

Our ref: R1742B-L12  
15<sup>th</sup> June 2021

Brett Carter  
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by e-mail: [brett.carter@urbanregen.co.uk](mailto:brett.carter@urbanregen.co.uk)

Dear Brett

### **Upper Heyford – Dorchester Phase 8a & 8c Validation Completion Report**

SGP has been instructed to produce a validation report for Dorchester Phase 8a & 8c following the removal of hardstanding across the site. It is understood that two former buildings occupied the site, however these were demolished prior to these recent remedial works. A site location plan including the approximate location of validation entries is provide within Drawing D01.

The area was previously occupied by hardstanding (car parking, roads and pavements), two buildings in the north and areas of soft landscaping (verges). Details of the former buildings on the site as provided in the Oxford Archaeology 'Written scheme of investigation for recording of buildings to be demolished' (June 2012) is made below:

**Table 1. Summary of former Buildings within Phase 8a & 8c area**

<b>Building</b>	<b>Date</b>	<b>Use</b>
145	1935	Inflammable Store
146	1926	Lubricant Store

One of the buildings (146) was formerly used as a lubricant store, however investigation entries by Jomas (BH-NSA-027 to BH-NSA-028A) in 2012 which were located north and south of this building did not reported any evidence of significant contamination. Ground conditions were recorded as sandy clay underlain by a clayey gravel with bedrock of limestone at 1.2m bgl, no made ground was encountered.

A cluster of underground fuel tanks (UG-NSA-31-33) were located in north of the site and were removed as part of remediation works undertaken by Urban Regen in August 2014. The findings were reported within the SGP UST Verification Report (ref. R1742-R06-v2) which concluded that following removal there were no fuel impacted soils present.

Preparatory works undertaken by URL on the site were undertaken and completed in April 2021 and consisted of the removal of the underlying hardstanding (concrete slabs and areas of tarmac) and trimming the area to -200mm. During the removal of harstanding a localised area of asbestos containing material (cement sheeting) was observed below the removed harstanding and above the natural formation soils. Handpicking of the ACM was undertaken by a specialist sub-contractor and double-bagged for off-site disposal. Verification testing of soils within this localised hotspot area is discussed further in the section below.

Approximately 571m<sup>3</sup> of hardstanding was recovered from the site, this consisted of 195m<sup>3</sup> concrete and 376m<sup>3</sup> tarmac. All hardstanding was transported to Phase 9 to undergo processing with the Phase 9 materials. Testing of the recovered tarmac (lab ref. 21-11477) was undertaken prior to relocation to



determine the presence of coal tar – no coal tar was reported. Testing of the generated aggregates will form part of the overall validation works within the Phase 9 completion reporting.

#### Asbestos Containing Material Hotspot

Following the removal of hardstanding, a localised area extending approximately 15x 5m was observed with visible fragments of asbestos cement sheeting. Specialist sub-contractor (Elite) carried out hand-picking of all visible fragments, these were double bagged (no 8 bags) and disposed off-site at a suitable waste accepting facility, URL maintain copies of waste disposal tickets which can be provided if required.

Following completion of the hand-picking, SGP attended site (20.04.21) to sample the retained surface soils to assess whether any residual asbestos fibres remained. Six samples (HS-ASB-1 to HS-ASB-6) were collected from surface soils (0-0.1m) of the remediated area on an approximate 5m spacing and submitted to Chemtest Ltd. for an asbestos identification (lab ref. 21-13302). The results are summarised below with sample locations provided in Drawing D01.

Sample ref.	Depth	Asbestos ID	Asbestos Quantification (%)
HS-ASB-1	0-0.1	NAD	
HS-ASB-2	0-0.1	NAD	
HS-ASB-3	0-0.1	NAD	
HS-ASB-4	0-0.1	NAD	
HS-ASB-5	0-0.1	NAD	
HS-ASB-6	0-0.1	Chrysotile & Crocidolite (Fibre / Clumps)	0.003

NAD = No Asbestos Detected

A positive identification of asbestos fibres (fibres / clumps of chrysotile and crocidolite) was reported within a single sample (HS-ASB-6). Following a positive identification, quantification was scheduled to determine the mass present which was confirmed as 0.003%.

This single incidence exceeds the 0.001% threshold within the Remediation Strategy for site fills which requires that any such material will be excluded for use in soil cover. A proposed development layout has been provided (ref. 0521-PH8C-102) which shows that the site is to be re-developed to an apartment block and areas of soft-landscaping with no private garden areas. The ACM-hotspot area is located partly below the building footprint but also extends to a courtyard area where a managed landscaped area is proposed.

#### In-Situ Formation Soil Validation

It is a requirement under the Remediation Strategy that a 600mm cover of clean soils over made ground is placed in garden areas, however due to the contractual requirement to trim development areas by -200mm below previous ground levels, made ground was absent due to the shallowness of natural strata following the preparatory works. This meant that a 400mm depth of subsoil will be left in-situ which could form part of the full 600mm of garden soil cover after replacement of garden topsoil providing that it is uncontaminated and suitable for such use.

SGP attended site on 20.04.21 during the final preparatory earthworks to carry out in-situ sampling of the formation level strata through the sampling of the top 400mm at a test frequency of 1 sample per 500m<sup>3</sup>, the residual depth 400mm depth equating to 1 sample per 1,250m<sup>2</sup> plan area of development.

Nine in-situ samples were collected from the exposed formation level soils where accessible with depth validation photos showing the extent of the 0-400mm depth range appended to this report and sampling locations reproduced in Drawing D01. Assuming an approximate area of 4,900m<sup>2</sup>, the



volume of validated soils is effectively 1,960m<sup>3</sup>, exceeding the specified sampling rate of 1 sample per 500m<sup>3</sup> (1 per 215m<sup>3</sup> achieved).

Sampled soils comprised a dark to light brown clayey sandy soil with gravel of limestone cobbles, typical of the natural soils encountered across the wider Heyford development. No inclusions of anthropogenic material such as ash or clinker were observed.

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 Chemtest Ltd.) within 48 hours of collection. SGP retains chain of custody documentation.

Chemical laboratory certificate (21-13348) is attached. Results are summarised in the table below and are compared to assessment criteria for garden cover soils in accordance with Table B1 of the Waterman's Strategy.

