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DETS Report No: 23-10895

Site Reference: Four Housing Courts, Lansdowne Road, London

Project / Job Ref: P16180 1747

Order No: 11297

Sample Receipt Date: 25/08/2023

Sample Scheduled Date: 25/08/2023

Report Issue Number: 1

Reporting Date: 01/09/2023

Authorised by:

Kevin Old
Operations Director

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

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Soil Analysis Certificate						
DETS Report No: 23-10895	Date Sampled	16/08/23	17/08/23	16/08/23	16/08/23	18/08/23
Ashdown Site Investigations Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Four Housing Courts, Lansdowne Road, London	TP / BH No	BH01	BH02	BH03	WS01	WS02
Project / Job Ref: P16180_1747	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: 11297	Depth (m)	8.00	20.00	12.00	1.00 - 1.20	1.00 - 1.20
Reporting Date: 01/09/2023	DETS Sample No	671776	671777	671778	671779	671780

Determinand	Unit	RL	Accreditation					
pH	pH Units	N/a	MCERTS	8.0	7.8	7.9	7.5	8.1
Total Sulphate as SO ₄	mg/kg	< 200	MCERTS	1059	1115	940	544	2943
Total Sulphate as SO ₄	%	< 0.02	MCERTS	0.11	0.11	0.09	0.05	0.29
W/S Sulphate as SO ₄ (2:1)	mg/l	< 10	MCERTS	322	567	418	146	104
W/S Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	0.32	0.57	0.42	0.15	0.10
Total Sulphur	%	< 0.02	NONE	1.78	0.50	0.56	0.04	0.14

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

Subcontracted analysis (S)

(n) 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



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Soil Analysis Certificate						
DETS Report No: 23-10895	Date Sampled	18/08/23	15/08/23	15/08/23	21/08/23	21/08/23
Ashdown Site Investigations Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Four Housing Courts, Lansdowne Road, London	TP / BH No	WS03	WS05	WS06	WS08	WS09
Project / Job Ref: P16180_1747	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: 11297	Depth (m)	0.95	1.80 - 2.70	2.50	1.00 - 1.20	1.10
Reporting Date: 01/09/2023	DETS Sample No	671781	671782	671783	671784	671785

Determinand	Unit	RL	Accreditation	(n)	(n)	(n)	(n)	(n)
pH	pH Units	N/a	MCERTS	6.8	7.8	7.4	7.5	7.4
Total Sulphate as SO ₄	mg/kg	< 200	MCERTS	454	< 200	< 200	414	< 200
Total Sulphate as SO ₄	%	< 0.02	MCERTS	0.05	< 0.02	< 0.02	0.04	< 0.02
W/S Sulphate as SO ₄ (2:1)	mg/l	< 10	MCERTS	59	21	23	136	41
W/S Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	0.06	0.02	0.02	0.14	0.04
Total Sulphur	%	< 0.02	NONE	0.03	< 0.02	< 0.02	0.03	< 0.02

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 Subcontracted analysis (S)



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Soil Analysis Certificate						
DETS Report No: 23-10895	Date Sampled	21/08/23	21/08/23	21/08/23		
Ashdown Site Investigations Ltd	Time Sampled	None Supplied	None Supplied	None Supplied		
Site Reference: Four Housing Courts, Lansdowne Road, London	TP / BH No	WS10	WS11	WS12		
Project / Job Ref: P16180_1747	Additional Refs	None Supplied	None Supplied	None Supplied		
Order No: 11297	Depth (m)	2.60	2.30	0.95		
Reporting Date: 01/09/2023	DETS Sample No	671786	671787	671788		

Determinand	Unit	RL	Accreditation	(n)		
pH	pH Units	N/a	MCERTS	7.2	8.1	7.5
Total Sulphate as SO ₄	mg/kg	< 200	MCERTS	203	< 200	552
Total Sulphate as SO ₄	%	< 0.02	MCERTS	0.02	< 0.02	0.06
W/S Sulphate as SO ₄ (2:1)	mg/l	< 10	MCERTS	13	23	106
W/S Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	0.01	0.02	0.11
Total Sulphur	%	< 0.02	NONE	< 0.02	< 0.02	0.02

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 Subcontracted analysis (S)



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Soil Analysis Certificate - Sample Descriptions

DETS Report No: 23-10895	
Ashdown Site Investigations Ltd	
Site Reference: Four Housing Courts, Lansdowne Road, London	
Project / Job Ref: P16180_1747	
Order No: 11297	
Reporting Date: 01/09/2023	

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
671776	BH01	None Supplied	8.00	18.7	Brown clay
671777	BH02	None Supplied	20.00	20.8	Brown clay
671778	BH03	None Supplied	12.00	22.1	Brown clay
671779	WS01	None Supplied	1.00 - 1.20	12.2	Brown sandy clay with stones
671780	WS02	None Supplied	1.00 - 1.20	17.9	Brown sandy clay with stones
671781	WS03	None Supplied	0.95	10.4	Brown sandy clay
671782	WS05	None Supplied	1.80 - 2.70	6.9	Brown sandy gravel with stones
671783	WS06	None Supplied	2.50	7.2	Brown sandy gravel with stones
671784	WS08	None Supplied	1.00 - 1.20	15.7	Brown clay
671785	WS09	None Supplied	1.10	15.1	Brown clay
671786	WS10	None Supplied	2.60	5.6	Brown sandy gravel with stones
671787	WS11	None Supplied	2.30	12.3	Brown sandy clay
671788	WS12	None Supplied	0.95	21.6	Brown sandy clay

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

Insufficient Sample ^{1/5}

Unsuitable Sample ^{1/5}



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Soil Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 23-10895

Ashdown Site Investigations Ltd

Site Reference: Four Housing Courts, Lansdowne Road, London

Project / Job Ref: P16180_1747

Order No: 11297

Reporting Date: 01/09/2023

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 diphénylcarbazide 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 @ 450°C	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 (all: 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 (all: 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

D Dried
AR As Received



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List of HWOL Acronyms and Operators	
DETS Report No: 23-10895	
Ashdown Site Investigations Ltd	
Site Reference: Four Housing Courts, Lansdowne Road, London	
Project / Job Ref: P16180_1747	
Order No: 11297	
Reporting Date: 01/09/2023	

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

Det - Acronym



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DETS Report No: 23-10657

Site Reference: Four Housing Courts , Lansdowne Road , London

Project / Job Ref: P16180 1738

Order No: 11289

Sample Receipt Date: 18/08/2023

Sample Scheduled Date: 18/08/2023

Report Issue Number: 1

Reporting Date: 25/08/2023

Authorised by:

Dave Ashworth
Technical Manager

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

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For Topsoil and WAC analysis the expanded uncertainty measurement should be considered while evaluating results against compliance values.



