

Mr David Baker
Barwell Capitol Limited
17a Bridge House
Maybrook Street
Sutton Coldfield
B76 1AL

Dear David,

Re: Land at Crabtree Farm, Barwell (Parcel 1) – Stockpile Validation Sampling

Background

The works described and reported herein follow on from the assessments and investigations which have been completed at the above site. This letter report should not be referred to in isolation, and should be read in conjunction with the following;

- Erda Associates Ltd., Phase II Geo-Environmental Assessment – Land At Crabtree Farm, Barwell (Parcel 1), dated April 2021, ref: EAL.02.20 – Rev 1).

In summary, the previous report identified two slightly elevated concentrations of lead within a stockpile of made ground in the northern area of the site. It was recommended that further validation sampling of the shallow soils was undertaken in this area once the stockpile had been removed in order to confirm that no risks to end users remained.

Site Works

Erda Associates Ltd. (Erda) attended the subject site on 29th July 2021 to complete the validation works following the removal of the stockpile.

A total of six shallow hand dug samples were retrieved from this area and screened for lead, at a UKAS/MCERTS accredited laboratory. A validation sampling plan along with photographs of the recently cleared area are enclosed in **Appendix A**, for reference.

Chemical Test Results

Copies of the validation test results are included in **Appendix B**. The results were screened against the Generic Assessment Criteria (GAC) for a residential with produce end use. The GAC and methodology references are included in **Appendix C**.

In summary, no elevated concentrations of lead were identified and it is considered that the source of contamination has been removed. Therefore, the risk to future end users of the site is assessed as being negligible.

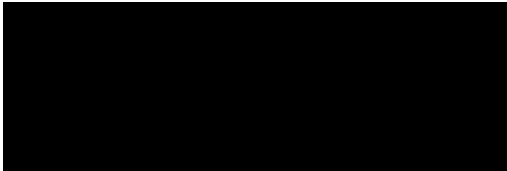
Conclusion and Recommendations

Validation sampling following removal of the made ground stockpile has demonstrated that no elevated concentrations remain on site. It is considered that the removal of the made ground stockpile has removed the source of contamination, thereby breaking the source-pathway-receptor linkage. Based on this the risk of elevated lead to end users is revised to negligible and no further remediation is considered to be required.

However, should any contamination be either observed or suspected during the redevelopment works, Erda should be notified to make further assessment.

Copies of this letter report should be forwarded to the Local Authority for review and approval. Should you have any queries, or require any further information, please do not hesitate to contact us.

Yours Sincerely



Phil Devitt, BSc MSc MRICS
Director

Encl.

Appendix A – Stockpile Validation Figures

Appendix B – Chemical Analysis Results

Appendix C – Erda Associates Tier 1 GACs and Methodology

Appendix A

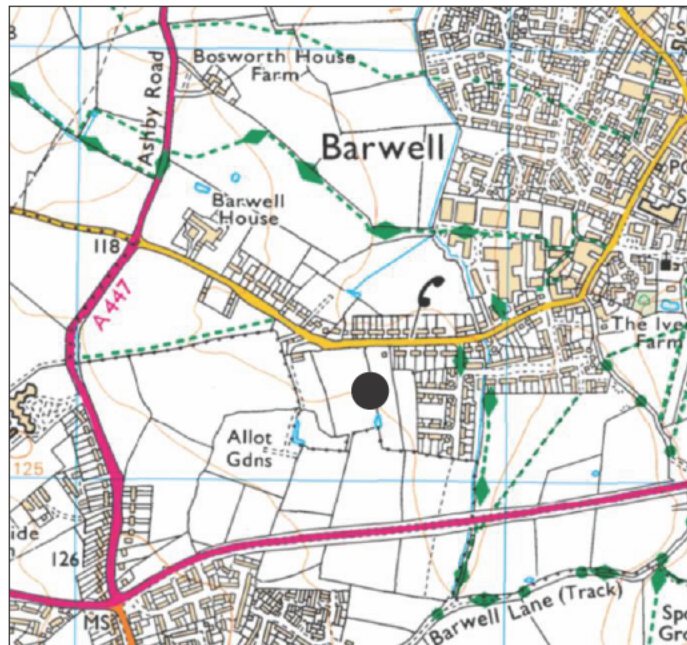




KEY:

