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SITE INVESTIGATION

SUPPLEMENTARY GROUND CONTAMINATION RISK ASSESSMENT REPORT

15-18 FAIRFIELD COTTAGES
COWFOLD
WEST SUSSEX

PROJECT REFERENCE: P17051

REPORT REFERENCE: R16872

Report Beneficiary: Sunninghill Construction Co. Ltd.

Document Control				
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2	Final	22nd September 2025	Additional information in Table 1	
Report Section			**Prepared By**	**Approved By**
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1. INTRODUCTION

It is proposed to demolish the properties 15-18 Fairfield Cottages, Cowfold, West Sussex and to construct 8 no. new residential units at the site with private and communal areas of soft landscaping and associated car parking bays.

The development has been approved by Horsham District Council, under Planning Application No. DC/22/2010 and conditions (Condition 9 and Condition 12) have been imposed with respect to contaminated land.

In respect of Condition 9(a) Ashdown Site Investigation Ltd. has previously prepared a Combined Geotechnical and Ground Contamination Risk Assessment[1] and a Supplementary Ground Contamination Risk Assessment and Remediation Strategy[2] for the site. This report must be read in conjunction with the previous reports prepared for the site.

Following commencement of the development works, Horsham District Council raised concerns about the previous risk assessment and requested that an additional four boreholes be drilled, positioned within the footprint of the proposed gardens of the new houses.

The scope of the works covered by this report, and the terms and conditions under which they were undertaken, were set out within the offer letter Q15666, dated 3rd September 2025. The instruction to proceed was received from the client.

2. SITE LOCATION

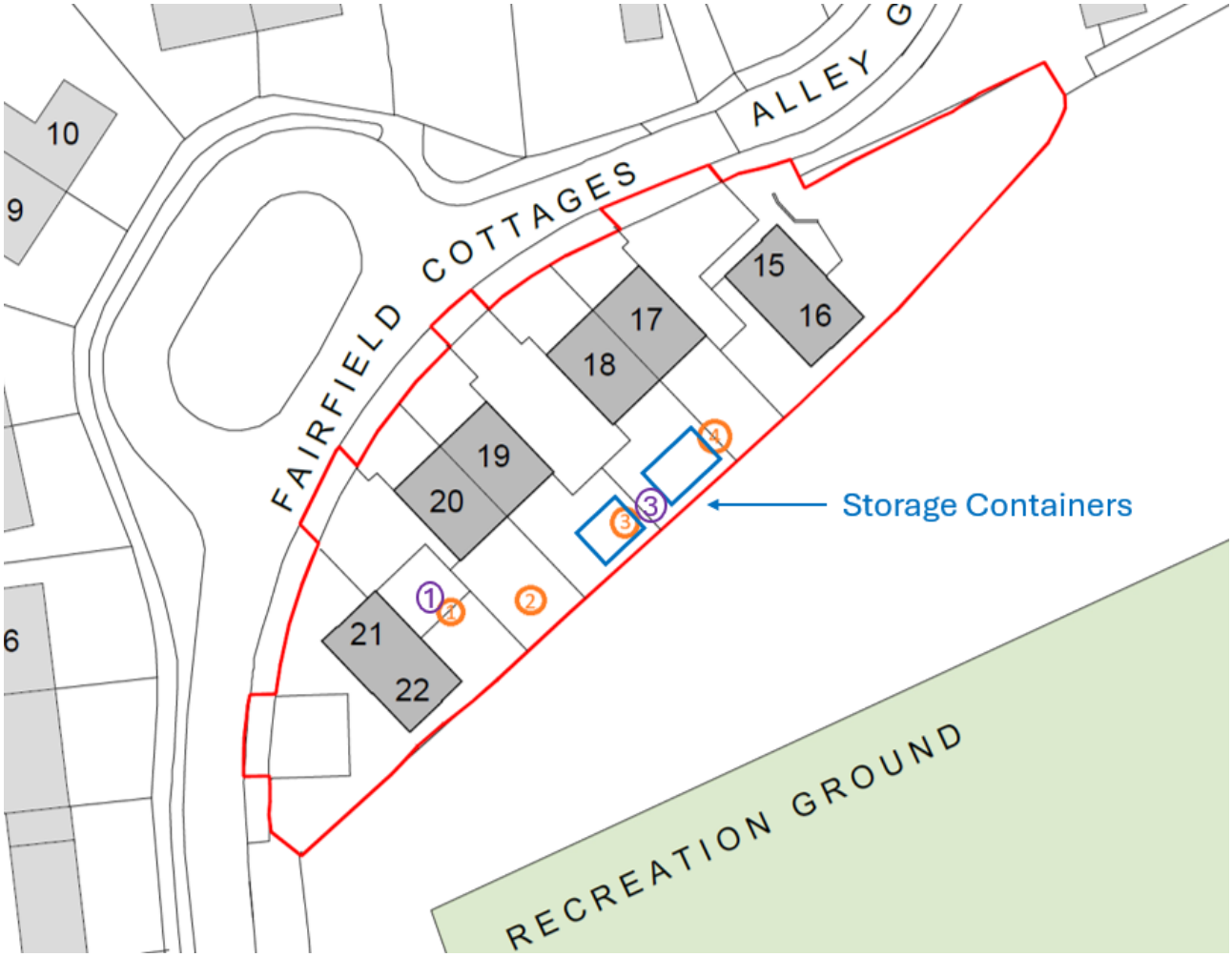
The site is located to the south-east of the road Fairfield Cottages, Cowfold, West Sussex and is centred on the approximate Ordnance Survey national grid reference 521456, 122686.