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Soil Analysis Certificate						
DETS Report No: 23-10657	Date Sampled	15/08/23	15/08/23	15/08/23	15/08/23	14/08/23
Ashdown Site Investigations Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Four Housing Courts , Lansdowne Road , London	TP / BH No	WS04	WS04	WS05	WS06	TP01
Project / Job Ref: P16180_1738	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: 11289	Depth (m)	0.20	0.60	0.15	0.50	0.30
Reporting Date: 25/08/2023	DETS Sample No	670654	670655	670656	670657	670658

Determinand	Unit	RL	Accreditation	(n)	(n)	(n)	(n)	(n)
Asbestos Screen ^(S)	N/a	N/a	ISO17025	Not Detected		Not Detected	Not Detected	Detected
Sample Matrix ^(S)	Material Type	N/a	NONE					Amosite present in microscopic board
Asbestos Type ^(S)	PLM Result	N/a	ISO17025					Amosite
pH	pH Units	N/a	MCERTS	7.7		7.4	9.4	7.5
Total Sulphate as SO ₄	mg/kg	< 200	MCERTS	646		1554	1556	523
Total Sulphate as SO ₄	%	< 0.02	MCERTS	0.06		0.16	0.16	0.05
Organic Matter (SOM)	%	< 0.1	MCERTS	5		7.5	1.8	7.6
Arsenic (As)	mg/kg	< 2	MCERTS	17		12	17	18
W/S Boron	mg/kg	< 1	NONE	< 1		< 1	< 1	1.8
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	0.4		0.5	0.3	0.6
Chromium (Cr)	mg/kg	< 2	MCERTS	20		22	23	25
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2		< 2	< 2	< 2
Copper (Cu)	mg/kg	< 4	MCERTS	52		136	28	84
Lead (Pb)	mg/kg	< 3	MCERTS	336		349	178	281
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1		< 1	< 1	< 1
Nickel (Ni)	mg/kg	< 3	MCERTS	16		17	20	24
Selenium (Se)	mg/kg	< 2	MCERTS	< 2		< 2	< 2	< 2
Zinc (Zn)	mg/kg	< 3	MCERTS	151		272	93	228

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Subcontracted analysis (S)

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Soil Analysis Certificate					
DETS Report No: 23-10657	Date Sampled	14/08/23	14/08/23	14/08/23	14/08/23
Ashdown Site Investigations Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Four Housing Courts , Lansdowne Road, London	TP / BH No	TP02	TP03	TP04	TP06
Project / Job Ref: P16180_1738	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied
Order No: 11289	Depth (m)	0.25	0.20	0.10	0.50
Reporting Date: 25/08/2023	DETS Sample No	670659	670660	670661	670662

Determinand	Unit	RL	Accreditation	(n)	(n)	(n)	(n)
Asbestos Screen ^(S)	N/a	N/a	ISO17025	Detected	Not Detected	Detected	Detected
Sample Matrix ^(S)	Material Type	N/a	NONE	Amosite present as fibre bundles		Amosite present in microscopic board	Amosite present as fibre bundles
Asbestos Type ^(S)	PLM Result	N/a	ISO17025	Amosite		Amosite	Amosite
pH	pH Units	N/a	MCERTS	7.6	7.9	7.8	7.8
Total Sulphate as SO ₄	mg/kg	< 200	MCERTS	426	977	1029	1717
Total Sulphate as SO ₄	%	< 0.02	MCERTS	0.04	0.10	0.10	0.17
Organic Matter (SOM)	%	< 0.1	MCERTS	4.2	4.9	9.7	3.3
Arsenic (As)	mg/kg	< 2	MCERTS	11	15	13	17
W/S Boron	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	0.3	0.4	0.4	0.4
Chromium (Cr)	mg/kg	< 2	MCERTS	15	18	20	23
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2
Copper (Cu)	mg/kg	< 4	MCERTS	43	41	63	59
Lead (Pb)	mg/kg	< 3	MCERTS	333	244	289	245
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1
Nickel (Ni)	mg/kg	< 3	MCERTS	11	18	25	16
Selenium (Se)	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2
Zinc (Zn)	mg/kg	< 3	MCERTS	174	154	205	174

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Subcontracted analysis (S)



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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 23-10657	Date Sampled	15/08/23	15/08/23	15/08/23	14/08/23	14/08/23
Ashdown Site Investigations Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Four Housing Courts ,	TP / BH No	WS04	WS05	WS06	TP01	TP02
Lansdowne Road, London	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Project / Job Ref: P16180_1738	Depth (m)	0.20	0.15	0.50	0.30	0.25
Order No: 11289	DETS Sample No	670654	670656	670657	670658	670659
Reporting Date: 25/08/2023						

Determinand	Unit	RL	Accreditation	(n)			(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	0.80	0.23	< 0.1	0.21	0.44
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	mg/kg	< 0.1	MCERTS	1.48	0.43	< 0.1	0.50	1.18
Pyrene	mg/kg	< 0.1	MCERTS	1.27	0.37	< 0.1	0.46	1.06
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	0.57	0.24	< 0.1	0.30	0.67
Chrysene	mg/kg	< 0.1	MCERTS	0.66	0.23	< 0.1	0.27	0.63
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	0.73	0.26	< 0.1	0.28	0.77
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	0.25	< 0.1	< 0.1	< 0.1	0.22
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	0.62	0.22	< 0.1	0.24	0.64
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	0.38	0.17	< 0.1	0.16	0.41
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	0.32	0.17	< 0.1	0.15	0.37
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	7.1	2.3	< 1.6	2.6	6.4

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DETS Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410



Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 23-10657	Date Sampled	14/08/23	14/08/23	14/08/23		
Ashdown Site Investigations Ltd	Time Sampled	None Supplied	None Supplied	None Supplied		
Site Reference: Four Housing Courts , Lansdowne Road, London	TP / BH No	TP03	TP04	TP06		
Project / Job Ref: P16180_1738	Additional Refs	None Supplied	None Supplied	None Supplied		
Order No: 11289	Depth (m)	0.20	0.10	0.50		
Reporting Date: 25/08/2023	DETS Sample No	670660	670661	670662		

Determinand	Unit	RL	Accreditation	(n)	(n)	(n)		
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.22		
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.27		
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.20		
Phenanthrene	mg/kg	< 0.1	MCERTS	0.47	0.25	1.99		
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.55		
Fluoranthene	mg/kg	< 0.1	MCERTS	1.03	0.67	3.58		
Pyrene	mg/kg	< 0.1	MCERTS	0.91	0.61	3.03		
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	0.53	0.37	1.99		
Chrysene	mg/kg	< 0.1	MCERTS	0.54	0.37	1.87		
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	0.61	0.41	1.87		
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	0.18	0.15	0.65		
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	0.54	0.41	1.72		
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	0.32	0.25	0.91		
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.21		
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	0.27	0.22	0.76		
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	5.4	3.7	19.8		



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Soil Analysis Certificate - EPH Banded (Type F)