● Approximate Site Location

DO NOT SCALE



TITLE:

Site Location Plan

PROJECT:

Crabtree Farm, Barwell

PROJECT No:

EAL.02.20

DATE:

08.2021

SCALE:

NTS

DRAWN:

PD

DWG No:

Figure 1

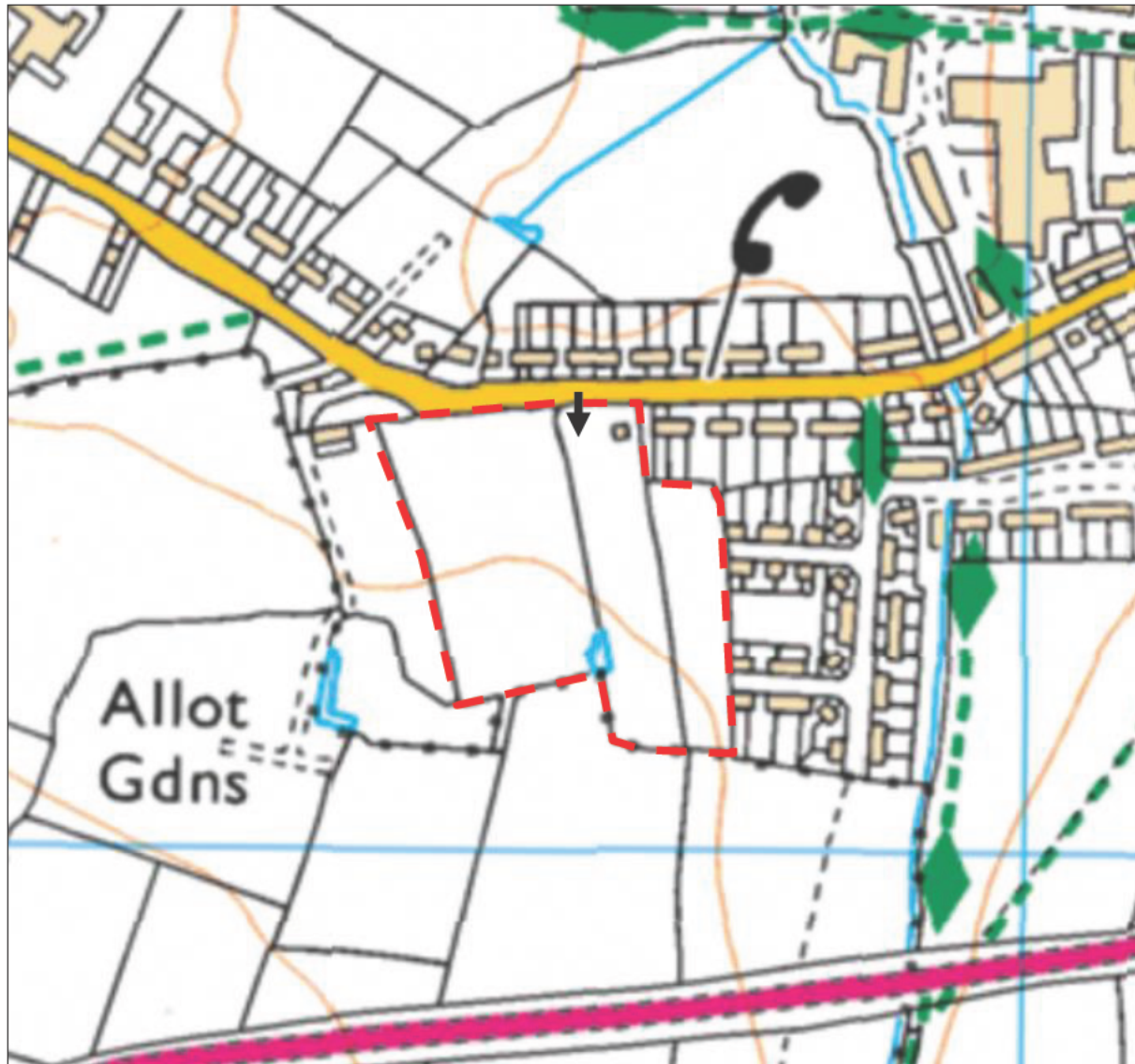


KEY:



Site Boundary

Access



DO NOT SCALE



TITLE:

Site Layout

PROJECT:

Crabtree Farm, Barwell

PROJECT No:

EAL.02.20

DATE:

08.2021

SCALE:

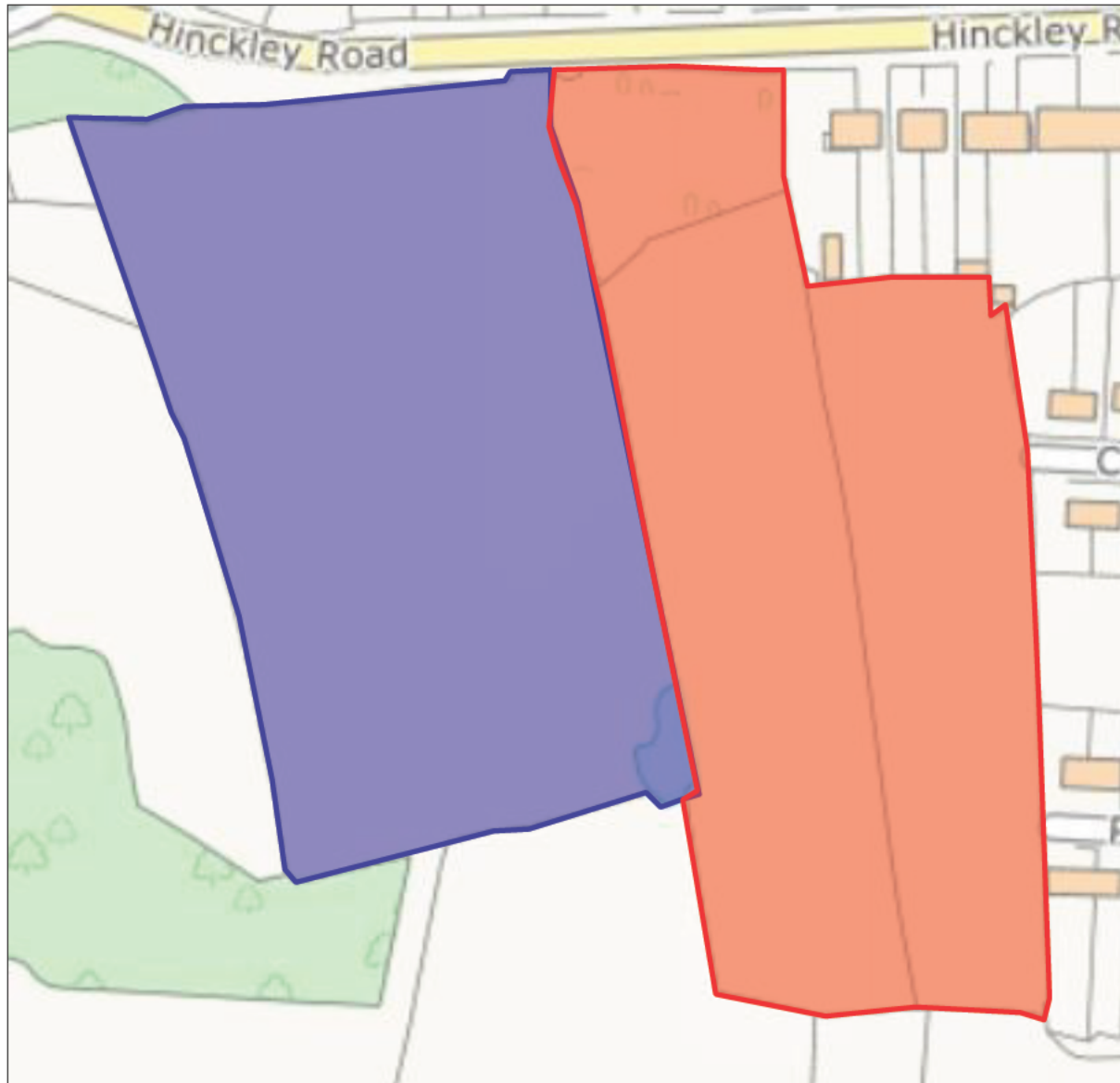
NTS

DRAWN:

PD

DWG No:

Figure 2



KEY:



Parcel 1 - area of proposed residential redevelopment (Subject of Phase II Report)