**Table 2. Analysis Summary for Formation Level Soils**

Contaminant	Samples	Range of Concentrations (mg/kg unless stated)	Residential Use	
			Screening criteria (mg/kg unless stated)	Exceedances
SOM	9	<0.4-0.76	-	None
pH	9	8.3-8.7	WRAS <5>8	<b>All</b>
asbestos fibre*	9	NAD	<0.001%	None
arsenic	9	16-33	32	<b>(1) Ph8-S1</b>
cadmium	9	<0.1-0.24	10	None
chromium	9	5.3-32	3000	None
chromium IV	9	<0.5	4.3	None
copper	9	2.5-12	300	None
lead	9	3.1-40	450	None
mercury	9	<0.1-0.11	1	None
nickel	9	6.2-25	130	None
vanadium	9	17-69	75	None
zinc	9	8.3-84	300	None
naphthalene	9	<0.1	1.5	None
acenaphthylene	9	<0.1	210	None
acenaphthene	9	<0.1	170	None
fluorene	9	<0.1	160	None
phenanthrene	9	<0.1	92	None
anthracene	9	<0.1	2300	None
fluoranthene	9	<0.1-1.1	260	None
pyrene	9	<0.1-0.94	560	None
benzo(a)anthracene	9	<0.1	3.1	None
chrysene	9	<0.1	6	None
benzo(bk)fluoranthene	9	<0.2	-	-
benzo(a)pyrene	9	<0.1	0.83	None
indeno(123cd)pyrene	9	<0.1	3.2	None
dibenzo(ah)anthracene	9	<0.1	0.76	None



Contaminant	Samples	Range of Concentrations (mg/kg unless stated)	Residential Use	
			Screening criteria (mg/kg unless stated)	Exceedances
benzo(ghi)perylene	9	<0.1	44	None
aliphatic C5-C6	9	<1	30	None
aliphatic C6-C8	9	<1	73	None
aliphatic C8-C10	9	<1	19	None
aliphatic C10-C12	9	<1	93	None
aliphatic C12-C16	9	<1	740	None
aliphatic C16-C21	9	<1	1000	None
aliphatic C21-C35	9	<1	1000	None
aromatic C5-C7	9	<1	30	None
aromatic C7-C8	9	<1	120	None
aromatic C8-C10	9	<1	27	None
aromatic C10-C12	9	<1	69	None
aromatic C12-C16	9	<1	140	None
aromatic C16-C21	9	<1	250	None
aromatic C21-C35	9	<1	890	None
benzene	9	<0.001	0.08	None
toluene	9	<0.001	120	None
ethylbenzene	9	<0.001	65	None
o-xylene	9	<0.001	45	None
m-xylene	9	<0.001	44	None
p-xylene	9	<0.001	42	None

Elevated pH in excess of the former WRAS trigger pH value of >8 was reported within all nine samples with concentrations ranging between 8.3 and 8.70. Alkaline soil pH is likely to be attributed to the ubiquitous presence of carbonate limestone identified across the New Settlement Area (NSA) and is consistent with concentrations reported across the wider development area.

Exceedances of other determinants was limited to a single minor exceedance of arsenic in sample Ph8-S1 with a concentration of 33 mg/kg compared to the criteria of 32 mg/kg. This minor exceedance is typical to that recorded within the natural ground across the wider Heyford development, attributed to the underlying ironstone domain.

The reported exceedance is marginally above the site screening criteria as detailed within the approved Strategy which is based on the former LQM/CIEH Generic Assessment Criteria (GACs) 2<sup>nd</sup> edition human health criteria for a residential land use with plant uptake. This criterion has been revised since production of the Strategy, with the publication of the LQM/CIEH Suitable for Use Levels (S4ULs)<sup>1</sup> which takes into account updated toxicological information.

The S4UL criteria for arsenic increases to 37 mg/kg based on residential garden soils with plant uptake resulting in no exceedance, it is therefore considered that there is no risk to human health from arsenic in the site soils.

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Concentrations of both PAHs and hydrocarbons were mostly below analytical detection limits, and it is recognised that sample Ph8-S2 was collected within the area of former building 146 (lubricant store). The absence of any elevated concentrations and no visual or olfactory contamination indicators suggest no contamination associated with this former storage area.

#### Conclusions

SGP conclude that site preparatory works have been completed within the Dorchester Phase 8a & 8c area.

No significant contamination or potential contaminative sources have been identified through historical and current uses within this part of the site with exception of former underground fuel tanks (UG-NSA-31-33) which were present in the north of the site. These were subject to remediation in 2014 with validation samples collected from the sidewalls following tank removal with hydrocarbon concentrations generally below analytical detection limits with no exceedances of the assessment criteria reported.

A former lubricant store (Building 146) was located on the site but was demolished prior to these recent preparatory works. A formation sample (Ph8-S2) was collected from within the footprint of this former building with no exceedances of determinants reported. Similarly, no visual or olfactory indicators of contamination were observed.

An asbestos hotspot was identified by URL following the removal of hardstanding with asbestos cement sheeting fragments present on the surface of formation soils. These were hand-picked by a specialist sub-contractor and disposed at a suitable waste accepting facility. Six validation samples were collected of formation soils within this area with one sample reporting the presence of low-level (0.003%) asbestos fibres.

In-situ validation of formation soils has been completed at the specified sampling frequency with exceedances of pH and minor exceedance of arsenic, however when current assessment criteria (S4ULs) are utilised then no exceedances of arsenic are reported.

SGP considers that the risk associated to future site occupants to concentrations within formation soils to be negligible with exception of the remediated asbestos hotspot which will require an appropriate cover system to be placed within landscape areas at this location. Whilst the risk from the minor arsenic exceedance is considered negligible based on the further assessment provided within this report, it does represent a departure from the approved Strategy which should be agreed with Cherwell District Council (CDC).

#### Recommendations

To secure completion of remediation within Phase 8a & 8c in accordance with the Remediation Strategy the developer is required to place 300mm of clean, validated soil within the landscape courtyard area of Plots 410-433 due to the low-level asbestos fibres reported within formation soils within this area. Independent depth validation of the soil cover system within this area will also be required to confirm the appropriate thickness of soil cover has been placed.