DETS Report No: 23-10657	Date Sampled	15/08/23	15/08/23	15/08/23	14/08/23	14/08/23
Ashdown Site Investigations Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Four Housing Courts ,	TP / BH No	WS04	WS05	WS06	TP01	TP02
Lansdowne Road, London	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Project / Job Ref: P16180_1738	Depth (m)	0.20	0.15	0.50	0.30	0.25
Order No: 11289	DETS Sample No	670654	670656	670657	670658	670659
Reporting Date: 25/08/2023						

Determinand	Unit	RL	Accreditation	(n)				
EPH (>C8 - C10) :	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1	< 1
EH 1D Total								
EPH (>C10 - C12) :	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1	< 1
EH 1D Total								
EPH (>C12 - C16) :	mg/kg	< 1	MCERTS	< 1	2	< 1	< 1	2
EH 1D Total								
EPH (>C16 - C21) :	mg/kg	< 1	MCERTS	9	26	< 1	3	6
EH 1D Total								
EPH (>C21 - C40) :	mg/kg	< 6	MCERTS	40	52	< 6	12	22
EH 1D Total								
EPH (C8 - C40) :	mg/kg	< 6	MCERTS	49	81	< 6	14	30
EH 1D Total								

(n) 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



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Soil Analysis Certificate - EPH Banded (Type F)

DETS Report No: 23-10657	Date Sampled	14/08/23	14/08/23	14/08/23		
Ashdown Site Investigations Ltd	Time Sampled	None Supplied	None Supplied	None Supplied		
Site Reference: Four Housing Courts , Lansdowne Road , London	TP / BH No	TP03	TP04	TP06		
Project / Job Ref: P16180_1738	Additional Refs	None Supplied	None Supplied	None Supplied		
Order No: 11289	Depth (m)	0.20	0.10	0.50		
Reporting Date: 25/08/2023	DETS Sample No	670660	670661	670662		

Determinand	Unit	RL	Accreditation	(n)	(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	2		
EPH (>C16 - C21) : EH 1D Total	mg/kg	< 1	MCERTS	6	4	20		
EPH (>C21 - C40) : EH 1D Total	mg/kg	< 6	MCERTS	20	19	39		
EPH (C8 - C40) : EH 1D Total	mg/kg	< 6	MCERTS	26	23	61		



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Soil Analysis Certificate - PCB (7 Congeners)						
DETS Report No: 23-10657	Date Sampled	15/08/23				
Ashdown Site Investigations Ltd	Time Sampled	None Supplied				
Site Reference: Four Housing Courts ,	TP / BH No	WS04				
Lansdowne Road, London	Additional Refs	None Supplied				
Project / Job Ref: P16180_1738	Depth (m)	0.60				
Order No: 11289	DETS Sample No	670655				
Reporting Date: 25/08/2023						

Determinand	Unit	RL	Accreditation	(n)				
PCB Congener 28	mg/kg	0.008	NONE	< 0.008				
PCB Congener 52	mg/kg	0.008	NONE	< 0.008				
PCB Congener 101	mg/kg	0.008	NONE	< 0.008				
PCB Congener 118	mg/kg	0.008	NONE	< 0.008				
PCB Congener 138	mg/kg	0.008	NONE	< 0.008				
PCB Congener 153	mg/kg	0.008	NONE	< 0.008				
PCB Congener 180	mg/kg	0.008	NONE	< 0.008				
Total PCB (7 Congeners)	mg/kg	< 0.1	NONE	< 0.1				

(n) 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

Waste Acceptance Criteria Analytical Certificate - BS EN 12457/2																																							
DETS Report No: 23-10657		Date Sampled		15/08/23		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3" style="text-align: left; padding: 5px;">Landfill Waste Acceptance Criteria Limits</th> </tr> <tr> <th style="width: 33%; padding: 5px;">Inert Waste Landfill</th> <th style="width: 33%; padding: 5px;">Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill</th> <th style="width: 33%; padding: 5px;">Hazardous Waste Landfill</th> </tr> </thead> <tbody> <tr> <td style="text-align: center; padding: 5px;">3%</td> <td style="text-align: center; padding: 5px;">5%</td> <td style="text-align: center; padding: 5px;">6%</td> </tr> <tr> <td style="text-align: center; padding: 5px;">--</td> <td style="text-align: center; padding: 5px;">--</td> <td style="text-align: center; padding: 5px;">10%</td> </tr> <tr> <td style="text-align: center; padding: 5px;">6</td> <td style="text-align: center; padding: 5px;">--</td> <td style="text-align: center; padding: 5px;">--</td> </tr> <tr> <td style="text-align: center; padding: 5px;">1</td> <td style="text-align: center; padding: 5px;">--</td> <td style="text-align: center; padding: 5px;">--</td> </tr> <tr> <td style="text-align: center; padding: 5px;">500</td> <td style="text-align: center; padding: 5px;">--</td> <td style="text-align: center; padding: 5px;">--</td> </tr> <tr> <td style="text-align: center; padding: 5px;">100</td> <td style="text-align: center; padding: 5px;">--</td> <td style="text-align: center; padding: 5px;">--</td> </tr> <tr> <td style="text-align: center; padding: 5px;">--</td> <td style="text-align: center; padding: 5px;">>6</td> <td style="text-align: center; padding: 5px;">--</td> </tr> <tr> <td style="text-align: center; padding: 5px;">--</td> <td style="text-align: center; padding: 5px;">To be evaluated</td> <td style="text-align: center; padding: 5px;">To be evaluated</td> </tr> </tbody> </table>				Landfill Waste Acceptance Criteria Limits			Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill	3%	5%	6%	--	--	10%	6	--	--	1	--	--	500	--	--	100	--	--	--	>6	--	--	To be evaluated	To be evaluated
Landfill Waste Acceptance Criteria Limits																																							
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1	--	--																																					
500	--	--																																					
100	--	--																																					
--	>6	--																																					
--	To be evaluated	To be evaluated																																					
Ashdown Site Investigations Ltd		Time Sampled		None Supplied																																			
Site Reference: Four Housing Courts , Lansdowne Road , London		TP / BH No		WS05																																			
Project / Job Ref: P16180_1738		Additional Refs		None Supplied																																			
Order No: 11289		Depth (m)		0.15																																			
Reporting Date: 25/08/2023		DETS Sample No		670656																																			
Determinand	Unit	MDL																																					
TOC ^{MU}	%	< 0.1	4.4																																				
Loss on Ignition ^{MU}	%	< 0.01	9.40																																				
BTEX ^{MU}	mg/kg	< 0.05	< 0.05																																				
Sum of PCBs	mg/kg	< 0.1	< 0.1																																				
Mineral Oil ^{MU}	mg/kg	< 10	< 10																																				
Total PAH ^{MU}	mg/kg	< 1.7	2.3																																				
pH ^{MU}	pH Units	N/a	7.4																																				
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	< 1																																				
Eluate Analysis		10:1 mg/l			Cumulative 10:1 mg/kg	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)																																	
Arsenic ^U		< 0.01			< 0.1	0.5	2	25																															
Barium ^U		0.03			0.3	20	100	300																															
Cadmium ^U		< 0.0005			< 0.005	0.04	1	5																															
Chromium ^U		< 0.005			< 0.05	0.5	10	70																															
Copper ^U		0.02			0.2	2	50	100																															
Mercury ^U		< 0.0005			< 0.005	0.01	0.2	2																															
Molybdenum ^U		0.001			0.01	0.5	10	30																															
Nickel ^U		< 0.007			< 0.07	0.4	10	40																															
Lead ^U		0.007			0.07	0.5	10	50																															
Antimony ^U		< 0.005			< 0.05	0.06	0.7	5																															
Selenium ^U		< 0.005			< 0.05	0.1	0.5	7																															
Zinc ^U		0.022			0.22	4	50	200																															
Chloride ^U		6.7			67	800	15000	25000																															
Fluoride ^U		< 0.5			< 5	10	150	500																															
Sulphate ^U		5.8			58	1000	20000	50000																															
TDS		124			1240	4000	60000	100000																															
Phenol Index ^U		< 0.01			< 0.1	1	-	-																															
DOC ^U		20.3			203	500	800	1000																															
Leach Test Information																																							
Sample Mass (kg)		0.10																																					
Dry Matter (%)		88.1																																					
Moisture (%)		13.6																																					
Stage 1																																							
Volume Eluate L10 (litres)		0.89																																					