[1] Project Ref: P15524, Report Ref: R15194, Issue No. 1, dated 12th April 2022
[2] Project Ref: P17051, Report Ref: R16586, Issue No. 1, dated 30th May 2025

3. SITE WORKS

The supplementary intrusive site works comprised the drilling of 4 no. boreholes to depths of either 1m or 2m below ground level. The locations of the boreholes were specified by Kevin Beer of Horsham District Council, with slight changes to the final positions due to the presence of underground services and storage units on the site.

The original locations are indicated in orange on the plan below, with the final locations shown in purple. The following naming convention was employed for the boreholes; Position 1 – Borehole WS201, Position 2 – WS202, Position 3 – WS203A, Position 4 – WS204.



The stratigraphy encountered in each of the boreholes is shown in the following table.

Table 1. Boreholes Stratigraphy

Trial Pit Designation	**Stratigraphy** (depths to base shown are m bgl)	Depth of samples (m bgl)
WS201	Made Ground: Brown gravelly sandy clay. Gravel is concrete, sandstone, brick, crystalline rock and charcoal-like material. (0.50), over Very stiff light brown and orange mottled CLAY (to full depth of borehole 1.00m)	0.15 (made ground) 0.70 (undisturbed)
WS202	Made Ground: Dark brown sandy clayey gravel. Gravel is brick, concrete, charcoal-like materials, sandstone and ceramic tile (0.25), over Made Ground: Dark brown gravelly slightly sandy clay. Gravel is flint, brick, charcoal-like material. (0.50), over Brown CLAY with occasional iron staining (1.00m), over Light brown and grey mottled slightly gravelly CLAY. Gravel is mudstone (to full depth of borehole 2.00m)	0.30 (made ground) 0.80 (undisturbed)
WS203A	Surfacing: Asphalt (0.12) Made Ground: Red brown crushed stone aggregate (0.15m) Made Ground: Brown clay with rare gravel of charcoal-like material. (0.40), over Light brown, light grey and orange mottled CLAY with rare iron staining (to full depth of borehole 1.00m)	0.25 (made ground) 0.50 (undisturbed)
WS204	Made Ground: Dark brown gravelly sandy clay. Gravel is flint, brick, charcoal-like material, wood fragments and sandstone (0.30m), over Light brown, light grey and orange brown mottled CLAY with occasional iron staining (to full depth of borehole 1.00m)	0.10 (made ground) 0.40 (undisturbed)

Samples of the made ground and the undisturbed soils below were taken from each borehole at the depths shown on the laboratory test results, presented in Appendix A.

Where appropriate, samples were stored in cool boxes with cooling blocks to maintain temperatures below 4°C until transferred to refrigerators upon return to the office and subsequently forwarded to the external accredited chemical testing laboratory.

Laboratory testing was scheduled by Ashdown Site Investigation Ltd.

Chemical testing was undertaken by a laboratory with recognised (UKAS and MCERTS) accreditation for quality control.

