
Customer Reference	Topsoil 2	Subsoil
Sample ID		
Sample Type	SOIL	SOIL
Sample Location	Phase I, Block G East side	Phase I, Block G South side
Sample Depth (m)	0.26 - 0.41	0.35 - 0.45
Sampling Date	11/11/2021	11/11/2021

Determinand	Codes	Units	LOD		
Soil sample preparation parameters					
Moisture Content	N	%	0.1	18.7	11.1
Material removed	N	%	0.1	20.2	34.4
Description of Inert material removed	N		0	Stones	Stones
Metals					
Arsenic	M	mg/kg	1	23.1	18.5
Cadmium	M	mg/kg	0.5	< 0.5	< 0.5
Chromium	M	mg/kg	5	39.8	56.6
Copper	M	mg/kg	5	43.2	24.2
Lead	M	mg/kg	5	74.2	30.8
Mercury	M	mg/kg	0.5	< 0.5	< 0.5
Nickel	M	mg/kg	5	29.0	31.2
Selenium	M	mg/kg	1	< 1.0	< 1.0
Zinc	M	mg/kg	5	141	79.4
Anions					
Water Soluble Sulphate	M	g/l	0.02	0.13	0.07
Inorganics					
Free Cyanide	N	mg/kg	1	< 1.0	< 1.0
Hexavalent Chromium	N	mg/kg	0.8	< 0.8	< 0.8
Total Sulphide	N	mg/kg	2	< 2	< 2
Total Cyanide	M	mg/kg	1	1.9	< 1.0
Miscellaneous					
pH	M	pH units	0.1	8.2	8.0
Total Organic Carbon	N	%	0.01	6.5	1.3
Phenols					
Phenol	M	mg/kg	1	< 1	< 1
M,P-Cresol	N	mg/kg	1	< 1	< 1
O-Cresol	N	mg/kg	1	< 1	< 1
3,4-Dimethylphenol	N	mg/kg	1	< 1	< 1
2,3-Dimethylphenol	M	mg/kg	1	< 1	< 1
2,3,5-trimethylphenol	M	mg/kg	1	< 1	< 1
Total Monohydric Phenols	N	mg/kg	5	< 5	< 5



Results Summary

2683

Report No.: 21-37126, issue number 1

ELAB Reference	257578	257579
Customer Reference	Topsoil 2	Subsoil
Sample ID		
Sample Type	SOIL	SOIL
Sample Location	Phase I, Block G East side	Phase I, Block G South side
Sample Depth (m)	0.26 - 0.41	0.35 - 0.45
Sampling Date	11/11/2021	11/11/2021

