

25.



06.04.21 – Formation Validation: S25

26.



06.04.21 – Formation Validation: S26

27.



06.04.21 – Formation Validation: S27

28.



06.04.21 – Formation Validation: S28

29.



06.04.21 – Formation Validation: S29

30.

No Photo

06.04.21 – Formation Validation: S30

31.



06.04.21 – Formation Validation: S31

32.



06.04.21 – Formation Validation: S32

33.



06.04.21 – Formation Validation: S33

34.



06.04.21 – Formation Validation: S34

35.



06.04.21 – Formation Validation: S35

36.



06.04.21 – Formation Validation: S36

37.



06.04.21 – Formation Validation: S37

38.



28.04.21 – Formation Validation: S38

39.



28.04.21 – Formation Validation: S39

40.



28.04.21 – Formation Validation: S40

41.



28.04.21 – Formation Validation: S41

42.



28.04.21 – Formation Validation: S42

43.



28.04.21 – Formation Validation: S43

44.



28.04.21 – Formation Validation: S44

45.



28.04.21 – Formation Validation: S45

46.



28.04.21 – Formation Validation: S46

47.



28.04.21 – Formation Validation: S47

48.



28.04.21 – Formation Validation: S48

49.



28.04.21 – Formation Validation: S49

50.



28.04.21 – Formation Validation: S50

51.



28.04.21 – Formation Validation: S51

No Photo

APPENDIX C

Laboratory Certificates



Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528700
Fax: (01244) 528701
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Chemtest
Willie Snaith Rd
Newmarket
Suffolk
CB8 7SQ

Attention: Chemtest Subcontracting

CERTIFICATE OF ANALYSIS

Date of report Generation: 11 May 2021
Customer: Chemtest
Sample Delivery Group (SDG): 210506-141
Your Reference:
Location: 21-14506
Report No: 597497

We received 14 samples on Thursday May 06, 2021 and 14 of these samples were scheduled for analysis which was completed on Tuesday May 11, 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: 210506-141
Location: 21-14506

Client Reference:
Order Number: 20798

Report Number: 597497
Superseded Report:

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
24219553	PH9-S38			04/05/2021
24219554	PH9-S39			04/05/2021
24219555	PH9-S40			04/05/2021
24219557	PH9-S41			04/05/2021
24219558	PH9-S42			04/05/2021
24219559	PH9-S43			04/05/2021
24219560	PH9-S44			04/05/2021
24219562	PH9-S45			04/05/2021
24219563	PH9-S46			04/05/2021
24219564	PH9-S47			04/05/2021
24219565	PH9-S48			04/05/2021
24219566	PH9-S49			04/05/2021
24219567	PH9-S50			04/05/2021
24219568	PH9-S51			04/05/2021

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



CERTIFICATE OF ANALYSIS

Validated

SDG: 210506-141
Location: 21-14506

Client Reference:
Order Number: 20798

Report Number: 597497
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)			24219568	24219567	24219566	24219565	24219564	24219563	24219562	24219560	24219559	24219558	24219557	24219555	24219554	24219553
Customer Sample Reference			PH9-S51	PH9-S50	PH9-S49	PH9-S48	PH9-S47	PH9-S46	PH9-S45	PH9-S44	PH9-S43	PH9-S42	PH9-S41	PH9-S40	PH9-S39	PH9-S38
AGS Reference																
Depth (m)																
Container			250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S
PAH by GCMS	All	NDPs: 0 Tests: 14	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sample description	All	NDPs: 0 Tests: 14	X	X	X	X	X	X	X	X	X	X	X	X	X	X



CERTIFICATE OF ANALYSIS

Validated

SDG: 210506-141
Location: 21-14506

Client Reference:
Order Number: 20798

Report Number: 597497
Superseded Report:

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm
-----------	----------	------	-----------------	--------	-------------	--------	------------	-------------	-------

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
24219553	PH9-S38		Dark Brown	Loamy Sand	Stones	None
24219554	PH9-S39		Dark Brown	Loamy Sand	Stones	None
24219555	PH9-S40		Dark Brown	Loamy Sand	Stones	None
24219557	PH9-S41		Dark Brown	Loamy Sand	Stones	Vegetation
24219558	PH9-S42		Dark Brown	Loamy Sand	Stones	None
24219559	PH9-S43		Dark Brown	Loamy Sand	Stones	None
24219560	PH9-S44		Dark Brown	Sandy Clay Loam	Stones	None
24219562	PH9-S45		Dark Brown	Clay Loam	None	None
24219563	PH9-S46		Dark Brown	Clay Loam	None	None
24219564	PH9-S47		Dark Brown	Loamy Sand	None	None
24219565	PH9-S48		Dark Brown	Loamy Sand	None	None
24219566	PH9-S49		Light Brown	Sandy Silt Loam	None	None
24219567	PH9-S50		Dark Brown	Loamy Sand	Stones	Vegetation
24219568	PH9-S51		Light Brown	Loamy Sand	None	None

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.



CERTIFICATE OF ANALYSIS

Validated

SDG: 210506-141
Location: 21-14506

Client Reference:
Order Number: 20798

Report Number: 597497
Superseded Report:

PAH by GCMS

Results Legend		Customer Sample Ref. Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	PH9-S50	PH9-S51				
#	ISO17025 accredited.		Soil/Solid (S) 04/05/2021 06/05/2021 210506-141 24219567	Soil/Solid (S) 04/05/2021 06/05/2021 210506-141 24219568				
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	Subcontracted - refer to subcontractor report for accreditation status.							
**	% 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							
(F)	Trigger breach confirmed							
1-4*5@	Sample deviation (see appendix)							
Component	LOD/Units	Method						
Naphthalene-d8 % recovery**	%	TM218	75.2	81.2				
Acenaphthene-d10 % recovery**	%	TM218	77.8	79.1				
Phenanthrene-d10 % recovery**	%	TM218	90.5	88.5				
Chrysene-d12 % recovery**	%	TM218	91.7	78.4				
Perylene-d12 % recovery**	%	TM218	82.7	70.4				
Naphthalene	<9 µg/kg	TM218	14.8	<9				
Acenaphthylene	<12 µg/kg	TM218	29.1	<12				
Acenaphthene	<8 µg/kg	TM218	230	<8				
Fluorene	<10 µg/kg	TM218	<10	<10				
Phenanthrene	<15 µg/kg	TM218	1920	45.8				
Anthracene	<16 µg/kg	TM218	543	<16				
Fluoranthene	<17 µg/kg	TM218	3140	182				
Pyrene	<15 µg/kg	TM218	2540	171				
Benz(a)anthracene	<14 µg/kg	TM218	1330	77.8				
Chrysene	<10 µg/kg	TM218	1110	73.6				
Benzo(b)fluoranthene	<15 µg/kg	TM218	1420	106				
Benzo(k)fluoranthene	<14 µg/kg	TM218	474	34.6				
Benzo(a)pyrene	<15 µg/kg	TM218	1040	68.1				
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	630	51.4				
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	131	<23				
Benzo(g,h,i)perylene	<24 µg/kg	TM218	660	54				
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	15200	864				



CERTIFICATE OF ANALYSIS

Validated

SDG: 210506-141
Location: 21-14506

Client Reference:
Order Number: 20798

Report Number: 597497
Superseded Report:

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM218	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS

NA = not applicable.

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



CERTIFICATE OF ANALYSIS

SDG: 210506-141
Location: 21-14506Client Reference:
Order Number: 20798Report Number: 597497
Superseded Report:

Test Completion Dates

Lab Sample No(s)	24219553	24219554	24219555	24219557	24219558	24219559	24219560	24219562	24219563	24219564
Customer Sample Ref.	PH9-S38	PH9-S39	PH9-S40	PH9-S41	PH9-S42	PH9-S43	PH9-S44	PH9-S45	PH9-S46	PH9-S47
AGS Ref.										
Depth										
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
PAH by GCMS	10-May-2021	10-May-2021	10-May-2021	11-May-2021	10-May-2021	10-May-2021	10-May-2021	11-May-2021	10-May-2021	10-May-2021
Sample description	07-May-2021	07-May-2021	07-May-2021	07-May-2021	07-May-2021	07-May-2021	07-May-2021	07-May-2021	07-May-2021	07-May-2021

Lab Sample No(s)	24219565	24219566	24219567	24219568
Customer Sample Ref.	PH9-S48	PH9-S49	PH9-S50	PH9-S51
AGS Ref.				
Depth				
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
PAH by GCMS	10-May-2021	10-May-2021	10-May-2021	10-May-2021
Sample description	07-May-2021	07-May-2021	07-May-2021	07-May-2021



CERTIFICATE OF ANALYSIS

SDG:	210506-141	Client Reference:		Report Number:	597497
Location:	21-14506	Order Number:	20798	Superseded Report:	

Appendix

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.

General

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 Anthophyllite	-
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.

Smith Grant LLP
Station House
Station Road
Ruabon
Wrexham
LL14 6DL



Attention : Dan Wayland
Date : 3rd March, 2021
Your reference : R1742B
Our reference : Test Report 21/2316 Batch 1
Location : Heyford PH9
Date samples received : 19th February, 2021
Status : Final report
Issue : 1

Three samples were received for analysis on 19th February, 2021 of which three were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:



Bruce Leslie
Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: Smith Grant LLP
Reference: R1742B
Location: Heyford PH9
Contact: Dan Wayland
EMT Job No: 21/2316

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-2	3-4	5-6								Please see attached notes for all abbreviations and acronyms		
Sample ID	HS-TP104-S1	HS-TP104-S2	HS-TP104-S3										
Depth	0.0-0.4	0.0-0.4	0.4-1.1										
COC No / misc													
Containers	V J	V J	V J										
Sample Date	17/02/2021	17/02/2021	17/02/2021										
Sample Type	Clay	Clay	Clay										
Batch Number	1	1	1										
Date of Receipt	19/02/2021	19/02/2021	19/02/2021								LOD/LOR	Units	Method No.
TPH CWG													
Aliphatics													
>C5-C6 ^{#M}	<0.1	<0.1	<0.1								<0.1	mg/kg	TM36/PM12
>C6-C8 ^{#M}	<0.1	<0.1	<0.1								<0.1	mg/kg	TM36/PM12
>C8-C10	<0.1	<0.1	<0.1								<0.1	mg/kg	TM36/PM12
>C10-C12 ^{#M}	<0.2 ^{SV}	<0.2 ^{SV}	<0.2 ^{SV}								<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 ^{#M}	<4 ^{SV}	<4 ^{SV}	<4 ^{SV}								<4	mg/kg	TM5/PM8/PM16
>C16-C21 ^{#M}	14 ^{SV}	<7 ^{SV}	<7 ^{SV}								<7	mg/kg	TM5/PM8/PM16
>C21-C35 ^{#M}	63 ^{SV}	<7 ^{SV}	<7 ^{SV}								<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-35	77	<19	<19								<19	mg/kg	TM5/TM36/PM8/PM16/PM12/PM10
Aromatics													
>C5-EC7 [#]	<0.1	<0.1	<0.1								<0.1	mg/kg	TM36/PM12
>EC7-EC8 [#]	<0.1	<0.1	<0.1								<0.1	mg/kg	TM36/PM12
>EC8-EC10 ^{#M}	<0.1	<0.1	<0.1								<0.1	mg/kg	TM36/PM12
>EC10-EC12 [#]	<0.2 ^{SV}	<0.2 ^{SV}	<0.2 ^{SV}								<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 [#]	<4 ^{SV}	<4 ^{SV}	<4 ^{SV}								<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 [#]	33 ^{SV}	<7 ^{SV}	<7 ^{SV}								<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 [#]	231 ^{SV}	<7 ^{SV}	<7 ^{SV}								<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-35 [#]	264	<19	<19								<19	mg/kg	TM5/TM36/PM8/PM16/PM12/PM10
Total aliphatics and aromatics(C5-35)	341	<38	<38								<38	mg/kg	TM5/TM36/PM8/PM16/PM12/PM10
MTBE [#]	<5	<5	<5								<5	ug/kg	TM36/PM12
Benzene [#]	<5	<5	<5								<5	ug/kg	TM36/PM12
Toluene [#]	<5	<5	<5								<5	ug/kg	TM36/PM12
Ethylbenzene [#]	<5	<5	<5								<5	ug/kg	TM36/PM12
m/p-Xylene [#]	<5	<5	<5								<5	ug/kg	TM36/PM12
o-Xylene [#]	<5	<5	<5								<5	ug/kg	TM36/PM12
Natural Moisture Content	22.9	11.2	12.0								<0.1	%	PM4/PM0
Sample Type	Clay	Clay	Clay									None	PM13/PM0
Sample Colour	Medium Brown	Medium Brown	Medium Brown									None	PM13/PM0
Other Items	stones	stones	stones									None	PM13/PM0
				</									

Client Name: Smith Grant LLP

Reference: R1742B

Location: Heyford PH9

Contact: Dan Wayland

[illegible]

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 21/2316

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overestimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above calibration range, the result should be considered the minimum value. The actual result could be significantly higher, this result is not accredited.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

EMT Job No: 21/2316

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.	PM0	No preparation is required.			AR	
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes	Yes	AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details			AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details	Yes		AR	Yes
PM13	A visual examination of the solid sample is carried out to ascertain sample make up, colour and any other inclusions. This is not a geotechnical description.	PM0	No preparation is required.			AR	No
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes	Yes	AR	Yes



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Final Report

Report No.:	21-06789-1		
Initial Date of Issue:	10-Mar-2021		
Client	Smith Grant LLP		
Client Address:	Station House, Station Road Ruabon Wrexham LL14 6DL		
Contact(s):	Dan Wayland		
Project	R1742b Heyford - Phase 9		
Quotation No.:	Q15-02887	Date Received:	04-Mar-2021
Order No.:		Date Instructed:	04-Mar-2021
No. of Samples:	11		
Turnaround (Wkdays):	5	Results Due:	10-Mar-2021
Date Approved:	10-Mar-2021		
Approved By:			
Details:	Glynn Harvey, Technical Manager		

Results - Soil

Project: R1742b Heyford - Phase 9

Client: Smith Grant LLP	Chemtest Job No.:				21-06789	21-06789	21-06789	21-06789	21-06789	21-06789	21-06789	21-06789	21-06789
Quotation No.: Q15-02887	Chemtest Sample ID.:				1153713	1153714	1153715	1153716	1153717	1153718	1153719	1153720	1153721
	Sample Location:				PH9-S1	PH9-S2	PH9-S3	PH9-S4	PH9-S5	PH9-S6	PH9-S7	PH9-S8	PH9-S9
	Sample Type:				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):				0	0	0	0	0	0	0	0	0
	Bottom Depth (m):				0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
	Date Sampled:				02-Mar-2021	02-Mar-2021	02-Mar-2021	02-Mar-2021	02-Mar-2021	02-Mar-2021	02-Mar-2021	02-Mar-2021	02-Mar-2021
	Asbestos Lab:				COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD									
ACM Type	U	2192		N/A	-	-	-	-	-	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-	-	-	-	-	-	-	-	-
Moisture	N	2030	%	0.020	15	13	15	15	11	10	12	6.9	13
pH	U	2010		4.0	8.7	8.6	8.6	8.6	8.7	8.6	8.6	8.7	8.6
Arsenic	U	2450	mg/kg	1.0	12	20	15	16	25	24	25	10	21
Cadmium	U	2450	mg/kg	0.10	0.18	0.12	0.13	0.16	0.16	0.15	0.15	< 0.10	0.23
Chromium	U	2450	mg/kg	1.0	21	20	26	25	20	18	18	4.0	25
Copper	U	2450	mg/kg	0.50	14	9.0	13	14	10	10	9.8	1.7	11
Mercury	U	2450	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Nickel	U	2450	mg/kg	0.50	20	20	24	26	21	18	19	3.9	24
Lead	U	2450	mg/kg	0.50	17	9.8	12	15	10	12	9.8	1.9	17
Selenium	U	2450	mg/kg	0.20	< 0.20	< 0.20	< 0.20	0.24	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Zinc	U	2450	mg/kg	0.50	47	28	47	44	28	30	26	4.6	41
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	U	2625	%	0.40	0.95	0.67	0.84	1.4	0.55	1.1	0.74	< 0.40	1.2
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Naphthalene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Results - Soil

Project: R1742b Heyford - Phase 9

Client: Smith Grant LLP	Chemtest Job No.:				21-06789	21-06789	21-06789	21-06789	21-06789	21-06789	21-06789	21-06789	21-06789
Quotation No.: Q15-02887	Chemtest Sample ID.:				1153713	1153714	1153715	1153716	1153717	1153718	1153719	1153720	1153721
	Sample Location:				PH9-S1	PH9-S2	PH9-S3	PH9-S4	PH9-S5	PH9-S6	PH9-S7	PH9-S8	PH9-S9
	Sample Type:				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):				0	0	0	0	0	0	0	0	0
	Bottom Depth (m):				0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
	Date Sampled:				02-Mar-2021	02-Mar-2021	02-Mar-2021	02-Mar-2021	02-Mar-2021	02-Mar-2021	02-Mar-2021	02-Mar-2021	02-Mar-2021
	Asbestos Lab:				COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD									
Acenaphthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	U	2700	mg/kg	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Benzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Results - Soil

Project: R1742b Heyford - Phase 9

Client: Smith Grant LLP	Chemtest Job No.:				21-06789	21-06789
Quotation No.: Q15-02887	Chemtest Sample ID.:				1153722	1153723
	Sample Location:				PH9-S10	PH9-S11
	Sample Type:				SOIL	SOIL
	Top Depth (m):				0	0
	Bottom Depth (m):				0.4	0.4
	Date Sampled:				02-Mar-2021	02-Mar-2021
	Asbestos Lab:				COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD		
ACM Type	U	2192		N/A	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-	-
Moisture	N	2030	%	0.020	12	7.5
pH	U	2010		4.0	8.4	8.6
Arsenic	U	2450	mg/kg	1.0	13	13
Cadmium	U	2450	mg/kg	0.10	< 0.10	< 0.10
Chromium	U	2450	mg/kg	1.0	9.4	7.2
Copper	U	2450	mg/kg	0.50	5.0	3.8
Mercury	U	2450	mg/kg	0.10	< 0.10	< 0.10
Nickel	U	2450	mg/kg	0.50	9.3	7.0
Lead	U	2450	mg/kg	0.50	7.7	5.8
Selenium	U	2450	mg/kg	0.20	< 0.20	< 0.20
Zinc	U	2450	mg/kg	0.50	21	12
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50
Organic Matter	U	2625	%	0.40	1.1	0.60
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10	< 10
Naphthalene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Acenaphthylene	U	2700	mg/kg	0.10	< 0.10	< 0.10

Results - Soil

Project: R1742b Heyford - Phase 9

Client: Smith Grant LLP	Chemtest Job No.:				21-06789	21-06789
Quotation No.: Q15-02887	Chemtest Sample ID.:				1153722	1153723
	Sample Location:				PH9-S10	PH9-S11
	Sample Type:				SOIL	SOIL
	Top Depth (m):				0	0
	Bottom Depth (m):				0.4	0.4
	Date Sampled:				02-Mar-2021	02-Mar-2021
	Asbestos Lab:				COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD		
Acenaphthene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Fluorene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Phenanthrene	U	2700	mg/kg	0.10	< 0.10	0.78
Anthracene	U	2700	mg/kg	0.10	< 0.10	0.40
Fluoranthene	U	2700	mg/kg	0.10	< 0.10	1.7
Pyrene	U	2700	mg/kg	0.10	< 0.10	1.6
Benzo[a]anthracene	U	2700	mg/kg	0.10	< 0.10	0.90
Chrysene	U	2700	mg/kg	0.10	< 0.10	0.90
Benzo[b]fluoranthene	U	2700	mg/kg	0.10	< 0.10	0.60
Benzo[k]fluoranthene	U	2700	mg/kg	0.10	< 0.10	0.17
Benzo[a]pyrene	U	2700	mg/kg	0.10	< 0.10	0.56
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Total Of 16 PAH's	U	2700	mg/kg	2.0	< 2.0	7.6
Benzene	U	2760	µg/kg	1.0	< 1.0	< 1.0
Toluene	U	2760	µg/kg	1.0	< 1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenzo[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage


