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Attention: Adam Taylor

CERTIFICATE OF ANALYSIS

Date of report Generation:	12 July 2021
Customer:	Rodgers Leask Limited
Sample Delivery Group (SDG):	210703-92
Your Reference:	P21-132
Location:	Broomhills Lane Repton
Report No:	605337

We received 2 samples on Saturday July 03, 2021 and 2 of these samples were scheduled for analysis which was completed on Monday July 12, 2021. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

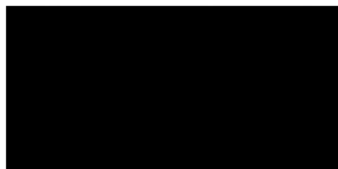
Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.

Incorrect sampling dates and/or sample information will affect the validity of results.

The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By



Sonia McWhan
Operations Manager





CERTIFICATE OF ANALYSIS

Validated

SDG:	210703-92	Client Reference:	P21-132	Report Number:	605337
Location:	Broomhills Lane Repton	Order Number:	RLL 21-07-04	Superseded Report	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
24565931	TP1		0.50 - 0.50	01/07/2021
24565933	TP1		1.00 - 1.00	01/07/2021

Only received samples which have had analysis scheduled will be shown on the following pages.



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Location: Broomhills Lane Repton Order Number: RLL 21-07-04 Superseded Report

Results Legend

X Test
N No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)

24565931

24565933

Customer Sample Reference

TP1

TP1

AGS Reference

Depth (m)

0.50 - 0.50

1.00 - 1.00

Container

1kg Cardboard Container

250g Amber Jar (ALE210)

1kg Cardboard Container

250g Amber Jar (ALE210)

Sample Type

S

S

S

S

Anions by Kone (soil)

All

NDPs: 0
Tests: 2

X

X

Asbestos ID in Solid Samples

All

NDPs: 0
Tests: 2

X

X

Boron Water Soluble

All

NDPs: 0
Tests: 2

X

X

Cyanide Comp/Free/Total/Thiocyanate

All

NDPs: 0
Tests: 2

X

X

Easily Liberated Sulphide

All

NDPs: 0
Tests: 2

X

X

Hexavalent Chromium (s)

All

NDPs: 0
Tests: 2

X

X

Metals in solid samples by OES

All

NDPs: 0
Tests: 2

X

X

PAH by GCMS

All

NDPs: 0
Tests: 2

X

X

pH

All

NDPs: 0
Tests: 2

X

X

Phenols by HPLC (S)

All

NDPs: 0
Tests: 2

X

X

Sample description

All

NDPs: 0
Tests: 2

X

X

Total Organic Carbon

All

NDPs: 0
Tests: 2

X

X

Total Sulphate

All

NDPs: 0
Tests: 2

X

X

Total Sulphur

All

NDPs: 0
Tests: 2

X

X



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SDG: 210703-92
Location: Broomhills Lane Repton

Client Reference: P21-132
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Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm
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Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
24565931	TP1	0.50 - 0.50	Dark Brown	Sand	Stones	Vegetation
24565933	TP1	1.00 - 1.00	Dark Brown	Sand	Brick	Vegetation

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.



