

APPENDIX 3
VALIDATION SAMPLING

Glenburn Gardens**Auger hole Descriptions (01 Nov 2023)****Base of excavation validation**

6/7R		Sample	Depth
0-450mm	Medium brown silt. (some wood chips on surface)	6/7R	0 – 450mm

6F			
0-450mm	Yellowish brown silt	6F	0 – 450mm

Provisional area of 'topsoil' cover in front of Plot 7

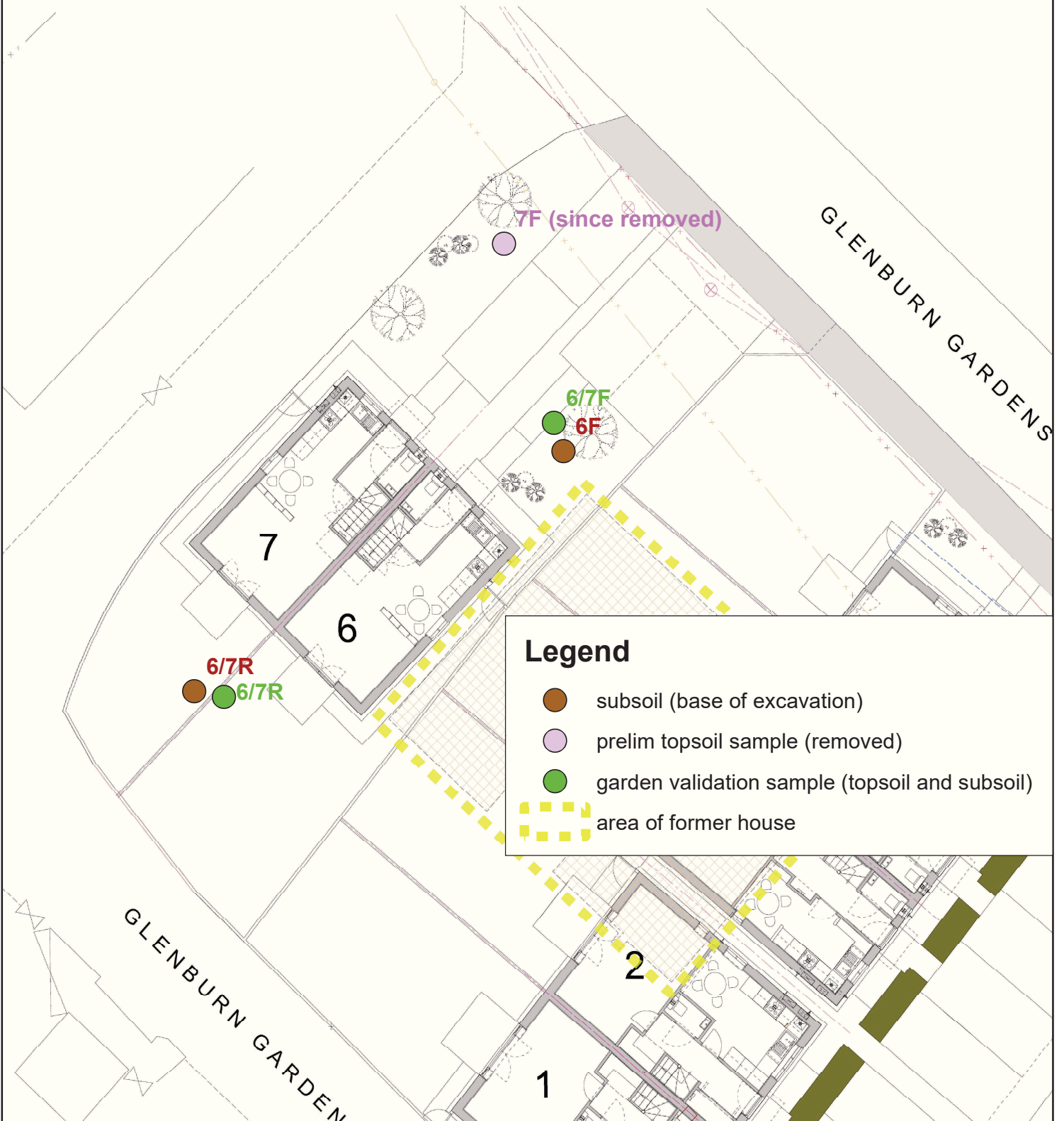
7F			
0-200mm	Medium brown silt with rounded and angular gravel and cobbles including brick and tile pieces.	7F	0 – 200mm

Glenburn Gardens**Auger hole Descriptions (12 Dec 2023)****Garden soil validation**





6/7R		Sample	Depth
0-200mm	Dark brown sandy silt loam	6/7R	0 – 600mm
200-600mm	Yellowish-brown sandy silt with some rounded gravel.		