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Samples Descriptions page describes if the test is performed on the dried or as-received portion

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M Denotes MCERTS accredited test

U Denotes ISO17025 accredited test

Waste Acceptance Criteria Analytical Certificate - BS EN 12457/2																																							
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Ashdown Site Investigations Ltd		Time Sampled	None Supplied																																				
Site Reference: Four Housing Courts , Lansdowne Road , London		TP / BH No	TP03																																				
Project / Job Ref: P16180_1738		Additional Refs	None Supplied																																				
Order No: 11289		Depth (m)	0.20																																				
Reporting Date: 25/08/2023		DETS Sample No	670660																																				
Determinand	Unit	MDL																																					
TOC ^{MU}	%	< 0.1	2.9																																				
Loss on Ignition ^{MU}	%	< 0.01	10.90																																				
BTEX ^{MU}	mg/kg	< 0.05	< 0.05																																				
Sum of PCBs	mg/kg	< 0.1	< 0.1																																				
Mineral Oil ^{MU}	mg/kg	< 10	< 10																																				
Total PAH ^{MU}	mg/kg	< 1.7	5.5																																				
pH ^{MU}	pH Units	N/a	7.9																																				
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	< 1																																				
Eluate Analysis		10:1 mg/l			Cumulative 10:1 mg/kg	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)																																	
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Barium ^U		< 0.02			< 0.2	20	100	300																															
Cadmium ^U		< 0.0005			< 0.005	0.04	1	5																															
Chromium ^U		< 0.005			< 0.05	0.5	10	70																															
Copper ^U		< 0.01			< 0.1	2	50	100																															
Mercury ^U		< 0.0005			< 0.005	0.01	0.2	2																															
Molybdenum ^U		0.004			0.04	0.5	10	30																															
Nickel ^U		< 0.007			< 0.07	0.4	10	40																															
Lead ^U		< 0.005			< 0.05	0.5	10	50																															
Antimony ^U		< 0.005			< 0.05	0.06	0.7	5																															
Selenium ^U		< 0.005			< 0.05	0.1	0.5	7																															
Zinc ^U		0.011			0.11	4	50	200																															
Chloride ^U		1.7			17	800	15000	25000																															
Fluoride ^U		< 0.5			< 5	10	150	500																															
Sulphate ^U		3.9			39	1000	20000	50000																															
TDS		74			740	4000	60000	100000																															
Phenol Index ^U		< 0.01			< 0.1	1	-	-																															
DOC ^U		17.2			172	500	800	1000																															
Leach Test Information																																							
Sample Mass (kg)		0.10																																					
Dry Matter (%)		91.1																																					
Moisture (%)		9.8																																					
Stage 1																																							
Volume Eluate L10 (litres)		0.89																																					

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Soil Analysis Certificate - Sample Descriptions

DETS Report No: 23-10657	
Ashdown Site Investigations Ltd	
Site Reference: Four Housing Courts , Lansdowne Road , London	
Project / Job Ref: P16180_1738	
Order No: 11289	
Reporting Date: 25/08/2023	

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
670654	WS04	None Supplied	0.20	9.5	Brown sandy gravel with stones and concrete
670655	WS04	None Supplied	0.60	11.2	Brown sandy gravel with stones and concrete
670656	WS05	None Supplied	0.15	11.9	Brown loamy sand with stones and brick
670657	WS06	None Supplied	0.50	14.1	Brown sandy clay with brick
670658	TP01	None Supplied	0.30	13.7	Brown loamy sand with stones and brick
670659	TP02	None Supplied	0.25	8.4	Brown sandy gravel with stones and brick
670660	TP03	None Supplied	0.20	8.8	Brown sandy gravel with stones and brick
670661	TP04	None Supplied	0.10	11.9	Black sandy gravel with stones and brick
670662	TP06	None Supplied	0.50	9.4	Brown sandy gravel with stones and brick

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

Insufficient Sample ^{1/5}

Unsuitable Sample ^{U/5}



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Soil Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 23-10657

Ashdown Site Investigations Ltd

Site Reference: Four Housing Courts, Lansdowne Road, London

Project / Job Ref: P16180_1738

Order No: 11289

Reporting Date: 25/08/2023

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 diphénylcarbazide 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 @ 450°C	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 (all: 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 (all: 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

D Dried

AR As Received



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Water Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 23-10657