With the adoption of the above normal practice for Brownfield development, and on the information available to it, SGP concludes that the preparatory remedial works have been completed in accordance with the agreed strategy. In the event that any previously undisclosed contamination or suspect materials are identified then this should be assessed by an appropriately qualified and experienced person

Brett Carter  
Urban Regen



Yours sincerely  
for: Smith Grant LLP



D Wayland BSc MSc AssocCIWM MCIWEM C.WEM

Brett Carter  
Urban Regen

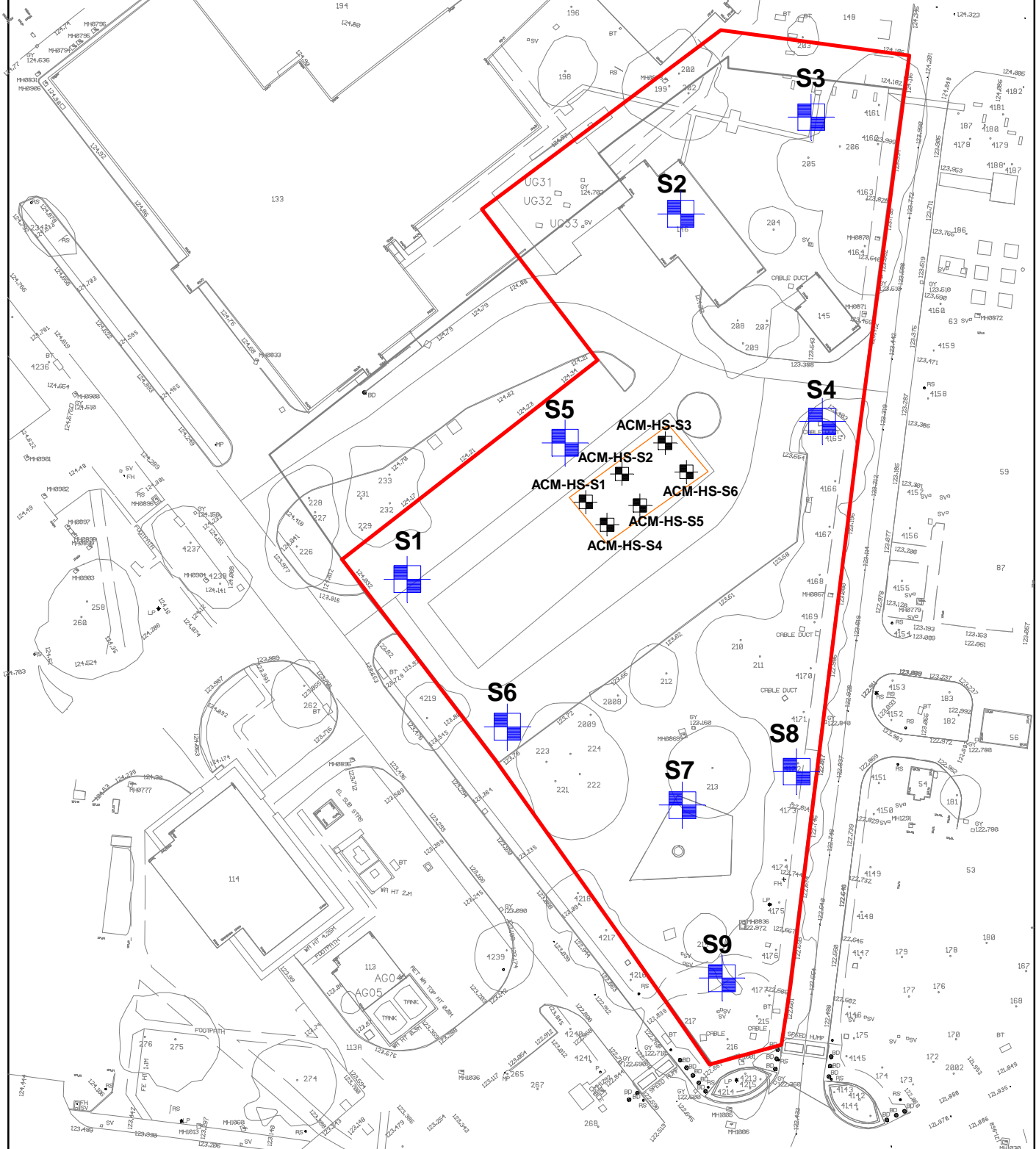


## Drawings

Approx Extent of ACM Hotspot

Asbestos Hotspot Sample

Formation Sample



Smith Grant LLP  
 Station House  
 Station Road  
 Ruabon, LL14 6DL  
 Tel: 01978 822367  
 Fax: 01978 824718

www.smithgrant.co.uk  
 email: consult@smithgrant.co.uk

Project:  
 Heyford Park: Phase 8a & 8c

Drawing:  
 In-situ Formation & Asbestos  
 Hotspot Sampling Locations

Drawn: DW

Date: 04.05.21

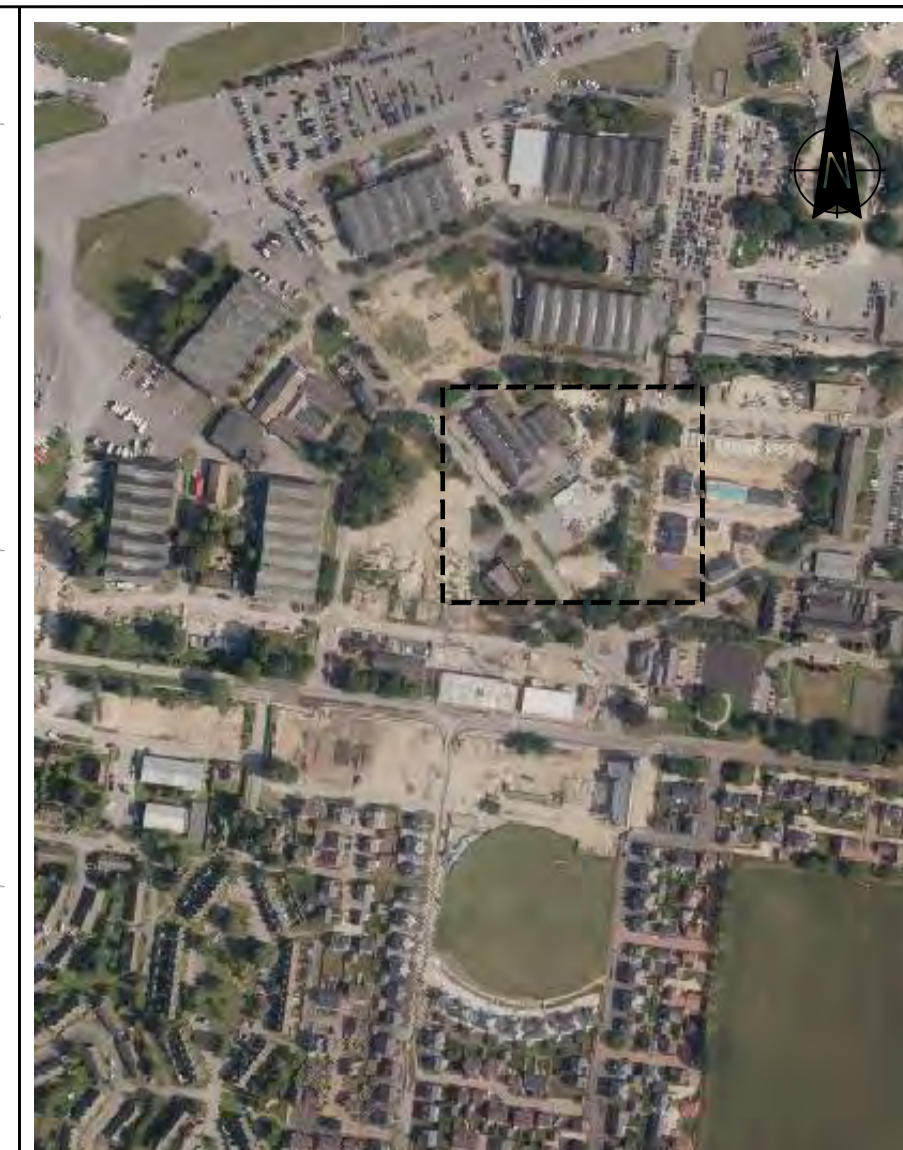
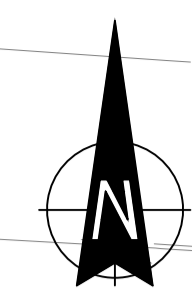
Job No: R1742b