6/7F			
0-280mm	Dark brown sandy silt loam	6/7F	0 – 600mm
280-600mm	Yellowish-brown sandy silt with some rounded gravel.		

0 2.5 5 10 Meters



Legend

-  subsoil (base of excavation)
-  prelim topsoil sample (removed)
-  garden validation sample (topsoil and subsoil)
-  area of former house

GeoWater

New Place
Rowley
nr. Westbury
Shropshire SY5 9RY
Tel (01743) 891507

GLENBURN GARDENS (North part)

Site plan showing approximate
validation sample locations

Scale 1:200 approx. A4

DRAWN: CR
DATE: 12/12/2023
JOB No. 648



Environmental
Chemistry

Certificate of Analysis

Client: GeoWater

Project: 23110698

Quote: BEC230329634 V2.1

Project Ref: GeoWater

Site: Glenburn

Contact: Charles Ruxton

Address: New Place
Rowley, Nr Westbury
Shropshire
SY5 9RY

E-Mail: c.ruxton@geowater.co.uk

Phone: 01743891507

No. Samples Received: 3


Date Received: 07/11/2023

Analysis Date: 20/11/2023

Date Issued: 20/11/2023

Report Type: Final Version 01

This report supersedes any versions previously issued by the laboratory



Reported by Customer Service Co-Ordinator
Julie Dickinson
01283 554496



Client: GeoWater
Project Name: GeoWater-Glenburn
Project No: 23110698
Date Issued: 20/11/2023

Samples Analysed

<u>Text ID</u>	<u>Sample Reference</u>	<u>Sampling Date</u>	<u>Sample Type</u>	<u>Sample Description</u>
23110698-001	6/7R	01/11/2023 00:00:00	SOLID	Soil Sample
23110698-002	6F	01/11/2023 00:00:00	SOLID	Soil Sample
23110698-003	7F	01/11/2023 00:00:00	SOLID	Soil Sample



Client: GeoWater
 Project Name: GeoWater-Glenburn
 Project No: 23110698
 Date Issued: 20/11/2023



Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001	002	003
					Customer ID	6/7R	6F	7F
					Sample Type	SOLID	SOLID	SOLID
					Sampling Date	01/11/2023	01/11/2023	01/11/2023
Acenaphthene	PAHMSUS	0.08	mg/kg [^]	UM	<0.09	<0.10	0.14	
Acenaphthylene	PAHMSUS	0.08	mg/kg [^]	U	<0.09	<0.10	0.35	
Anthracene	PAHMSUS	0.08	mg/kg [^]	U	<0.09	<0.10	1.40	
Benzo[a]anthracene	PAHMSUS	0.08	mg/kg [^]	UM	0.29	<0.10	4.91	
Benzo[a]pyrene	PAHMSUS	0.08	mg/kg [^]	UM	0.39	<0.10	4.74	
Benzo[b]fluoranthene	PAHMSUS	0.08	mg/kg [^]	UM	0.45	<0.10	4.70	
Benzo[g,h,i]perylene	PAHMSUS	0.08	mg/kg [^]	UM	0.21	<0.10	1.92	
Benzo[k]fluoranthene	PAHMSUS	0.08	mg/kg [^]	UM	0.26	<0.10	2.35	
Chrysene	PAHMSUS	0.08	mg/kg [^]	UM	0.38	<0.10	4.31	
Dibenzo[a,h]anthracene	PAHMSUS	0.08	mg/kg [^]	UM	<0.09	<0.10	0.62	
Fluoranthene	PAHMSUS	0.08	mg/kg [^]	UM	0.68	<0.10	10.3	
Fluorene	PAHMSUS	0.08	mg/kg [^]	UM	<0.09	<0.10	0.16	
Indeno[1,2,3-cd]pyrene	PAHMSUS	0.08	mg/kg [^]	UM	0.25	<0.10	2.33	
Naphthalene	PAHMSUS	0.08	mg/kg [^]	UM	<0.09	<0.10	0.14	
Phenanthrene	PAHMSUS	0.08	mg/kg [^]	UM	0.32	<0.10	4.19	
Pyrene	PAHMSUS	0.08	mg/kg [^]	UM	0.60	<0.10	8.90	
Total PAH 16	PAHMSUS	1.28	mg/kg [^]	U	4.37	<1.52	51.4	
Total Moisture at 35°C	CLANDPREP	0.1	%	N	13.8	15.8	15.6	
Colour of Material	CLANDPREP		-	N	Brown	Brown	Brown	