If you require extended retention of samples, please email your requirements to:

customerservices@chemtest.com



2183

Amended Report

Report No.:	21-06789-2		
Initial Date of Issue:	10-Mar-2021	Date of Re-Issue:	18-Mar-2021
Client	Smith Grant LLP		
Client Address:	Station House, Station Road Ruabon Wrexham LL14 6DL		
Contact(s):	Dan Wayland		
Project	R1742b Heyford - Phase 9		
Quotation No.:	Q15-02887	Date Received:	04-Mar-2021
Order No.:		Date Instructed:	04-Mar-2021
No. of Samples:	11		
Turnaround (Wkdays):	15	Results Due:	24-Mar-2021
Date Approved:	18-Mar-2021		
Approved By:			
Details:	Glynn Harvey, Technical Manager		

Results - Soil

Project: R1742b Heyford - Phase 9

Client: Smith Grant LLP	Chemtest Job No.:				21-06789	21-06789	21-06789	21-06789	21-06789	21-06789	21-06789	21-06789	21-06789
Quotation No.: Q15-02887	Chemtest Sample ID.:				1153713	1153714	1153715	1153716	1153717	1153718	1153719	1153720	1153721
	Sample Location:				PH9-S1	PH9-S2	PH9-S3	PH9-S4	PH9-S5	PH9-S6	PH9-S7	PH9-S8	PH9-S9
	Sample Type:				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):				0	0	0	0	0	0	0	0	0
	Bottom Depth (m):				0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
	Date Sampled:				02-Mar-2021	02-Mar-2021	02-Mar-2021	02-Mar-2021	02-Mar-2021	02-Mar-2021	02-Mar-2021	02-Mar-2021	02-Mar-2021
	Asbestos Lab:				COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD									
ACM Type	U	2192		N/A	-	-	-	-	-	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-	-	-	-	-	-	-	-	-
Moisture	N	2030	%	0.020	15	13	15	15	11	10	12	6.9	13
pH	U	2010		4.0	8.7	8.6	8.6	8.6	8.7	8.6	8.6	8.7	8.6
Arsenic	U	2450	mg/kg	1.0	12	20	15	16	25	24	25	10	21
Cadmium	U	2450	mg/kg	0.10	0.18	0.12	0.13	0.16	0.16	0.15	0.15	< 0.10	0.23
Chromium	U	2450	mg/kg	1.0	21	20	26	25	20	18	18	4.0	25
Copper	U	2450	mg/kg	0.50	14	9.0	13	14	10	10	9.8	1.7	11
Mercury	U	2450	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Nickel	U	2450	mg/kg	0.50	20	20	24	26	21	18	19	3.9	24
Lead	U	2450	mg/kg	0.50	17	9.8	12	15	10	12	9.8	1.9	17
Selenium	U	2450	mg/kg	0.20	< 0.20	< 0.20	< 0.20	0.24	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Vanadium	U	2450	mg/kg	5.0	40	40	45	49	41	38	41	7.8	49
Zinc	U	2450	mg/kg	0.50	47	28	47	44	28	30	26	4.6	41
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	U	2625	%	0.40	0.95	0.67	0.84	1.4	0.55	1.1	0.74	< 0.40	1.2
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Naphthalene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Results - Soil

Project: R1742b Heyford - Phase 9

Client: Smith Grant LLP	Chemtest Job No.:				21-06789	21-06789	21-06789	21-06789	21-06789	21-06789	21-06789	21-06789	21-06789
Quotation No.: Q15-02887	Chemtest Sample ID.:				1153713	1153714	1153715	1153716	1153717	1153718	1153719	1153720	1153721
	Sample Location:				PH9-S1	PH9-S2	PH9-S3	PH9-S4	PH9-S5	PH9-S6	PH9-S7	PH9-S8	PH9-S9
	Sample Type:				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):				0	0	0	0	0	0	0	0	0
	Bottom Depth (m):				0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
	Date Sampled:				02-Mar-2021	02-Mar-2021	02-Mar-2021	02-Mar-2021	02-Mar-2021	02-Mar-2021	02-Mar-2021	02-Mar-2021	02-Mar-2021
	Asbestos Lab:				COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD									
Acenaphthylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	U	2700	mg/kg	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Benzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Results - Soil

Project: R1742b Heyford - Phase 9

Client: Smith Grant LLP	Chemtest Job No.:				21-06789	21-06789
Quotation No.: Q15-02887	Chemtest Sample ID.:				1153722	1153723
	Sample Location:				PH9-S10	PH9-S11
	Sample Type:				SOIL	SOIL
	Top Depth (m):				0	0
	Bottom Depth (m):				0.4	0.4
	Date Sampled:				02-Mar-2021	02-Mar-2021
	Asbestos Lab:				COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD		
ACM Type	U	2192		N/A	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-	-
Moisture	N	2030	%	0.020	12	7.5
pH	U	2010		4.0	8.4	8.6
Arsenic	U	2450	mg/kg	1.0	13	13
Cadmium	U	2450	mg/kg	0.10	< 0.10	< 0.10
Chromium	U	2450	mg/kg	1.0	9.4	7.2
Copper	U	2450	mg/kg	0.50	5.0	3.8
Mercury	U	2450	mg/kg	0.10	< 0.10	< 0.10
Nickel	U	2450	mg/kg	0.50	9.3	7.0
Lead	U	2450	mg/kg	0.50	7.7	5.8
Selenium	U	2450	mg/kg	0.20	< 0.20	< 0.20
Vanadium	U	2450	mg/kg	5.0	19	15
Zinc	U	2450	mg/kg	0.50	21	12
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50
Organic Matter	U	2625	%	0.40	1.1	0.60
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10	< 10
Naphthalene	U	2700	mg/kg	0.10	< 0.10	< 0.10

Results - Soil

Project: R1742b Heyford - Phase 9

Client: Smith Grant LLP	Chemtest Job No.:				21-06789	21-06789
Quotation No.: Q15-02887	Chemtest Sample ID.:				1153722	1153723
	Sample Location:				PH9-S10	PH9-S11
	Sample Type:				SOIL	SOIL
	Top Depth (m):				0	0
	Bottom Depth (m):				0.4	0.4
	Date Sampled:				02-Mar-2021	02-Mar-2021
	Asbestos Lab:				COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD		
Acenaphthylene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Acenaphthene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Fluorene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Phenanthrene	U	2700	mg/kg	0.10	< 0.10	0.78
Anthracene	U	2700	mg/kg	0.10	< 0.10	0.40
Fluoranthene	U	2700	mg/kg	0.10	< 0.10	1.7
Pyrene	U	2700	mg/kg	0.10	< 0.10	1.6
Benzo[a]anthracene	U	2700	mg/kg	0.10	< 0.10	0.90
Chrysene	U	2700	mg/kg	0.10	< 0.10	0.90
Benzo[b]fluoranthene	U	2700	mg/kg	0.10	< 0.10	0.60
Benzo[k]fluoranthene	U	2700	mg/kg	0.10	< 0.10	0.17
Benzo[a]pyrene	U	2700	mg/kg	0.10	< 0.10	0.56
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Total Of 16 PAH's	U	2700	mg/kg	2.0	< 2.0	7.6
Benzene	U	2760	µg/kg	1.0	< 1.0	< 1.0
Toluene	U	2760	µg/kg	1.0	< 1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenzo[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:

customerservices@chemtest.com



2183

Final Report

Report No.: 21-07749-1
Initial Date of Issue: 17-Mar-2021
Client Smith Grant LLP
Client Address: Station House, Station Road
Ruabon
Wrexham
LL14 6DL

Contact(s): Dan Wayland
Project R172B Heyford - Ph9

Quotation No.: **Date Received:** 11-Mar-2021

Order No.: **Date Instructed:** 11-Mar-2021

No. of Samples: 12

Turnaround (Wkdays): 5 **Results Due:** 17-Mar-2021

Date Approved: 17-Mar-2021

Approved By:



Details: Glynn Harvey, Technical Manager

Results - Soil

Project: R172B Heyford - Ph9

Client: Smith Grant LLP	Chemtest Job No.:				21-07749	21-07749	21-07749	21-07749	21-07749	21-07749	21-07749	21-07749	21-07749
Quotation No.:	Chemtest Sample ID.:				1158239	1158240	1158241	1158242	1158243	1158244	1158245	1158246	1158247
	Sample Location:				PH9-SS12	PH9-SS13	PH9-SS14	PH9-SS15	PH9-SS16	PH9-SS17	PH9-SS18	PH9-SS19	PH9-SS20
	Sample Type:				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):				0	0	0	0	0	0	0	0	0
	Bottom Depth (m):				0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
	Date Sampled:				09-Mar-2021	09-Mar-2021	09-Mar-2021	09-Mar-2021	09-Mar-2021	09-Mar-2021	09-Mar-2021	09-Mar-2021	09-Mar-2021
	Asbestos Lab:				DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	Accred.	SOP	Units	LOD									
ACM Type	U	2192		N/A	-	-	-	-	-	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-	-	-	-	-	-	-	-	-
Moisture	N	2030	%	0.020	9.6	10	9.5	9.1	10	10	12	11	11
pH	U	2010		4.0	8.9	8.9	9.0	9.0	8.8	8.9	8.9	8.9	8.9
Arsenic	U	2450	mg/kg	1.0	26	31	21	35	26	33	27	24	26
Cadmium	U	2450	mg/kg	0.10	0.15	0.11	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chromium	U	2450	mg/kg	1.0	13	14	7.8	14	16	18	16	14	19
Copper	U	2450	mg/kg	0.50	7.2	5.8	3.5	5.9	6.9	7.8	5.9	5.1	7.4
Mercury	U	2450	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Nickel	U	2450	mg/kg	0.50	12	11	7.2	12	16	17	13	11	17
Lead	U	2450	mg/kg	0.50	8.3	7.2	3.3	6.7	6.6	9.0	6.6	6.4	8.2
Selenium	U	2450	mg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Vanadium	U	2450	mg/kg	5.0	30	36	22	37	35	43	35	32	39
Zinc	U	2450	mg/kg	0.50	30	19	7.9	15	18	19	54	16	23
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	U	2625	%	0.40	0.90	< 0.40	< 0.40	0.41	< 0.40	< 0.40	< 0.40	0.69	< 0.40
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Naphthalene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Results - Soil

Project: R172B Heyford - Ph9

Client: Smith Grant LLP	Chemtest Job No.:		21-07749	21-07749	21-07749	21-07749	21-07749	21-07749	21-07749	21-07749	21-07749	21-07749	21-07749
Quotation No.:	Chemtest Sample ID.:		1158239	1158240	1158241	1158242	1158243	1158244	1158245	1158246	1158247	1158248	1158249
	Sample Location:		PH9-SS12	PH9-SS13	PH9-SS14	PH9-SS15	PH9-SS16	PH9-SS17	PH9-SS18	PH9-SS19	PH9-SS20	PH9-SS21	PH9-SS22
	Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):		0	0	0	0	0	0	0	0	0	0	0
	Bottom Depth (m):		0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
	Date Sampled:		09-Mar-2021	09-Mar-2021	09-Mar-2021	09-Mar-2021	09-Mar-2021	09-Mar-2021	09-Mar-2021	09-Mar-2021	09-Mar-2021	09-Mar-2021	09-Mar-2021
	Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	Accred.	SOP	Units	LOD									
Acenaphthylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	U	2700	mg/kg	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Benzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Results - Soil

Project: R172B Heyford - Ph9

Client: Smith Grant LLP	Chemtest Job No.:				21-07749	21-07749	21-07749
Quotation No.:	Chemtest Sample ID.:				1158248	1158249	1158250
	Sample Location:				PH9-SS21	PH9-SS22	PH9-SS23
	Sample Type:				SOIL	SOIL	SOIL
	Top Depth (m):				0	0	0
	Bottom Depth (m):				0.4	0.4	0.4
	Date Sampled:				09-Mar-2021	09-Mar-2021	09-Mar-2021
	Asbestos Lab:				DURHAM	DURHAM	DURHAM
Determinand	Accred.	SOP	Units	LOD			
ACM Type	U	2192		N/A	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-	-	-
Moisture	N	2030	%	0.020	27	38	16
pH	U	2010		4.0	8.9	9.0	9.1
Arsenic	U	2450	mg/kg	1.0	30	12	10
Cadmium	U	2450	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Chromium	U	2450	mg/kg	1.0	16	4.7	3.2
Copper	U	2450	mg/kg	0.50	6.4	1.9	1.4
Mercury	U	2450	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Nickel	U	2450	mg/kg	0.50	16	4.3	2.8
Lead	U	2450	mg/kg	0.50	7.1	2.1	1.5
Selenium	U	2450	mg/kg	0.20	< 0.20	< 0.20	< 0.20
Vanadium	U	2450	mg/kg	5.0	36	11	10
Zinc	U	2450	mg/kg	0.50	18	5.3	3.9
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Organic Matter	U	2625	%	0.40	< 0.40	< 0.40	< 0.40
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10	< 10	< 10
Naphthalene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10

Results - Soil

Project: R172B Heyford - Ph9

Client: Smith Grant LLP	Chemtest Job No.:				21-07749	21-07749	21-07749
Quotation No.:	Chemtest Sample ID.:				1158248	1158249	1158250
	Sample Location:				PH9-SS21	PH9-SS22	PH9-SS23
	Sample Type:				SOIL	SOIL	SOIL
	Top Depth (m):				0	0	0
	Bottom Depth (m):				0.4	0.4	0.4
	Date Sampled:				09-Mar-2021	09-Mar-2021	09-Mar-2021
	Asbestos Lab:				DURHAM	DURHAM	DURHAM
Determinand	Accred.	SOP	Units	LOD			
Acenaphthylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Chrysene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	U	2700	mg/kg	2.0	< 2.0	< 2.0	< 2.0
Benzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
Toluene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:

customerservices@chemtest.com



2183

Final Report

Report No.:	21-11315-1		
Initial Date of Issue:	16-Apr-2021		
Client	Smith Grant LLP		
Client Address:	Station House, Station Road Ruabon Wrexham LL14 6DL		
Contact(s):	Dan Wayland		
Project	R1742b Heyford Ph9		
Quotation No.:		Date Received:	09-Apr-2021
Order No.:		Date Instructed:	09-Apr-2021
No. of Samples:	14		
Turnaround (Wkdays):	5	Results Due:	15-Apr-2021
Date Approved:	15-Apr-2021		
Approved By:			
Details:	Glynn Harvey, Technical Manager		

Results - Soil

Project: R1742b Heyford Ph9

Client: Smith Grant LLP	Chemtest Job No.:				21-11315	21-11315	21-11315	21-11315	21-11315	21-11315	21-11315	21-11315	21-11315
Quotation No.:	Chemtest Sample ID.:				1175986	1175987	1175988	1175989	1175990	1175991	1175992	1175993	1175994
	Client Sample ID.:				S24	S25	S26	S27	S28	S29	S30	S31	S32
	Sample Location:				Ph9-	Ph9-	Ph9-	Ph9-	Ph9-	Ph9-	Ph9-	Ph9-	Ph9-
	Sample Type:				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Date Sampled:				06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021
	Asbestos Lab:				COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD									
ACM Type	U	2192		N/A	-	-	-	-	-	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-	-	-	-	-	-	-	-	-
Moisture	N	2030	%	0.020	6.0	10	9.6	8.9	12	10	18	14	15
pH	U	2010		4.0	8.0	8.4	8.3	8.2	8.4	8.5	8.6	8.2	8.5
Arsenic	U	2450	mg/kg	1.0	18	20	17	17	23	18	16	22	13
Cadmium	U	2450	mg/kg	0.10	0.17	0.12	< 0.10	< 0.10	0.22	0.11	< 0.10	0.15	< 0.10
Chromium	U	2450	mg/kg	1.0	16	14	14	13	25	15	12	21	9.6
Copper	U	2450	mg/kg	0.50	9.3	6.3	6.3	7.2	14	7.4	7.7	12	4.8
Mercury	U	2450	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Nickel	U	2450	mg/kg	0.50	22	11	13	11	22	14	13	21	9.0
Lead	U	2450	mg/kg	0.50	25	8.5	7.2	6.5	23	8.4	7.3	15	5.0
Selenium	U	2450	mg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Vanadium	U	2450	mg/kg	5.0	29	32	29	28	53	36	24	44	19
Zinc	U	2450	mg/kg	0.50	28	23	18	18	46	29	13	37	12
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	U	2625	%	0.40	0.86	< 0.40	0.52	< 0.40	2.2	1.0	< 0.40	0.69	< 0.40
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	27	< 1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	18	26	< 1.0	< 1.0	34	140	< 1.0	< 1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	18	26	< 5.0	< 5.0	34	170	< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	18	26	< 10	< 10	34	170	< 10	< 10	< 10
Naphthalene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Results - Soil

Project: R1742b Heyford Ph9

Client: Smith Grant LLP	Chemtest Job No.:				21-11315	21-11315	21-11315	21-11315	21-11315	21-11315	21-11315	21-11315	21-11315
Quotation No.:	Chemtest Sample ID.:				1175986	1175987	1175988	1175989	1175990	1175991	1175992	1175993	1175994
	Client Sample ID.:				S24	S25	S26	S27	S28	S29	S30	S31	S32
	Sample Location:				Ph9-	Ph9-	Ph9-	Ph9-	Ph9-	Ph9-	Ph9-	Ph9-	Ph9-
	Sample Type:				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Date Sampled:				06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021
	Asbestos Lab:				COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD									
Acenaphthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	2700	mg/kg	0.10	2.5	0.23	2.0	1.3	1.4	1.5	< 0.10	0.58	< 0.10
Anthracene	U	2700	mg/kg	0.10	0.63	0.10	0.77	0.42	0.45	0.45	< 0.10	0.14	< 0.10
Fluoranthene	U	2700	mg/kg	0.10	3.2	0.94	6.9	1.8	6.5	3.2	< 0.10	1.0	< 0.10
Pyrene	U	2700	mg/kg	0.10	2.9	1.1	7.0	1.7	6.7	3.0	< 0.10	1.1	< 0.10
Benzo[a]anthracene	U	2700	mg/kg	0.10	0.95	0.50	3.0	0.51	3.3	1.2	< 0.10	0.36	< 0.10
Chrysene	U	2700	mg/kg	0.10	1.2	0.61	3.0	0.69	3.6	1.3	< 0.10	0.51	< 0.10
Benzo[b]fluoranthene	U	2700	mg/kg	0.10	1.3	1.1	3.9	< 0.10	5.1	1.9	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	2700	mg/kg	0.10	0.51	0.38	1.6	< 0.10	2.0	0.77	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	2700	mg/kg	0.10	0.81	0.72	2.8	< 0.10	3.5	1.1	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10	0.59	0.49	2.3	< 0.10	2.7	0.79	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	0.64	< 0.10	0.67	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10	0.50	0.50	1.8	< 0.10	2.4	0.78	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	U	2700	mg/kg	2.0	15	6.7	36	6.4	38	16	< 2.0	3.7	< 2.0
Benzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Results - Soil