4. QUANTITATIVE CONTAMINATION ASSESSMENT

4.1 Introduction

The risk assessment for the site considers the sources of contamination identified, the receptors that may be present in view of the development proposals and the contaminant pathways by which these may be linked.

A complete pollutant linkage is only deemed to exist where all three are present and a site is considered suitable for use where no complete pollutant linkages are identified.

Where a complete pollutant linkage is considered to be present, an assessment of the level of risk associated with the pollutant linkage has been carried out in line with published guidance[3].

The level of risk is determined using the risk matrix presented in the following table. Classifications of probability, consequence and risk are presented in Appendix B.

Table 2. Risk Assessment Matrix

		Probability			
		Very Low	**Low**	**Moderate**	**High**
Consequence	**Very Minor**	Negligible	Very Low	Low	Low/Moderate
	Minor	Very Low	Low	Low/Moderate	Moderate
	Moderate	Low	Low/Moderate	Moderate	High
	Severe	Low/Moderate	Moderate	High	Very High

4.2 Analysis of Contamination Test Results

4.2.1 Method of Assessment

As with the previous assessments, comparison of the results of the laboratory testing has been made against published soil screening values (SSV) comprising the 'Suitable For Use Levels' (S4UL)[4] or, in lieu of an S4UL being developed for lead, the Category 4 Screening Level (C4SL)[5].

In view of the development proposal, the SSV utilised in this assessment are those calculated for the generic "Residential with homegrown produce" land use.

4.2.2 Heavy Metals & Polycyclic Aromatic Hydrocarbon (PAH) Compounds

The following table summarises the SSV for heavy metals and PAH compounds, along with the maximum and minimum concentrations recorded.

[3] Contaminated Land Risk Assessment: A guide to good practice, CIRIA C552, 2001.
[4] Nathanail, C.P, et al., The LQM/CIEH S4ULs for Human Health Risk Assessment, 2015, Land Quality Press, Nottingham. Copyright Land Quality Management Limited reproduced with permission; Publication Number S4UL3071.
[5] SP1010: Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination. Final Project Report, published by DEFRA, 2014.

Table 3. Summary of Test Results – Heavy Metals and PAH Compounds

Contaminant	SSV (mg/kg)	No. of Samples	Minimum Concentration (mg/kg)	Maximum concentration (mg/kg)	Limit of Detection (mg/kg)	No of exceedances
Arsenic	37	8	11	21	< 2	0
Water Soluble Boron	290	8	<LOD	1.6	< 1	0
Cadmium	11	8	<LOD	1.4	< 0.2	0
Chromium	910	8	22	36	< 2	0
Hexavalent Chromium	6	8	<LOD	<LOD	< 2	0
Copper	2400	8	23	99	< 4	0
Lead	200	8	15	192	< 3	0
Mercury	40	8	<LOD	<LOD	< 1	0
Nickel	180	8	11	34	< 3	0
Selenium	250	8	<LOD	<LOD	< 3	0
Zinc	3700	8	40	255	< 3	0
Naphthalene	2.3	8	<LOD	<LOD	< 0.1	0
Acenaphthylene	170	8	<LOD	<LOD	< 0.1	0
Acenaphthene	210	8	<LOD	<LOD	< 0.1	0
Fluorene	170	8	<LOD	<LOD	< 0.1	0
Phenanthrene	95	8	<LOD	0.18	< 0.1	0
Anthracene	2400	8	<LOD	<LOD	< 0.1	0
Fluoranthene	280	8	<LOD	0.41	< 0.1	0
Pyrene	620	8	<LOD	0.36	< 0.1	0
Benz(a)anthracene	7.2	8	<LOD	0.22	< 0.1	0
Chrysene	15	8	<LOD	0.25	< 0.1	0
Benzo(b)fluoranthene	2.6	8	<LOD	0.28	< 0.1	0
Benzo(k)fluoranthene	77	8	<LOD	<LOD	< 0.1	0
Benzo(a)pyrene	2.2	8	<LOD	0.25	< 0.1	0
Indeno(123-cd)pyrene	27	8	<LOD	0.15	< 0.1	0
Dibenz(ah)anthracene	0.24	8	<LOD	<LOD	< 0.1	0
Benzo(ghi)perylene	320	8	<LOD	0.18	< 0.1	0

None of the samples of made ground or undisturbed soils tested recorded concentrations of heavy metals or PAH compounds above their respective SSV.