Checked: BJT

Scale: 1:750

Drg No: D01





Sheet Plan Scale 1:5000

**Notes:**

Site boundary	
Major contour	
Minor contour	
Spot level	× 120.12
Bottom / top of bank	
Building footprints (see note 2)	
In ground excavations (see note 3)	
Tank excavation (see note 4)	
Contamination excavation (see notes 6, 7, and 8)	

- Notes**
- This plan is to be read in conjunction with the associated SGP validation report.
  - Made ground associated with the removal of the historic building foundations extends to approximately 0.5-1.5m below remediated ground levels.
  - Made ground associated with the removal of building service trenches, deep foundations and EWS's extends to approximately 1.5-2.5m below remediated ground levels.
  - Made ground associated with the removal of in-ground tanks extends to approximately 4m below remediated ground levels.
  - Localised areas of made ground associated with the remediation works may be present but which are not detailed on this plan.
  - The extent of the contamination excavation is approximate only.
  - In-ground contamination excavations extend to 2-3m below remediated ground levels.
  - Fill materials used to make up any bulk deficit due to contamination excavation was provided by the Client

**Survey Information:**

Co-ord System:	Co-ord Type:	Primary Survey Control:	Secondary Survey Control:
OSGB36(15)	Grid	Leica SmartNet	Site