Project: R1742b Heyford Ph9

Client: Smith Grant LLP	Chemtest Job No.:				21-11315	21-11315	21-11315	21-11315	21-11315
Quotation No.:	Chemtest Sample ID.:				1175995	1175996	1175997	1175998	1175999
	Client Sample ID.:				S33	S34	S35	S36	S37
	Sample Location:				Ph9-	Ph9-	Ph9-	Ph9-	Ph9-
	Sample Type:				SOIL	SOIL	SOIL	SOIL	SOIL
	Date Sampled:				06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021
	Asbestos Lab:				COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD					
ACM Type	U	2192		N/A	-	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-	-	-	-	-
Moisture	N	2030	%	0.020	16	13	13	17	11
pH	U	2010		4.0	8.4	8.4	8.2	8.3	8.3
Arsenic	U	2450	mg/kg	1.0	14	16	23	23	25
Cadmium	U	2450	mg/kg	0.10	0.12	0.13	0.18	0.18	0.21
Chromium	U	2450	mg/kg	1.0	16	26	34	38	25
Copper	U	2450	mg/kg	0.50	7.8	8.9	15	16	13
Mercury	U	2450	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Nickel	U	2450	mg/kg	0.50	15	20	27	34	21
Lead	U	2450	mg/kg	0.50	8.4	14	17	17	20
Selenium	U	2450	mg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Vanadium	U	2450	mg/kg	5.0	31	44	63	65	52
Zinc	U	2450	mg/kg	0.50	19	43	53	59	39
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	U	2625	%	0.40	< 0.40	0.52	0.83	0.78	0.88
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	12
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0	12
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10	< 10	< 10	< 10	12
Naphthalene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.18
Acenaphthylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Results - Soil

Project: R1742b Heyford Ph9

Client: Smith Grant LLP	Chemtest Job No.:					21-11315	21-11315	21-11315	21-11315	21-11315
Quotation No.:	Chemtest Sample ID.:					1175995	1175996	1175997	1175998	1175999
	Client Sample ID.:					S33	S34	S35	S36	S37
	Sample Location:					Ph9-	Ph9-	Ph9-	Ph9-	Ph9-
	Sample Type:					SOIL	SOIL	SOIL	SOIL	SOIL
	Date Sampled:					06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021
	Asbestos Lab:					COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD						
Acenaphthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.39
Fluorene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.31
Phenanthrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	3.6
Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	1.2
Fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	11
Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	11
Benzo[a]anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	4.3
Chrysene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	4.0
Benzo[b]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	5.1
Benzo[k]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	2.3
Benzo[a]pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	4.0
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	2.9
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	1.3
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	2.5
Total Of 16 PAH's	U	2700	mg/kg	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	54
Benzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenzo[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:

customerservices@chemtest.com



Final Report

Report No.:	21-11321-1		
Initial Date of Issue:	16-Apr-2021		
Client	Smith Grant LLP		
Client Address:	Station House, Station Road Ruabon Wrexham LL14 6DL		
Contact(s):	Dan Wayland		
Project	R1742b Heyford - Ph9		
Quotation No.:		Date Received:	09-Apr-2021
Order No.:		Date Instructed:	09-Apr-2021
No. of Samples:	10		
Turnaround (Wkdays):	5	Results Due:	15-Apr-2021
Date Approved:	15-Apr-2021		
Approved By:			

Details: Rachel Robertson, Deputy Technical Manager

Results - Miscellaneous Solid

Project: R1742b Heyford - Ph9

Client: Smith Grant LLP	Chemtest Job No.:				21-11321	21-11321
Quotation No.:	Chemtest Sample ID.:				1176016	1176017
	Sample Location:				Shilling St - Tarmac	Altus St - Tarmac
	Sample Type:				MISCSOLID	MISCSOLID
	Date Sampled:				06-Apr-2021	06-Apr-2021
Determinand	Accred.	SOP	Units	LOD		
Chromatogram (TPH)	N			N/A	See Attached	See Attached
Diesel Present	N	2670		N/A	False	False
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	330	32
Coal Tar Quantification (%)	N		%	0.001	0.15	0.017
Coal Tar Quantification	N		mg/kg	10.0	1500	170
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	1500	170
Total Petroleum Hydrocarbons	N	2680	mg/kg	10	1900	200
Naphthalene	N	2700	mg/kg	0.10	2.0	1.4
Acenaphthylene	N	2700	mg/kg	0.10	4.3	7.3
Acenaphthene	N	2700	mg/kg	0.10	8.8	18
Fluorene	N	2700	mg/kg	0.10	7.7	15
Phenanthrene	N	2700	mg/kg	0.10	55	130
Anthracene	N	2700	mg/kg	0.10	21	58
Fluoranthene	N	2700	mg/kg	0.10	85	360
Pyrene	N	2700	mg/kg	0.10	84	380
Benzo[a]anthracene	N	2700	mg/kg	0.10	34	150
Chrysene	N	2700	mg/kg	0.10	40	140
Benzo[b]fluoranthene	N	2700	mg/kg	0.10	63	200
Benzo[k]fluoranthene	N	2700	mg/kg	0.10	26	76
Benzo[a]pyrene	N	2700	mg/kg	0.10	46	160

Results - Miscellaneous Solid

Project: R1742b Heyford - Ph9

Client: Smith Grant LLP	Chemtest Job No.:				21-11321	21-11321
Quotation No.:	Chemtest Sample ID.:				1176016	1176017
	Sample Location:				Shilling St - Tarmac	Altus St - Tarmac
	Sample Type:				MISCSOLID	MISCSOLID
	Date Sampled:				06-Apr-2021	06-Apr-2021
Determinand	Accred.	SOP	Units	LOD		
Indeno(1,2,3-c,d)Pyrene	N	2700	mg/kg	0.10	35	120
Dibenz(a,h)Anthracene	N	2700	mg/kg	0.10	9.8	25
Benzo[g,h,i]perylene	N	2700	mg/kg	0.10	29	98
Coronene	N	2700	mg/kg	0.10	< 0.10	< 0.10
Total Of 17 PAH's	N	2700	mg/kg	2.0	550	1900
Double Ratio Fluoranthene:Pyrene	N	2700		0.010	1.0	0.96
Double Ratio Benzo(a)Anthracene:Chrysene	N	2700		0.010	0.86	1.1
N-Nitrosodimethylamine	N	2790	mg/kg	0.50	< 0.50	< 0.50
Phenol	N	2790	mg/kg	0.50	< 0.50	< 0.50
2-Chlorophenol	N	2790	mg/kg	0.50	< 0.50	< 0.50
1,3-Dichlorobenzene	N	2790	mg/kg	0.50	< 0.50	< 0.50
1,4-Dichlorobenzene	N	2790	mg/kg	0.50	< 0.50	< 0.50
1,2-Dichlorobenzene	N	2790	mg/kg	0.50	< 0.50	< 0.50
2-Methylphenol	N	2790	mg/kg	0.50	< 0.50	< 0.50
Bis(2-Chloroisopropyl)Ether	N	2790	mg/kg	0.50	< 0.50	< 0.50
Hexachloroethane	N	2790	mg/kg	0.50	< 0.50	< 0.50
N-Nitrosodi-n-propylamine	N	2790	mg/kg	0.50	< 0.50	< 0.50
4-Methylphenol	N	2790	mg/kg	0.50	< 0.50	< 0.50
Nitrobenzene	N	2790	mg/kg	0.50	< 0.50	< 0.50
Isophorone	N	2790	mg/kg	0.50	< 0.50	< 0.50

Results - Miscellaneous Solid

Project: R1742b Heyford - Ph9

Client: Smith Grant LLP	Chemtest Job No.:				21-11321	21-11321
Quotation No.:	Chemtest Sample ID.:				1176016	1176017
	Sample Location:				Shilling St - Tarmac	Altus St - Tarmac
	Sample Type:				MISCSOLID	MISCSOLID
	Date Sampled:				06-Apr-2021	06-Apr-2021
Determinand	Accred.	SOP	Units	LOD		
2-Nitrophenol	N	2790	mg/kg	0.50	< 0.50	< 0.50
2,4-Dimethylphenol	N	2790	mg/kg	0.50	< 0.50	< 0.50
Bis(2-Chloroethoxy)Methane	N	2790	mg/kg	0.50	< 0.50	< 0.50
2,4-Dichlorophenol	N	2790	mg/kg	0.50	< 0.50	< 0.50
1,2,4-Trichlorobenzene	N	2790	mg/kg	0.50	< 0.50	< 0.50
Naphthalene	N	2790	mg/kg	0.50	6.5	< 0.50
4-Chloroaniline	N	2790	mg/kg	0.50	< 0.50	< 0.50
Hexachlorobutadiene	N	2790	mg/kg	0.50	< 0.50	< 0.50
4-Chloro-3-Methylphenol	N	2790	mg/kg	0.50	< 0.50	< 0.50
2-Methylnaphthalene	N	2790	mg/kg	0.50	5.7	< 0.50
4-Nitrophenol	N	2790	mg/kg	0.50	< 0.50	< 0.50
Hexachlorocyclopentadiene	N	2790	mg/kg	0.50	< 0.50	< 0.50
2,4,6-Trichlorophenol	N	2790	mg/kg	0.50	< 0.50	< 0.50
2,4,5-Trichlorophenol	N	2790	mg/kg	0.50	< 0.50	< 0.50
2-Chloronaphthalene	N	2790	mg/kg	0.50	< 0.50	< 0.50
2-Nitroaniline	N	2790	mg/kg	0.50	< 0.50	< 0.50
Acenaphthylene	N	2790	mg/kg	0.50	0.67	< 0.50
Dimethylphthalate	N	2790	mg/kg	0.50	< 0.50	< 0.50
2,6-Dinitrotoluene	N	2790	mg/kg	0.50	< 0.50	< 0.50
Acenaphthene	N	2790	mg/kg	0.50	10	< 0.50

Results - Miscellaneous Solid

Project: R1742b Heyford - Ph9

Client: Smith Grant LLP	Chemtest Job No.:				21-11321	21-11321
Quotation No.:	Chemtest Sample ID.:				1176016	1176017
	Sample Location:				Shilling St - Tarmac	Altus St - Tarmac
	Sample Type:				MISCSOLID	MISCSOLID
	Date Sampled:				06-Apr-2021	06-Apr-2021
Determinand	Accred.	SOP	Units	LOD		
3-Nitroaniline	N	2790	mg/kg	0.50	< 0.50	< 0.50
Dibenzofuran	N	2790	mg/kg	0.50	6.8	< 0.50
4-Chlorophenylphenylether	N	2790	mg/kg	0.50	< 0.50	< 0.50
2,4-Dinitrotoluene	N	2790	mg/kg	0.50	< 0.50	< 0.50
Fluorene	N	2790	mg/kg	0.50	6.3	< 0.50
Diethyl Phthalate	N	2790	mg/kg	0.50	< 0.50	< 0.50
4-Nitroaniline	N	2790	mg/kg	0.50	< 0.50	< 0.50
2-Methyl-4,6-Dinitrophenol	N	2790	mg/kg	0.50	< 0.50	< 0.50
Azobenzene	N	2790	mg/kg	0.50	< 0.50	< 0.50
4-Bromophenylphenyl Ether	N	2790	mg/kg	0.50	< 0.50	< 0.50
Hexachlorobenzene	N	2790	mg/kg	0.50	< 0.50	< 0.50
Pentachlorophenol	N	2790	mg/kg	0.50	< 0.50	< 0.50
Phenanthrene	N	2790	mg/kg	0.50	60	9.5
Anthracene	N	2790	mg/kg	0.50	17	3.0
Carbazole	N	2790	mg/kg	0.50	5.0	0.73
Di-N-Butyl Phthalate	N	2790	mg/kg	0.50	< 0.50	< 0.50
Fluoranthene	N	2790	mg/kg	0.50	62	18
Pyrene	N	2790	mg/kg	0.50	46	15
Butylbenzyl Phthalate	N	2790	mg/kg	0.50	< 0.50	< 0.50
Benzo[a]anthracene	N	2790	mg/kg	0.50	19	6.9

Results - Miscellaneous Solid

Project: R1742b Heyford - Ph9

Client: Smith Grant LLP	Chemtest Job No.:				21-11321	21-11321
Quotation No.:	Chemtest Sample ID.:				1176016	1176017
	Sample Location:				Shilling St - Tarmac	Altus St - Tarmac
	Sample Type:				MISCSOLID	MISCSOLID
	Date Sampled:				06-Apr-2021	06-Apr-2021
Determinand	Accred.	SOP	Units	LOD		
Chrysene	N	2790	mg/kg	0.50	19	6.3
Bis(2-Ethylhexyl)Phthalate	N	2790	mg/kg	0.50	< 0.50	< 0.50
Di-N-Octyl Phthalate	N	2790	mg/kg	0.50	< 0.50	< 0.50
Benzo[b]fluoranthene	N	2790	mg/kg	0.50	26	7.7
Benzo[k]fluoranthene	N	2790	mg/kg	0.50	8.0	2.7
Benzo[a]pyrene	N	2790	mg/kg	0.50	21	6.5
Indeno(1,2,3-c,d)Pyrene	N	2790	mg/kg	0.50	10	3.1
Dibenz(a,h)Anthracene	N	2790	mg/kg	0.50	2.4	0.69
Benzo[g,h,i]perylene	N	2790	mg/kg	0.50	12	3.9
Moisture	N		%	0.10	< 0.10	< 0.10
Interpretive Report	N			N/A	See Below	See Below
SVOC TIC	N	2790	mg/kg	N/A	See Below	None Detected
(SVOC TIC) Dibenzothiophene	N	2790	mg/kg	N/A	3.7	

Sample 1176016 contains coal tar contamination. Dibenzothiophene, a biomarker present in coal tar, has been detected by SVOC analysis. This, in conjunction with the elevated PAH contamination detected, confirms the presence of coal tar in this sample.

Sample 1176017 is inconclusive for coal tar contamination. Dibenzothiophene, a biomarker present in coal tar, has not been detected by SVOC analysis. This, in conjunction with the elevated PAH contamination detected, means we cannot confirm the presence of coal tar in this sample.

Results - Soil

Project: R1742b Heyford - Ph9

Client: Smith Grant LLP	Chemtest Job No.:				21-11321	21-11321	21-11321	21-11321	21-11321	21-11321	21-11321	21-11321
Quotation No.:	Chemtest Sample ID.:				1176008	1176009	1176010	1176011	1176012	1176013	1176014	1176015
	Sample Location:				Ph9-TS-S1	Ph9-TS-S2	Ph9-TS-S3	Ph9-TS-S4	Ph9-TS-S5	Ph9-TS-S6	AGG-060421-S1	AGG-060421-S2
	Sample Type:				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Date Sampled:				06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021
	Asbestos Lab:				DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	Accred.	SOP	Units	LOD								
ACM Type	U	2192		N/A	-	-	-	-	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-	-	-	-	-	-	-	-
Moisture	N	2030	%	0.020	21	26	20	20	22	23		
pH	U	2010		4.0	8.4	8.3	8.3	8.2	8.3	8.2		
Arsenic	U	2450	mg/kg	1.0	23	21	24	54	28	24		
Cadmium	U	2450	mg/kg	0.10	0.37	0.35	0.29	0.29	0.36	0.38		
Chromium	U	2450	mg/kg	1.0	30	25	27	63	35	32		
Copper	U	2450	mg/kg	0.50	21	23	15	19	20	19		
Mercury	U	2450	mg/kg	0.10	0.13	< 0.10	< 0.10	< 0.10	0.10	0.12		
Nickel	U	2450	mg/kg	0.50	24	20	21	38	30	26		
Lead	U	2450	mg/kg	0.50	45	42	33	44	77	46		
Selenium	U	2450	mg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20		
Vanadium	U	2450	mg/kg	5.0	53	45	52	100	61	56		
Zinc	U	2450	mg/kg	0.50	80	74	62	130	91	86		
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		
Organic Matter	U	2625	%	0.40	3.6	5.3	3.1	4.8	4.5	5.3		
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		

Results - Soil

Project: R1742b Heyford - Ph9

Client: Smith Grant LLP	Chemtest Job No.:		21-11321	21-11321	21-11321	21-11321	21-11321	21-11321	21-11321	21-11321	21-11321	21-11321
Quotation No.:	Chemtest Sample ID.:		1176008	1176009	1176010	1176011	1176012	1176013	1176014	1176015		
	Sample Location:		Ph9-TS-S1	Ph9-TS-S2	Ph9-TS-S3	Ph9-TS-S4	Ph9-TS-S5	Ph9-TS-S6	AGG-060421-S1	AGG-060421-S2		
	Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL		
	Date Sampled:		06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021		
	Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM		
Determinand	Accred.	SOP	Units	LOD								
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	7.9		
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	7.9		
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	34	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	34	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0		
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	34	< 10	< 10	< 10	< 10	< 10		
Naphthalene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		
Acenaphthylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		

Results - Soil

Project: R1742b Heyford - Ph9

Client: Smith Grant LLP	Chemtest Job No.:					21-11321	21-11321	21-11321	21-11321	21-11321	21-11321	21-11321
Quotation No.:	Chemtest Sample ID.:					1176008	1176009	1176010	1176011	1176012	1176013	1176015
	Sample Location:					Ph9-TS-S1	Ph9-TS-S2	Ph9-TS-S3	Ph9-TS-S4	Ph9-TS-S5	Ph9-TS-S6	AGG-060421-S1 AGG-060421-S2
	Sample Type:					SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Date Sampled:					06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021
	Asbestos Lab:					DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	Accred.	SOP	Units	LOD								
Acenaphthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		
Fluorene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		
Phenanthrene	U	2700	mg/kg	0.10	0.57	2.5	0.58	3.9	1.7	0.72		
Anthracene	U	2700	mg/kg	0.10	0.19	0.63	0.20	1.1	0.53	0.22		
Fluoranthene	U	2700	mg/kg	0.10	2.1	9.7	1.9	5.1	3.7	2.0		
Pyrene	U	2700	mg/kg	0.10	2.1	9.6	1.9	4.9	3.6	2.0		
Benzo[a]anthracene	U	2700	mg/kg	0.10	1.0	4.3	0.37	2.0	1.7	1.1		
Chrysene	U	2700	mg/kg	0.10	1.2	5.1	0.87	2.3	1.9	1.2		
Benzo[b]fluoranthene	U	2700	mg/kg	0.10	1.9	7.8	1.6	2.7	2.7	1.6		
Benzo[k]fluoranthene	U	2700	mg/kg	0.10	0.95	2.8	0.51	1.0	1.3	0.49		
Benzo[a]pyrene	U	2700	mg/kg	0.10	1.2	5.6	1.2	1.7	1.7	1.1		
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10	1.1	4.8	0.19	1.1	1.4	0.85		
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10	0.26	0.77	0.56	< 0.10	0.32	0.10		
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10	0.88	4.1	0.65	1.3	1.2	1.0		
Total Of 16 PAH's	U	2700	mg/kg	2.0	14	58	11	27	22	12		
Benzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
Toluene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		

Results - Soil

Project: R1742b Heyford - Ph9

Client: Smith Grant LLP	Chemtest Job No.:				21-11321	21-11321	21-11321	21-11321	21-11321	21-11321	21-11321	21-11321
Quotation No.:	Chemtest Sample ID.:				1176008	1176009	1176010	1176011	1176012	1176013	1176014	1176015
	Sample Location:				Ph9-TS-S1	Ph9-TS-S2	Ph9-TS-S3	Ph9-TS-S4	Ph9-TS-S5	Ph9-TS-S6	AGG-060421-S1	AGG-060421-S2
	Sample Type:				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Date Sampled:				06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021
	Asbestos Lab:				DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	Accred.	SOP	Units	LOD								
o-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		