4.2.3 Asbestos

None of the samples of made ground or undisturbed soils recorded the presence of any asbestos.

4.2.4 Petroleum Hydrocarbons and BTEX compounds

The following table lists the SSV for petroleum hydrocarbon equivalent carbon weight fractions and BTEX compounds calculated for 1% organic content.

Table 4. SSV for petroleum hydrocarbon equivalent carbon weight fractions

Petroleum Hydrocarbon Fraction	SSV (mg/kg)	Petroleum Hydrocarbon Fraction	SSV (mg/kg)
Aliphatic EC 5-6	42	**Aromatic EC 5-7**	70
Aliphatic EC >6-8	100	**Aromatic EC >7-8**	130
Aliphatic EC >8-10	27	**Aromatic EC >8-10**	34
Aliphatic EC >10-12	130	**Aromatic EC >10-12**	74
Aliphatic EC >12-16	1100	**Aromatic EC >12-16**	140
Aliphatic EC >16-35	65000	**Aromatic EC >16-21**	260
Aliphatic EC >35-44	65000	**Aromatic EC >21-35**	1100
		Aromatic EC >35-44	1100

Whilst full speciation of the concentrations of petroleum hydrocarbons by aromatic and aliphatic fractions was not undertaken, the results of the testing undertaken can still be compared with the more stringent of the screening values for the respective equivalent carbon weight fraction and, where the concentration recorded is found to be lower, it can be reasonably concluded that no significant risk is present.

None of the samples of made ground or undisturbed soils recorded the presence of any individual petroleum hydrocarbon fraction above the more stringent SSV.

4.3 Quantitative Contamination Risk Assessment

The supplementary testing has found no evidence of further contamination within the shallow made ground that would pose an unacceptable risk to end users. The testing of the undisturbed soils has demonstrated that there is no risk to end users from the soils beneath the made ground.

The conclusions of the previous risk assessment are considered to be valid.

A revised remediation strategy will be produced under a separate cover, which will take into account the comments received on the previous remediation strategy from Kevin Beer.

4.3.1 Quantitative Conceptual Model

A copy of the previous quantitative conceptual model, which remains unchanged following the most recent phase of works, is included in Appendix C.

APPENDIX A

Contamination Laboratory Test Results

Normec DETS

UKAS TESTING
4480

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Normec DETS Limited
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DETS Report No: 25-08084

Site Reference:	15-18 Fairfield Cottages, Cowfold, West Sussex
Project / Job Ref:	C17051_3023
Order No:	12408
Sample Receipt Date:	11/09/2025
Sample Scheduled Date:	11/09/2025
Report Issue Number:	1
Reporting Date:	16/09/2025

Authorised by:

Dave Ashworth
Technical Manager

Dates of laboratory activities for each tested analyte are available upon request.

Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

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4480

Soil Analysis Certificate						
DETS Report No: 25-08084	**~Date Sampled**	08/09/25	08/09/25	08/09/25	08/09/25	08/09/25
Ashdown Site Investigations Ltd	**~Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: 15-18 Fairfield Cottages, Cowfold, West Sussex	**~TP / BH No**	WS201	WS201	WS202	WS202	WS203A
~Project / Job Ref: C17051_3023	**~Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Order No: 12408	**~Depth (m)**	0.15	0.70	0.30	0.80	0.25
Reporting Date: 16/09/2025	**DETS Sample No**	789453	789454	789455	789456	789457

Determinand	Unit	RL	Accreditation	(n)				
Asbestos Screen [S]	N/a	N/a	ISO17025	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
pH	pH Units	N/a	MCERTS	11.0	7.1	7.3	7.0	6.9
Total Sulphate as SO_4	mg/kg	< 200	MCERTS	3862	304	3019	297	536
Total Sulphate as SO_4	%	< 0.02	MCERTS	0.39	0.03	0.30	0.03	0.05
Organic Matter (SOM)	%	< 0.1	MCERTS	1.2	0.4	3.7	0.7	1.1
Arsenic (As)	mg/kg	< 2	MCERTS	21	12	15	12	17
W/S Boron	mg/kg	< 1	NONE	< 1	< 1	1.6	< 1	< 1
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	0.8	< 0.2	0.4	< 0.2	< 0.2
Chromium (Cr)	mg/kg	< 2	MCERTS	28	31	22	31	30
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
Copper (Cu)	mg/kg	< 4	MCERTS	83	28	61	23	23
Lead (Pb)	mg/kg	< 3	MCERTS	42	17	106	19	23
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1	< 1
Nickel (Ni)	mg/kg	< 3	MCERTS	34	11	20	14	13
Selenium (Se)	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Zinc (Zn)	mg/kg	< 3	MCERTS	188	47	127	40	49