Parcel 2 - area of proposed burial ground (not included in Phase II Report)

DO NOT SCALE



TITLE:

Proposed End Use Plan

PROJECT:

Crabtree Farm, Barwell

PROJECT No:

EAL.02.20

DATE:

08.2021

SCALE:

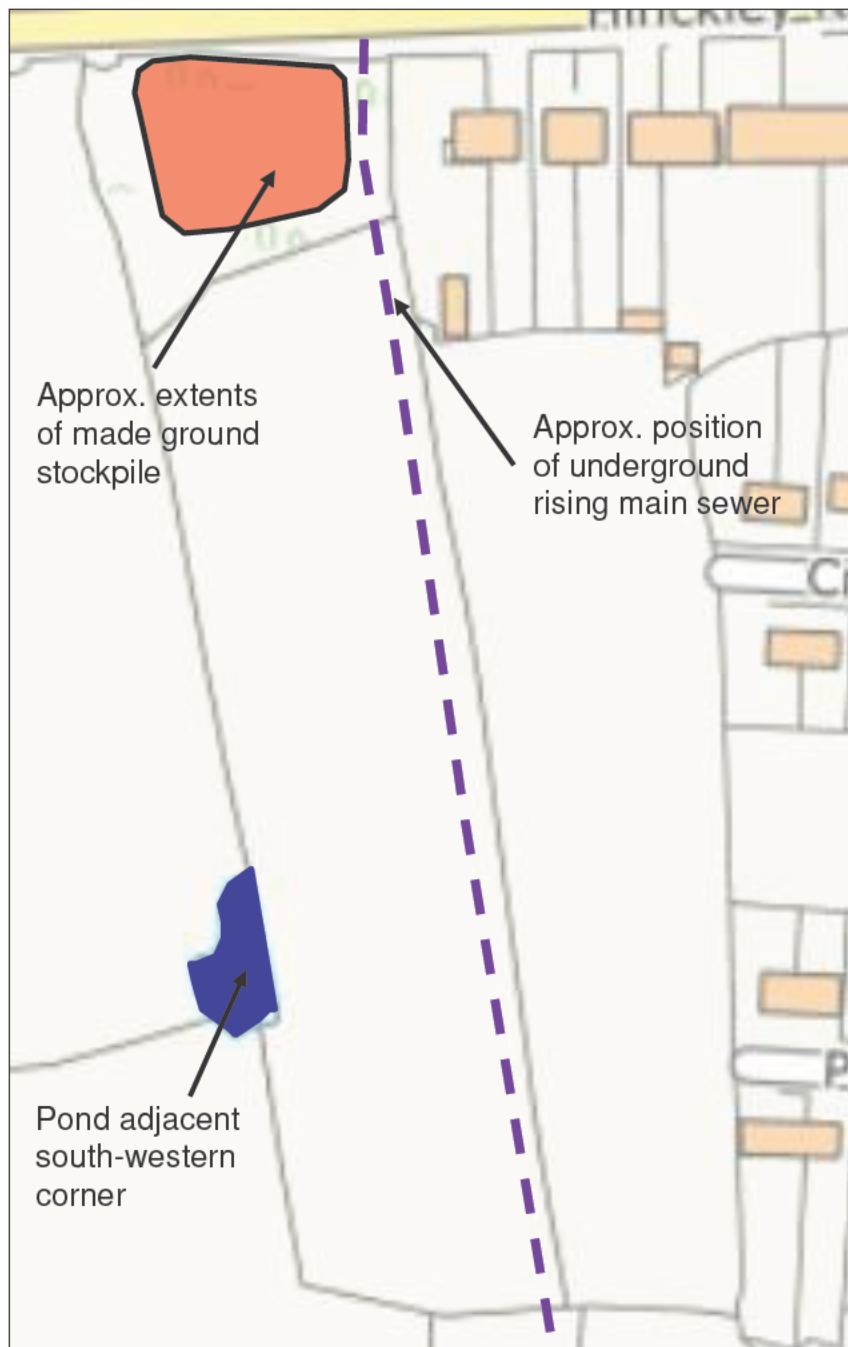
NTS

DRAWN:

PD

DWG No:

Figure 3



KEY:

DO NOT SCALE



TITLE:

Site Features Plan

PROJECT:

Crabtree Farm, Barwell

PROJECT No:

EAL.02.20

DATE:

08.2021

SCALE:

NTS

DRAWN:

PD

DWG No:

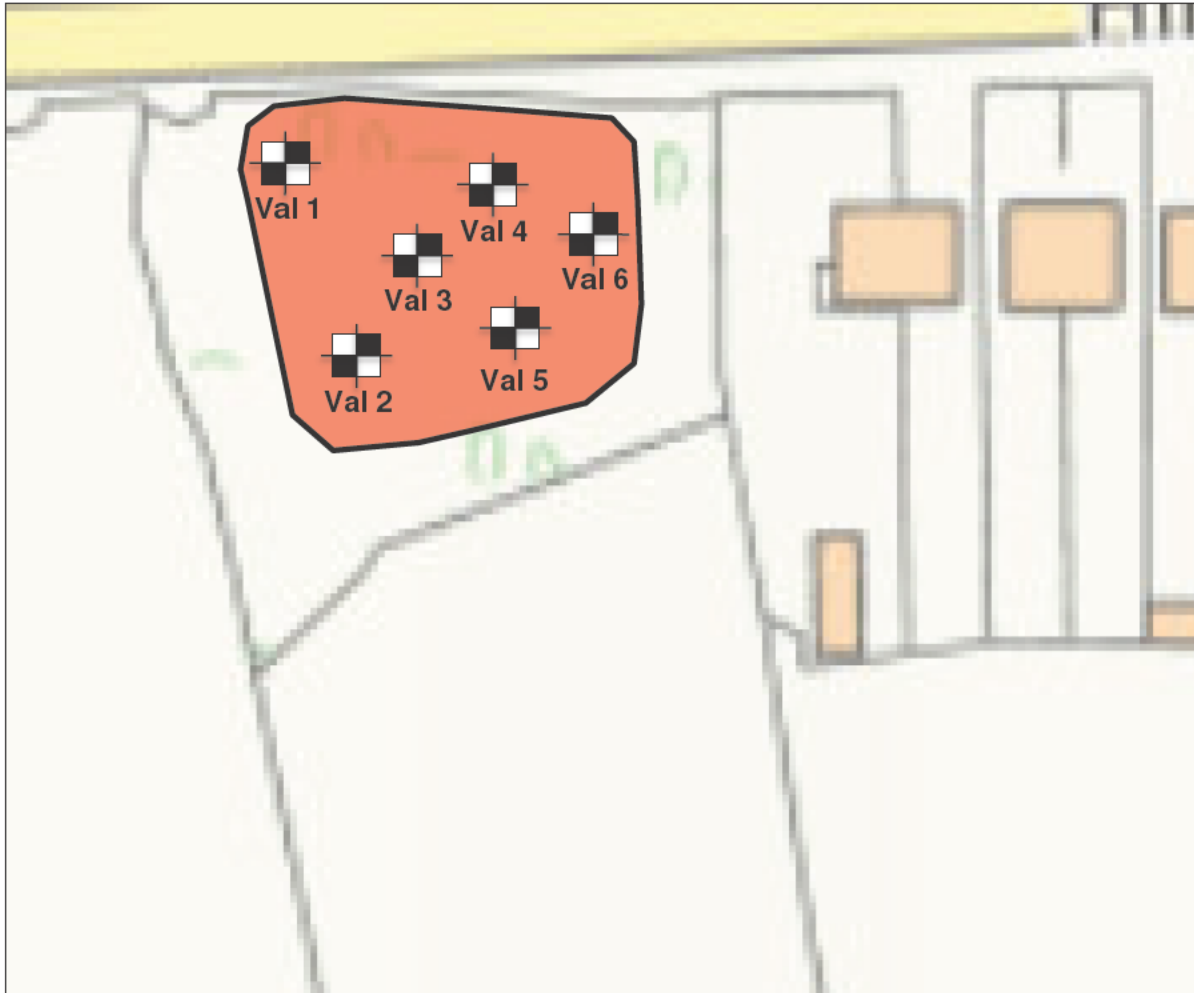
Figure 4



KEY:



Validation Sample



DO NOT SCALE



TITLE:

Validation Sampling Plan

PROJECT:

Crabtree Farm, Barwell

PROJECT No:

EAL.02.20

DATE:

08.2021

SCALE :

NTS

DRAWN :

PD

DWG No:

Figure 5

Appendix B





ANALYTICAL TEST REPORT

Contract no: 98970A
Contract name: Barwell
Client reference: EAL.02.20
Clients name: Erda Associates
Clients address: 102 Scalpcliffe Road
Burton on Trent
Staffordshire
DE15 9AB

Samples received: 02 August 2021

Analysis started: 02 August 2021

Analysis completed: 09 August 2021

Report issued: 13 August 2021

This is a supplementary report to report number 98970 issued 9 August 2021.