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PAH by GCMS

Results Legend			Customer Sample Ref.		TP1		TP1						
#	SO17025 accredited.		Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No. (s) AGS Reference		0 50 0 50		1 00 1 00						
M	mCERTS accredited.				Soil/Solid (S)		Soil/Solid (S)						
aq	Aqueous / settled sample.				01/07/2021		01/07/2021						
diss.filt	Dissolved / filtered sample.				12:00:00		12:00:00						
tot.unfilt	Total / unfiltered sample.				03/07/2021		03/07/2021						
*	Subcontracted - refer to subcontractor report for accreditation status.				210703-92		210703-92						
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery				24565931		24565933						
(F)	Trigger breach confirmed												
1-4#9@	Sample deviation (see appendix)												
Component	LOD/Units	Method											
Naphthalene-d8 % recovery**	%	TM218	89		87.2								
Acenaphthene-d10 % recovery**	%	TM218	87.3		88								
Phenanthrene-d10 % recovery**	%	TM218	87.2		91.2								
Chrysene-d12 % recovery**	%	TM218	93.7		96.5								
Perylene d12 % recovery**		TM218	90.6		91.4								
Naphthalene	<9 µg/kg	TM218	<9		<9								
Acenaphthylene	<12 µg/kg	TM218	15.1		<12								
Acenaphthene	<8 µg/kg	TM218	<8		<8								
Fluorene	<10 µg/kg	TM218	<10		<10								
Phenanthrene	<15 µg/kg	TM218	89.1		82.5								
Anthracene	<16 µg/kg	TM218	26.5		20.7								
Fluoranthene	<17 µg/kg	TM218	242		199								
Pyrene	<15 µg/kg	TM218	209		172								
Benz(a)anthracene	<14 µg/kg	TM218	158		121								
Chrysene	<10 µg/kg	TM218	174		130								
Benzo(b)fluoranthene	<15 µg/kg	TM218	258		203								
Benzo(k)fluoranthene	<14 µg/kg	TM218	94.3		69.4								
Benzo(a)pyrene	<15 µg/kg	TM218	173		130								
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	141		108								
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	<23		<23								
Benzo(g,h,i)perylene	<24 µg/kg	TM218	119		99.7								
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	1700		1340								



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SDG: 210703-92 **Client Reference:** P21-132 **Report Number:** 605337
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Asbestos Identification - Solid Samples

Results Legend

ISO17025 accredited.
M mCERTS accredited.
* Subcontracted test.
(F) Trigger breach confirmed
1-5■ Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	TP1 0.50 - 0.50 SOLID 01/07/2021 00 00:00 03/07/2021 05 00:00 210703-92 24565931 TM048	09/07/2021	Paul Poynton	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	TP1 1.00 - 1.00 SOLID 01/07/2021 00 00 00 03/07/2021 05 00:00 210703-92 24565933 TM048	09/07/2021	Marcin Magdziarek	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected



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Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3 9	Determination of Phenols in Soils by HPLC
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2 5	Determination of pH in Soil and Water using the GLpH pH Meter
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the Skalar SANS+ System Segmented Flow Analyser
TM180	Sulphide in waters and waste waters 1991 ISBN 01 175 7186 SCA rec. 2007 (unpublished)	The Determination Of Easily Liberated Sulphide In Soil Samples by Ion Selective Electrode Technique
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM218	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid Extractable Sulphate in Soils by ICP OES
TM222	In-House Method	Determination of Hot Water Soluble Boron in Soils (10:1 Water:Soil) by ICP OES.
TM243		Mixed Anions In Soils By Kone

NA = not applicable.

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Test Completion Dates

Lab Sample No(s)	24565931	24565933
Customer Sample Ref.	TP1	TP1
AGS Ref.		
Depth	0.50 - 0.50	1.00 - 1.00
Type	Soil/Solid (S)	Soil/Solid (S)

Anions by Kone (soil)	07-Jul-2021	07-Jul-2021
Asbestos ID in Solid Samples	09-Jul-2021	09-Jul-2021
Boron Water Soluble	07-Jul-2021	07-Jul-2021
Cyanide Comp/Free/Total/Thiocyanate	07-Jul-2021	07-Jul-2021
Easily Liberated Sulphide	09 Jul 2021	09 Jul 2021
Hexavalent Chromium (s)	07-Jul-2021	07-Jul-2021
Metals in solid samples by OES	08-Jul-2021	08-Jul-2021
PAH by GCMS	07-Jul-2021	07-Jul-2021
pH	08-Jul-2021	09-Jul-2021
Phenols by HPLC (S)	07-Jul-2021	08-Jul-2021
Sample description	05-Jul-2021	05-Jul-2021
Total Organic Carbon	12-Jul-2021	09-Jul-2021
Total Sulphate	07-Jul-2021	07-Jul-2021
Total Sulphur	12-Jul-2021	12-Jul-2021



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Appendix

General

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH₄ by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18. Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
4	Matrix interference
♦	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to late arrival of instructions or samples
§	Sampled on date not provided

19. Asbestos

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anorthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung. Standing Committee of Analysts, *The Quantification of Asbestos in Soil* (2017).

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.