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
Analysis carried out on the dried sample is corrected for the stone content

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4480

Soil Analysis Certificate						
DETS Report No: 25-08084	**~Date Sampled**	08/09/25	08/09/25	08/09/25		
Ashdown Site Investigations Ltd	**~Time Sampled**	None Supplied	None Supplied	None Supplied		
~Site Reference: 15-18 Fairfield Cottages, Cowfold, West Sussex	**~TP / BH No**	WS203A	WS204	WS204		
~Project / Job Ref: C17051_3023	**~Additional Refs**	None Supplied	None Supplied	None Supplied		
~Order No: 12408	**~Depth (m)**	0.50	0.10	0.40		
Reporting Date: 16/09/2025	**DETS Sample No**	789458	789459	789460		

Determinand	Unit	RL	Accreditation		(n)	(n)		
Asbestos Screen (S)	N/a	N/a	ISO17025	Not Detected	Not Detected	Not Detected		
pH	pH Units	N/a	MCERTS	5.1	6.8	6.8		
Total Sulphate as SO_4	mg/kg	< 200	MCERTS	362	5246	357		
Total Sulphate as SO_4	%	< 0.02	MCERTS	0.04	0.52	0.04		
Organic Matter (SOM)	%	< 0.1	MCERTS	0.4	9.5	0.6		
Arsenic (As)	mg/kg	< 2	MCERTS	11	18	15		
W/S Boron	mg/kg	< 1	NONE	< 1	1	< 1		
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	< 0.2	1.4	< 0.2		
Chromium (Cr)	mg/kg	< 2	MCERTS	28	23	36		
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2		
Copper (Cu)	mg/kg	< 4	MCERTS	24	99	25		
Lead (Pb)	mg/kg	< 3	MCERTS	16	192	15		
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1	< 1	< 1		
Nickel (Ni)	mg/kg	< 3	MCERTS	16	21	11		
Selenium (Se)	mg/kg	< 2	MCERTS	< 2	< 2	< 2		
Zinc (Zn)	mg/kg	< 3	MCERTS	54	255	47		

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
Analysis carried out on the dried sample is corrected for the stone content

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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 25-08084	**~Date Sampled**	08/09/25	08/09/25	08/09/25	08/09/25	08/09/25
Ashdown Site Investigations Ltd	**~Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: 15-18 Fairfield Cottages, Cowfold, West Sussex	**~TP / BH No**	WS201	WS201	WS202	WS202	WS203A
~Project / Job Ref: C17051_3023	**~Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Order No: 12408	**~Depth (m)**	0.15	0.70	0.30	0.80	0.25
Reporting Date: 16/09/2025	**DETS Sample No**	789453	789454	789455	789456	789457

Determinand	Unit	RL	Accreditation			(n)		
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.16	< 0.1	< 0.1
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	mg/kg	< 0.1	MCERTS	0.18	< 0.1	0.23	< 0.1	< 0.1
Pyrene	mg/kg	< 0.1	MCERTS	0.18	< 0.1	0.24	< 0.1	< 0.1
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	0.12	< 0.1	< 0.1	< 0.1	< 0.1
Chrysene	mg/kg	< 0.1	MCERTS	0.12	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	0.17	< 0.1	0.12	< 0.1	< 0.1
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	0.14	< 0.1	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
**Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6

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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 25-08084	**~Date Sampled**	08/09/25	08/09/25	08/09/25		
Ashdown Site Investigations Ltd	**~Time Sampled**	None Supplied	None Supplied	None Supplied		
~Site Reference: 15-18 Fairfield Cottages, Cowfold, West Sussex	**~TP / BH No**	WS203A	WS204	WS204		
~Project / Job Ref: C17051_3023	**~Additional Refs**	None Supplied	None Supplied	None Supplied		
~Order No: 12408	**~Depth (m)**	0.50	0.10	0.40		
Reporting Date: 16/09/2025	**DETS Sample No**	789458	789459	789460		