Determinand	Codes	Units	LOD		
Polyaromatic hydrocarbons					
Naphthalene	M	mg/kg	0.1	< 0.1	< 0.1
Acenaphthylene	M	mg/kg	0.1	< 0.1	< 0.1
Acenaphthene	M	mg/kg	0.1	< 0.1	< 0.1
Fluorene	M	mg/kg	0.1	< 0.1	< 0.1
Phenanthrene	M	mg/kg	0.1	< 0.1	< 0.1
Anthracene	M	mg/kg	0.1	< 0.1	< 0.1
Fluoranthene	M	mg/kg	0.1	< 0.1	< 0.1
Pyrene	M	mg/kg	0.1	< 0.1	< 0.1
Benzo(a)anthracene	M	mg/kg	0.1	< 0.1	< 0.1
Chrysene	M	mg/kg	0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	M	mg/kg	0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	M	mg/kg	0.1	< 0.1	< 0.1
Benzo(a)pyrene	M	mg/kg	0.1	< 0.1	< 0.1
Indeno(1,2,3-cd)pyrene	M	mg/kg	0.1	< 0.1	< 0.1
Dibenzo(a,h)anthracene	M	mg/kg	0.1	< 0.1	< 0.1
Benzo[g,h,i]perylene	M	mg/kg	0.1	< 0.1	< 0.1
Total PAH(16)	M	mg/kg	0.4	< 0.4	< 0.4
BTEX					
Benzene	M	ug/kg	10	< 10.0	< 10.0
Toluene	M	ug/kg	10	< 10.0	< 10.0
Ethylbenzene	M	ug/kg	10	< 10.0	< 10.0
Xylenes	M	ug/kg	10	< 10.0	< 10.0
MTBE	N	ug/kg	10	< 10.0	< 10.0
TPH CWG					
>C5-C6 Aliphatic (HS_1D_MS)	N	mg/kg	0.01	< 0.01	< 0.01
>C6-C8 Aliphatic (HS_1D_MS)	N	mg/kg	0.01	< 0.01	< 0.01
>C8-C10 Aliphatic (EH_CU_1D_AL)	N	mg/kg	1	< 1.0	< 1.0
>C10-C12 Aliphatic (EH_CU_1D_AL)	N	mg/kg	1	< 1.0	< 1.0
>C12-C16 Aliphatic (EH_CU_1D_AL)	N	mg/kg	1	< 1.0	< 1.0
>C16-C21 Aliphatic (EH_CU_1D_AL)	N	mg/kg	1	< 1.0	< 1.0
>C21-C35 Aliphatic (EH_CU_1D_AL)	N	mg/kg	1	14.0	< 1.0
>C35-C40 Aliphatic (EH_CU_1D_AL)	N	mg/kg	1	2.7	< 1.0
>C5-C7 Aromatic (HS_1D_MS)	N	mg/kg	0.01	< 0.01	< 0.01
>C7-C8 Aromatic (HS_1D_MS)	N	mg/kg	0.01	< 0.01	< 0.01
>C8-C10 Aromatic (EH_CU_1D_AR)	N	mg/kg	1	< 1.0	< 1.0
>C10-C12 Aromatic (EH_CU_1D_AR)	N	mg/kg	1	< 1.0	< 1.0
>C12-C16 Aromatic (EH_CU_1D_AR)	N	mg/kg	1	< 1.0	< 1.0
>C16-C21 Aromatic (EH_CU_1D_AR)	N	mg/kg	1	1.0	< 1.0
>C21-C35 Aromatic (EH_CU_1D_AR)	N	mg/kg	1	10.7	2.0
>C35-C40 Aromatic (EH_CU_1D_AR)	N	mg/kg	1	2.9	2.0
Total (>C5-C40) Ali/Aro (HS_1D_MS+EH_CU_1D_Total)	N	mg/kg	1	31.4	4.0

Results Summary

Report No.: 21-37126, issue number 1

ELAB Reference				257577	257578	257579
Customer Reference				Topsoil 1	Topsoil 2	Subsoil
Sample ID						
Sample Type				SOIL	SOIL	SOIL
Sample Location				Phase I, Block G East side	Phase I, Block G East side	Phase I, Block G South side
Sample Depth (m)				0.00 - 0.26	0.26 - 0.41	0.35 - 0.45
Sampling Date				11/11/2021	11/11/2021	11/11/2021
Determinand	Codes	Units	LOD			
VOC						
Heptane	N	ug/kg	10	< 10.0	< 10.0	< 10.0
Octane	N	ug/kg	10	< 10.0	< 10.0	< 10.0
Nonane	N	ug/kg	10	< 10.0	< 10.0	< 10.0
Benzene	M	ug/kg	10	< 10.0	< 10.0	< 10.0
Toluene	M	ug/kg	10	< 10.0	< 10.0	< 10.0
Ethylbenzene	M	ug/kg	10	< 10.0	< 10.0	< 10.0
m+p-xylene	M	ug/kg	10	< 10.0	< 10.0	< 10.0
o-xylene	M	ug/kg	10	< 10.0	< 10.0	< 10.0
cis-1,2-dichloroethene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
1,1-Dichloroethane	M	ug/kg	10	< 10.0	< 10.0	< 10.0
Chloroform	M	ug/kg	10	< 10.0	< 10.0	< 10.0
Tetrachloromethane	M	ug/kg	10	< 10.0	< 10.0	< 10.0
1,1,1-Trichloroethane	M	ug/kg	10	< 10.0	< 10.0	< 10.0
Trichloroethylene	M	ug/kg	10	< 10.0	< 10.0	< 10.0
Tetrachloroethylene	M	ug/kg	10	< 10.0	< 10.0	< 10.0
1,1,1,2-Tetrachloroethane	M	ug/kg	10	< 10.0	< 10.0	< 10.0
1,1,2,2-Tetrachloroetha	M	ug/kg	10	< 10.0	< 10.0	< 10.0
Chlorobenzene	M	ug/kg	10	< 10.0	< 10.0	< 10.0
Bromobenzene	M	ug/kg	10	< 10.0	< 10.0	< 10.0
Bromodichloromethane	M	ug/kg	10	< 10.0	< 10.0	< 10.0
Methylethylbenzene	M	ug/kg	10	< 10.0	< 10.0	< 10.0
1,1-Dichloro-1-propene	M	ug/kg	10	< 10.0	< 10.0	< 10.0
Trans - 1-2 -dichloroethylene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
2,2-Dichloropropane	N	ug/kg	10	< 10.0	< 10.0	< 10.0
Bromochloromethane	N	ug/kg	10	< 10.0	< 10.0	< 10.0