Ashdown Site Investigations Ltd

Site Reference: Four Housing Courts, Lansdowne Road, London

Project / Job Ref: P16180_1738

Order No: 11289

Reporting Date: 25/08/2023

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Water	UF	Alkalinity	Determination of alkalinity by titration against hydrochloric acid using bromocresol green as the end point	E103
Water	F	Ammoniacal Nitrogen	Determination of ammoniacal nitrogen by discrete analyser.	E126
Water	UF	BTEX	Determination of BTEX by headspace GC-MS	E101
Water	F	Cations	Determination of cations by filtration followed by ICP-MS	E102
Water	UF	Chemical Oxygen Demand (COD)	Determination using a COD reactor followed by colorimetry	E112
Water	F	Chloride	Determination of chloride by filtration & analysed by ion chromatography	E109
Water	F	Chromium - Hexavalent	Determination of hexavalent chromium by acidification, addition of 1,5 diphenylcarbazide followed by	E116
Water	UF	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E115
Water	UF	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through liquid:liquid extraction with cyclohexane	E111
Water	F	Diesel Range Organics (C10 - C24)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	Dissolved Organic Content (DOC)	Determination of DOC by filtration followed by low heat with persulphate addition followed by IR detection	E110
Water	UF	Electrical Conductivity	Determination of electrical conductivity by electrometric measurement	E123
Water	F	EPH (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E104
Water	F	Fluoride	Determination of Fluoride by filtration & analysed by ion chromatography	E109
Water	F	Hardness	Determination of Ca and Mg by ICP-MS followed by calculation	E102
Leachate	F	Leachate Preparation - NRA	Based on National Rivers Authority leaching test 1994	E301
Leachate	F	Leachate Preparation - WAC	Based on BS EN 12457 Pt1, 2, 3	E302
Water	F	Metals	Determination of metals by filtration followed by ICP-MS	E102
Water	F	Mineral Oil (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	Nitrate	Determination of nitrate by filtration & analysed by ion chromatography	E109
Water	UF	Monohydric Phenol	Determination of phenols by distillation followed by colorimetry	E121
Water	F	PAH - Speciated (EPA 16)	Determination of PAH compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E105
Water	F	PCB - 7 Congeners	Determination of PCB compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E108
Water	UF	Petroleum Ether Extract (PEE)	Gravimetrically determined through liquid:liquid extraction with petroleum ether	E111
Water	UF	pH	Determination of pH by electrometric measurement	E107
Water	F	Phosphate	Determination of phosphate by filtration & analysed by ion chromatography	E109
Water	UF	Redox Potential	Determination of redox potential by electrometric measurement	E113
Water	F	Sulphate (as SO4)	Determination of sulphate by filtration & analysed by ion chromatography	E109
Water	UF	Sulphide	Determination of sulphide by distillation followed by colorimetry	E118
Water	F	SVOC	Determination of semi-volatile organic compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E106
Water	UF	Toluene Extractable Matter (TEM)	Gravimetrically determined through liquid:liquid extraction with toluene	E111
Water	UF	Total Organic Carbon (TOC)	Low heat with persulphate addition followed by IR detection	E110
Water	F	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 liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C35. C5 to C8 by headspace GC-MS	E104
Water	F	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 liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C44. C5 to C8 by headspace GC-MS	E104
Water	UF	VOCS	Determination of volatile organic compounds by headspace GC-MS	E101
Water	UF	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E101

Key

F Filtered
UF Unfiltered



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List of HWOL Acronyms and Operators

DETS Report No: 23-10657

Ashdown Site Investigations Ltd

Site Reference: Four Housing Courts , Lansdowne Road , London

Project / Job Ref: P16180_1738

Order No: 11289

Reporting Date: 25/08/2023

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

Det - Acronym

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
Mineral Oil (C10 - C40) (BS EN 12457-2) - EH_CU_1D_AL
Total BTEX (BS EN 12457-2) - HS_1D_MS_Total

Parameter	Matrix Type	Suite Reference	Expanded Uncertainty Measurement	Unit
TOC	Soil	BS EN 12457	10.4	%
Loss on Ignition	Soil	BS EN 12457	16.9	%
BTEX	Soil	BS EN 12457	14.0	%
Sum of PCBs	Soil	BS EN 12457	21.1	%
Mineral Oil	Soil	BS EN 12457	9.0	%
Total PAH	Soil	BS EN 12457	17.9	%
pH	Soil	BS EN 12457	0.282	Units
Acid Neutralisation Capacity	Soil	BS EN 12457	18.0	%
Arsenic	Leachate	BS EN 12457	19.5	%
Barium	Leachate	BS EN 12457	12.2	%
Cadmium	Leachate	BS EN 12457	17.2	%
Chromium	Leachate	BS EN 12457	20.7	%
Copper	Leachate	BS EN 12457	14.1	%
Mercury	Leachate	BS EN 12457	16.7	%
Molybdenum	Leachate	BS EN 12457	13.3	%
Nickel	Leachate	BS EN 12457	14.0	%
Lead	Leachate	BS EN 12457	12.1	%
Antimony	Leachate	BS EN 12457	16.1	%
Selenium	Leachate	BS EN 12457	15.5	%
Zinc	Leachate	BS EN 12457	14.0	%
Chloride	Leachate	BS EN 12457	15.7	%
Fluoride	Leachate	BS EN 12457	19.1	%
Sulphate	Leachate	BS EN 12457	27.6	%
TDS	Leachate	BS EN 12457	10.0	%
Phenol Index	Leachate	BS EN 12457	12.9	%
DOC	Leachate	BS EN 12457	20.4	%
Clay Content	Soil	BS 3882: 2015	15.0	%
Silt Content	Soil	BS 3882: 2015	14.0	%
Sand Content	Soil	BS 3882: 2015	13.0	%
Loss on Ignition	Soil	BS 3882: 2015	16.9	%
pH	Soil	BS 3882: 2015	0.282	Units
Carbonate	Soil	BS 3882: 2015	12.0	%
Total Nitrogen	Soil	BS 3882: 2015	12.0	%
Phosphorus (Extractable)	Soil	BS 3882: 2015	24.0	%
Potassium (Extractable)	Soil	BS 3882: 2015	20.0	%
Magnesium (Extractable)	Soil	BS 3882: 2015	26.0	%
Zinc	Soil	BS 3882: 2015	19.8	%
Copper	Soil	BS 3882: 2015	23.2	%
Nickel	Soil	BS 3882: 2015	32.6	%
Available Sodium	Soil	BS 3882: 2015	23.0	%
Available Calcium	Soil	BS 3882: 2015	23.0	%
Electrical Conductivity	Soil	BS 3882: 2015	10.0	%



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t: 01622 850410

DETS Report No: 23-10723

Site Reference: Four Housing Courts, Lansdowne Road, London

Project / Job Ref: P16180 1739

Order No: 11292

Sample Receipt Date: 21/08/2023

Sample Scheduled Date: 21/08/2023

Report Issue Number: 1

Reporting Date: 25/08/2023

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.

For Topsoil and WAC analysis the expanded uncertainty measurement should be considered while evaluating results against compliance values.