Analysis Results

Client: GeoWater
 Project Name: GeoWater-Glenburn
 Project No: 23110698
 Date Issued: 20/11/2023



Analysis	Method Code	MDL	Units	Accred.	Sample ID	Sample ID	Sample ID
					001	002	003
					6/7R	6F	7F
					SOLID	SOLID	SOLID
					01/11/2023	01/11/2023	01/11/2023
Major Constituents	CLANDPREP		-	N	SILT	SILT	SILT
Minor Constituents	CLANDPREP		-	N	Gravel	Gravel	Gravel
Miscellaneous Constituents	CLANDPREP		-	N	Organic Matter	Organic Matter	Organic Matter
Asbestos Identification	SUB020		-	N	NAIIS	NAIIS	NAIIS

CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: SOCOTEC UK Ltd
Environmental Chemistry
PO Box 100
Burton upon Trent
Staffordshire
DE15 0XD

CONTRACT NO: S37149-16
DATE OF ISSUE: 20.11.23

DATE SAMPLES RECEIVED: 13.11.23

DATE ANALYSIS COMPLETED: 20.11.23

DESCRIPTION: Three soil/loose aggregate samples.

ANALYSIS REQUESTED: Qualitative analysis of samples for determination of presence/type of asbestos.

METHODS:

Our method involves initial examination of the samples followed by detailed analysis of representative sub-samples. Each sub-sample was analysed qualitatively for asbestos by polarised light and dispersion staining as described by the Health and Safety Executive in HSG 248.

RESULTS:

Initial Screening

No asbestos was detected in any of the soil samples by stereo-binocular and polarised light microscopy.

A summary of the results is given in Table 1.



CONTRACT NO: S37149-16
DATE OF ISSUE: 20.11.23

RESULTS: (cont.)

Table 1: Qualitative Results

SOCOTEC Job I.D: 23110698

IOM sample number	SOCOTEC Sample ID	Client Sample ID	ACM type detected	PLM result
S37149-37	23110698-001	6/7R	-	No Asbestos Detected
S37149-38	23110698-002	6F	-	No Asbestos Detected
S37149-39	23110698-003	7F	-	No Asbestos Detected

Our detection limit for this method is 0.001%.

COMMENTS:

IOM Consulting cannot accept responsibility for samples that have been incorrectly collected or despatched by external clients.

Any opinions and interpretations expressed herein are out with the scope of our UKAS accreditation.

AUTHORISED BY:

J Simpson
Senior Laboratory Analyst



Client: GeoWater
 Project Name: GeoWater-Glenburn
 Project No: 23110698
 Date Issued: 20/11/2023

Deviating Sample Report

All samples received in an appropriate condition with no deviancies noted with the samples.

Analysis Method

<u>Method Code</u>	<u>Method Description</u>	<u>Analysis Method</u>
CLANDPREP	DW35 - CLand Prep and Dry Weight Correction to 35°C	As Received
CLANDPREP	Solid Material Description	As Received
PAHMSUS	16 PAHs by GCMS	As Received
SUB020	Asbestos Stage 1: Screen & ID	

Result Report Notes

Letters alongside results signify that the result has associated report notes.
 The report notes are as follows:

<u>Letter</u>	<u>Note</u>
A	Due to the matrix of the sample the laboratory has had to deviate from our standard protocols to be able to process the sample and provide a result. Where applicable the accreditation has been removed and this should be taken into consideration when utilising the data.
B	The QC associated with this result has not wholly met the QMS requirements, the accreditation has therefore been removed. However, the Laboratory has confidence in the performance of the method as a whole and that the integrity of the data has not been significantly compromised.
C	Due to matrix interference, the internal standard and/or surrogate has not met the QMS requirements. This should be taken into consideration when utilising the data.
D	A non-standard volume or mass has been used for this test which has resulted in a raised detection limit.
E	Due to the parameter value being beyond our calibration range (and following the maximum size of dilution allowed, where applicable), the result cannot be quantified and as such the result will appear as a greater than symbol (>) with the accreditation removed. This data should be used for indicative purposes only.
F	Based on the sample history, appearance and smell a dilution was applied prior to testing. Unfortunately, the result is either above (>) or below (<) our calibration range. Results above our calibration range have accreditation removed. The data should be used for indicative purposes only.
G	The day 5 oxygen reading was below the capability of the instrument to detect, and therefore the calculated BOD has been reported unaccredited for guidance purposes only.