Rev	Date	Amendment	Drawn	Checked



Client:  
**Dorchester Homes**

Project:  
**Upper Heyford (Phases 8a and 8c)**

Title:  
**As built topographic survey and constraints**

Scale:	First Issue:	Drawn:	Checked:
1:250 @A1	3rd Jun 2021	D.J.Woodrow	B.Carter

Drawing No:  
**351-20-002**

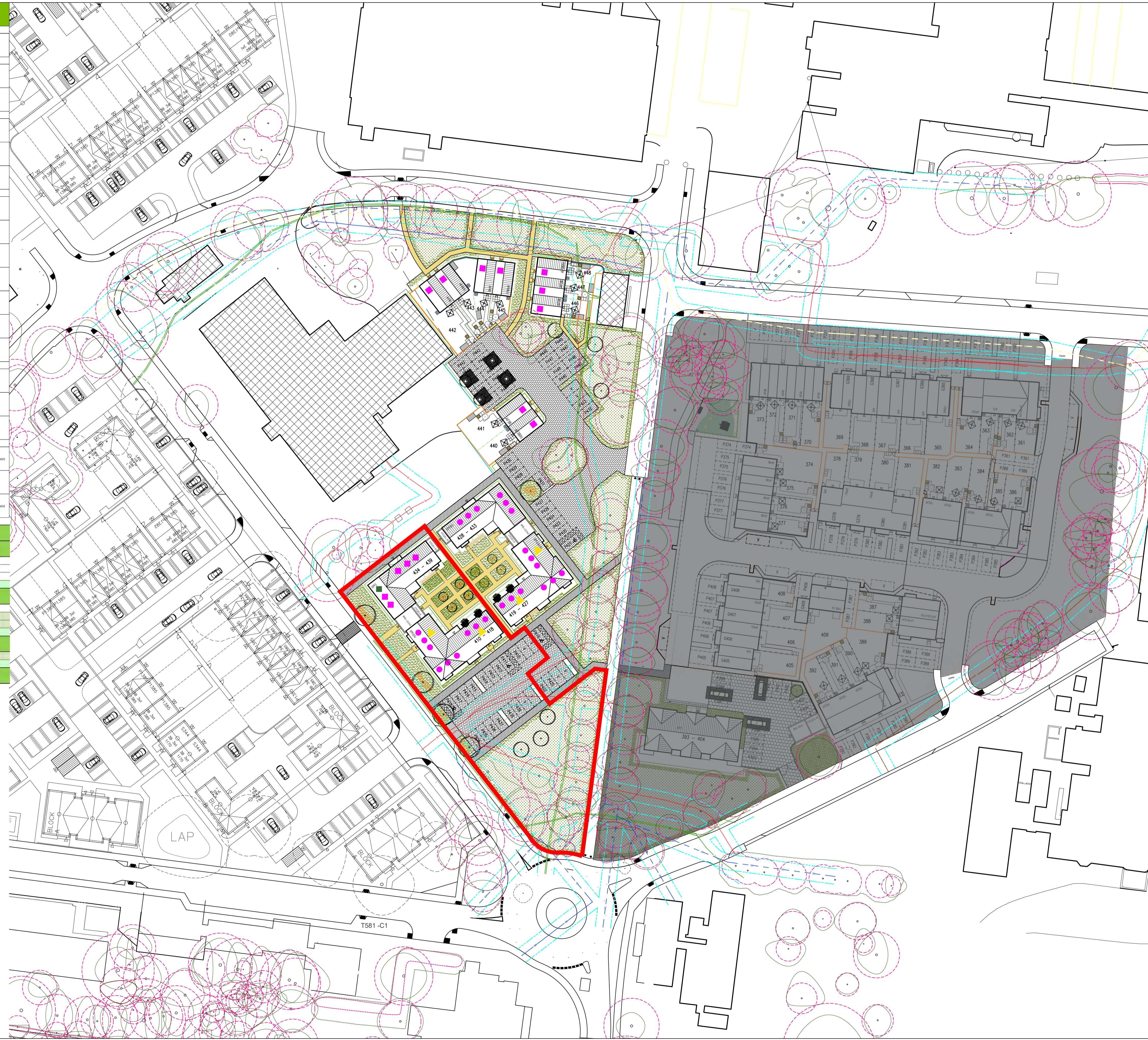


**LEGEND**

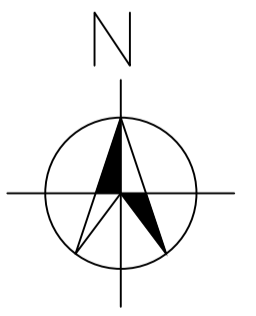
SITE BOUNDARIES			
	APPLICATION BOUNDARY		
EXTERNAL BOUNDARY TREATMENTS			
	1800mm HIGH CLOSE BOARD FENCE REFER TO MATERIALS LAYOUT (S&T PH&AC 108 FOR MATERIALS)		1800mm HIGH PLOT DIVISION PANEL FENCE REFER TO MATERIALS LAYOUT (S&T PH&AC 108 FOR MATERIALS)
	1800mm HIGH TIMBER MATCHBOARD ACCESS GATE REFER TO MATERIALS LAYOUT (S&T PH&AC 108 FOR MATERIALS)		1800mm HIGH SCREEN WALL REFER TO MATERIALS LAYOUT (S&T PH&AC 108 FOR MATERIALS)
NUMBERING			
12	PLOT NUMBERS	G12	GARAGE NUMBERS
P12	PARKING NUMBERS	V	VISITOR PARKING
(N)	PLOT HANDING	C	CASUAL PARKING
MISCELLANEOUS			
	SERVICES EASEMENT		PERSONNEL ACCESS
	AFFORDABLE HOUSING - INTERMEDIATE		BIN HARDSTANDING WITH 1.5m TURNING CIRCLE
	AFFORDABLE HOUSING - RENTED		ROTARY DRYER
	GROWTH DEAL AFFORDABLE UNIT		WATER BUTT
	WHEELCHAIR UNIT		COMPOST BIN
	LOCATION OF WHEELCHAIR UNIT'S PARKING SPACE	BM	BIN MUSTER AREA
	EXISTING BUILDING		CYCLE SHED LOCATION
GROUND SURFACING			
	MARSHALLS KEYBLOK BLOCK PAVING COLOUR: BRINDLE		RAMP / RUMBLE STRIP TO ENGINEERS DESIGN
	MARSHALLS PERORA CONCRETE BLOCK PERMEABLE PAVING COLOUR: BRINDLE		PAVING SLABS
	TARMAC		450mm x 450mm MARSHALLS SAXON BUFF PATIO SLABS
LANDSCAPING			
	PROPOSED NEW TREE REFER TO SEPARATE LANDSCAPING DRAWINGS FOR EXACT DETAILS		PROPOSED HEDGEROW REFER TO SEPARATE LANDSCAPING DRAWINGS FOR EXACT DETAILS
	PROPOSED PLANTING BEDS REFER TO SEPARATE LANDSCAPING DRAWINGS FOR EXACT DETAILS		PROPOSED GRASS: MOWN REFER TO SEPARATE LANDSCAPING DRAWINGS FOR EXACT DETAILS
	PROPOSED BULBOUS PLANTING REFER TO SEPARATE LANDSCAPING DRAWINGS FOR EXACT DETAILS		PROPOSED GRASS: WILDFLOWER REFER TO SEPARATE LANDSCAPING DRAWINGS FOR EXACT DETAILS

**ACCOMMODATION SCHEDULE**

AFFORDABLE HOUSING UNITS - RENTED				
Name	Stories	Bedrooms	sqft	
SFF2(A)-1BF(c)-DG	3 Storey	1 Bed maisonette	595ft <sup>2</sup>	2
SFF2(A)-1BF(c)	3 Storey	1 Bed flat	595ft <sup>2</sup>	5
SFF2(A)-1BF(d)	3 Storey	1 Bed flat	602ft <sup>2</sup>	2
<b>TOTAL</b>				<b>9</b>
AFFORDABLE HOUSING UNITS - INTERMEDIATE				
Name	Stories	Bedrooms	sqft	
SFF3-1BF(c)	3 Storey	1 Bed flat	524ft <sup>2</sup>	3
SFF-2BM	3 Storey	2 Bed maisonette	736ft <sup>2</sup>	1
SFF3-2BF(a)	3 Storey	2 Bed flat	736ft <sup>2</sup>	1
<b>TOTAL</b>				<b>5</b>
AFFORDABLE HOUSING UNITS - GROWTH DEAL				
Name	Stories	Bedrooms	sqft	
SFF3-2BF(a)	3 Storey	2 Bed flat	736ft <sup>2</sup>	1
<b>TOTAL</b>				<b>1</b>
<b>GRAND TOTAL</b>				<b>15</b>



- REVISIONS:**
- A. 2019-06-28. SFF2A-1BF(c)-DG units amended to be AD.M4(3) compliant. Other units adjusted to suit. Growth Deal affordable unit added. DJE
  - B. 2020-09-01. Footprints updated to suit received substructure plans and cycle sheds added to 8A, MED
  - C. 2020-10-30. Apartments updated to latest working drawings. DJE



**PLANNING LAYOUT**

SCALE: 1:500 @ A1

DATE: DECEMBER 2018  
DRAWN: DGK

DRAWING TITLE: PLANNING LAYOUT  
DRAWING NO: 0521-PH8C-102



Brett Carter  
Urban Regen



## Photographic Record

**Formation Validation**

1.



Ph9-S1

2.



Ph9-S1

3.



Ph9-S2

4.



Ph9-S2

5.



Ph9-S3

6.



Ph9-S3

7.



Ph9-S4

8.



Ph9-S4

9.



Ph9-S5

10.



Ph9-S5

11.



Ph9-S6

12.



Ph9-S6

13.



Ph9-S7

14.



Ph9-S7

15.



Ph9-S8

16.



Ph9-S8

17.



Ph9-S9

18.



Ph9-S9

**ACM-Hotspot**

19.



20.04.21 – View across remediated hotspot area during validation sampling

20.



20.04.21 – Inspection of surface soils within ACM hotspot area. No visible ACM observed.

21.



20.04.21 – Inspection of surface soils within ACM hotspot area. No visible ACM observed.

22.



20.04.21 – Inspection of surface soils within ACM hotspot area. No visible ACM observed.

**Walkover (20.04.21)**

23.



20.04.21 – Western view across the site with exposed natural soils present following hardstanding removal.

24.



20.04.21 – Northern view along the site's eastern boundary.

25.



20.04.21 – Northern view along the site's western boundary.

26.



20.04.21 – Excavation of validation pits to verify formation soils in the north of the site.