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Soil Analysis Certificate						
DETS Report No: 23-10723	Date Sampled	17/08/23	16/08/23	16/08/23		
Ashdown Site Investigations Ltd	Time Sampled	None Supplied	None Supplied	None Supplied		
Site Reference: Four Housing Courts, Lansdowne Road, London	TP / BH No	WS12	BH02	BH03		
Project / Job Ref: P16180_1739	Additional Refs	None Supplied	None Supplied	None Supplied		
Order No: 11292	Depth (m)	0.40	0.25	0.50		
Reporting Date: 25/08/2023	DETS Sample No	670957	670958	670959		

Determinand	Unit	RL	Accreditation	(n)				
Asbestos Screen ^(S)	N/a	N/a	ISO17025	Not Detected	Not Detected	Not Detected		
pH	pH Units	N/a	MCERTS	8.0	9.7	7.6		
Total Sulphate as SO ₄	mg/kg	< 200	MCERTS	2774	800	357		
Total Sulphate as SO ₄	%	< 0.02	MCERTS	0.28	0.08	0.04		
Organic Matter (SOM)	%	< 0.1	MCERTS	9.3	4.5	0.8		
Arsenic (As)	mg/kg	< 2	MCERTS	21	13	29		
W/S Boron	mg/kg	< 1	NONE	< 1	< 1	< 1		
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	1.6	< 0.2	< 0.2		
Chromium (Cr)	mg/kg	< 2	MCERTS	36	19	28		
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2		
Copper (Cu)	mg/kg	< 4	MCERTS	192	51	24		
Lead (Pb)	mg/kg	< 3	MCERTS	1100	180	25		
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1	1.3	< 1		
Nickel (Ni)	mg/kg	< 3	MCERTS	28	12	34		
Selenium (Se)	mg/kg	< 2	MCERTS	< 2	< 2	< 2		
Zinc (Zn)	mg/kg	< 3	MCERTS	1960	98	66		

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

Subcontracted analysis (S)

(n) 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



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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 23-10723	Date Sampled	17/08/23	16/08/23	16/08/23		
Ashdown Site Investigations Ltd	Time Sampled	None Supplied	None Supplied	None Supplied		
Site Reference: Four Housing Courts, Lansdowne Road, London	TP / BH No	WS12	BH02	BH03		
Project / Job Ref: P16180_1739	Additional Refs	None Supplied	None Supplied	None Supplied		
Order No: 11292	Depth (m)	0.40	0.25	0.50		
Reporting Date: 25/08/2023	DETS Sample No	670957	670958	670959		

Determinand	Unit	RL	Accreditation	(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	0.51	< 0.1	< 0.1	
Anthracene	mg/kg	< 0.1	MCERTS	0.16	< 0.1	< 0.1	
Fluoranthene	mg/kg	< 0.1	MCERTS	1.04	< 0.1	< 0.1	
Pyrene	mg/kg	< 0.1	MCERTS	1.05	< 0.1	< 0.1	
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	0.58	< 0.1	< 0.1	
Chrysene	mg/kg	< 0.1	MCERTS	0.76	< 0.1	< 0.1	
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	0.75	< 0.1	< 0.1	
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	0.36	< 0.1	< 0.1	
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	0.61	< 0.1	< 0.1	
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	0.47	< 0.1	< 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	0.48	< 0.1	< 0.1	
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	6.8	< 1.6	< 1.6	

(n) 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



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Soil Analysis Certificate - EPH Banded (Type F)

DETS Report No: 23-10723	Date Sampled	17/08/23	16/08/23	16/08/23		
Ashdown Site Investigations Ltd	Time Sampled	None Supplied	None Supplied	None Supplied		
Site Reference: Four Housing Courts, Lansdowne Road, London	TP / BH No	WS12	BH02	BH03		
Project / Job Ref: P16180_1739	Additional Refs	None Supplied	None Supplied	None Supplied		
Order No: 11292	Depth (m)	0.40	0.25	0.50		
Reporting Date: 25/08/2023	DETS Sample No	670957	670958	670959		

Determinand	Unit	RL	Accreditation	(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	26	< 1	< 1	
EPH (>C21 - C40) : EH 1D Total	mg/kg	< 6	MCERTS	253	< 6	< 6	
EPH (C8 - C40) : EH 1D Total	mg/kg	< 6	MCERTS	281	< 6	< 6	

(n) 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

Waste Acceptance Criteria Analytical Certificate - BS EN 12457/2																																							
DETS Report No: 23-10723		Date Sampled	17/08/23		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3" style="text-align: left; padding: 5px;">Landfill Waste Acceptance Criteria Limits</th> </tr> <tr> <th style="width: 33%; padding: 5px;">Inert Waste Landfill</th> <th style="width: 33%; padding: 5px;">Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill</th> <th style="width: 33%; padding: 5px;">Hazardous Waste Landfill</th> </tr> </thead> <tbody> <tr> <td style="text-align: center; padding: 5px;">3%</td> <td style="text-align: center; padding: 5px;">5%</td> <td style="text-align: center; padding: 5px;">6%</td> </tr> <tr> <td style="text-align: center; padding: 5px;">--</td> <td style="text-align: center; padding: 5px;">--</td> <td style="text-align: center; padding: 5px;">10%</td> </tr> <tr> <td style="text-align: center; padding: 5px;">6</td> <td style="text-align: center; padding: 5px;">--</td> <td style="text-align: center; padding: 5px;">--</td> </tr> <tr> <td style="text-align: center; padding: 5px;">1</td> <td style="text-align: center; padding: 5px;">--</td> <td style="text-align: center; padding: 5px;">--</td> </tr> <tr> <td style="text-align: center; padding: 5px;">500</td> <td style="text-align: center; padding: 5px;">--</td> <td style="text-align: center; padding: 5px;">--</td> </tr> <tr> <td style="text-align: center; padding: 5px;">100</td> <td style="text-align: center; padding: 5px;">--</td> <td style="text-align: center; padding: 5px;">--</td> </tr> <tr> <td style="text-align: center; padding: 5px;">--</td> <td style="text-align: center; padding: 5px;">>6</td> <td style="text-align: center; padding: 5px;">--</td> </tr> <tr> <td style="text-align: center; padding: 5px;">--</td> <td style="text-align: center; padding: 5px;">To be evaluated</td> <td style="text-align: center; padding: 5px;">To be evaluated</td> </tr> </tbody> </table>					Landfill Waste Acceptance Criteria Limits			Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill	3%	5%	6%	--	--	10%	6	--	--	1	--	--	500	--	--	100	--	--	--	>6	--	--	To be evaluated	To be evaluated
Landfill Waste Acceptance Criteria Limits																																							
Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill																																					
3%	5%	6%																																					
--	--	10%																																					
6	--	--																																					
1	--	--																																					
500	--	--																																					
100	--	--																																					
--	>6	--																																					
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Ashdown Site Investigations Ltd		Time Sampled	None Supplied																																				
Site Reference: Four Housing Courts, Lansdowne Road, London		TP / BH No	WS12																																				
Project / Job Ref: P16180_1739		Additional Refs	None Supplied																																				
Order No: 11292		Depth (m)	0.40																																				
Reporting Date: 25/08/2023		DETS Sample No	670957																																				
Determinand	Unit	MDL																																					
TOC ^{MU}	%	< 0.1	5.4																																				
Loss on Ignition ^{MU}	%	< 0.01	8.40																																				
BTEX ^{MU}	mg/kg	< 0.05	< 0.05																																				
Sum of PCBs	mg/kg	< 0.1	3																																				
Mineral Oil ^{MU}	mg/kg	< 10	100																																				
Total PAH ^{MU}	mg/kg	< 1.7	6.8																																				
pH ^{MU}	pH Units	N/a	8.0																																				
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	1.6																																				
Eluate Analysis			10:1 mg/l			Cumulative 10:1 mg/kg	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)																																
Arsenic ^U		< 0.01			< 0.1	0.5	2	25																															
Barium ^U		0.05			0.5	20	100	300																															
Cadmium ^U		< 0.0005			< 0.005	0.04	1	5																															
Chromium ^U		< 0.005			< 0.05	0.5	10	70																															
Copper ^U		< 0.01			< 0.1	2	50	100																															
Mercury ^U		< 0.0005			< 0.005	0.01	0.2	2																															
Molybdenum ^U		0.003			0.03	0.5	10	30																															
Nickel ^U		< 0.007			< 0.07	0.4	10	40																															
Lead ^U		0.005			0.05	0.5	10	50																															
Antimony ^U		0.019			0.19	0.06	0.7	5																															
Selenium ^U		< 0.005			< 0.05	0.1	0.5	7																															
Zinc ^U		0.026			0.26	4	50	200																															
Chloride ^U		2.5			25	800	15000	25000																															
Fluoride ^U		< 0.5			< 5	10	150	500																															
Sulphate ^U		46.5			465	1000	20000	50000																															
TDS		129			1290	4000	60000	100000																															
Phenol Index ^U		< 0.01			< 0.1	1	-	-																															
DOC ^U		19			190	500	800	1000																															
Leach Test Information																																							
Sample Mass (kg)		0.10																																					
Dry Matter (%)		93																																					
Moisture (%)		7.6																																					
Stage 1																																							
Volume Eluate L10 (litres)		0.89																																					
Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Samples Descriptions page describes if the test is performed on the dried or as-received portion																																							
Stated limits are for guidance only and DETS Ltd cannot be held responsible for any discrepancies with current legislation																																							
M Denotes MCERTS accredited test																																							
U Denotes ISO17025 accredited test																																							