Results Summary

Report No.: 21-37126, issue number 1

ELAB Reference				257577	257578	257579
Customer Reference				Topsoil 1	Topsoil 2	Subsoil
Sample ID						
Sample Type				SOIL	SOIL	SOIL
Sample Location				Phase I, Block G East side	Phase I, Block G East side	Phase I, Block G South side
Sample Depth (m)				0.00 - 0.26	0.26 - 0.41	0.35 - 0.45
Sampling Date				11/11/2021	11/11/2021	11/11/2021
Determinand	Codes	Units	LOD			
VOC						
1,2-Dichloroethane	M	ug/kg	10	< 10.0	< 10.0	< 10.0
Dibromomethane	M	ug/kg	10	< 10.0	< 10.0	< 10.0
1,2-Dichloropropane	M	ug/kg	10	< 10.0	< 10.0	< 10.0
cis-1,3-Dichloro-1-propene	M	ug/kg	10	< 10.0	< 10.0	< 10.0
trans-1,3-Dichloro-1-propene	M	ug/kg	10	< 10.0	< 10.0	< 10.0
1,1,2-Trichloroethane	N	ug/kg	10	< 10.0	< 10.0	< 10.0
Dibromochloromethane	N	ug/kg	10	< 10.0	< 10.0	< 10.0
1,3-Dichloropropane	N	ug/kg	10	< 10.0	< 10.0	< 10.0
1,2-dibromoethane	N	ug/kg	10	< 10.0	< 10.0	< 10.0
Styrene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
Propylbenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
2-Chlorotoluene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
1,2,4-Trimethylbenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
4-Chlorotoluene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
t-butylbenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
1,3,5-Trimethylbenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
1-methylpropylbenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
p-cymene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
1,3-Dichlorobenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
Butylbenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
1,2-Dibromo-3-chloropropane	N	ug/kg	10	< 10.0	< 10.0	< 10.0
Hexachlorobutadiene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
1-2-3 - Trichlorobenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
Naphthalene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
1-2-4 - Trichlorobenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
1,4-Dichlorobenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
1,2-Dichlorobenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
Bromoform	N	ug/kg	10	< 10.0	< 10.0	< 10.0
VOC TIC						
Vinyl chloride	N	ug/kg	10	< 10	< 10	< 10



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Results Summary

Report No.: 21-37126, issue number 1

Asbestos Results

Analytical result only applies to the sample as submitted by the client. Any comments, opinions or interpretations (marked #) in this report are outside UKAS accreditation (Accreditation No2683). They are subjective comments only which must be verified by the client.