Determinand	**Unit**	**RL**	**Accreditation**		(n)	(n)		
Naphthalene	mg/kg	< 0.1	**MCERTS**	< 0.1	< 0.1	< 0.1		
Acenaphthylene	mg/kg	< 0.1	**MCERTS**	< 0.1	< 0.1	< 0.1		
Acenaphthene	mg/kg	< 0.1	**MCERTS**	< 0.1	< 0.1	< 0.1		
Fluorene	mg/kg	< 0.1	**MCERTS**	< 0.1	< 0.1	< 0.1		
Phenanthrene	mg/kg	< 0.1	**MCERTS**	< 0.1	0.18	< 0.1		
Anthracene	mg/kg	< 0.1	**MCERTS**	< 0.1	< 0.1	< 0.1		
Fluoranthene	mg/kg	< 0.1	**MCERTS**	< 0.1	0.41	< 0.1		
Pyrene	mg/kg	< 0.1	**MCERTS**	< 0.1	0.36	< 0.1		
Benzo(a)anthracene	mg/kg	< 0.1	**MCERTS**	< 0.1	0.22	< 0.1		
Chrysene	mg/kg	< 0.1	**MCERTS**	< 0.1	0.25	< 0.1		
Benzo(b)fluoranthene	mg/kg	< 0.1	**MCERTS**	< 0.1	0.28	< 0.1		
Benzo(k)fluoranthene	mg/kg	< 0.1	**MCERTS**	< 0.1	< 0.1	< 0.1		
Benzo(a)pyrene	mg/kg	< 0.1	**MCERTS**	< 0.1	0.25	< 0.1		
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	**MCERTS**	< 0.1	0.15	< 0.1		
Dibenz(a,h)anthracene	mg/kg	< 0.1	**MCERTS**	< 0.1	< 0.1	< 0.1		
Benzo(ghi)perylene	mg/kg	< 0.1	**MCERTS**	< 0.1	0.18	< 0.1		
**Total EPA-16 PAHs	mg/kg	< 1.6	**MCERTS**	< 1.6	2.3	< 1.6		

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Soil Analysis Certificate - EPH Banded (Type F)						
DETS Report No: 25-08084	**~Date Sampled**	08/09/25	08/09/25	08/09/25	08/09/25	08/09/25
Ashdown Site Investigations Ltd	**~Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: 15-18 Fairfield Cottages, Cowfold, West Sussex	**~TP / BH No**	WS201	WS201	WS202	WS202	WS203A
~Project / Job Ref: C17051_3023	**~Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Order No: 12408	**~Depth (m)**	0.15	0.70	0.30	0.80	0.25
Reporting Date: 16/09/2025	**DETS Sample No**	789453	789454	789455	789456	789457

Determinand	Unit	RL	Accreditation	(n)				
EPH (>C8 - C10) : EH_1D_Total	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1	< 1
EPH (>C10 - C12) : EH_1D_Total	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1	< 1
EPH (>C12 - C16) : EH_1D_Total	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1	< 1
EPH (>C16 - C21) : EH_1D_Total	mg/kg	< 1	MCERTS	2	< 1	< 1	< 1	< 1
EPH (>C21 - C40) : EH_1D_Total	mg/kg	< 6	MCERTS	11	< 6	< 6	< 6	< 6
EPH (C8 - C40) : EH_1D_Total	mg/kg	< 6	MCERTS	12	< 6	< 6	< 6	< 6

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Soil Analysis Certificate - EPH Banded (Type F)						
DETS Report No: 25-08084	**~Date Sampled**	08/09/25	08/09/25	08/09/25		
Ashdown Site Investigations Ltd	**~Time Sampled**	None Supplied	None Supplied	None Supplied		
~Site Reference: 15-18 Fairfield Cottages, Cowfold, West Sussex	**~TP / BH No**	WS203A	WS204	WS204		
~Project / Job Ref: C17051_3023	**~Additional Refs**	None Supplied	None Supplied	None Supplied		
~Order No: 12408	**~Depth (m)**	0.50	0.10	0.40		
Reporting Date: 16/09/2025	**DETS Sample No**	789458	789459	789460		