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by:

Rachael Burton
Customer Support Squad Leader

Chemtech Environmental Limited

SAMPLE INFORMATION

MCERTS (Soils):

Soil descriptions are only intended to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions. MCERTS accreditation applies for sand, clay and loam/topsoil, or combinations of these whether these are derived from naturally occurring soils or from made ground, as long as these materials constitute the major part of the sample. Other materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

All results are reported on a dry basis. Samples dried at no more than 30°C in a drying cabinet.

Analytical results are inclusive of stones.

Lab ref	Sample id	Depth (m)	Sample description	Material removed	% Removed	% Moisture
98970-5	Val 1	0.10	Sandy Loam	-	-	10.9
98970-6	Val 2	0.10	Sandy Loam with Gravel	-	-	11.9
98970-7	Val 3	0.20	Clayey Sand	-	-	8.6
98970-8	Val 4	0.30	Sandy Loam with Roots	-	-	11.2
98970-9	Val 5	0.10	Sandy Loam with Gravel	-	-	10.6
98970-10	Val 6	0.20	Sandy Clayey Loam	-	-	10.0

Chemtech Environmental Limited

SOILS

Lab number			98970-1	98970-2	98970-3	98970-4	98970-5	98970-6
Sample id			HD01	HD02	HD03	HD04	Val 1	Val 2
Depth (m)			0.30	0.20	0.20	0.30	0.10	0.10
Date sampled			29/07/2021	29/07/2021	29/07/2021	29/07/2021	29/07/2021	29/07/2021
Test	Method	Units						
Lead (total)	CE127 ^M	mg/kg Pb	-	-	-	-	81	145

Chemtech Environmental Limited

SOILS

Lab number			98970-7	98970-8	98970-9	98970-10
Sample id			Val 3	Val 4	Val 5	Val 6
Depth (m)			0.20	0.30	0.10	0.20
Date sampled			29/07/2021	29/07/2021	29/07/2021	29/07/2021
Test	Method	Units				
Lead (total)	CE127 ^M	mg/kg Pb	30	184	108	53

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE127	Lead (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Pb

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments

Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.

For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.

Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key

N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
98970-5	Val 1	0.10	N	
98970-6	Val 2	0.10	N	
98970-7	Val 3	0.20	N	
98970-8	Val 4	0.30	N	
98970-9	Val 5	0.10	N	
98970-10	Val 6	0.20	N	

Chemtech Environmental Limited

TEST REPORT REVISIONS

The table below identifies amendments that have been made to this test report for each revision.

Test Report Reference	Details of amendments to test report	Issue Date
98970	Original report issued	09 August 2021
98970A/B	Report split in Lead Report and Pesticide & Herbicide Report	12 August 2021