Elab No	Depth (m)	Clients Reference	Description of Sample Matrix #	Asbestos Identification	Gravimetric Analysis Total (%)	Gravimetric Analysis by ACM Type (%)	Free Fibre Analysis (%)	Total Asbestos (%)
257574	0.00 - 0.50	Phase I, Block G West side Topsoil	Brown Sandy Soil, Stones, Clinker, Plant Material	No asbestos detected	n/t	n/t	n/t	n/t
257575	0.50 - 0.74	Phase I, Block G West side Subsoil	Brown Sandy Soil, Stones, Clinker, Plant Material	No asbestos detected	n/t	n/t	n/t	n/t
257576	0.00 - 0.20	Phase I, Block G North side Topsoil	Brown Sandy Soil, Stones, Clinker, Plant Material	No asbestos detected	n/t	n/t	n/t	n/t
257577	0.00 - 0.26	Phase I, Block G East side Topsoil 1	Brown Sandy Soil, Stones, Clinker, Plant Material	No asbestos detected	n/t	n/t	n/t	n/t
257578	0.26 - 0.41	Phase I, Block G East side Topsoil 2	Brown Sandy Soil, Stones, Clinker, Plant Material	No asbestos detected	n/t	n/t	n/t	n/t
257579	0.35 - 0.45	Phase I, Block G South side Subsoil	Brown Sandy Soil, Stones,	No asbestos detected	n/t	n/t	n/t	n/t

Method Summary

Report No.: 21-37126, issue number 1

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil					
VOC in solids	M	As submitted sample	17/11/2021		GC-MS
Free cyanide	N	As submitted sample	19/11/2021	107	Colorimetry
Sulphide	N	As submitted sample	17/11/2021	109	Colorimetry
Hexavalent chromium	N	As submitted sample	17/11/2021	110	Colorimetry
pH	M	Air dried sample	18/11/2021	113	Electromeric
Aqua regia extractable metals	M	Air dried sample	17/11/2021	118	ICPMS
Phenols in solids	M	As submitted sample	17/11/2021	121	HPLC
PAH (GC-FID)	M	As submitted sample	17/11/2021	133	GC-FID
Water soluble anions	M	Air dried sample	17/11/2021	172	Ion Chromatography
Low range Aliphatic hydrocarbons soil	N	As submitted sample	17/11/2021	181	GC-MS
Low range Aromatic hydrocarbons soil	N	As submitted sample	17/11/2021	181	GC-MS
VOC in solids	M	As submitted sample	17/11/2021	181	GC-MS
BTEX in solids	M	As submitted sample	17/11/2021	181A	GC-MS
Total cyanide	M	As submitted sample	17/11/2021	204	Colorimetry
Total organic carbon/Total sulphur	N	Air dried sample	18/11/2021	210	IR
Aliphatic hydrocarbons in soil	N	As submitted sample	17/11/2021	214	GC-FID
Aliphatic/Aromatic hydrocarbons in soil	N	As submitted sample	18/11/2021	214	GC-FID
Aromatic hydrocarbons in soil	N	As submitted sample	17/11/2021	214	GC-FID
Asbestos identification	U	Air dried sample	18/11/2021	280	Microscopy

Tests marked N are not UKAS accredited

Report Information

Report No.: 21-37126, issue number 1

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
NS	Subcontracted to approved laboratory. UKAS accreditation is not applicable.
I/S	Insufficient Sample
U/S	Unsuitable sample
n/t	Not tested
<	means "less than"
>	means "greater than"
LOD	LOD refers to limit of detection, except in the case of pH soils and pH waters where it means limit of discrimination. Soil sample results are expressed on an air dried basis (dried at < 30°C), and are uncorrected for inert material removed. ELAB are unable to provide an interpretation or opinion on the content of this report. The results relate only to the sample received. PCB congener results may include any coeluting PCBs Uncertainty of measurement for the determinands tested are available upon request Unless otherwise stated, sample information has been provided by the client. This may affect the validity of the results.

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

TPH Classification - HWOL Acronym System

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