Determinand	Unit	RL	Accreditation		(n)	(n)		
EPH (>C8 - C10) : EH_1D_Total	mg/kg	< 1	MCERTS	< 1	< 1	< 1		
EPH (>C10 - C12) : EH_1D_Total	mg/kg	< 1	MCERTS	< 1	< 1	< 1		
EPH (>C12 - C16) : EH_1D_Total	mg/kg	< 1	MCERTS	< 1	< 1	< 1		
EPH (>C16 - C21) : EH_1D_Total	mg/kg	< 1	MCERTS	< 1	2	< 1		
EPH (>C21 - C40) : EH_1D_Total	mg/kg	< 6	MCERTS	< 6	28	< 6		
EPH (C8 - C40) : EH_1D_Total	mg/kg	< 6	MCERTS	< 6	30	< 6		

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Soil Analysis Certificate - Sample Descriptions
DETS Report No: 25-08084
Ashdown Site Investigations Ltd
~Site Reference: 15-18 Fairfield Cottages, Cowfold, West Sussex
~Project / Job Ref: C17051_3023
~Order No: 12408
Reporting Date: 16/09/2025

DETS Sample No	~TP / BH No	~Additional Refs	~Depth (m)	Moisture Content (%)	Sample Matrix Description
789453	WS201	None Supplied	0.15	11.6	Brown clayey sand with stones
789454	WS201	None Supplied	0.70	20.4	Light brown clay
789455	WS202	None Supplied	0.30	18	Brown clayey gravel with stones and vegetation
789456	WS202	None Supplied	0.80	21.4	Light brown clay
789457	WS203A	None Supplied	0.25	15	Light brown clay
789458	WS203A	None Supplied	0.50	14.7	Light brown clay
789459	WS204	None Supplied	0.10	18.7	Brown clayey gravel with stones
789460	WS204	None Supplied	0.40	20.6	Brown clayey gravel with vegetation

Moisture content is part of procedure E003 & is not an accredited test

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Soil Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 25-08084

Ashdown Site Investigations Ltd

~Site Reference: 15-18 Fairfield Cottages, Cowfold, West Sussex

~Project / Job Ref: C17051_3023

~Order No: 12408

Reporting Date: 16/09/2025

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 – C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	Fraction Organic Carbon (FOC)	Determination of TOC by combustion analyser.	E027
Soil	D	Organic Matter (SOM)	Determination of TOC by combustion analyser.	E027
Soil	D	TOC (Total Organic Carbon)	Determination of TOC by combustion analyser.	E027
Soil	AR	Exchangeable Ammonium	Determination of ammonium by discrete analyser.	E029
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

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List of HWOL Acronyms and Operators
DETS Report No: 25-08084
Ashdown Site Investigations Ltd
~Site Reference: 15-18 Fairfield Cottages, Cowfold, West Sussex
~Project / Job Ref: C17051_3023
~Order No: 12408
Reporting Date: 16/09/2025

Acronym	**Description**
HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total
~	Sample details provided by customer and can affect the validity of results

EPH Banded (C10 - C12) - EH_1D_Total
EPH Banded (C12 - C16) - EH_1D_Total
EPH Banded (C16 - C21) - EH_1D_Total
EPH Banded (C21 - C40) - EH_1D_Total
EPH Banded (C8 - C10) - EH_1D_Total
EPH Banded (C8 - C40) - EH_1D_Total

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Certificate Key

Symbol	Description
F	Filtered sample
UF	Unfiltered sample
D	Dried sample
AR	As received sample
RL	Reporting limit
~	Sample details provided by customer and can affect the validity of results
M/S	Missing Sample
*	The Dutch 10 PAH compounds consist of Naphthalene, Anthracene,Phenanthrene, Fluoranthene, Benz(a)anthracene, Chrysene, Benzo(k) fluoranthene, Benzo(a)pyrene, Benzo(g,h,i)perylene, and Indeno(1,2,3-cd)pyrene
**	Total EPA-16 PAHs consist of the following polycyclic aromatic hydrocarbons: Naphthalene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene, and Benzo(ghi)perylene.
***	Total WAC-17 PAHs consist of the following polycyclic aromatic hydrocarbons: Naphthalene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenz (a,h)anthracene, Benzo(ghi)perylene and Coronene.
^	No sampling date provided; unable to confirm if samples are within acceptable holding times
$	Samples exceeded their recommended holding times
n	Please note that we are MCERTS soil accredited (UK soils only) for sand, loam, and clay, and UKAS accredited for groundwater, tap water, surface water, and generated leachates. Other matrices are outside our scope of accreditation.
S	Subcontracted analysis
M	MCERTS accredited test
U	UKAS accredited test