TPH Chromatogram on Misc Sample: 1176016

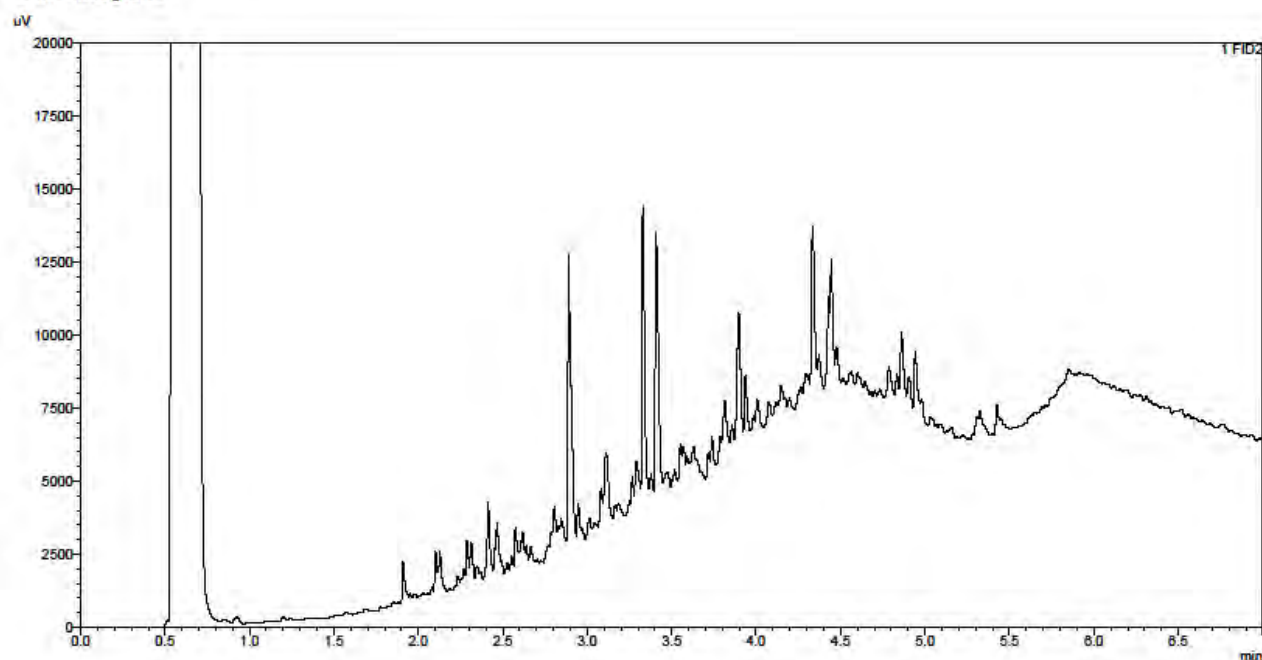
<Sample Information>

Sample Name : 1176016 21-11321
Data Filename : 12 April 2021_12042021_1176016 21-11321_086.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 118
Date Acquired : 13/04/2021 01:25:53
Date Processed : 13/04/2021



Chemtest

<Chromatogram>



TPH Chromatogram on Misc Sample: 1176017

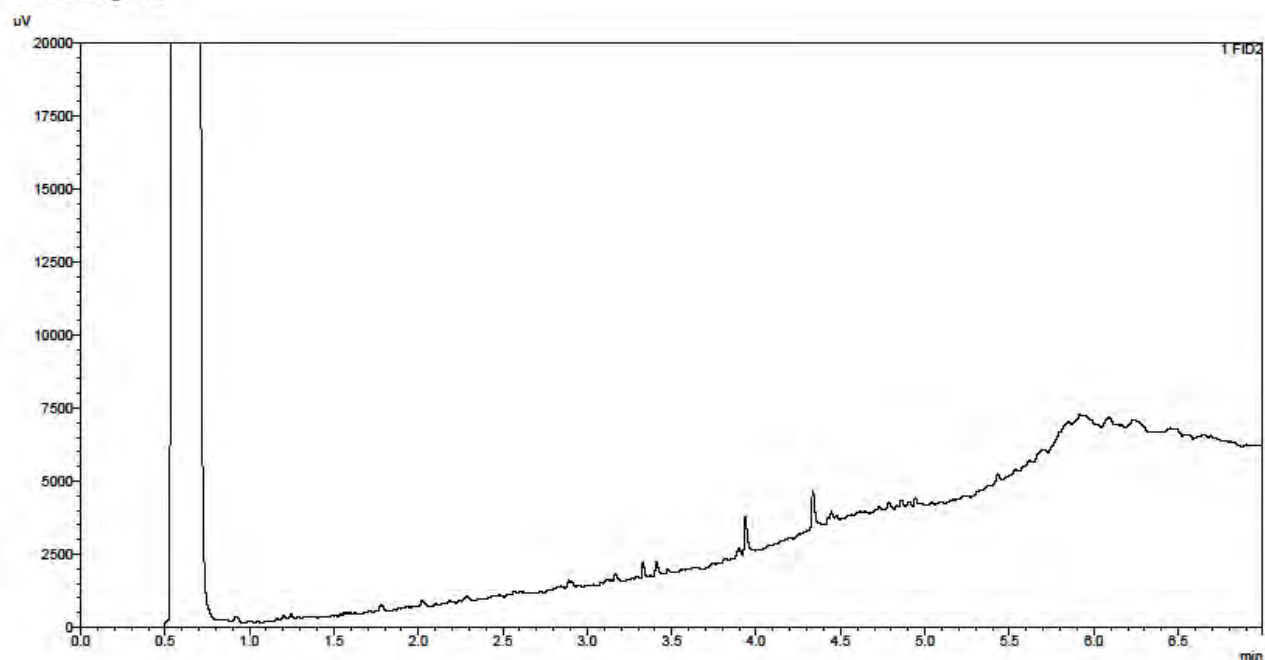
<Sample Information>

Sample Name : 1176017 21-11321
Data Filename : 12 April 2021_12042021_1176017 21-11321_088.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 119
Date Acquired : 13/04/2021 01:38:43
Date Processed : 13/04/2021

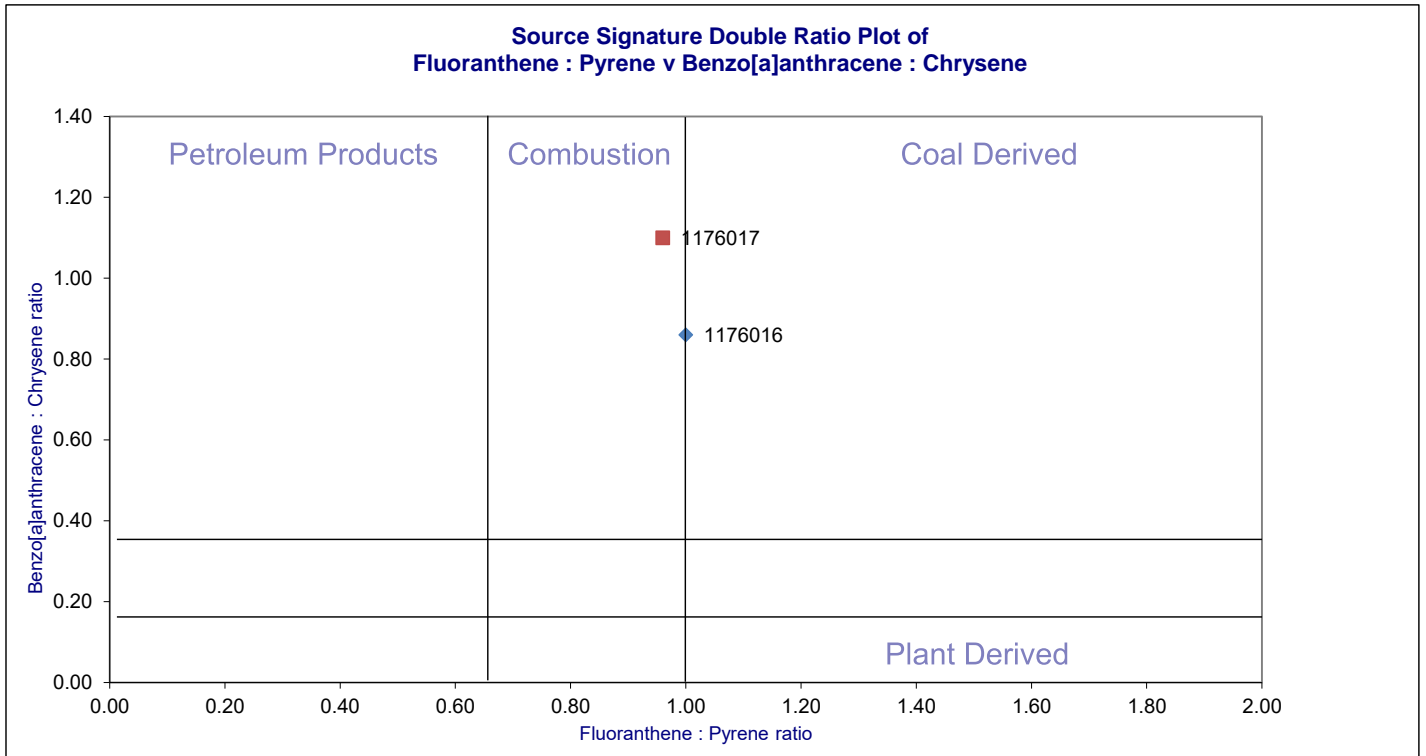


Chemtest

<Chromatogram>



Double Ratio Plot



Sample No.	Fluoranthene	Pyrene	Benzo[a]Anthracene	Chrysene	Fluoranthene : Pyrene Ratio	Benzo[a]Anthracene : Chrysene Ratio
1176016	85	84	34	40	1.00	0.86
1176017	360	380	150	140	0.96	1.10

TPH Interpretation

Job	Sample	Matrix	Location	Sample Ref	Sample ID	Sample Depth (m)	Gasoline / Diesel Present	TPH Interpretation
21-11321	1176016	M	Shilling St - Tarmac				No	PAH and Heavy Oil
21-11321	1176017	M	Altus St - Tarmac				No	PAH and Heavy Oil

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenzo[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2790	Semi-Volatile Organic Compounds (SVOCs) in Soils by GC-MS	Semi-volatile organic compounds(cf. USEPA Method 8270)	Acetone/Hexane extraction / GC-MS

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage


If you require extended retention of samples, please email your requirements to:

customerservices@chemtest.com



2183

Amended Report

Report No.:	21-13303-2		
Initial Date of Issue:	27-Apr-2021	Date of Re-Issue:	05-May-2021
Client	Smith Grant LLP		
Client Address:	Station House, Station Road Ruabon Wrexham LL14 6DL		
Contact(s):	Dan Wayland		
Project	R1742b Hayford - Phase 9		
Quotation No.:		Date Received:	23-Apr-2021
Order No.:		Date Instructed:	23-Apr-2021
No. of Samples:	6		
Turnaround (Wkdays):	8	Results Due:	05-May-2021
Date Approved:	05-May-2021		
Approved By:			
Details:	Glynn Harvey, Technical Manager		

Results - Soil

Project: R1742b Hayford - Phase 9

Client: Smith Grant LLP	Chemtest Job No.:					21-13303	21-13303	21-13303	21-13303	21-13303	21-13303
Quotation No.:	Chemtest Sample ID.:					1185894	1185895	1185896	1185897	1185898	1185899
	Sample Location:					Ph9-AGG2-S1	Ph9-AGG2-S2	Ph9-AGG2-S3	Ph9-AGG2-S4	Ph9-AGG2-S5	Ph9-AGG2-S6
	Sample Type:					SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Date Sampled:					20-Apr-2021	20-Apr-2021	20-Apr-2021	20-Apr-2021	20-Apr-2021	20-Apr-2021
	Asbestos Lab:					COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD							
ACM Type	U	2192		N/A	Fibres/Clumps	Fibres/Clumps	-	Fibres/Clumps	-	-	-
Asbestos Identification	U	2192		N/A	Chrysotile	Chrysotile	No Asbestos Detected	Chrysotile	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	Stereo Microscopy	Stereo Microscopy	-	Stereo Microscopy	-	-	-
Asbestos by Gravimetry	U	2192	%	0.001	0.009	<0.001		<0.001			
Total Asbestos	U	2192	%	0.001	0.009	<0.001		<0.001			

Test Methods

SOP	Title	Parameters included	Method summary
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage


If you require extended retention of samples, please email your requirements to:

customerservices@chemtest.com



2183

Amended Report

Report No.:	21-14505-3		
Initial Date of Issue:	12-May-2021	Date of Re-Issue:	17-May-2021
Client	Smith Grant LLP		
Client Address:	Station House, Station Road Ruabon Wrexham LL14 6DL		
Contact(s):	Dan Wayland		
Project	R1742B Heyford - Phase 9		
Quotation No.:		Date Received:	04-May-2021
Order No.:		Date Instructed:	04-May-2021
No. of Samples:	23		
Turnaround (Wkdays):	12	Results Due:	19-May-2021
Date Approved:	15-May-2021		
Approved By:			
Details:	Glynn Harvey, Technical Manager		

Results - Soil

Project: R1742B Heyford - Phase 9

Client: Smith Grant LLP	Chemtest Job No.:				21-14505	21-14505	21-14505	21-14505	21-14505	21-14505	21-14505	21-14505	21-14505
Quotation No.:	Chemtest Sample ID.:				1192608	1192609	1192610	1192611	1192612	1192613	1192614	1192615	1192616
	Sample Location:				PH9-AGG2-S7	PH9-AGG2-S8	PH9-AGG2-S9	PH9-AGG2-S10	PH9-AGG3-S1	PH9-AGG3-S2	PH9-AGG3-S3	PH9-AGG3-S4	PH9-ACMHS-S1
	Sample Type:				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):												0
	Bottom Depth (m):												0.5
	Date Sampled:				28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021
	Asbestos Lab:				DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	Accred.	SOP	Units	LOD									
ACM Type	U	2192		N/A	-	-	Fibres/Clumps	-	-	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	Amosite	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-	-	Stereo Microscopy	-	-	-	-	-	-
Asbestos by Gravimetry	U	2192	%	0.001			<0.001						
Total Asbestos	U	2192	%	0.001			<0.001						
Moisture	N	2030	%	0.020									
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0									
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0									
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0									
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0									
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0									
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0									
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0									
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0									
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0									
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0									
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0									
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0									
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0									
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0									
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0									
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0									
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0									
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0									
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0									
Benzene	U	2760	µg/kg	1.0									
Toluene	U	2760	µg/kg	1.0									
Ethylbenzene	U	2760	µg/kg	1.0									
m & p-Xylene	U	2760	µg/kg	1.0									
o-Xylene	U	2760	µg/kg	1.0									
PAH-MS	SN			N/A									

Results - Soil

Project: R1742B Heyford - Phase 9

Client: Smith Grant LLP	Chemtest Job No.:					21-14505	21-14505	21-14505	21-14505	21-14505	21-14505	21-14505	21-14505	21-14505
Quotation No.:	Chemtest Sample ID.:					1192617	1192618	1192619	1192620	1192621	1192622	1192623	1192624	1192625
	Sample Location:					PH9-ACMHS-S2	PH9-ACMHS-S3	PH9-ACMHS-S4	PH9-ACMHS-S5	PH9-ACMHS-S6	PH9-ACMHS-S7	PH9-ACMHS-S8	TP102-HS-S1	TP102-HS-SS1
	Sample Type:					SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):					0	0	0	0	0	0	0	0.2	
	Bottom Depth (m):					0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.3	
	Date Sampled:					28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021
	Asbestos Lab:					DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM		
Determinand	Accred.	SOP	Units	LOD										
ACM Type	U	2192		N/A	Fibres/Clumps	-	-	-	-	-	-	-		
Asbestos Identification	U	2192		N/A	Amosite	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected		
ACM Detection Stage	U	2192		N/A	Stereo Microscopy	-	-	-	-	-	-	-		
Asbestos by Gravimetry	U	2192	%	0.001	<0.001									
Total Asbestos	U	2192	%	0.001	<0.001									
Moisture	N	2030	%	0.020									9.2	8.9
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0									< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0									< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0									4.2	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0									42	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0									99	< 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0									78	< 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0									320	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0									130	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0									680	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0									< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0									< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0									2.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0									11	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0									660	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0									2400	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0									6700	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0									460	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0									10000	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0									11000	< 10
Benzene	U	2760	µg/kg	1.0									< 1.0	< 1.0
Toluene	U	2760	µg/kg	1.0									< 1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0									< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0									< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0									< 1.0	< 1.0
PAH-MS	SN			N/A									See Attached	See Attached

Results - Soil

Project: R1742B Heyford - Phase 9

Client: Smith Grant LLP	Chemtest Job No.:				21-14505	21-14505	21-14505	21-14505	21-14505
Quotation No.:	Chemtest Sample ID.:				1192626	1192627	1192628	1192629	1192630
	Sample Location:				TP102-HS-SS2	TP102-HS-SS3	TP102-HS-SS4	TP102-HS-SS5	TP102-HS-SS6
	Sample Type:				SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):								
	Bottom Depth (m):								
	Date Sampled:				28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021
	Asbestos Lab:								
Determinand	Accred.	SOP	Units	LOD					
ACM Type	U	2192		N/A					
Asbestos Identification	U	2192		N/A					
ACM Detection Stage	U	2192		N/A					
Asbestos by Gravimetry	U	2192	%	0.001					
Total Asbestos	U	2192	%	0.001					
Moisture	N	2030	%	0.020	11	11	24	23	22
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	2.2
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	4.6
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0	6.8
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	5.4	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	17	< 1.0	< 1.0	< 1.0	46
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	23	< 5.0	< 5.0	< 5.0	46
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	23	< 10	< 10	< 10	53
Benzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
PAH-MS	SN			N/A	See Attached	See Attached	See Attached	See Attached	See Attached

Test Methods

SOP	Title	Parameters included	Method summary
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:

customerservices@chemtest.com



Final Report

Report No.: 21-14506-1
Initial Date of Issue: 12-May-2021
Client Smith Grant LLP
Client Address: Station House, Station Road
Ruabon
Wrexham
LL14 6DL

Contact(s): Dan Wayland
Project R1742b Heyford - Phase 9

Quotation No.: **Date Received:** 04-May-2021

Order No.: **Date Instructed:** 04-May-2021

No. of Samples: 14

Turnaround (Wkdays): 7 **Results Due:** 12-May-2021

Date Approved: 12-May-2021 **Subcon Results Due:** 25-May-2021

Approved By:

Details: Glynn Harvey, Technical Manager

Results - Soil

Project: R1742b Heyford - Phase 9

Client: Smith Grant LLP	Chemtest Job No.:		21-14506	21-14506	21-14506	21-14506	21-14506	21-14506	21-14506	21-14506	21-14506	21-14506	21-14506	21-14506
Quotation No.:	Chemtest Sample ID.:		1192631	1192632	1192633	1192634	1192635	1192636	1192637	1192638	1192639	1192640		
	Sample Location:		Ph9 - S38	Ph9 - S39	Ph9 - S40	Ph9 - S41	Ph9 - S42	Ph9 - S43	Ph9 - S44	Ph9 - S45	Ph9 - S46	Ph9 - S47		
	Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL		
	Date Sampled:		28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021		
	Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY		
Determinand	Accred.	SOP	Units	LOD										
ACM Type	U	2192		N/A	-	-	-	-	-	-	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-	-	-	-	-	-	-	-	-	-
Moisture	N	2030	%	0.020	29	43	33	22	32	11	13	38	19	38
pH	U	2010		4.0	8.7	8.6	8.5	8.9	8.8	8.7	8.5	8.7	8.5	8.5
Arsenic	U	2450	mg/kg	1.0	40	32	30	36	27	43	23	24	21	17
Cadmium	U	2450	mg/kg	0.10	< 0.10	0.10	< 0.10	< 0.10	0.11	0.12	< 0.10	0.11	0.11	0.11
Chromium	U	2450	mg/kg	1.0	20	15	14	17	43	24	45	45	39	26
Copper	U	2450	mg/kg	0.50	9.6	8.6	6.9	7.6	17	11	18	16	17	14
Mercury	U	2450	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Nickel	U	2450	mg/kg	0.50	19	14	14	16	39	25	38	36	35	22
Lead	U	2450	mg/kg	0.50	9.8	13	7.4	8.3	21	12	20	18	19	17
Selenium	U	2450	mg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	0.29	0.35	< 0.20	< 0.20	0.23
Vanadium	U	2450	mg/kg	5.0	47	38	37	44	76	59	73	73	68	50
Zinc	U	2450	mg/kg	0.50	24	21	17	19	53	27	61	61	50	42
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	U	2625	%	0.40	< 0.40	0.41	< 0.40	< 0.40	0.72	< 0.40	0.66	0.45	0.79	0.71
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	12	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	12	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	6.2	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	170	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	170	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10	< 10	180	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Benzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
PAH-MS	SN			N/A	See Attached	See Attached	See Attached	See Attached	See Attached	See Attached	See Attached	See Attached	See Attached	See Attached