Brett Carter  
Urban Regen



## Laboratory Certificates

# Final Report

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**Report No.:** 21-11477-1

**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 - Ph8

<b>Quotation No.:</b>		<b>Date Received:</b>	09-Apr-2021
<b>Order No.:</b>		<b>Date Instructed:</b>	12-Apr-2021
<b>No. of Samples:</b>	1		
<b>Turnaround (Wkdays):</b>	5	<b>Results Due:</b>	16-Apr-2021
<b>Date Approved:</b>	16-Apr-2021		

**Approved By:**

**Details:** Rachel Robertson, Deputy Technical Manager

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## Results - Miscellaneous Solid

**Project: R1742b Heyford - Ph8**

<b>Client: Smith Grant LLP</b>	<b>Chemtest Job No.:</b>		21-11477		
Quotation No.:	<b>Chemtest Sample ID.:</b>		1176834		
	Sample Location:		Ph8 - Tarmac		
	Sample Type:		MISCSOLID		
	Date Sampled:		06-Feb-2021		
<b>Determinand</b>	<b>Accred.</b>	<b>SOP</b>	<b>Units</b>	<b>LOD</b>	
Chromatogram (TPH)	N			N/A	See Attached
Diesel Present	N	2670		N/A	False
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	360
Total Petroleum Hydrocarbons	N	2680	mg/kg	10	360
Naphthalene	N	2700	mg/kg	0.10	< 0.10
Acenaphthylene	N	2700	mg/kg	0.10	< 0.10
Acenaphthene	N	2700	mg/kg	0.10	< 0.10
Fluorene	N	2700	mg/kg	0.10	< 0.10
Phenanthrene	N	2700	mg/kg	0.10	1.5
Anthracene	N	2700	mg/kg	0.10	0.37
Fluoranthene	N	2700	mg/kg	0.10	4.6
Pyrene	N	2700	mg/kg	0.10	4.3
Benzo[a]anthracene	N	2700	mg/kg	0.10	2.4
Chrysene	N	2700	mg/kg	0.10	2.5
Benzo[b]fluoranthene	N	2700	mg/kg	0.10	5.1
Benzo[k]fluoranthene	N	2700	mg/kg	0.10	1.4
Benzo[a]pyrene	N	2700	mg/kg	0.10	2.9
Indeno(1,2,3-c,d)Pyrene	N	2700	mg/kg	0.10	3.1
Dibenz(a,h)Anthracene	N	2700	mg/kg	0.10	0.29

## Results - Miscellaneous Solid

**Project: R1742b Heyford - Ph8**

<b>Client: Smith Grant LLP</b>	<b>Chemtest Job No.:</b>				21-11477
Quotation No.:	<b>Chemtest Sample ID.:</b>				1176834
	Sample Location:				Ph8 - Tarmac
	Sample Type:				MISCSOLID
	Date Sampled:				06-Feb-2021
<b>Determinand</b>	<b>Accred.</b>	<b>SOP</b>	<b>Units</b>	<b>LOD</b>	
Benzo[g,h,i]perylene	N	2700	mg/kg	0.10	4.9
Coronene	N	2700	mg/kg	0.10	< 0.10
Total Of 17 PAH's	N	2700	mg/kg	2.0	33
N-Nitrosodimethylamine	N	2790	mg/kg	0.50	< 0.50
Phenol	N	2790	mg/kg	0.50	< 0.50
2-Chlorophenol	N	2790	mg/kg	0.50	< 0.50
1,3-Dichlorobenzene	N	2790	mg/kg	0.50	< 0.50
1,4-Dichlorobenzene	N	2790	mg/kg	0.50	< 0.50
1,2-Dichlorobenzene	N	2790	mg/kg	0.50	< 0.50
2-Methylphenol	N	2790	mg/kg	0.50	< 0.50
Bis(2-Chloroisopropyl)Ether	N	2790	mg/kg	0.50	< 0.50
Hexachloroethane	N	2790	mg/kg	0.50	< 0.50
N-Nitrosodi-n-propylamine	N	2790	mg/kg	0.50	< 0.50
4-Methylphenol	N	2790	mg/kg	0.50	< 0.50
Nitrobenzene	N	2790	mg/kg	0.50	< 0.50
Isophorone	N	2790	mg/kg	0.50	< 0.50
2-Nitrophenol	N	2790	mg/kg	0.50	< 0.50
2,4-Dimethylphenol	N	2790	mg/kg	0.50	< 0.50
Bis(2-Chloroethoxy)Methane	N	2790	mg/kg	0.50	< 0.50
2,4-Dichlorophenol	N	2790	mg/kg	0.50	< 0.50

## Results - Miscellaneous Solid

**Project: R1742b Heyford - Ph8**

<b>Client: Smith Grant LLP</b>	<b>Chemtest Job No.:</b>		21-11477		
Quotation No.:	<b>Chemtest Sample ID.:</b>		1176834		
	Sample Location:		Ph8 - Tarmac		
	Sample Type:		MISCSOLID		
	Date Sampled:		06-Feb-2021		
<b>Determinand</b>	<b>Accred.</b>	<b>SOP</b>	<b>Units</b>	<b>LOD</b>	
1,2,4-Trichlorobenzene	N	2790	mg/kg	0.50	< 0.50
Naphthalene	N	2790	mg/kg	0.50	< 0.50
4-Chloroaniline	N	2790	mg/kg	0.50	< 0.50
Hexachlorobutadiene	N	2790	mg/kg	0.50	< 0.50
4-Chloro-3-Methylphenol	N	2790	mg/kg	0.50	< 0.50
2-Methylnaphthalene	N	2790	mg/kg	0.50	< 0.50
4-Nitrophenol	N	2790	mg/kg	0.50	< 0.50
Hexachlorocyclopentadiene	N	2790	mg/kg	0.50	< 0.50
2,4,6-Trichlorophenol	N	2790	mg/kg	0.50	< 0.50
2,4,5-Trichlorophenol	N	2790	mg/kg	0.50	< 0.50
2-Chloronaphthalene	N	2790	mg/kg	0.50	< 0.50
2-Nitroaniline	N	2790	mg/kg	0.50	< 0.50
Acenaphthylene	N	2790	mg/kg	0.50	< 0.50
Dimethylphthalate	N	2790	mg/kg	0.50	< 0.50
2,6-Dinitrotoluene	N	2790	mg/kg	0.50	< 0.50
Acenaphthene	N	2790	mg/kg	0.50	< 0.50
3-Nitroaniline	N	2790	mg/kg	0.50	< 0.50
Dibenzofuran	N	2790	mg/kg	0.50	< 0.50
4-Chlorophenylphenylether	N	2790	mg/kg	0.50	< 0.50
2,4-Dinitrotoluene	N	2790	mg/kg	0.50	< 0.50