APPENDIX B

Classification of Probability & Risk

Probability Of Risk Being Realised	
Classification	**Definition**
High	There is a pollution linkage and an event that either appears very likely in the short term and almost inevitable over the long term or there is evidence at the receptor of harm or pollution.
Moderate	There is a pollution linkage and all the elements are present and in the right place, which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term.
Low	There is a pollution linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period such event would take place and is less likely in the shorter term.
Very Low	There is a pollution linkage but circumstances are such that it is improbable that an event would occur even in the very long term.

Consequence Of Risk Being Realised		
Classification	**Category**	**Definition**
Severe	Human Health	Short term (acute) risk to human health likely to result in "significant harm" as defined by the Environment Protection Act 1990, Part IIA.
	Controlled Waters	Short term risk of pollution (note: Water Resources Act contains no scope for considering significance of pollution) of sensitive water resource.
	Property	Catastrophic damage to buildings/property.
	Ecological Systems	A short term risk to a particular ecosystem or organisation forming part of such ecosystem.
Moderate	Human Health	Chronic damage to Human Health.
	Controlled Waters	Pollution of sensitive water resources (note: Water Resources Act contains no scope for considering significance of pollution).
	Ecological System	A significant change in a particular ecosystem or organism forming part of such ecosystem.
Minor	Controlled Waters	Pollution of non-sensitive water resources.
	Property	Significant damage to crops, buildings, structures and services.
	Ecological Systems	Damage to sensitive buildings/structures/services or the environment.
Very Minor	Human Health	Non-permanent health effects to human health (easily prevented by means such as personal protective clothing, etc).
	Property	Easily repairable effects of damage to buildings, structures and services.
	Project	Harm, although not necessarily significant harm, which may result in a financial loss or expenditure to resolve.

Risk Classification Definitions	
Very High	There is a high probability that severe harm could arise to a designated receptor from an identified hazard, OR, there is evidence that severe harm to a designated receptor is currently happening. This risk, if realised, is likely to result in a substantial liability. Urgent investigation (if not undertaken already) and remediation are likely to be required.
High	Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. Urgent investigation (if not undertaken already) is required and remedial works may be necessary in the short term and are likely over the long term.
Moderate	It is possible that harm could arise to a designated receptor from an identified hazard. However, it is relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild. Investigation (if not already undertaken) is normally required to clarify the risk and to determine the potential liability. Some remedial works may be required in the longer term.
Low	It is possible that harm could arise to a designated receptor from an identified hazard, but there is a low likelihood of this hazard occurring and if realised, harm would at worst normally be mild.
Very Low	There is a low possibility that harm could arise to a receptor. In the event of such harm being realised, it is not likely to be severe.

APPENDIX C

Quantitative Conceptual Model

15-18 Fairfield Cottages, Cowfold, West Sussex				Quantitative Conceptual Model		P15524	
Source	**Receptor**	**Contaminants**	**Pathway**	**Complete Linkage Present?**	**Probability**	**Consequence**	**Risk**
Made ground and Topsoil across the site.	End Users	Heavy Metals and PAH Compounds	Dermal contact with soil and dust (indoor & outdoor)	Yes	P2: Low	C3: Moderate	Low/Moderate
			Ingestion of soil and indoor dust	Yes	P2: Low	C3: Moderate	Low/Moderate
			Consumption of home-grown produce and attached soil	Yes	P2: Low	C3: Moderate	Low/Moderate
			Inhalation of soil dust (indoor and outdoor)	Yes	P2: Low	C3: Moderate	Low/Moderate
			Inhalation of soil vapours	Identified contaminants do not pose a risk via this pathway			N/A
			Inhalation of soil gases/ Risk of explosion	Identified contaminants do not pose a risk via this pathway			N/A
	End Users (via Water Supply Pipework)	Petroleum Hydrocarbons	Contamination of incoming services	Yes	P1: Very Low	C3: Moderate	Low
	Groundwater		Migration to groundwater	No contaminants present at concentrations posing risk to groundwater			N/A