Results - Soil

Project: R1742b Heyford - Phase 9

Client: Smith Grant LLP	Chemtest Job No.:				21-14506	21-14506	21-14506	21-14506
Quotation No.:	Chemtest Sample ID.:				1192641	1192642	1192643	1192644
	Sample Location:				Ph9 - S48	Ph9 - S49	Ph9 - S50	Ph9 - S51
	Sample Type:				SOIL	SOIL	SOIL	SOIL
	Date Sampled:				28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021
	Asbestos Lab:				COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD				
ACM Type	U	2192		N/A	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-	-	-	-
Moisture	N	2030	%	0.020	52	44	38	32
pH	U	2010		4.0	8.5	8.7	8.6	8.9
Arsenic	U	2450	mg/kg	1.0	14	12	31	18
Cadmium	U	2450	mg/kg	0.10	< 0.10	< 0.10	0.15	< 0.10
Chromium	U	2450	mg/kg	1.0	11	9.0	26	7.1
Copper	U	2450	mg/kg	0.50	8.1	6.8	15	4.2
Mercury	U	2450	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Nickel	U	2450	mg/kg	0.50	12	9.4	27	8.3
Lead	U	2450	mg/kg	0.50	8.0	6.9	17	5.2
Selenium	U	2450	mg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Vanadium	U	2450	mg/kg	5.0	21	17	66	21
Zinc	U	2450	mg/kg	0.50	14	9.2	38	13
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	U	2625	%	0.40	< 0.40	< 0.40	0.88	< 0.40
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10	< 10	< 10	< 10
Benzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
PAH-MS	SN			N/A	See Attached	See Attached	See Attached	See Attached

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt


Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com



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Final Report

Report No.:	21-14510-1		
Initial Date of Issue:	10-May-2021		
Client	Smith Grant LLP		
Client Address:	Station House, Station Road Ruabon Wrexham LL14 6DL		
Contact(s):	Dan Wayland		
Project	R1742b Heyford Ph9		
Quotation No.:		Date Received:	04-May-2021
Order No.:		Date Instructed:	04-May-2021
No. of Samples:	12		
Turnaround (Wkdays):	5	Results Due:	10-May-2021
Date Approved:	10-May-2021		
Approved By:			
Details:	Glynn Harvey, Technical Manager		

Results - Soil

Project: R1742b Heyford Ph9

Client: Smith Grant LLP	Chemtest Job No.:				21-14510	21-14510	21-14510	21-14510	21-14510	21-14510	21-14510	21-14510	21-14510
Quotation No.:	Chemtest Sample ID.:				1192654	1192655	1192656	1192657	1192658	1192659	1192660	1192661	1192662
	Sample Location:				Ph9 - UST - SS1	Ph9 - UST - SS2	Ph9 - UST - SS3	Ph9 - UST - SS4	Ph9 - UST - SS5	Ph9 - UST - SS6	Ph9 - UST - SS7	Ph9 - UST - SS8	Ph9 - UST - SS9
	Sample Type:				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):				0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.80
	Bottom Depth (m):				2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	
	Date Sampled:				28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021
Determinand	Accred.	SOP	Units	LOD									
Moisture	N	2030	%	0.020	6.2	10	14	15	21	22	13	12	10
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	26	17	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	51
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	150	110	< 1.0	< 1.0	< 1.0	< 1.0	7.5	< 1.0	280
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	180	130	< 1.0	< 1.0	< 1.0	< 1.0	14	< 1.0	300
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	210	180	< 1.0	< 1.0	< 1.0	< 1.0	28	< 1.0	250
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	560	430	< 5.0	< 5.0	< 5.0	< 5.0	49	< 5.0	880
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	47	40	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	70
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	190	250	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	330
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	32000	610	< 1.0	< 1.0	< 1.0	< 1.0	40	56	390
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	560	1100	< 1.0	< 1.0	< 1.0	< 1.0	170	200	580
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	32000	2000	< 5.0	< 5.0	< 5.0	< 5.0	210	250	1400
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	33000	2400	< 10	< 10	< 10	< 10	260	250	2300
Benzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Results - Soil

Project: R1742b Heyford Ph9

Client: Smith Grant LLP	Chemtest Job No.:				21-14510	21-14510	21-14510
Quotation No.:	Chemtest Sample ID.:				1192663	1192664	1192665
	Sample Location:				Ph9 - UST - SS10	Ph9 - UST - SS11	Ph9 - UST - SS12
	Sample Type:				SOIL	SOIL	SOIL
	Top Depth (m):				2.80	2.80	2.80
	Bottom Depth (m):						
	Date Sampled:				28-Apr-2021	28-Apr-2021	28-Apr-2021
Determinand	Accred.	SOP	Units	LOD			
Moisture	N	2030	%	0.020	9.4	9.4	11
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	34	6.7	9.2
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	230	40	62
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	230	47	74
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	180	52	67
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	670	150	210
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	35	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	250	46	75
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	280	69	120
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	370	180	220
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	930	290	410
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	1600	440	620
Benzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
Toluene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0	1.4	< 1.0	< 1.0

Test Methods

SOP	Title	Parameters included	Method summary
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.

Report Information

Key

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I/S	Insufficient Sample
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>	"greater than"
SOP	Standard operating procedure
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Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:

customerservices@chemtest.com



2183

Amended Report

Report No.:	21-16265-2		
Initial Date of Issue:	20-May-2021	Date of Re-Issue:	27-May-2021
Client	Smith Grant LLP		
Client Address:	Station House, Station Road Ruabon Wrexham LL14 6DL		
Contact(s):	Scott Miller		
Project	R1742b Heyford (Phase 9)		
Quotation No.:	Q15-02887	Date Received:	17-May-2021
Order No.:		Date Instructed:	17-May-2021
No. of Samples:	2		
Turnaround (Wkdays):	9	Results Due:	27-May-2021
Date Approved:	27-May-2021		

Approved By:



Details: Glynn Harvey, Technical Manager

Results - Soil

Project: R1742b Heyford (Phase 9)

Client: Smith Grant LLP	Chemtest Job No.:			21-16265	21-16265	
Quotation No.: Q15-02887	Chemtest Sample ID.:			1201418	1201419	
	Sample Location:			Agg-SP3-S5	Agg-SP3-S6	
	Sample Type:			SOIL	SOIL	
	Date Sampled:			13-May-2021	13-May-2021	
	Asbestos Lab:			COVENTRY	COVENTRY	
Determinand	Accred.	SOP	Units	LOD		
ACM Type	U	2192		N/A	Fibres/Clumps	Fibres/Clumps
Asbestos Identification	U	2192		N/A	Chrysotile	Chrysotile
ACM Detection Stage	U	2192		N/A	Stereo Microscopy	Stereo Microscopy
Asbestos by Gravimetry	U	2192	%	0.001	0.008	<0.001
Total Asbestos	U	2192	%	0.001	0.008	<0.001

Test Methods

SOP	Title	Parameters included	Method summary
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry

Report Information

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T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
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<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation

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Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

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The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

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- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:

customerservices@chemtest.com



Final Report

Report No.:	21-19648-1		
Initial Date of Issue:	15-Jun-2021		
Client	Smith Grant LLP		
Client Address:	Station House, Station Road Ruabon Wrexham LL14 6DL		
Contact(s):	Scott Miller		
Project	RI742d Heyford, Dorchester		
Quotation No.:	Q15-02887	Date Received:	10-Jun-2021
Order No.:		Date Instructed:	10-Jun-2021
No. of Samples:	11		
Turnaround (Wkdays):	5	Results Due:	16-Jun-2021
Date Approved:	15-Jun-2021		
Approved By:			
Details:	Glynn Harvey, Technical Manager		

Results - Soil

Project: RI742d Heyford, Dorchester

Client: Smith Grant LLP	Chemtest Job No.:				21-19648	21-19648	21-19648	21-19648	21-19648	21-19648	21-19648	21-19648	21-19648
Quotation No.: Q15-02887	Chemtest Sample ID.:				1218258	1218259	1218260	1218261	1218262	1218263	1218264	1218265	1218266
	Client Sample ID.:				TP1-S1	TP2-S1	S11	S12	S13	S14	S15	S16	S17
	Sample Location:				CULV	CULC	AGG-SP2	AGG-SP2	AGG-SP2	AGG-SP2	AGG-SP2	AGG-SP2	AGG-SP2
	Sample Type:				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):				2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
	Bottom Depth (m):				2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
	Date Sampled:				08-Jun-2021	08-Jun-2021	08-Jun-2021	08-Jun-2021	08-Jun-2021	08-Jun-2021	08-Jun-2021	08-Jun-2021	08-Jun-2021
	Asbestos Lab:						DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	Accred.	SOP	Units	LOD									
ACM Type	U	2192		N/A			-	-	-	-	-	-	-
Asbestos Identification	U	2192		N/A			No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	16	11							
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
Soil Texture	N	2040		N/A	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0							
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0							
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0	< 1.0							
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0	< 1.0							
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0	< 1.0							
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0	< 1.0	< 1.0							
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0	< 1.0	< 1.0							
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0							
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0							
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0							
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0							
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0	< 1.0							
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0	< 1.0							
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0	< 1.0							
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0							
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0	< 1.0	< 1.0							
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0							
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0							
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10	< 10							
Benzene	M	2760	µg/kg	1.0	< 1.0	< 1.0							
Toluene	M	2760	µg/kg	1.0	< 1.0	< 1.0							
Ethylbenzene	M	2760	µg/kg	1.0	< 1.0	< 1.0							
m & p-Xylene	M	2760	µg/kg	1.0	< 1.0	< 1.0							
o-Xylene	M	2760	µg/kg	1.0	< 1.0	< 1.0							

Results - Soil

Project: RI742d Heyford, Dorchester

Client: Smith Grant LLP	Chemtest Job No.:				21-19648	21-19648
Quotation No.: Q15-02887	Chemtest Sample ID.:				1218267	1218268
	Client Sample ID.:				S3	S4
	Sample Location:				AGG-SP1	AGG-SP1
	Sample Type:				SOIL	SOIL
	Top Depth (m):				2.1	2.1
	Bottom Depth (m):				2.4	2.4
	Date Sampled:				08-Jun-2021	08-Jun-2021
	Asbestos Lab:				DURHAM	DURHAM
Determinand	Accred.	SOP	Units	LOD		
ACM Type	U	2192		N/A	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020		
Soil Colour	N	2040		N/A	Brown	Brown
Other Material	N	2040		N/A	Stones	Stones
Soil Texture	N	2040		N/A	Sand	Sand
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0		
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0		
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0		
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0		
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0		
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0		
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0		
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0		
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0		
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0		
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0		
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0		
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0		
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0		
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0		
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0		
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0		
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0		
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0		
Benzene	M	2760	µg/kg	1.0		
Toluene	M	2760	µg/kg	1.0		
Ethylbenzene	M	2760	µg/kg	1.0		
m & p-Xylene	M	2760	µg/kg	1.0		
o-Xylene	M	2760	µg/kg	1.0		

Test Methods

SOP	Title	Parameters included	Method summary
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:

customerservices@chemtest.com



TEST CERTIFICATE

PSD Assessment of material for use in Earthworks

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Tested in Accordance with: BS 1377-2:1990: Clause 9.2

Client: Smith Grant LLP
Client Address: Station House, Station Road,
Ruabon, Wrexham,
LL146DL
Contact: Daniel Wayland
Site Address: Hayford Phase 9

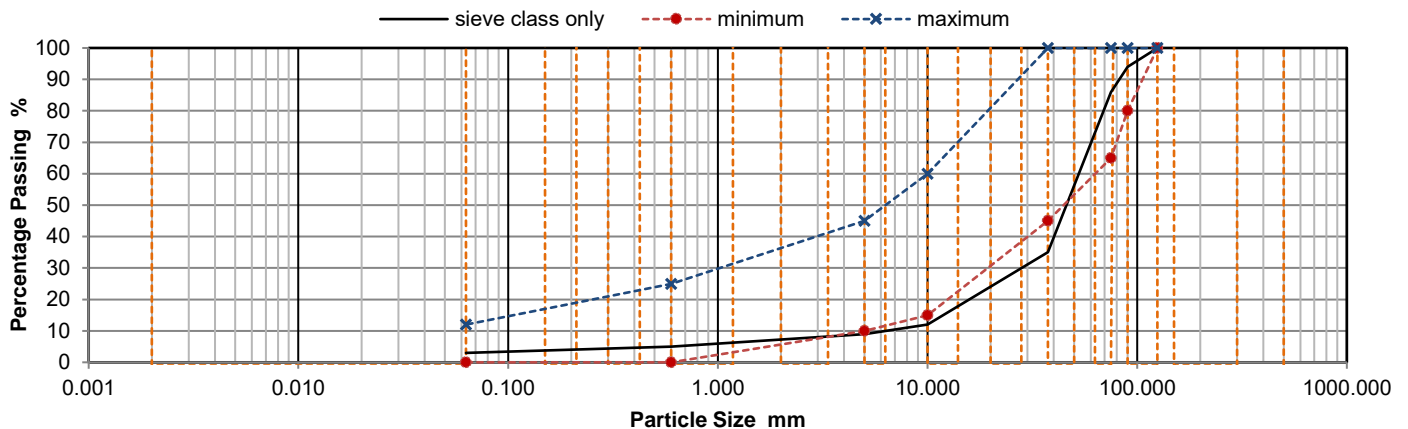
Client Reference: R1742B
Job Number: 21-68265
Date Sampled: 06/04/2021
Date Received: 09/04/2021
Date Tested: 27/04/2021
Sampled By: Client

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1834720
Hole No.: AGG 060421 S1
Sample Reference: Not Given
Sample Description: CRUSHED CONCRETE
Sample Preparation: Sample was whole tested, oven dried at 106.0 °C and broken down by hand.

Depth Top [m]: Not Given
Depth Base [m]: Not Given
Sample Type: B



Sieving		Material Type	
		6F2	
Particle Size	Passing	Selected granular material	
mm	%	Material Specification	Pass or Fail
500	100	100 - 100	PASS
300	100		
150	100		
125	100		
90	94		
75	86	80 - 100	PASS
63	61		
50	49		
37.5	35		
28	27		
20	20	65 - 100	PASS
14	15		
10	12		
6.3	10		
5	9		
3.35	8	45 - 100	FAIL
2	7		
1.18	6		
0.6	5		
0.425	5		
0.3	4	15 - 60	FAIL
0.212	4		
0.15	3		
0.063	3		
		10 - 45	FAIL
		0 - 25	PASS
		0 - 12	PASS

Uniformity Coefficient [Cu]		9.5
D60	mm	62.3
D10	mm	6.55

Uniformity Coefficient calculated in accordance with
BS EN ISO 14688-2: 2004 + A1: 2013

Earthworks
Specification for Highway Works, Volume 1, Series 600, TABLE 6/2

Remarks:

Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation. This report may not be reproduced other than in full without the prior written approval of the issuing laboratory. The results included within the report relate only to the sample(s) submitted for testing. This report includes a statement of conformity to an industry standard specification, as such risks associated with uncertainty in relation to the decision rules applied do not need to be considered.

Signed:

Page 1 of 1

Monika Janoszek
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

Date Reported: 30/04/2021

GF 471.1



TEST CERTIFICATE

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Testing for Constituents of Coarse Recycled Aggregate

Tested in Accordance with: BS EN 933-11:2009

Client: Smith Grant LLP
Client Address: Station House, Station Road,
Ruabon, Wrexham,
LL146DL

Contact: Daniel Wayland
Site Address: Hayford Phase 9

Client Reference: R1742B
Job Number: 21-68265
Date Sampled: 06/04/2021
Date Received: 09/04/2021
Date Tested: 27/04/2021
Sampled By: Client

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1834720
Hole No.: AGG 060421 S1
Sample Reference: Not Given
Sample Description: CRUSHED CONCRETE

Depth Top [m]: Not Given
Depth Base [m]: Not Given
Sample Type: B

Sample preparation:

Sample was dried at 106°C

Constituents	Proportion (cm ³ /kg)
Floating (FL)	1.4

Constituents	Proportion (%)
Concrete/ Concrete units and Mortar (Rc)	92
Unbound Aggregate (Ru)	1
Masonry (Rb)	8.2
Bituminous materials (Ra)	0
Glass (Rg)	0
Other (X)	0.1

Remarks:

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Signed:

Monika Janoszek
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd



TEST CERTIFICATE

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



PSD Assessment of material for use in Earthworks

Tested in Accordance with: BS 1377-2:1990: Clause 9.2

Client: Smith Grant LLP
Client Address: Station House, Station Road,
Ruabon, Wrexham,
LL146DL
Contact: Scott Miller
Site Address: Heyford Phase 9

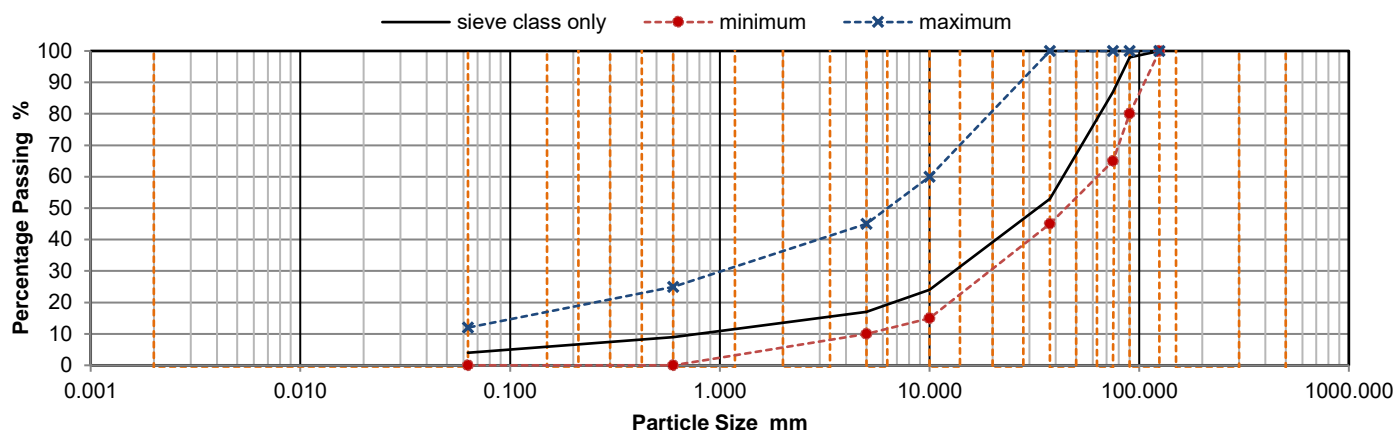
Client Reference: R1742B
Job Number: 21-75647
Date Sampled: 12/05/2021
Date Received: 13/05/2021
Date Tested: 03/06/2021
Sampled By: Client

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1874622
Hole No.: Agg SP3 - GS1 to GS3
Sample Reference: Not Given
Sample Description: CRUSHED CONCRETE
Sample Preparation: Sample was whole tested, oven dried at 40.0 °C and broken down by hand.