HWOL Acronym Key

<u>Acronym</u>	<u>Description</u>
HS	Headspace Analysis
EH	Extractable Hydrocarbons - i.e everything extracted by the solvent(s)
CU	Clean up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
+	Operator to indicate cumulative e.g. EH_CU+HS_1D_Total



Client: GeoWater
Project Name: GeoWater-Glenburn
Project No: 23110698
Date Issued: 20/11/2023

Additional Information

This report refers to samples as received. SOCOTEC UK Ltd takes no responsibility for accuracy or competence of sampling by others.

Results within this report relate only to the samples tested.

The accreditation codes are as follows:

- U = UKAS accredited analysis
- M = MCERT accredited analysis
- N = Unaccredited analysis

Any units marked with ^ signify results are reported on a dry weight basis of 35° c.

All Air Dried and Ground Samples (ADG) are oven dried at less than 35° c.

This report shall not be reproduced except in full, without written approval of the laboratory.

Opinions and interpretations given are outside the scope of our UKAS accreditation.

Any samples marked with * are not covered by our scope of UKAS accreditation. If applicable, further report notes have been added.

Any solid samples where the Major Constituents are not one of the following (Sand, Silt, Clay, Made Ground) are not one of our accredited matrix types.

Any samples marked with ‡ have had MCERTS accreditation removed for this result

Any samples marked with a tick in the deviant table is deviant for the specific reason.

Any samples reported as IS, NA, ND mean the following:

- IS = Insufficient Sample to complete analysis
- NA = Sample is not amenable for the required analysis
- ND = Results cannot be determined

Items listed with a 'SUB' method code prefix have been carried out by an external subcontracted laboratory.

Our deviating sample report does not include deviancy information for Subcontracted analysis. Please see the report from the subcontracted lab for information regarding any deviancies for this analysis.

Summaries of analysis methods are available upon request.

End of Certificate of Analysis



Environmental
Chemistry

Certificate of Analysis

Client: GeoWater

Project: 23121912

Quote: BEC230329634 V3.1

Project Ref: GeoWater

Site: Glenburn

Contact: Charles Ruxton

Address: New Place
Rowley, Nr Westbury
Shropshire
SY5 9RY

E-Mail: c.ruxton@geowater.co.uk

Phone: 01743891507

No. Samples Received: 2

Date Received: 16/12/2023

Analysis Date: 04/01/2024

Date Issued: 04/01/2024

Report Type: Final Version 01

This report supersedes any versions previously issued by the laboratory

A handwritten signature in black ink, appearing to be 'J. Dickinson', on a light yellow background.

Reported by Customer Service Co-Ordinator
Julie Dickinson
01283 554496



Client: GeoWater
Project Name: GeoWater-Glenburn
Project No: 23121912
Date Issued: 04/01/2024

Samples Analysed

<u>Text ID</u>	<u>Sample Reference</u>	<u>Sampling Date</u>	<u>Sample Type</u>	<u>Sample Description</u>
23121912-001	6/7R--ES-0.00-0.60	12/12/2023 00:00:00	SOLID	Soil Sample
23121912-002	6/7F--ES-0.00-0.60	12/12/2023 00:00:00	SOLID	Soil Sample



Client: GeoWater
 Project Name: GeoWater-Glenburn
 Project No: 23121912
 Date Issued: 04/01/2024



Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001	002
					Customer ID	6/7R--ES-0.00-0.60	6/7F--ES-0.00-0.60
					Sample Type	SOLID	SOLID
					Sampling Date	12/12/2023	12/12/2023
Arsenic as As	ICPMSS	0.3	mg/kg [^]	UM		7.3	
Cadmium as Cd	ICPMSS	0.2	mg/kg [^]	UM		0.2	
Copper as Cu	ICPMSS	1.6	mg/kg [^]	UM		16.0	
Lead as Pb	ICPMSS	0.7	mg/kg [^]	UM		55.2	
Mercury as Hg	ICPMSS	0.5	mg/kg [^]	UM		<0.5	
Nickel as Ni	ICPMSS	2	mg/kg [^]	UM		20.3	
Selenium as Se	ICPMSS	0.5	mg/kg [^]	UM		<0.5	
Total Chromium as Cr	ICPMSS	1.2	mg/kg [^]	UM		20.2	
Zinc as Zn	ICPMSS	16	mg/kg [^]	UM		82.4	
Acenaphthene	PAHMSUS	0.08	mg/kg [^]	UM		<0.10	<0.10
Acenaphthylene	PAHMSUS	0.08	mg/kg [^]	U		<0.10	<0.10
Anthracene	PAHMSUS	0.08	mg/kg [^]	U		<0.10	0.56
Benzo[a]anthracene	PAHMSUS	0.08	mg/kg [^]	UM		0.14* _B	2.17* _B
Benzo[a]pyrene	PAHMSUS	0.08	mg/kg [^]	UM		0.16	1.75
Benzo[b]fluoranthene	PAHMSUS	0.08	mg/kg [^]	UM		0.18	2.13
Benzo[g,h,i]perylene	PAHMSUS	0.08	mg/kg [^]	UM		<0.10	0.62
Benzo[k]fluoranthene	PAHMSUS	0.08	mg/kg [^]	UM		<0.10	0.88
Chrysene	PAHMSUS	0.08	mg/kg [^]	UM		0.15	1.97
Dibenzo[a,h]anthracene	PAHMSUS	0.08	mg/kg [^]	UM		<0.10	0.18



Client: GeoWater
 Project Name: GeoWater-Glenburn
 Project No: 23121912
 Date Issued: 04/01/2024



Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001	002
					Customer ID	6/7R--ES-0.00-0.60	6/7F--ES-0.00-0.60
					Sample Type	SOLID	SOLID
					Sampling Date	12/12/2023	12/12/2023
Fluoranthene	PAHMSUS	0.08	mg/kg^	UM		0.27	4.38
Fluorene	PAHMSUS	0.08	mg/kg^	UM		<0.10	<0.10
Indeno[1,2,3-cd]pyrene	PAHMSUS	0.08	mg/kg^	UM		0.11	0.90
Naphthalene	PAHMSUS	0.08	mg/kg^	UM		<0.10	<0.10
Phenanthrene	PAHMSUS	0.08	mg/kg^	UM		0.13	2.00
Pyrene	PAHMSUS	0.08	mg/kg^	UM		0.23	3.44
Total PAH 16	PAHMSUS	1.28	mg/kg^	U		2.14	21.4
Total Moisture at 35°C	CLANDPREP	0.1	%	N		17.1	16.5
Colour of Material	CLANDPREP		-	N		Brown	Brown
Major Constituents	CLANDPREP		-	N		SILT	SILT
Minor Constituents	CLANDPREP		-	N		Clay	Clay
Miscellaneous Constituents	CLANDPREP		-	N		na	na
Asbestos Identification	SUB020		-	N		NAIIS	NAIIS

CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: SOCOTEC UK Ltd
Environmental Chemistry
PO Box 100
Burton upon Trent
Staffordshire
DE15 0XD

CONTRACT NO: S37963-8

DATE OF ISSUE: 04.01.24

DATE SAMPLES RECEIVED: 19.12.23

DATE ANALYSIS COMPLETED: 03.01.24

DESCRIPTION: Two soil/loose aggregate samples.

ANALYSIS REQUESTED: Qualitative analysis of samples for determination of presence/type of asbestos.

METHODS:

Our method involves initial examination of the samples followed by detailed analysis of representative sub-samples. Each sub-sample was analysed qualitatively for asbestos by polarised light and dispersion staining as described by the Health and Safety Executive in HSG 248.

RESULTS:

Initial Screening

No asbestos was detected in either of the soil samples by stereo-binocular and polarised light microscopy.

A summary of the results is given in Table 1.



CONTRACT NO: S37963-8
DATE OF ISSUE: 04.01.24

RESULTS: (cont.)

Table 1: Qualitative Results

SOCOTEC Job I.D: 23121912

IOM sample number	SOCOTEC Sample ID	Client Sample ID	ACM type detected	PLM result
S37963-12	23121912-001	6/7R-ES-0.00-0.60	-	No Asbestos Detected
S37963-13	23121912-002	6/7F-ES-0.00-0.60	-	No Asbestos Detected

Our detection limit for this method is 0.001%.