Appendix C



Tier 1 Assessment Criteria

Determinand	Residential With Produce	Residential Without Produce	Allotments	Commercial (Office)	Commercial (Warehouse)
Arsenic	32.40	35.00	43.00	635.00	635.00
Cadmium	5.17	17.70	1.05	230.00	230.00
Mercury, elemental	1.02	1.02	316.00	109.00	83.40
Mercury, inorganic	169.00	238.00	80.30	3640.00	3640.00
Mercury, methyl	11.40	14.10	7.97	407.00	409.00
Selenium	350.00	595.00	121.00	13000.00	13000.00
Phenol	415.00	519.00	282.00	37600.00	38000.00
Toulene	611.00	2710.00	118.00	189000.00	166000.00
Lead	210.00	210.00	84.00	2300.00	2300.00
Nickel	130.00	130*	180.00	980.00	980.00
Total Cyanide	34.00	34.00			
Benzo(a)pyrene	3.00	3.20	3.50	36.00	14.40
Dibenz(ah)anthracene	0.30	0.32	0.43	3.60	13.00
Acenaphthene	1100.00	6000.00	200.00	100000.00	103000.00
Acenaphthylene	920.00	6000.00	160.00	100000.00	103000.00
Anthracene	11000.00	37000.00	2200.00	540000.00	542000.00
Benzo(a)anthracene	13.00	15.00	13.00	180.00	97.50
Benzo(b)fluoranthene	3.70	4.00	3.90	45.00	103.00
Benzo(ghi)perylene	350.00	360.00	640.00	4000.00	661.00
Benzo(k)fluoranthene	100.00	110.00	130.00	1200.00	144.00
Chrysene	27.00	32.00	19.00	350.00	143.00
Fluoranthene	890.00	1600.00	290.00	23000.00	22700.00
Fluorene	860.00	4500.00	160.00	71000.00	70700.00
Indeno(123cd)pyrene	41.00	46.00	39.00	510.00	61.70
Phenanthrene	440.00	1500.00	90.00	23000.00	22600.00
Pyrene	2000.00	3800.00	620.00	54000.00	54500.00
Naphthalene	13.00	13.00	24.00	1100.00	875.00
Chromium VI	3.38	4.12	2.11	34.20	34.20
Chromium III	627.00	627.00	15300.00	8840.00	8840.00
Copper	2330.00	6200*	524.00	71700.00	71700.00
Vanadium	79.00	226.00	17.90	5590.00	5590.00
Zinc	3750.00	40400*	618.00	665000.00	665000.00

Note:

All figures are in mg/kg

Values calculated using CLEA v1.071

Soil type chosen is sandy loam, pH 7

All organic determinands calculated using 6% SOM

PAH = S4UL (except warehouse model - CLEA v1.071)

* Phytotoxic assessment based on pH range of <6.0 to >7.0, Copper = 100-200mg/kg, Nickel=60-110mg/kg, Zinc = 200-300mg/kg

Tier 1 Assessment Criteria

Determinand	Residential With Produce	Residential Without Produce	Allotments	Commercial (Office)	Commercial (Warehouse)
Benzene	0.33	1.00	0.07	94.70	80.30
Ethylbenzene	354.00	843.00	91.20	65700.00	55600.00
Phenol	415.00	519.00	282.00	37600.00	38000.00
Toulene	611.00	2710.00	118.00	189000.00	166000.00
Xylene, o-	246.00	321.00	159.00	34600.00	27600.00
Xylene, m-	240.00	302.00	175.00	32700.00	26100.00
Xylene, p-	228.00	288.00	164.00	31400.00	25100.00
Aliphatic C5-C6	113.00	113.00	3910.00	12800.00	10800.00
Aliphatic C6-C8	48.10	48.20	13300.00	5470.00	4620.00
Aliphatic C8-C10	108.00	109.00	1710.00	11900.00	10200.00
Aliphatic C10-C12	537.00	538.00	7280.00	49300.00	43700.00
Aliphatic C12-C16	3030.00	3040.00	13400.00	90500.00	89600.00
Aliphatic C16-C35	88400.00	89100.00	281000.00	1910000.00	1910000.00
Aliphatic C35-C44	88400.00	89100.00	281000.00	1910000.00	1910000.00
Aromatic C5-C7	275.00	978.00	57.30	89900.00	76800.00
Aromatic C7-C8	611.00	2710.00	118.00	189000.00	166000.00
Aromatic C8-C10	151.00	189.00	50.50	17800.00	15700.00
Aromatic C10-C12	346.00	866.00	73.80	34500.00	33800.00
Aromatic C12-C16	593.00	1710.00	134.00	37800.00	37800.00
Aromatic C16-C21	770.00	1340.00	260.00	28600.00	28600.00
Aromatic C21-C35	1230.00	1340.00	1550.00	28600.00	28600.00
Aromatic C35-C44	1230.00	1340.00	1550.00	28600.00	28600.00
Combined Aliphatic and Aromatic C44-C70	1300.00	1340.00	2950.00	28600.00	28600.00

Note:

All figures are in mg/kg

Values calculated using CLEA v1.071

Soil type chosen is sandy loam, pH 7

All organic determinands calculated using 6% SOM