Depth Top [m]: Not Given
Depth Base [m]: Not Given
Sample Type: B



Sieving		Material Type	
		6F2	
Particle Size	Passing	Selected granular material	
mm	%	Material Specification	Pass or Fail
500	100		
300	100		
150	100		
125	100	100 - 100	PASS
90	98	80 - 100	PASS
75	87	65 - 100	PASS
63	75		
50	64		
37.5	53	45 - 100	PASS
28	48		
20	39		
14	30		
10	24	15 - 60	PASS
6.3	19		
5	17	10 - 45	PASS
3.35	15		
2	13		
1.18	11		
0.6	9	0 - 25	PASS
0.425	8		
0.3	7		
0.212	6		
0.15	5		
0.063	4	0 - 12	PASS

Uniformity Coefficient [Cu]		55
D60	mm	45.1
D10	mm	0.824

Uniformity Coefficient calculated in accordance with
BS EN ISO 14688-2: 2004 + A1: 2013

Earthworks
Specification for Highway Works, Volume 1, Series 600, TABLE 6/2

Remarks: The material submitted - fails to meet the minimum mass requirements as stated in BS1377 Part 2 Table 3

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Signed:

Page 1 of 1

Szczepan Bielatowicz
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

Date Reported: 11/06/2021

GF 471.1



TEST CERTIFICATE

Testing for Constituents of Coarse Recycled Aggregate

Tested in Accordance with: BS EN 933-11:2009

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Client: Smith Grant LLP
Client Address: Station House, Station Road,
Ruabon, Wrexham,
LL14 6DL
Contact: Scott Miller
Site Address: Heyford Phase 9

Client Reference: R1742B
Job Number: 21-75647
Date Sampled: 12/05/2021
Date Received: 13/05/2021
Date Tested: 03/06/2021
Sampled By: Client

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1874622
Hole No.: Agg SP3 - GS1 to GS3
Sample Reference: Not Given
Sample Description: CRUSHED CONCRETE

Depth Top [m]: Not Given
Depth Base [m]: Not Given
Sample Type: B

Sample preparation:

Sample was dried at 40°C

Constituents	Proportion (cm ³ /kg)
Floating (FL)	1

Constituents	Proportion (%)
Concrete/ Concrete units and Mortar (Rc)	88
Unbound Aggregate (Ru)	0.9
Masonry (Rb)	9.9
Bituminous materials (Ra)	0.4
Glass (Rg)	0.1
Other (X)	0.1

Remarks:

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Signed:

Szczepan Bielatowicz
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd



TEST CERTIFICATE

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



PSD Assessment of material for use in Earthworks

Tested in Accordance with: BS 1377-2:1990: Clause 9.2

Client: Smith Grant LLP
Client Address: Station House, Station Road
Ruabon, Wrexham
LL146DL
Contact: megan.jones@smithgrant.co.uk
Site Address: Heyford Phase 9

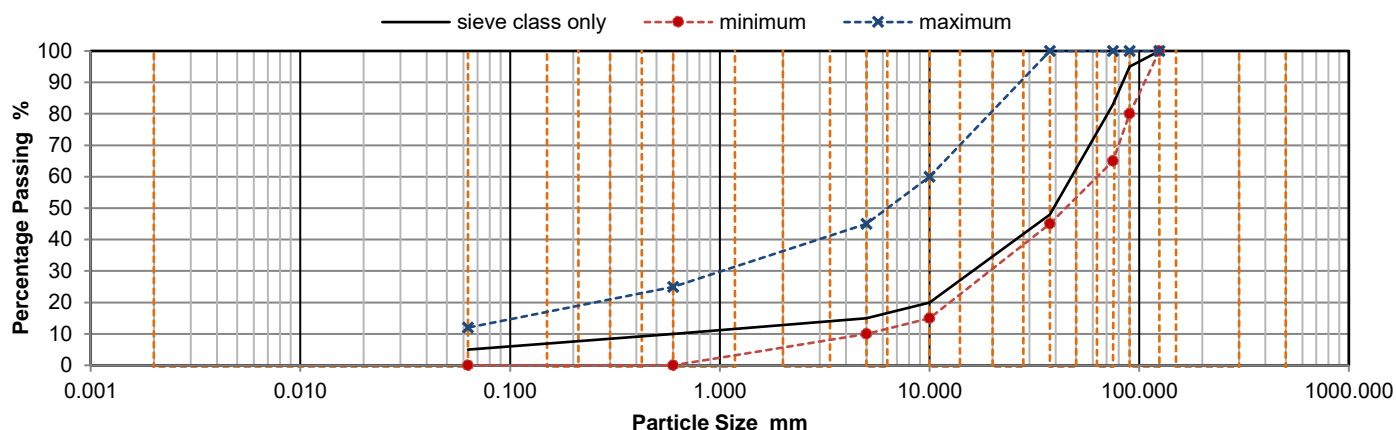
Client Reference: R1742B
Job Number: 21-75652
Date Sampled: 12/05/2021
Date Received: 13/05/2021
Date Tested: 03/06/2021
Sampled By: Client

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1874642
Hole No.: Agg SP2 - GS1 to GS3
Sample Reference: Not Given
Sample Description: Multicolor slightly clayey sandy GRAVEL with cobbles
Sample Preparation: Sample was whole tested, oven dried at 40.0 °C and broken down by hand.

Depth Top [m]: Not Given
Depth Base [m]: Not Given
Sample Type: B



Sieving		Material Type	
		6F2	
Particle Size	Passing	Selected granular material	
mm	%	Material Specification	Pass or Fail
500	100		
300	100		
150	100		
125	100	100 - 100	PASS
90	95	80 - 100	PASS
75	83	65 - 100	PASS
63	69		
50	56		
37.5	48	45 - 100	PASS
28	39		
20	31		
14	24		
10	20	15 - 60	PASS
6.3	16		
5	15	10 - 45	PASS
3.35	13		
2	12		
1.18	11		
0.6	10	0 - 25	PASS
0.425	9		
0.3	8		
0.212	7		
0.15	6		
0.063	5	0 - 12	PASS

Uniformity Coefficient [Cu]		76
D60	mm	53.9
D10	mm	0.709

Uniformity Coefficient calculated in accordance with
BS EN ISO 14688-2: 2004 + A1: 2013

Earthworks
Specification for Highway Works, Volume 1, Series 600, TABLE 6/2

Remarks: Re-issue 1: PSD classified.

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Signed:

Aleksandra Jurochnik
PL Technical Reviewer
for and on behalf of i2 Analytical Ltd



TEST CERTIFICATE

Testing for Constituents of Coarse Recycled Aggregate

Tested in Accordance with: BS EN 933-11:2009

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Client: Smith Grant LLP
Client Address: Station House, Station Road,
Ruabon, Wrexham,
LL146DL
Contact: megan.jones@smithgrant.co.uk
Site Address: Heyford Phase 9

Client Reference: R1742B
Job Number: 21-75652
Date Sampled: 12/05/2021
Date Received: 13/05/2021
Date Tested: 03/06/2021
Sampled By: Client

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1874642
Hole No.: Agg SP2 - GS1 to GS3
Sample Reference: Not Given
Sample Description: Multicolor slightly clayey sandy GRAVEL with cobbles

Depth Top [m]: Not Given
Depth Base [m]: Not Given
Sample Type: B

Sample preparation:

Sample was dried at 40°C

Constituents	Proportion (cm3/kg)
Floating (FL)	1

Constituents	Proportion (%)
Concrete/ Concrete units and Mortar (Rc)	88
Unbound Aggregate (Ru)	1.4
Masonry (Rb)	7
Bituminous materials (Ra)	2.9
Glass (Rg)	0
Other (X)	0.1

Remarks: Re-issue 1: PSD classified.

Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation. This report may not be reproduced other than in full without the prior written approval of the issuing laboratory. The results included within the report relate only to the sample(s) submitted for testing.

Signed:

Aleksandra Jurochnik
PL Technical Reviewer
for and on behalf of i2 Analytical Ltd

APPENDIX D

Topsoil & Formation Validation Report (ref. R1742b-L07; August 2018)

Our ref: R1742B-L07
Your ref:

07th August 2018

Andy Walker
Urban Regen
23 Springvale
Bolton
BL7 0FS

by e-mail: andy.walker@urbanregen.co.uk

Dear Andy

**Upper Heyford – Dorchester Phase 9 – Basketball Pitch
Supplementary Site Investigation**

SGP have been instructed to produce a validation report for a parcel of land formerly occupied by a baseball pitch associated with RAF Heyford which is currently utilised as a public open space for recreational use. This parcel of land forms the north-west corner of the wider Phase 9 area (see Drawing D01).

The site is part of a wider area covered by a Hydrock Remediation Strategy (ref. HPW-HYD-PX-REM-RP-GE-3000-P1-S2, April 2017) which states that a site wide engineered cover system is required to comprise of a 200mm hard dig layer, geotextile and 400mm clean soil cover. At present it is unknown whether the Strategy has been approved, however it is proposed that a revised Strategy to cover the Phase 9 area is appropriate given the absence of made ground in some locations and that the made ground consists largely of placed uncontaminated natural soils. These remedial recommendations are consistent with those made with the approved Remediation Strategy (R1742-R01-v3) which covers other phases of the Heyford Park New Settlement Area. This report has therefore been produced to satisfy the proposed remedial recommendations.

No potential contaminative activities such as the storage of fuels (ASTs, USTs, boiler house etc.) was identified within previous reporting with historical mapping confirming the site remained undeveloped until the construction of a baseball pitch sometime between 1979 and 1992.

Given the effective Greenfield history of the site it may be underlain by natural soils or made ground comprising of reworked natural soils, negating the requirement for an engineered cover system.

In-situ sampling was therefore completed to ascertain whether the natural soils were suitable for retention within shallow garden soils and to also determine the extent and chemistry of shallow made ground soils present across the site.

In-situ Topsoil Testing

It is a requirement under the Hydrock Strategy that site won soils are sampled at a minimum test frequency of 1 sample per 250m³, however proposed recommendations under a revised Strategy and in line with previous remedial works within the Heyford development specify testing of site won soils at a frequency of 1 per 500m³.

Assuming an approximate site area of 14,650m² and a nominal topsoil thickness of 0.3m, this equates to an approximate volume of 4,395m³. Sampling was carried out in-situ with the proposed



sampling frequency of 1 sample per 500m³ resulting in the collection of 9 samples (achieving a frequency of 1 per 488m³) to assess the potential for recovery and reuse within the development.

Samples were collected by SGP and were placed in appropriate laboratory-provided containers and stored in cooled boxes. Samples submitted for chemical analysis were delivered to Exova-Jones Environmental Ltd (EJEL) within 24 hours of collection and samples for asbestos screen were sent to Chemtest within 48 hours of collection. SGP retains chain of custody documentation.

The results of the soil analyses are compared to human health critical values (CVs) for initial screening purposes. The CVs adopted are appropriate to the environmental setting and proposed future residential use of the site and are taken primarily from the LQM / CIEH Suitable for Use Levels (S4ULs) which are used to define land that is 'not contaminated'. These are derived for a sandy loam soil; reference is initially made to the S4ULs derived for a soil with 1% organic matter as a conservative assumption for screening purposes.

The Defra Category 4 Screening Level (C4SL) for lead in soils under residential land-use has been utilised to allow an initial screening for risk to human health. This is intended to demonstrate that land is definitely not Contaminated Land as defined under Part IIA of the Environmental Protection Act. The adoption of the C4SL in a planning scenario has not been universally accepted, however in the absence of other generic screening criteria for lead following the withdrawal of the SGV by the EA it is considered appropriate to utilise the screening criterion.

Chemical laboratory certificate (18-7823) and asbestos laboratory certificate (18-14613) are attached. Results are summarised in the table below and are compared to assessment criteria for garden cover soils as per above.

It is noted that published criteria have been utilised to reflect those proposed within a revised Strategy with some values differing slightly from those within the current Hydrock Strategy.

Table 2. Analysis Summary for in-situ Topsoil

Contaminant	Samples	Range of Concentrations (mg/kg unless stated)	Residential Use	
			Screening criteria (mg/kg unless stated)	Exceedances
SOM	9	1.5-3.8	-	None
pH	9	7.74-8.25	-	None
asbestos fibre*	9	NAD	<0.001%	None
antimony	9	2-5	550 (GAC)	None
arsenic	9	15.2-52.1	37 (S4UL)	(1): Ph9-S9A
barium	9	59-107	1300 (GAC)	None
beryllium	9	0.9-3.0	1.7 (S4UL)	(1): Ph9-S9A
cadmium	9	0.1-0.2	11 (S4UL)	None
chromium	9	36.9-82.2	910 (S4UL)	None
chromium IV	9	<0.3	6 (S4UL)	None
cobalt	9	7.6-13.6	-	None
copper	9	10-29	2400 (S4UL)	None
lead	9	17-88	200 (C4SL)	None
mercury	9	<0.1	170 (S4UL)	None
molybdenum	9	1.5-2.3	670 (GAC)	None
nickel	9	18.3-51.50	180 (S4UL)	None



Contaminant	Samples	Range of Concentrations (mg/kg unless stated)	Residential Use	
			Screening criteria (mg/kg unless stated)	Exceedances
selenium	9	<1-2	250 (S4UL)	None
vanadium	9	52-119	410 (S4UL)	None
water soluble boron	9	0.9-2.9	290 (S4UL)	None
zinc	9	64-174	3700 (S4UL)	None
naphthalene	9	<0.04	2.3 (S4UL)	None
acenaphthylene	9	<0.03	170 (S4UL)	None
acenaphthene	9	<0.05	210 (S4UL)	None
fluorene	9	<0.04	170 (S4UL)	None
phenanthrene	9	<0.03-0.26	95(S4UL)	None
anthracene	9	<0.04-0.09	280 (S4UL)	None
fluoranthene	9	0.09-0.95	2400 (S4UL)	None
pyrene	9	0.09-0.87	620 (S4UL)	None
benzo(a)anthracene	9	0.06-0.59	7.2 (S4UL)	None
chrysene	9	0.06-0.46	15 (S4UL)	None
benzo(bk)fluoranthene	9	0.11-1.09	-	-
benzo(a)pyrene	9	0.06-0.59	2.2 (S4UL)	None
indeno(123cd)pyrene	9	0.04-0.44	27 (S4UL)	None
dibenzo(ah)anthracene	9	0.04-0.09	0.24(S4UL)	None
benzo(ghi)perylene	9	0.04-0.4	320 (S4UL)	None
aliphatic C5-C6	9	<0.1	42 (S4UL)	None
aliphatic C6-C8	9	<0.1	100 (S4UL)	None
aliphatic C8-C10	9	<0.1	27 (S4UL)	None
aliphatic C10-C12	9	<0.2	130 (S4UL)	None
aliphatic C12-C16	9	<4	1100 (S4UL)	None
aliphatic C16-C21	9	<7	5000 (S4UL)	None
aliphatic C21-C35	9	<7	5000 (S4UL)	None
aromatic C5-C7	9	<0.1	70 (S4UL)	None
aromatic C7-C8	9	<0.1	130 (S4UL)	None
aromatic C8-C10	9	<0.1	34 (S4UL)	None
aromatic C10-C12	9	<0.2	74 (S4UL)	None
aromatic C12-C16	9	<4	140 (S4UL)	None
aromatic C16-C21	9	<7	260 (S4UL)	None
aromatic C21-C35	9	<7	1100 (S4UL)	None
benzene	9	<0.005	0.08 (S4UL)	None
toluene	9	<0.005	130 (S4UL)	None
ethylbenzene	9	<0.005	47 (S4UL)	None
o-xylene	9	<0.005	60 (S4UL)	None
m-xylene	9	<0.005	56 (S4UL)	None
p-xylene	9	<0.005	56 (S4UL)	None
methyl tert butyl ether	9	<0.005		None

Notes to table:

S4UL:	Suitable For Use Levels published by Chartered Institute of Environmental Health and Land Quality Management Ltd, residential with plant uptake scenario (1% SOM); copyright Land Quality Management Ltd reproduced with permission publication number S4UL3102. All rights reserved.
GAC:	Generic Assessment Criteria published by CL:AIRE for human health risk assessment for a residential scenario with consumption of homegrown produce (1% SOM).
C4SL:	Category 4 Screening Levels published by CL:AIRE (C4SLs); 'residential without home grown produce land use' (at 1% SOM)

Two minor exceedances were reported and were limited to a single sample (Ph9-S9A). Arsenic was recorded at 52.1 mg/kg (criteria of 37 mg/kg), and beryllium at 3 mg/kg (criteria of 1.7 mg/kg). In the absence of anthropogenic material, statistical analysis has been carried out on the sample mean, the results are tabulated in the table below:

Table 3. Statistical Analysis of Arsenic and

statistic	arsenic (mg/kg)	beryllium (mg/kg)
criterion	37	1.7
no. of samples	9	9
Grubbs outlier test for highest value (P0.05)	Ph9-S9A (max value 52.1 mg/kg) is an outlier	Ph9-S9A (max value 3.0 mg/kg) is an outlier
arithmetic mean, including outlier	22.42	1.36
upper confidence limit (UCL 0.95) including outlier	39.09 (fail)	2.28 (fail)
arithmetic mean, excluding Ph9-S9A outlier	18.71	1.15
upper confidence limit (UCL 0.95) excluding Ph9-S9A outlier	23.26 (pass)	1.25 (pass)

Statistical analysis confirms that both exceedances are outliers of the dataset and are not representative of the soil concentrations and can therefore be excluded from the dataset. When these exceedances are removed, the UCL (0.95) for arsenic is 23.26 mg/kg and 1.25 mg/kg for beryllium resulting in no exceedances.

In-Situ Future Formation Soil Validation

Under a revised Strategy and in accordance with validation works within the wider Heyford Park development, sampling of the underlying 400mm subsoil beneath any topsoil or removed hardstanding would be sampled to determine its retention as part of the 600mm garden cover providing that it is uncontaminated and suitable for such use.

In-situ sampling of subsoils below the topsoil cover was completed through the excavation and sampling of the top 400mm of soil. Sampling was completed at a test frequency of 1 sample per 500m³, the residual depth of 400mm equating to 1 sample per 1,250m² plan area of development.

Twelve in-situ samples were collected from the underlying soil with depth validation photos showing the extent of the 400mm depth range appended to this report with sampling locations reproduced in Drawing D01. Assuming an approximate site area of 14,650m², the volume of validated soils is effectively 5,860m³, exceeding the specified sampling rate of 1 sample per 500m³ (1 per 488m³ achieved).

Sampled soils generally comprised of a dark brown clay soil with coarse gravel of limestone although inclusions of brick fragments (S5, S6, S11 and S12) and tarmac (S7 and S11) were observed. No inclusions of ash, slag or clinker were observed but it is noted that Hydrock reported ash within 2 locations. A plan detailing the validation entries with Hydrock's trial-pits is provided in Drawing D01.