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Soil Analysis Certificate - Sample Descriptions

DETS Report No: 23-10723	
Ashdown Site Investigations Ltd	
Site Reference: Four Housing Courts, Lansdowne Road, London	
Project / Job Ref: P16180_1739	
Order No: 11292	
Reporting Date: 25/08/2023	

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
670957	WS12	None Supplied	0.40	7.1	Brown sandy gravel with stones and concrete
670958	BH02	None Supplied	0.25	19	Grey sandy clay with stones
670959	BH03	None Supplied	0.50	15.2	Light brown sandy clay

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

Insufficient Sample ^{1/5}

Unsuitable Sample ^{U/5}



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Soil Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 23-10723

Ashdown Site Investigations Ltd

Site Reference: Four Housing Courts, Lansdowne Road, London

Project / Job Ref: P16180_1739

Order No: 11292

Reporting Date: 25/08/2023

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 diphénylcarbazide 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 @ 450°C	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 (all: 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 (all: 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

D Dried
AR As Received



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Water Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 23-10723

Ashdown Site Investigations Ltd

Site Reference: Four Housing Courts, Lansdowne Road, London

Project / Job Ref: P16180_1739

Order No: 11292

Reporting Date: 25/08/2023

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Water	UF	Alkalinity	Determination of alkalinity by titration against hydrochloric acid using bromocresol green as the end point	E103
Water	F	Ammoniacal Nitrogen	Determination of ammoniacal nitrogen by discrete analyser.	E126
Water	UF	BTEX	Determination of BTEX by headspace GC-MS	E101
Water	F	Cations	Determination of cations by filtration followed by ICP-MS	E102
Water	UF	Chemical Oxygen Demand (COD)	Determination using a COD reactor followed by colorimetry	E112
Water	F	Chloride	Determination of chloride by filtration & analysed by ion chromatography	E109
Water	F	Chromium - Hexavalent	Determination of hexavalent chromium by acidification, addition of 1,5 diphenylcarbazide followed by	E116
Water	UF	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E115
Water	UF	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through liquid:liquid extraction with cyclohexane	E111
Water	F	Diesel Range Organics (C10 - C24)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	Dissolved Organic Content (DOC)	Determination of DOC by filtration followed by low heat with persulphate addition followed by IR detection	E110
Water	UF	Electrical Conductivity	Determination of electrical conductivity by electrometric measurement	E123
Water	F	EPH (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E104
Water	F	Fluoride	Determination of Fluoride by filtration & analysed by ion chromatography	E109
Water	F	Hardness	Determination of Ca and Mg by ICP-MS followed by calculation	E102
Leachate	F	Leachate Preparation - NRA	Based on National Rivers Authority leaching test 1994	E301
Leachate	F	Leachate Preparation - WAC	Based on BS EN 12457 Pt1, 2, 3	E302
Water	F	Metals	Determination of metals by filtration followed by ICP-MS	E102
Water	F	Mineral Oil (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	Nitrate	Determination of nitrate by filtration & analysed by ion chromatography	E109
Water	UF	Monohydric Phenol	Determination of phenols by distillation followed by colorimetry	E121
Water	F	PAH - Speciated (EPA 16)	Determination of PAH compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E105
Water	F	PCB - 7 Congeners	Determination of PCB compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E108
Water	UF	Petroleum Ether Extract (PEE)	Gravimetrically determined through liquid:liquid extraction with petroleum ether	E111
Water	UF	pH	Determination of pH by electrometric measurement	E107
Water	F	Phosphate	Determination of phosphate by filtration & analysed by ion chromatography	E109
Water	UF	Redox Potential	Determination of redox potential by electrometric measurement	E113
Water	F	Sulphate (as SO4)	Determination of sulphate by filtration & analysed by ion chromatography	E109
Water	UF	Sulphide	Determination of sulphide by distillation followed by colorimetry	E118
Water	F	SVOC	Determination of semi-volatile organic compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E106
Water	UF	Toluene Extractable Matter (TEM)	Gravimetrically determined through liquid:liquid extraction with toluene	E111
Water	UF	Total Organic Carbon (TOC)	Low heat with persulphate addition followed by IR detection	E110
Water	F	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 liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C35. C5 to C8 by headspace GC-MS	E104
Water	F	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 liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C44. C5 to C8 by headspace GC-MS	E104
Water	UF	VOCs	Determination of volatile organic compounds by headspace GC-MS	E101
Water	UF	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E101

Key

F Filtered
UF Unfiltered



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List of HWOL Acronyms and Operators