COMMENTS:

IOM Consulting cannot accept responsibility for samples that have been incorrectly collected or despatched by external clients.

Any opinions and interpretations expressed herein are out with the scope of our UKAS accreditation.

AUTHORISED BY:

J Simpson
Senior Laboratory Analyst



Client: GeoWater
 Project Name: GeoWater-Glenburn
 Project No: 23121912
 Date Issued: 04/01/2024

Deviating Sample Report

All samples received in an appropriate condition with no deviancies noted with the samples.

Analysis Method

<u>Method Code</u>	<u>Method Description</u>	<u>Analysis Method</u>
CLANDPREP	DW35 - CLand Prep and Dry Weight Correction to 35°C	As Received
CLANDPREP	Solid Material Description	As Received
ICPMSS	Arsenic in Solids by ICPMS	Air Dried & Ground
ICPMSS	Cadmium in Solids by ICPMS	Air Dried & Ground
ICPMSS	Chromium in Solids by ICPMS	Air Dried & Ground
ICPMSS	Copper in Solids by ICPMS	Air Dried & Ground
ICPMSS	Lead in Solids by ICPMS	Air Dried & Ground
ICPMSS	Mercury in Solids by ICPMS	Air Dried & Ground
ICPMSS	Nickel in Solids by ICPMS	Air Dried & Ground
ICPMSS	Selenium in Solids by ICPMS	Air Dried & Ground
ICPMSS	Zinc in Solids by ICPMS	Air Dried & Ground
PAHMSUS	16 PAHs by GCMS	As Received
SUB020	Asbestos Stage 1: Screen & ID	

Result Report Notes

Letters alongside results signify that the result has associated report notes.
 The report notes are as follows:

<u>Letter</u>	<u>Note</u>
A	Due to the matrix of the sample the laboratory has had to deviate from our standard protocols to be able to process the sample and provide a result. Where applicable the accreditation has been removed and this should be taken into consideration when utilising the data.
B	The QC associated with this result has not wholly met the QMS requirements, the accreditation has therefore been removed. However, the Laboratory has confidence in the performance of the method as a whole and that the integrity of the data has not been significantly compromised.
C	Due to matrix interference, the internal standard and/or surrogate has not met the QMS requirements. This should be taken into consideration when utilising the data.
D	A non-standard volume or mass has been used for this test which has resulted in a raised detection limit.
E	Due to the parameter value being beyond our calibration range (and following the maximum size of dilution allowed, where applicable), the result cannot be quantified and as such the result will appear as a greater than symbol (>) with the accreditation removed. This data should be used for indicative purposes only.
F	Based on the sample history, appearance and smell a dilution was applied prior to testing. Unfortunately, the result is either above (>) or below (<) our calibration range. Results above our calibration range have accreditation removed. The data should be used for indicative purposes only.
G	The day 5 oxygen reading was below the capability of the instrument to detect, and therefore the calculated BOD has been reported unaccredited for guidance purposes only.



Client: GeoWater
 Project Name: GeoWater-Glenburn
 Project No: 23121912
 Date Issued: 04/01/2024

HWOL Acronym Key

<u>Acronym</u>	<u>Description</u>
HS	Headspace Analysis
EH	Extractable Hydrocarbons - i.e everything extracted by the solvent(s)
CU	Clean up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
+	Operator to indicate cumulative e.g. EH_CU+HS_1D_Total

Additional Information

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Results within this report relate only to the samples tested.

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- M = MCERT accredited analysis
- N = Unaccredited analysis

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All Air Dried and Ground Samples (ADG) are oven dried at less than 35° c.

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Any samples marked with ‡ have had MCERTS accreditation removed for this result

Any samples marked with a tick in the deviant table is deviant for the specific reason.

Any samples reported as IS, NA, ND mean the following:


- IS = Insufficient Sample to complete analysis
- NA = Sample is not amenable for the required analysis
- ND = Results cannot be determined

Items listed with a 'SUB' method code prefix have been carried out by an external subcontracted laboratory.

Our deviating sample report does not include deviancy information for Subcontracted analysis. Please see the report from the subcontracted lab for information regarding any deviancies for this analysis.

Summaries of analysis methods are available upon request.

End of Certificate of Analysis

	Rear	Front
<p>Base of excavation sampling (01/11/23)</p>		
<p>Garden soil validation sampling (12/12/23)</p>	