Table 4. Analysis Summary of Formation Soils

Contaminant	Samples	Range of Concentrations (mg/kg unless stated)	Residential Use	
			Screening criteria (mg/kg unless stated)	Exceedances
SOM	12		-	None
pH	12	7.53-8.47	-	None
asbestos fibre*	12	NAD	<0.001%	None
antimony	12	1-3	550 (GAC)	None
arsenic	12	14.3-25.1	37 (S4UL)	None
barium	12	49.119	1300 (GAC)	None
beryllium	12	0.9-1.4	1.7 (S4UL)	None
cadmium	12	<0.1-0.2	11 (S4UL)	None
chromium	12	32.3-47	910 (S4UL)	None
chromium IV	12	<0.3	6 (S4UL)	None
cobalt	12	6.3-12.5	-	None
copper	12	9-57	2400 (S4UL)	None
lead	12	11-59	200 (C4SL)	None
mercury	12	<0.1	170 (S4UL)	None
molybdenum	12	1.2-2.6	670 (GAC)	None
nickel	12	16.3-31.6	180 (S4UL)	None
selenium	12	<1	250 (S4UL)	None
vanadium	12	42-69	410 (S4UL)	None
water soluble boron	12	0.7-3.4	290 (S4UL)	None
zinc	12	52-204	3700 (S4UL)	None
naphthalene	12	<0.04-0.06	2.3 (S4UL)	None
acenaphthylene	12	<0.03-0.08	170 (S4UL)	None
acenaphthene	12	<0.05-0.23	210 (S4UL)	None
fluorene	12	<0.04-0.15	170 (S4UL)	None
phenanthrene	12	<0.03-2.93	95(S4UL)	None
anthracene	12	<0.04-0.87	280 (S4UL)	None
fluoranthene	12	<0.03-6.08	2400 (S4UL)	None
pyrene	12	<0.03-6.08	620 (S4UL)	None
benzo(a)anthracene	12	<0.06-2.15	7.2 (S4UL)	None
chrysene	12	<0.02-2.15	15 (S4UL)	None
benzo(bk)fluoranthene	12	<0.07-3.83	-	-
benzo(a)pyrene	12	<0.04-2.22	2.2 (S4UL)	(2) Ph9-S4
indeno(123cd)pyrene	12	<0.04-1.60	27 (S4UL)	None
dibenzo(ah)anthracene	12	<0.04-0.28	0.24(S4UL)	(2) Ph9-S4 & Ph9-S11
benzo(ghi)perylene	12	<0.04-1.51	320 (S4UL)	None
aliphatic C5-C6	12	<0.1	42 (S4UL)	None
aliphatic C6-C8	12	<0.1	100 (S4UL)	None
aliphatic C8-C10	12	<0.1	27 (S4UL)	None

Contaminant	Samples	Range of Concentrations (mg/kg unless stated)	Residential Use	
			Screening criteria (mg/kg unless stated)	Exceedances
aliphatic C10-C12	12	<0.2	130 (S4UL)	None
aliphatic C12-C16	12	<4	1100 (S4UL)	None
aliphatic C16-C21	12	<7	5000 (S4UL)	None
aliphatic C21-C35	12	<7-11	5000 (S4UL)	None
aromatic C5-C7	12	<0.1	70 (S4UL)	None
aromatic C7-C8	12	<0.1	130 (S4UL)	None
aromatic C8-C10	12	<0.1	34 (S4UL)	None
aromatic C10-C12	12	<0.2-0.3	74 (S4UL)	None
aromatic C12-C16	12	<4	140 (S4UL)	None
aromatic C16-C21	12	<7-20	260 (S4UL)	None
aromatic C21-C35	12	<7-97	1100 (S4UL)	None
benzene	12	<0.005	0.08 (S4UL)	None
toluene	12	<0.005	130 (S4UL)	None
ethylbenzene	12	<0.005	47 (S4UL)	None
o-xylene	12	<0.005	60 (S4UL)	None
m-xylene	12	<0.005	56 (S4UL)	None
p-xylene	12	<0.005	56 (S4UL)	None
methyl tert butyl ether	12	<0.005	-	None

Notes to table:

S4UL: Suitable For Use Levels published by Chartered Institute of Environmental Health and Land Quality Management Ltd, residential with plant uptake scenario (1% SOM); copyright Land Quality Management Ltd reproduced with permission publication number S4UL3102. All rights reserved.

GAC: Generic Assessment Criteria published by CL:AIRE for human health risk assessment for a residential scenario with consumption of homegrown produce (1% SOM).

C4SL: Category 4 Screening Levels published by CL:AIRE (C4SLs); 'residential without home grown produce land use' (at 1% SOM)

Exceedances were limited to a very minor elevated concentrations of benzo(a)pyrene within sample Ph9-S4 with a concentration of 2.22 mg/kg compared to the criteria of 2.2 mg/kg, and dibenzo(ah)anthracene with concentrations of 0.28 mg/kg (criteria of 0.24 mg/kg) with both Ph9-S4 and Ph9-S11.

PAH ratio analysis was completed on the exceeded samples to determine the source of the elevated PAHs, a copy of the plot is attached to this report. Source identification confirms a coal signature, no anthropogenic material such as ash or clinker were observed within Ph9-S4 whilst fragments of tarmac were recorded within Ph9-S11. Source identification indicates a likely low bio-availability due to the sequestration of PAHs within a carbon or vitrified matrix, with B(a)P concentrations below the DEFRA C4SL criteria of 5 mg/kg for garden soils. The minor PAH exceedances are unlikely to represent an unacceptable risk to human health.

Conclusions

Topsoil cover was present across the site (with exception of entry S29) extending to depths of 0.2 and 0.3m bgl. Minor exceedances of site topsoil were initially recorded for both arsenic and beryllium within sample Ph9-S9A, however further statistical analysis confirmed the exceedances are not

Andy Walker
Urban Regen



representative of the dataset and when removed the UCL (0.95) did not result in any exceedances. It is concluded that the topsoil is suitable for recovery and reuse within the development.

The 0.4m of soils present beneath the topsoil layer were a brown clay with frequent limestone gravel (possible weathered bedrock) and rare inclusions of brick and tarmac, tarmac fragments were limited to entries S7 and S11. It is anticipated that the clay layer may have been placed in part during construction of the baseball pitch where soils from the wider Heyford area may have been placed.

Concentrations of determinants were below the assessment criteria except with 3 minor exceedances for the PAHs benzo(a)pyrene (no 1) and dibenzo(ah)anthracene (no 2) in entries S4 and S11. Further assessment has confirmed a coal signature, possibly associated with minor tarmac inclusions and concluded that the identified sources are likely to be below significant in terms of solubility and bioavailability due to the sequestration within coal / tarmac.

SGP considers that the risk associated to future site occupants to concentrations to be negligible and that the site soils (topsoil and subsoil) are suitable for retention in future garden areas. The recommended remedial measures (i.e. engineered cover system) may be revised to be consistent with those applied to other similar areas i.e. no specific requirement for cover soils.

Recommendations

It is recommended that in the absence of a revised Strategy being produced and issued for the Phase 9 area that this report be submitted to CDC for approval, however further justification to the deviation from the submitted Strategy may be required.

Assessment of risks associated with occasional exceedances and conclusions regarding suitability for retention at shallow depths should be provided to CDC for approval.

Yours sincerely
for: Smith Grant LLP

A handwritten signature in black ink, appearing to read "D. Wayland", with a stylized flourish at the end.

D Wayland BSc MSc MCIWEM

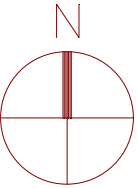
Attached:

Drawing D01
App A: Entry Logs & Photo Record
App B: Lab Certificate: 18-7823 & 18-14613
App C: PAH Ratio Plot & Arsenic and Beryllium CLR7 Statistics

Andy Walker
Urban Regen



DRAWING



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Station House, Station Road
Ruabon, Wrexham LL14 6DL

Tel: 01978 822367
Fax: 01978 8247182

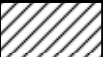
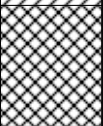

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Project: Heyford Park, Upper Heyford	
Drawing: Phase 9 - Basketball Pitch Insitu Validation Samples	
Drawn: DW	Checked: BJT
Date: 06.08.18	Scale: 1:500 @ A3
Job No: R1742b	Drg No: R1742b-L07-D01


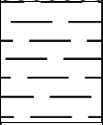

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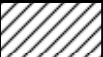


APPENDIX A

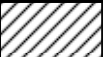


SHEET: 1 of 1	LOCATION: See Plan	PROJECT: Heyford Dorchester	ENGINEER: DW		JOB NO. R1742b	TRIAL PIT NO. Ph9-S1
		EXCAVATED BY: Tracked 360	CLIENT: Urban Regen Ltd.		DATE: 1st May	
DEPTH (m)	SAMPLES	Lab testing	DEPTH (m)	DESCRIPTION OF STRATA		LEGEND
0.2	Ph9-S1A	Heyford Suite	0	Dark brown CLAY topsoil with rootlets		
0.6		Heyford Suite	0.2	MADE GROUND: Dark brown CLAY with coarse gravel (relict gas pipe at base)		
	Ph9-S1B			Base at 0.6m bgl		
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GROUND WATER: No groundwater encountered						
REMARKS: Sidewalls stable PID <0.1 ppm						
SCALE: 1:250			LOGGED BY: DW		FIGURE NO. 1	

D: small disturbed sample
 B: bulk disturbed sample
 PP: pocket penetrometer


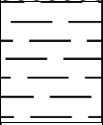

SHEET: 1 of 1	LOCATION: See Plan	PROJECT: Heyford Dorchester	ENGINEER: DW		JOB NO. R1742b	TRIAL PIT NO. Ph9-S2
		EXCAVATED BY: Tracked 360	CLIENT: Urban Regen Ltd.		DATE: 1st May	
DEPTH (m)	SAMPLES	Lab testing	DEPTH (m)	DESCRIPTION OF STRATA		LEGEND
0.3	Ph9-S2A	Heyford Suite	0	Dark brown CLAY topsoil with rootlets		
0.7			0.3	Dark brown to red CLAY with frequent gravel of angular limestone		
	Ph9-S2B			Base at 0.7m bgl		
<div>  <p> SMITH GRANT <i>Environmental Consultancy</i> LLP </p> <p> Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk </p> </div>						
<div> GROUND WATER: No groundwater encountered </div>						
<div> REMARKS: Sidewalls stable PID <0.1 ppm </div>						
<div> <div> SCALE: 1:250 </div> <div> LOGGED BY: DW </div> <div> FIGURE NO. 1 </div> </div>						

D: small disturbed sample
 B: bulk disturbed sample
 PP: pocket penetrometer





SHEET: 1 of 1	LOCATION: See Plan	PROJECT: Heyford Dorchester	ENGINEER: DW		JOB NO. R1742b	TRIAL PIT NO. Ph9-S3
		EXCAVATED BY: Tracked 360	CLIENT: Urban Regen Ltd.		DATE: 1st May	
DEPTH (m)	SAMPLES	Lab testing	DEPTH (m)	DESCRIPTION OF STRATA		LEGEND
0.2	Ph9-S3A	Heyford Suite	0	Dark brown CLAY topsoil with rootlets		
0.6		Heyford Suite	0.2	Dark brown CLAY with frequent gravel of angular limestone		
	Ph9-S3B			Base at 0.6m bgl		
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<div> <div>GROUND WATER:</div> <p>No groundwater encountered</p> <div>REMARKS:</div> <p>Sidewalls stable PID <0.1 ppm</p> <div> <p>D: small disturbed sample B: bulk disturbed sample PP: pocket penetrometer</p> </div> </div>						
SCALE: 1:250			LOGGED BY: DW		FIGURE NO. 1	




SHEET: 1 of 1	LOCATION: See Plan	PROJECT: Heyford Dorchester	ENGINEER: DW		JOB NO. R1742b	TRIAL PIT NO. Ph9-S4
		EXCAVATED BY: Tracked 360	CLIENT: Urban Regen Ltd.		DATE: 1st May	
DEPTH (m)	SAMPLES	Lab testing	DEPTH (m)	DESCRIPTION OF STRATA		LEGEND
0.2	Ph9-S4A	Heyford Suite	0	Dark brown CLAY topsoil with rootlets		
0.6		Heyford Suite	0.2	Dark brown CLAY with frequent gravel of angular limestone		
	Ph9-S4B			Base at 0.6m bgl		
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GROUND WATER: No groundwater encountered						
REMARKS: Sidewalls stable PID <0.1 ppm						
<div> <div> SCALE: 1:250 </div> <div> LOGGED BY: DW </div> <div> FIGURE NO. 1 </div> </div>						

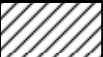


D: small disturbed sample
 B: bulk disturbed sample
 PP: pocket penetrometer

SHEET: 1 of 1	LOCATION: See Plan	PROJECT: Heyford Dorchester	ENGINEER: DW		JOB NO. R1742b	TRIAL PIT NO. Ph9-S5
		EXCAVATED BY: Tracked 360	CLIENT: Urban Regen Ltd.		DATE: 1st May	
DEPTH (m)	SAMPLES	Lab testing	DEPTH (m)	DESCRIPTION OF STRATA		LEGEND
0.3	Ph9-S5A	Heyford Suite	0	Dark brown CLAY topsoil with rootlets		
0.7			0.3	Dark brown CLAY with frequent gravel of angular limestone and rare brick fragments		
	Ph9-S5B			Base at 0.7m bgl		
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<div> GROUND WATER: No groundwater encountered </div>						
<div> REMARKS: Sidewalls stable PID <0.1 ppm </div>						
<div> <div> SCALE: 1:250 </div> <div> LOGGED BY: DW </div> <div> FIGURE NO. 1 </div> </div>						


D: small disturbed sample
 B: bulk disturbed sample
 PP: pocket penetrometer




SHEET: 1 of 1	LOCATION: See Plan	PROJECT: Heyford Dorchester	ENGINEER: DW		JOB NO. R1742b	TRIAL PIT NO. Ph9-S6
		EXCAVATED BY: Tracked 360	CLIENT: Urban Regen Ltd.		DATE: 1st May	
DEPTH (m)	SAMPLES	Lab testing	DEPTH (m)	DESCRIPTION OF STRATA		LEGEND
0.2	Ph9-S6A	Heyford Suite	0	Dark brown CLAY topsoil with rootlets		
			0.2	Dark brown CLAY with frequent gravel of angular limestone and rare brick fragments		
0.6	Ph9-S6B	Heyford Suite		Base at 0.6m bgl		
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<div> <p>GROUND WATER:</p> <p>No groundwater encountered</p> <p>REMARKS:</p> <p>Sidewalls stable PID <0.1 ppm</p> <p>D: small disturbed sample B: bulk disturbed sample PP: pocket penetrometer</p> </div>						
SCALE: 1:250			LOGGED BY: DW		FIGURE NO. 1	


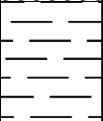

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		EXCAVATED BY: Tracked 360	CLIENT: Urban Regen Ltd.		DATE: 1st May	
DEPTH (m)	SAMPLES	Lab testing	DEPTH (m)	DESCRIPTION OF STRATA		LEGEND
0.2	Ph9-S7A	Heyford Suite	0	Dark brown CLAY topsoil with rootlets		
0.6		Heyford Suite	0.2	Dark brown CLAY with frequent gravel of angular limestone and rare brick and tarmac fragments		
	Ph9-S7B			Base at 0.6m bgl		
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<div> <div>GROUND WATER:</div> <p>No groundwater encountered</p> <div>REMARKS:</div> <p>Sidewalls stable PID <0.1 ppm</p> <div> <p>D: small disturbed sample B: bulk disturbed sample PP: pocket penetrometer</p> </div> </div>						
SCALE: 1:250			LOGGED BY: DW		FIGURE NO. 1	

SHEET: 1 of 1	LOCATION: See Plan	PROJECT: Heyford Dorchester	ENGINEER: DW		JOB NO. R1742b	TRIAL PIT NO. Ph9-S8
		EXCAVATED BY: Tracked 360	CLIENT: Urban Regen Ltd.		DATE: 1st May	
DEPTH (m)	SAMPLES	Lab testing	DEPTH (m)	DESCRIPTION OF STRATA		LEGEND
0.2	Ph9-S8A	Heyford Suite	0	Dark brown CLAY topsoil with rootlets		
0.6		Heyford Suite	0.2	Dark brown CLAY with frequent gravel of angular limestone		
	Ph9-S8B			Base at 0.6m bgl		
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<div> GROUND WATER: No groundwater encountered </div>						
<div> REMARKS: Sidewalls stable PID <0.1 ppm </div>						
<div> <div> SCALE: 1:250 </div> <div> LOGGED BY: DW </div> <div> FIGURE NO. 1 </div> </div>						


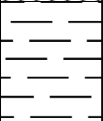

D: small disturbed sample
 B: bulk disturbed sample
 PP: pocket penetrometer

SHEET: 1 of 1	LOCATION: See Plan	PROJECT: Heyford Dorchester	ENGINEER: DW		JOB NO. R1742b	TRIAL PIT NO. Ph9-S9
		EXCAVATED BY: Tracked 360	CLIENT: Urban Regen Ltd.		DATE: 1st May	
DEPTH (m)	SAMPLES	Lab testing	DEPTH (m)	DESCRIPTION OF STRATA		LEGEND
0.6	Ph9-S9A	Heyford Suite	0	Light brown CLAY becoming darker with frequent gravel of angular limestone		
				Base at 0.6m bgl		
<div style="display: flex; justify-content: space-between;"> <div style="width: 25%;">  <p>Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL14 6DL</p> <p>Tel: 01978 822367 Fax: 01978 8247182</p> <p>www.smithgrant.co.uk email: consult@smithgrant.co.uk</p> </div> <div style="width: 75%;"> <p>GROUND WATER: No groundwater encountered</p> <p>REMARKS: Sidewalls stable PID <0.1 ppm</p> <p style="text-align: right;">D: small disturbed sample B: bulk disturbed sample PP: pocket penetrometer</p> </div> </div>						
SCALE: 1:250			LOGGED BY: DW		FIGURE NO. 1	

SHEET: 1 of 1	LOCATION: See Plan	PROJECT: Heyford Dorchester	ENGINEER: DW		JOB NO. R1742b	TRIAL PIT NO. Ph9-S10
		EXCAVATED BY: Tracked 360	CLIENT: Urban Regen Ltd.		DATE: 1st May	
DEPTH (m)	SAMPLES	Lab testing	DEPTH (m)	DESCRIPTION OF STRATA		LEGEND
	Ph9-S10A	Heyford Suite	0	Dark brown CLAY topsoil with rootlets		
			0.3	Dark brown CLAY with frequent gravel of angular limestone		
0.7				Base at 0.7m bgl		
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GROUND WATER: No groundwater encountered						
REMARKS: Sidewalls stable PID <0.1 ppm						
SCALE: 1:250			LOGGED BY: DW		FIGURE NO. 1	
<div> <p>D: small disturbed sample B: bulk disturbed sample PP: pocket penetrometer</p> </div>						

SHEET: 1 of 1	LOCATION: See Plan	PROJECT: Heyford Dorchester	ENGINEER: DW		JOB NO. R1742b	TRIAL PIT NO. Ph9-S11
		EXCAVATED BY: Tracked 360	CLIENT: Urban Regen Ltd.		DATE: 1st May	
DEPTH (m)	SAMPLES	Lab testing	DEPTH (m)	DESCRIPTION OF STRATA		LEGEND
	Ph9-S11A	Heyford Suite	0	Dark brown CLAY topsoil with rootlets		
			0.3	Light brown CLAY with coarse gravel of limestone and rare brick and tarmac fragments		
0.7				Base at 0.7m bgl		
<div>  <p> SMITH GRANT <i>Environmental Consultancy</i> LLP </p> <p> Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk </p> </div>						
GROUND WATER: No groundwater encountered						
REMARKS: Sidewalls stable PID <0.1 ppm						
SCALE: 1:250			LOGGED BY: DW		FIGURE NO. 1	

D: small disturbed sample
 B: bulk disturbed sample
 PP: pocket penetrometer

SHEET: 1 of 1	LOCATION: See Plan	PROJECT: Heyford Dorchester	ENGINEER: DW		JOB NO. R1742b	TRIAL PIT NO. Ph9-S12
		EXCAVATED BY: Tracked 360	CLIENT: Urban Regen Ltd.		DATE: 1st May	
DEPTH (m)	SAMPLES	Lab testing	DEPTH (m)	DESCRIPTION OF STRATA		LEGEND
	Ph9-S12A	Heyford Suite	0	Dark brown CLAY topsoil with rootlets		
			0.3	Light brown CLAY with coarse gravel of limestone and rare brick fragments		
0.7				Base at 0.7m bgl		
<div>  <p> SMITH GRANT <i>Environmental Consultancy</i> LLP </p> <p> Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk </p> </div> <div> <p>GROUND WATER:</p> <p>No groundwater encountered</p> <p>REMARKS:</p> <p>Sidewalls stable PID <0.1 ppm</p> <p>D: small disturbed sample B: bulk disturbed sample PP: pocket penetrometer</p> </div>						
SCALE: 1:250			LOGGED BY: DW		FIGURE NO. 1	



S1



S1



S2



S2



S3



S3



S4



S4



S5



S5



S6



S6



S7



S7



S8



S8



S9



S9



S10



S10



S11



S11



S12



S12

Andy Walker
Urban Regen



APPENDIX B



Exova Jones Environmental

Registered Address : Exova (UK) Ltd, Lochend Industrial Estate, Newbridge, Midlothian, EH28 8PL

Unit 3 Deeside Point
Zone 3
Deeside Industrial Park
Deeside
CH5 2UA

Smith Grant LLP
Station House
Station Road
Ruabon
Wrexham
LL14 6DL

Tel: +44 (0) 1244 833780

Fax: +44 (0) 1244 833781



Attention :	Dan Wayland
Date :	7th June, 2018
Your reference :	R1742B
Our reference :	Test Report 18/7823 Batch 1
Location :	Heyford (Dorchester)
Date samples received :	22nd May, 2018
Status :	Final report
Issue :	1