## Results - Miscellaneous Solid

**Project: R1742b Heyford - Ph8**

<b>Client: Smith Grant LLP</b>	<b>Chemtest Job No.:</b>		21-11477		
Quotation No.:	<b>Chemtest Sample ID.:</b>		1176834		
	Sample Location:		Ph8 - Tarmac		
	Sample Type:		MISCSOLID		
	Date Sampled:		06-Feb-2021		
<b>Determinand</b>	<b>Accred.</b>	<b>SOP</b>	<b>Units</b>	<b>LOD</b>	
Fluorene	N	2790	mg/kg	0.50	< 0.50
Diethyl Phthalate	N	2790	mg/kg	0.50	< 0.50
4-Nitroaniline	N	2790	mg/kg	0.50	< 0.50
2-Methyl-4,6-Dinitrophenol	N	2790	mg/kg	0.50	< 0.50
Azobenzene	N	2790	mg/kg	0.50	< 0.50
4-Bromophenylphenyl Ether	N	2790	mg/kg	0.50	< 0.50
Hexachlorobenzene	N	2790	mg/kg	0.50	< 0.50
Pentachlorophenol	N	2790	mg/kg	0.50	< 0.50
Phenanthrene	N	2790	mg/kg	0.50	< 0.50
Anthracene	N	2790	mg/kg	0.50	< 0.50
Carbazole	N	2790	mg/kg	0.50	< 0.50
Di-N-Butyl Phthalate	N	2790	mg/kg	0.50	< 0.50
Fluoranthene	N	2790	mg/kg	0.50	< 0.50
Pyrene	N	2790	mg/kg	0.50	< 0.50
Butylbenzyl Phthalate	N	2790	mg/kg	0.50	< 0.50
Benzo[a]anthracene	N	2790	mg/kg	0.50	< 0.50
Chrysene	N	2790	mg/kg	0.50	< 0.50
Bis(2-Ethylhexyl)Phthalate	N	2790	mg/kg	0.50	< 0.50
Di-N-Octyl Phthalate	N	2790	mg/kg	0.50	< 0.50
Benzo[b]fluoranthene	N	2790	mg/kg	0.50	< 0.50

## Results - Miscellaneous Solid

**Project: R1742b Heyford - Ph8**

<b>Client: Smith Grant LLP</b>	<b>Chemtest Job No.:</b> 21-11477				
Quotation No.:	<b>Chemtest Sample ID.:</b> 1176834				
	Sample Location: Ph8 - Tarmac				
	Sample Type: MISCSOLID				
	Date Sampled: 06-Feb-2021				
<b>Determinand</b>	<b>Accred.</b>	<b>SOP</b>	<b>Units</b>	<b>LOD</b>	
Benzo[k]fluoranthene	N	2790	mg/kg	0.50	< 0.50
Benzo[a]pyrene	N	2790	mg/kg	0.50	< 0.50
Indeno(1,2,3-c,d)Pyrene	N	2790	mg/kg	0.50	< 0.50
Dibenz(a,h)Anthracene	N	2790	mg/kg	0.50	< 0.50
Benzo[g,h,i]perylene	N	2790	mg/kg	0.50	< 0.50
Moisture	N		%	0.10	< 0.10
Interpretive Report	N			N/A	See below
SVOC TIC	N	2790	mg/kg	N/A	None Detected

Sample 1176834 does not contain coal tar contamination. Dibenzothiophene, a biomarker present in coal tar, has not been detected by SVOC analysis. This, in conjunction with the low PAH contamination detected, confirms the absence of coal tar in this sample.

# TPH Chromatogram on Misc Sample: 1176834

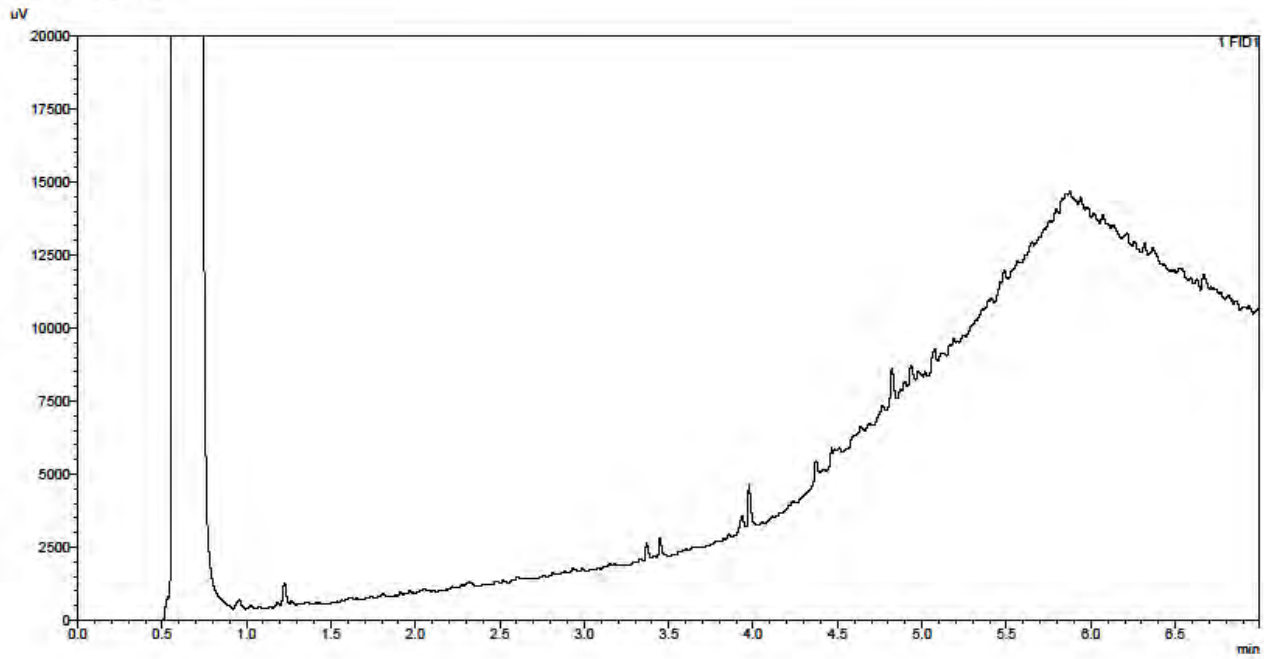
## <Sample Information>

Sample Name : 1176834 21-11477  
Data Filename : 13 April 2021\_13042021\_1176834 21-11477\_046.gcd  
Method Filename : TPH 12m Fast OSv2.gem  
Sample # : 23  
Date Acquired : 13/04/2021 18:56:55  
Date Processed : 13/04/2021



Chemtest

## <Chromatogram>





### TPH Interpretation

Job	Sample	Matrix	Location	Sample Ref	Sample ID	Sample Depth (m)	Gasoline / Diesel Present	TPH Interpretation
21-11477	1176834	M	Ph8 - Tarmac				No	PAH and Heavy Oil

## 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
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; 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)
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**

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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**

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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**

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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](mailto:customerservices@chemtest.com)



# Amended Report

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**Report No.:** 21-13302-2

**Initial Date of Issue:** 28-Apr-2021      **Date of Re-Issue:** 29-Apr-2021

**Client:** Smith Grant LLP

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

**Contact(s):** Dan Wayland

**Project:** R1742b Hayford - Phase 8

**Quotation No.:**      **Date Received:** 23-Apr-2021

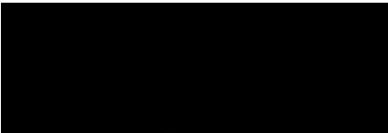
**Order No.:**      **Date Instructed:** 23-Apr-2021

**No. of Samples:** 6

**Turnaround (Wkdays):** 8      **Results Due:** 05-May-2021

**Date Approved:** 29-Apr-2021

**Approved By:**



**Details:** Glynn Harvey, Technical Manager

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## Results - Soil

**Project: R1742b Hayford - Phase 8**

<b>Client: Smith Grant LLP</b>	<b>Chemtest Job No.:</b>		21-13302	21-13302	21-13302	21-13302	21-13302	21-13302	21-13302	
Quotation No.:	<b>Chemtest Sample ID.:</b>		1185888	1185889	1185890	1185891	1185892	1185893	1185893	
	Sample Location:		HS-Asb-1	HS-Asb-2	HS-Asb-3	HS-Asb-4	HS-Asb-5	HS-Asb-6	HS-Asb-6	
	Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	
	Top Depth (m):		0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Bottom Depth (m):		0.10	0.10	0.10	0.10	0.10	0.10	0.10	
	Date Sampled:		20-Apr-2021	20-Apr-2021	20-Apr-2021	20-Apr-2021	20-Apr-2021	20-Apr-2021	20-Apr-2021	
	Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	
<b>Determinand</b>	<b>Accred.</b>	<b>SOP</b>	<b>Units</b>	<b>LOD</b>						
ACM Type	U	2192		N/A	-	-	-	-	-	Fibres/Clumps
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	Chrysotile Crocidolite
ACM Detection Stage	U	2192		N/A	-	-	-	-	-	Stereo Microscopy
Asbestos by Gravimetry	U	2192	%	0.001						0.003
Total Asbestos	U	2192	%	0.001						0.003

## Test Methods

<b>SOP</b>	<b>Title</b>	<b>Parameters included</b>	<b>Method summary</b>
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](mailto:customerservices@chemtest.com)



# Final Report

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**Report No.:** 21-13348-1  
**Initial Date of Issue:** 30-Apr-2021  
**Client:** Smith Grant LLP  
**Client Address:** Station House, Station Road  
Ruabon  
Wrexham  
LL14 6DL

**Contact(s):** Dan Wayland  
**Project:** R1742B Heyford - Phase 8

**Quotation No.:** **Date Received:** 23-Apr-2021

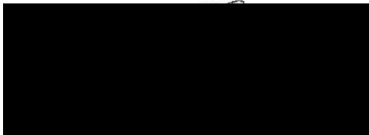
**Order No.:** **Date Instructed:** 23-Apr-2021

**No. of Samples:** 9

**Turnaround (Wkdays):** 5 **Results Due:** 29-Apr-2021

**Date Approved:** 30-Apr-2021

**Approved By:**



**Details:** Glynn Harvey, Technical Manager

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## Results - Soil

**Project: R1742B Heyford - Phase 8**

Client: Smith Grant LLP		Chemtest Job No.:		21-13348	21-13348	21-13348	21-13348	21-13348	21-13348	21-13348	21-13348	21-13348	21-13348
Quotation No.:		Chemtest Sample ID.:		1186086	1186087	1186088	1186089	1186090	1186091	1186092	1186093	1186094	
Sample Location:		PH8 - S1	PH8 - S2	PH8 - S3	PH8 - S4	PH8 - S5	PH8 - S6	PH8 - S7	PH8 - S8	PH8 - 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:		20-Apr-2021	20-Apr-2021	20-Apr-2021	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	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	11	8.5	15	7.4	7.9	9.2	9.3	15	9.8
pH	U	2010		4.0	8.6	8.5	8.3	8.5	8.7	8.6	8.6	8.5	8.6
Arsenic	U	2450	mg/kg	1.0	33	27	23	23	30	20	28	26	16
Cadmium	U	2450	mg/kg	0.10	0.24	< 0.10	0.11	< 0.10	< 0.10	< 0.10	0.21	0.21	< 0.10
Chromium	U	2450	mg/kg	1.0	18	7.1	19	11	15	5.3	11	32	7.8
Copper	U	2450	mg/kg	0.50	12	4.2	6.1	5.3	6.4	2.5	7.0	11	3.4
Mercury	U	2450	mg/kg	0.10	0.11	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Nickel	U	2450	mg/kg	0.50	18	8.4	15	10	15	6.2	8.8	25	7.9
Lead	U	2450	mg/kg	0.50	29	4.2	9.3	4.7	7.0	3.1	40	17	3.7
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	49	24	46	26	38	17	33	69	19
Zinc	U	2450	mg/kg	0.50	38	8.3	22	13	18	8.8	84	52	11
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	< 0.40	< 0.40	0.57	< 0.40	< 0.40	< 0.40	0.76	0.71	< 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: R1742B Heyford - Phase 8**

Client: Smith Grant LLP		Chemtest Job No.:											
Quotation No.:	Chemtest Sample ID.:		21-13348	21-13348	21-13348	21-13348	21-13348	21-13348	21-13348	21-13348	21-13348	21-13348	21-13348
	Sample Location:		PH8 - S1	PH8 - S2	PH8 - S3	PH8 - S4	PH8 - S5	PH8 - S6	PH8 - S7	PH8 - S8	PH8 - 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:		20-Apr-2021	20-Apr-2021	20-Apr-2021	20-Apr-2021	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	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	
Acenaphthene	U	2700	mg/kg	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	
Phenanthrene	U	2700	mg/kg	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	
Fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	1.1	< 0.10	
Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.94	< 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	
Chrysene	U	2700	mg/kg	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	
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	
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	
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	
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	
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	
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	
Benzene	U	2760	µg/kg	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	
Ethylbenzene	U	2760	µg/kg	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	
o-Xylene	U	2760	µg/kg	1.0	< 1.0	< 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-diphenylcarbazine.
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**

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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**

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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**

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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](mailto:customerservices@chemtest.com)