Twenty samples were received for analysis on 22nd May, 2018 of which twenty were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Compiled By:

Phil Sommerton BSc

Project Manager

Please see attached notes for all abbreviations and acronyms

Please see attached notes for all abbreviations and acronyms

Please see attached notes for all abbreviations and acronyms

Client Name: Smith Grant LLP
Reference: R1742B
Location: Heyford (Dorchester)
Contact: Dan Wayland

[illegible]

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 18/7823

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overestimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Please include all sections of this report if it is reproduced

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa.
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to an Exova Jones Environmental approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

JE Job No: 18/7823

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes	Yes	AR	Yes
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes	Yes	AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details			AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details	Yes		AR	Yes
PM13	A visual examination of the solid sample is carried out to ascertain sample make up, colour and any other inclusions. This is not a geotechnical description.	PM0	No preparation is required.			AR	
TM21	Modified USEPA 415.1. Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO ₂ generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil, March 2012 v4.	PM24	Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis.			AD	Yes

JE Job No: 18/7823

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.			AD	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Yes	Yes	AD	Yes
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes	Yes	AR	Yes
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AR	Yes
TM73	Modified US EPA methods 150.1 and 9045D and BS1377:1990. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes	Yes	AR	No
TM74	Analysis of water soluble boron (20:1 extract) by ICP-OES.	PM32	Hot water soluble boron is extracted from dried and ground samples using a 20:1 ratio.	Yes	Yes	AD	Yes
TM76	Modified US EPA method 120.1. Determination of Specific Conductance by Metrohm automated probe analyser.	PM58	Dried and ground solid samples are extracted with water in a 5:1 water to solid ratio, the samples are shaken on an orbital shaker.			AD	Yes



2183

Final Report

Report No.: 18-14613-1

Initial Date of Issue: 31-May-2018

Client Smith Grant LLP

Client Address: Station House, Station Road
Ruabon
Wrexham
LL14 6DL

Contact(s): Dan Wayland

Project R17426 Heyford Park (Dorchester)

Quotation No.: **Date Received:** 24-May-2018

Order No.: **Date Instructed:** 24-May-2018

No. of Samples: 20

Turnaround (Wkdays): 5 **Results Due:** 31-May-2018

Date Approved: 31-May-2018

Approved By:


Details: Glynn Harvey, Laboratory Manager

Results - Soil

Client: Smith Grant LLP	Chemtest Job No.:					18-14613	18-14613	18-14613	18-14613	18-14613	18-14613	18-14613	18-14613	18-14613
Quotation No.:	Chemtest Sample ID.:					627756	627757	627758	627759	627760	627761	627762	627763	627764
	Client Sample ID.:					PH9-S1A	PH9-S1B	PH9-S2A	PH9-S2B	PH9-S3A	PH9-S3B	PH9-S4A	PH9-S4B	PH9-S5A
	Sample Type:					SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):					0.0	0.2	0.0	0.3	0.0	0.2	0.0	0.2	0.0
	Bottom Depth (m):					0.2	0.6	0.3	0.7	0.2	0.6	0.2	0.6	0.3
	Asbestos Lab:					COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD										
ACM Type	U	2192		N/A	-	-	-	-	-	-	-	-	-	-
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected

Results - Soil

Client: Smith Grant LLP	Chemtest Job No.:					18-14613	18-14613	18-14613	18-14613	18-14613	18-14613	18-14613	18-14613	18-14613
Quotation No.:	Chemtest Sample ID.:					627765	627766	627767	627768	627769	627770	627771	627772	627773
	Client Sample ID.:					PH9-S5B	PH9-S6A	PH9-S6B	PH9-S7A	PH9-S7B	PH9-S8A	PH9-S8B	PH9-S9A	PH9-S10A
	Sample Type:					SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):					0.3	0.0	0.2	0.0	0.2	0.0	0.2	0.0	0.3
	Bottom Depth (m):					0.7	0.2	0.6	0.2	0.6	0.2	0.6	0.6	0.7
	Asbestos Lab:					COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD										
ACM Type	U	2192		N/A	-	-	-	-	-	-	-	-	-	-
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected

Results - Soil

Client: Smith Grant LLP	Chemtest Job No.:				18-14613	18-14613
Quotation No.:	Chemtest Sample ID.:				627774	627775
	Client Sample ID.:				PH9-S11A	PH9-S12A
	Sample Type:				SOIL	SOIL
	Top Depth (m):				0.3	0.3
	Bottom Depth (m):				0.7	0.7
	Asbestos Lab:				COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD		
ACM Type	U	2192		N/A	-	-
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected	No Asbestos Detected

SOP	Title	Parameters included	Method summary
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry

Report Information

Key

- U UKAS accredited
- M MCERTS and UKAS accredited
- N Unaccredited
- S This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
- SN This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
- T This analysis has been subcontracted to an unaccredited laboratory
- I/S Insufficient Sample
- U/S Unsuitable Sample
- N/E not evaluated
- < "less than"
- > "greater than"

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:

customerservices@chemtest.co.uk

Andy Walker
Urban Regen



APPENDIX C

Contaminated Land Assessment - Statistical Spreadsheet

Ref: R1742b
Site: Heyford
Substance: Beryllium

Date: 06.08.18
Author: DW

data entry (maximum 200 values)

identifier	observed value
Ph9-S1A	15.90
PH9-S2A	16.20
PH9-S3A	21.60
PH9-S4A	17.40
PH9-S5A	19.3
PH9-S6A	23.0
PH9-S7A	21.1
PH9-S8A	15.2

planning or
Part IIA scenario

planning ▼

select units

mg/kg ▼

select significance level (P)

0.05

(P 0.05 should be used by default)

enter critical concentration (Cc)

37

mg/kg

(SGV / GAC)

total number of observations

8

number of non-detects

0

0.04 mg/kg

0.02 mg/kg

(typically 50% of the m.d.l.)

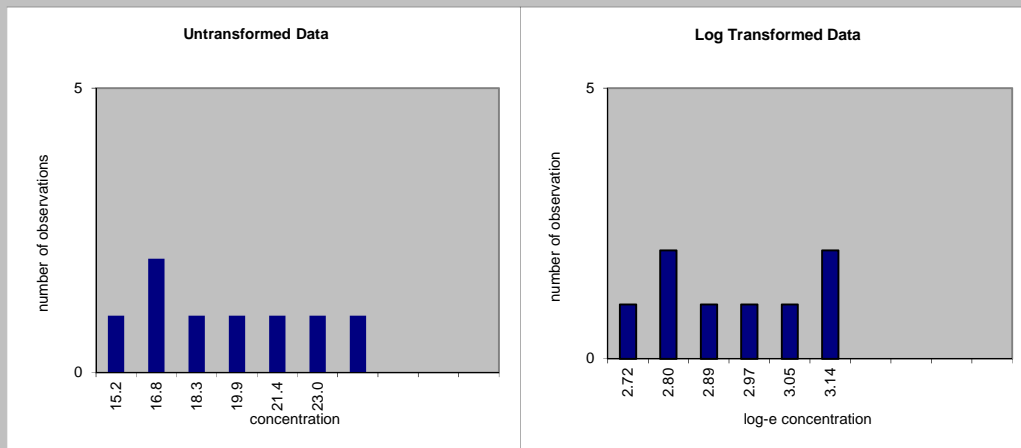
calculate

The null hypothesis (H_0) is that the true mean is equal to or greater than the critical concentration at a confidence level of 95%

Contaminated Land Assessment - Statistical Spreadsheet

1. Data review

bell-shaped histograms indicate a normal-type distribution



Use log-transformed data?

no ▼

2. Check for statistical outliers

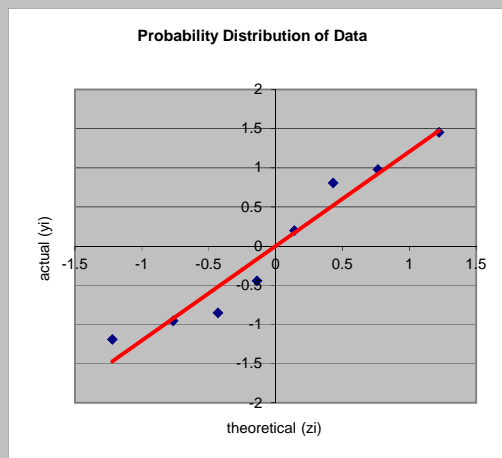
Grubbs Test - assumes that data other than outlier(s) are normally distributed

$T_{crit} = 2.03$ $T_n = 1.45$ log transformed $T_n = 1.38$

maximum value **23** mg/kg is not an outlier

note: outliers should only be removed in particular circumstances

3. Assessment of normal distribution



Shapiro-Wilk normality test

$W = 0.562$

significance level	0.01	0.05
critical level	0.749	0.818

W is less than the critical value at 5% significance level

Are data points aligned close to red line, indicating a normal distribution?

yes ▼

Non-parametric testing (Chebychev Theorem) is appropriate

4. Significance Tests Against Critical Value

Non-parametric Chebychev Test

sample mean = **18.7125** mg/kg

sample unbiased standard deviation = **2.95** mg/kg

k statistic = **-17.515**

critical value = **-4.360**

k statistic is less than critical value null hypothesis can be rejected

upper confidence limit (UCL 0.95) = **23.26** mg/kg

Contaminated Land Assessment - Statistical Spreadsheet

Ref: R1742b
Site: Heyford
Substance: Beryllium

Date: 06.08.18
Author: DW

data entry (maximum 200 values)

identifier	observed value
Ph9-S1A	1.10
PH9-S2A	1.30
PH9-S3A	1.10
PH9-S4A	1.10
PH9-S5A	1.1
PH9-S6A	1.2
PH9-S7A	1.4
PH9-S8A	0.9

planning or
Part IIA scenario planning ▼

select units mg/kg ▼

select significance level (P) 0.05

(P 0.05 should be used by default)

enter critical concentration (Cc) 1.7 mg/kg
(SGV / GAC)

total number of observations 8

number of non-detects 0

0.04 mg/kg

0.02 mg/kg

(typically 50% of the m.d.l.)

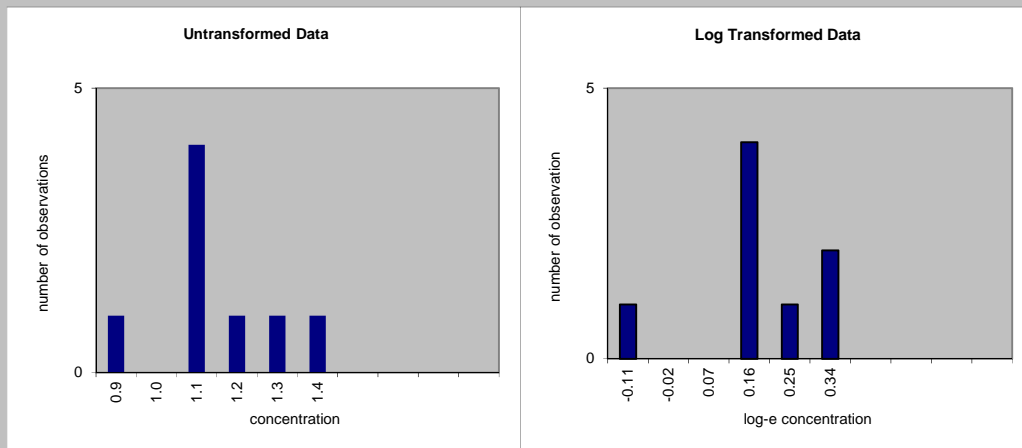
calculate

The null hypothesis (H_0) is that the true
mean is equal to or greater than the
critical concentration at a confidence level of 95%

Contaminated Land Assessment - Statistical Spreadsheet

1. Data review

bell-shaped histograms indicate a normal-type distribution



Use log-transformed data?

no ▼

2. Check for statistical outliers

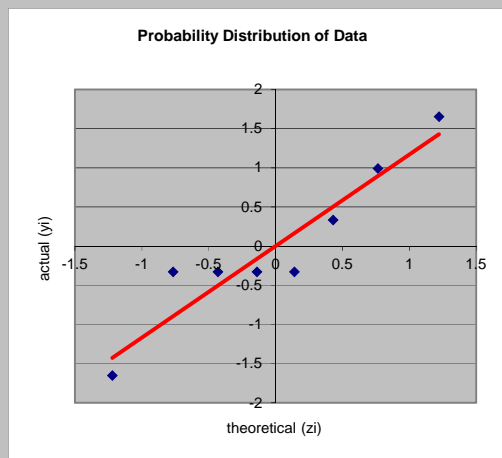
Grubbs Test - assumes that data other than outlier(s) are normally distributed

$T_{crit} = 2.03$ $T_n = 1.65$ log transformed $T_n = 1.54$

maximum value 1.4 mg/kg is not an outlier

note: outliers should only be removed in particular circumstances

3. Assessment of normal distribution



Shapiro-Wilk normality test

$W = 0.917$

significance level	0.01	0.05
critical level	0.749	0.818

data do not significantly vary from a normal distribution

Are data points aligned close to red line, indicating a normal distribution?

yes ▼

One-sample T test is appropriate

4. Significance Tests Against Critical Value

One-sample T Test

sample mean = 1.15 mg/kg

sample unbiased standard deviation = 0.15 mg/kg

t statistic = -10.290

critical value = -1.895

t statistic is less than critical value **null hypothesis can be rejected**

upper confidence limit (UCL 0.95) = 1.25 mg/kg

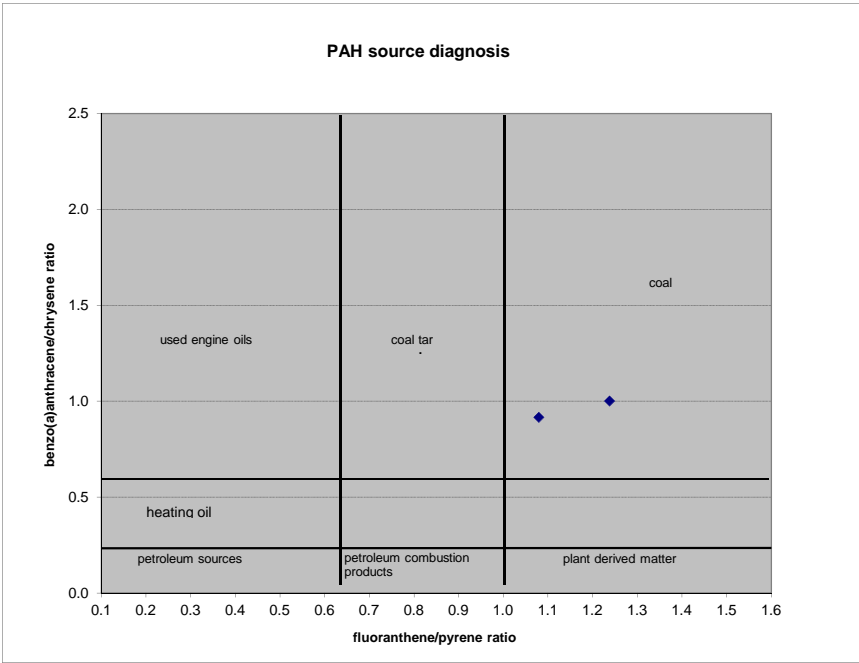
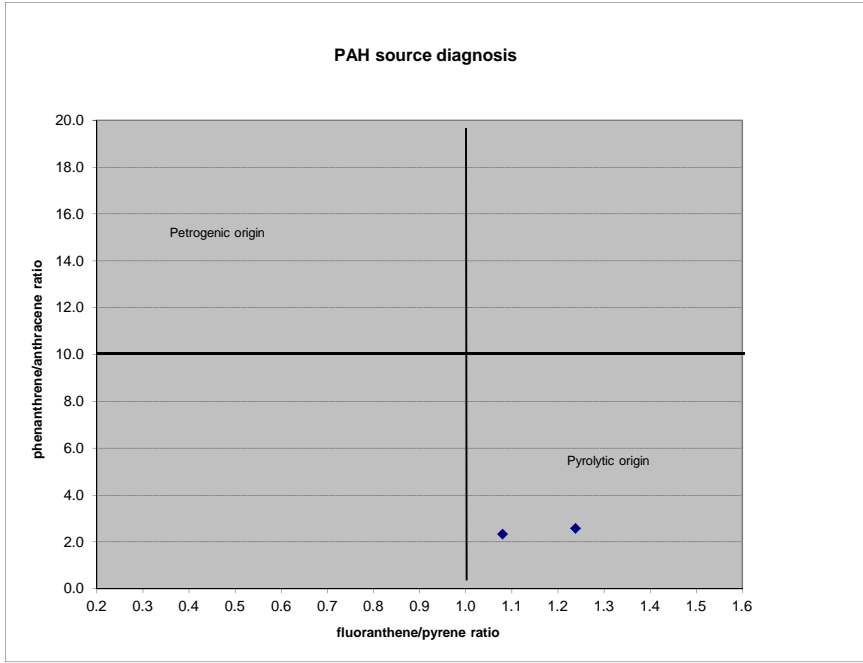
Job name	Upper Heyford (Dorchester)
Job no.	R1742b
Date:	18.07.18
Author:	DW
Laboratory:	Exova Jones
Lab. Reference:	18-7823



PAH concentrations																		
sample identity	Ph9-S4	Ph9-S11																
phenanthrene	2.24	0.79																
anthracene	0.87	0.34																
fluoranthene	6.08	3.11																
pyrene	4.91	2.88																
benz(a)anthracene	2.15	1.42																
chrysene	2.15	1.55																

PAH units	mg/kg
-----------	-------

PAH ratios																		
phe/ant	2.575	2.324																
flu/pyr	1.238	1.080																
baa/chr	1.000	0.916																



APPENDIX E

PAH Ratio Cross-Plot

Job name	Heyford: Dorchester Phase 9
Job no.	R1742
Date:	12.08.21
Author:	DW
Laboratory:	Chemtest
Lab. Reference:	21-11315



PAH concentrations

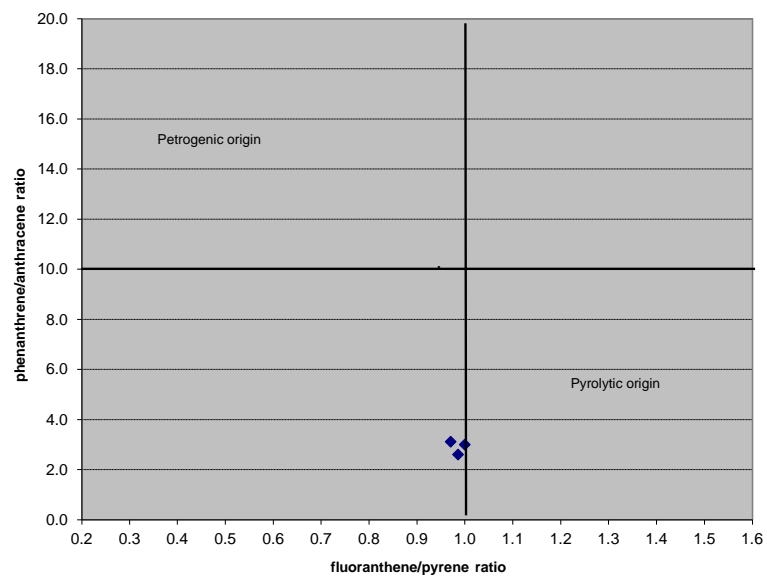
sample identity	PH9-SS26	PH9-SS28	PH9-SS37																
phenanthrene	2.0	1.4	3.6																
anthracene	0.77	0.45	1.2																
fluoranthene	6.9	6.5	11																
pyrene	7.0	6.7	11																
benz(a)anthracene	3.0	3.3	4.3																
chrysene	3.0	3.6	4.0																

PAH units	mg/kg
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PAH ratios

phe/ant	2.597	3.111	3.000																
flu/pyr	0.986	0.970	1.000																
baa/chr	1.000	0.917	1.075																

PAH source diagnosis



PAH source diagnosis