DETS Report No: 23-10723

Ashdown Site Investigations Ltd

Site Reference: Four Housing Courts, Lansdowne Road, London

Project / Job Ref: P16180_1739

Order No: 11292

Reporting Date: 25/08/2023

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

Det - Acronym

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

Mineral Oil (C10 - C40) (BS EN 12457-2) - EH_CU_1D_AL

Total BTEX (BS EN 12457-2) - HS_1D_MS_Total

Parameter	Matrix Type	Suite Reference	Expanded Uncertainty Measurement	Unit
TOC	Soil	BS EN 12457	10.4	%
Loss on Ignition	Soil	BS EN 12457	16.9	%
BTEX	Soil	BS EN 12457	14.0	%
Sum of PCBs	Soil	BS EN 12457	21.1	%
Mineral Oil	Soil	BS EN 12457	9.0	%
Total PAH	Soil	BS EN 12457	17.9	%
pH	Soil	BS EN 12457	0.282	Units
Acid Neutralisation Capacity	Soil	BS EN 12457	18.0	%
Arsenic	Leachate	BS EN 12457	19.5	%
Barium	Leachate	BS EN 12457	12.2	%
Cadmium	Leachate	BS EN 12457	17.2	%
Chromium	Leachate	BS EN 12457	20.7	%
Copper	Leachate	BS EN 12457	14.1	%
Mercury	Leachate	BS EN 12457	16.7	%
Molybdenum	Leachate	BS EN 12457	13.3	%
Nickel	Leachate	BS EN 12457	14.0	%
Lead	Leachate	BS EN 12457	12.1	%
Antimony	Leachate	BS EN 12457	16.1	%
Selenium	Leachate	BS EN 12457	15.5	%
Zinc	Leachate	BS EN 12457	14.0	%
Chloride	Leachate	BS EN 12457	15.7	%
Fluoride	Leachate	BS EN 12457	19.1	%
Sulphate	Leachate	BS EN 12457	27.6	%
TDS	Leachate	BS EN 12457	10.0	%
Phenol Index	Leachate	BS EN 12457	12.9	%
DOC	Leachate	BS EN 12457	20.4	%
Clay Content	Soil	BS 3882: 2015	15.0	%
Silt Content	Soil	BS 3882: 2015	14.0	%
Sand Content	Soil	BS 3882: 2015	13.0	%
Loss on Ignition	Soil	BS 3882: 2015	16.9	%
pH	Soil	BS 3882: 2015	0.282	Units
Carbonate	Soil	BS 3882: 2015	12.0	%
Total Nitrogen	Soil	BS 3882: 2015	12.0	%
Phosphorus (Extractable)	Soil	BS 3882: 2015	24.0	%
Potassium (Extractable)	Soil	BS 3882: 2015	20.0	%
Magnesium (Extractable)	Soil	BS 3882: 2015	26.0	%
Zinc	Soil	BS 3882: 2015	19.8	%
Copper	Soil	BS 3882: 2015	23.2	%
Nickel	Soil	BS 3882: 2015	32.6	%
Available Sodium	Soil	BS 3882: 2015	23.0	%
Available Calcium	Soil	BS 3882: 2015	23.0	%
Electrical Conductivity	Soil	BS 3882: 2015	10.0	%



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DETS Report No: 23-10771

Site Reference: Four Housing Courts, Lansdowne Road, London

Project / Job Ref: P16180_1744

Order No: 11295

Sample Receipt Date: 22/08/2023

Sample Scheduled Date: 22/08/2023

Report Issue Number: 1

Reporting Date: 29/08/2023

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.

For Topsoil and WAC analysis the expanded uncertainty measurement should be considered while evaluating results against compliance values.



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Soil Analysis Certificate						
DETS Report No: 23-10771	Date Sampled	18/08/23	18/08/23	18/08/23	18/08/23	17/08/23
Ashdown Site Investigations Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Four Housing Courts, Lansdowne Road, London	TP / BH No	WS01	WS02	WS02	WS03	TP05
Project / Job Ref: P16180_1744	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: 11295	Depth (m)	0.20	0.15	0.20	0.50	0.40
Reporting Date: 29/08/2023	DETS Sample No	671174	671175	671176	671177	671178

Determinand	Unit	RL	Accreditation	(n)		(n)	
Asbestos Screen ^(S)	N/a	N/a	ISO17025	Not Detected	Detected	Detected	Not Detected
Sample Matrix ^(S)	Material Type	N/a	NONE		Amosite present in microscopic board	Amosite present as fibre bundles	
Asbestos Type ^(S)	PLM Result	N/a	ISO17025		Amosite	Amosite	
pH	pH Units	N/a	MCERTS	8.3	9.7	8.4	8.7
Total Sulphate as SO ₄	mg/kg	< 200	MCERTS	1368	414	755	2322
Total Sulphate as SO ₄	%	< 0.02	MCERTS	0.14	0.04	0.08	0.23
Organic Matter (SOM)	%	< 0.1	MCERTS	3.5	2.6	2.4	8
Arsenic (As)	mg/kg	< 2	MCERTS	22	6	17	27
W/S Boron	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	0.2	0.3	< 0.2	1.8
Chromium (Cr)	mg/kg	< 2	MCERTS	23	8	21	27
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2
Copper (Cu)	mg/kg	< 4	MCERTS	33	19	26	185
Lead (Pb)	mg/kg	< 3	MCERTS	156	183	169	392
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1
Nickel (Ni)	mg/kg	< 3	MCERTS	15	7	15	33
Selenium (Se)	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2
Zinc (Zn)	mg/kg	< 3	MCERTS	87	105	93	505

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
Subcontracted analysis (S)

(n) 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



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Soil Analysis Certificate						
DETS Report No: 23-10771	Date Sampled	18/08/23				
Ashdown Site Investigations Ltd	Time Sampled	None Supplied				
Site Reference: Four Housing Courts, Lansdowne Road, London	TP / BH No	BH01				
Project / Job Ref: P16180_1744	Additional Refs	None Supplied				
Order No: 11295	Depth (m)	0.30				
Reporting Date: 29/08/2023	DETS Sample No	671179				

Determinand	Unit	RL	Accreditation				
Asbestos Screen ^(S)	N/a	N/a	ISO17025	Not Detected			
Sample Matrix ^(S)	Material Type	N/a	NONE				
Asbestos Type ^(S)	PLM Result	N/a	ISO17025				
pH	pH Units	N/a	MCERTS	10.1			
Total Sulphate as SO ₄	mg/kg	< 200	MCERTS	1852			
Total Sulphate as SO ₄	%	< 0.02	MCERTS	0.19			
Organic Matter (SOM)	%	< 0.1	MCERTS	2.4			
Arsenic (As)	mg/kg	< 2	MCERTS	16			
W/S Boron	mg/kg	< 1	NONE	< 1			
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	0.6			
Chromium (Cr)	mg/kg	< 2	MCERTS	25			
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2			
Copper (Cu)	mg/kg	< 4	MCERTS	100			
Lead (Pb)	mg/kg	< 3	MCERTS	764			
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1			
Nickel (Ni)	mg/kg	< 3	MCERTS	15			
Selenium (Se)	mg/kg	< 2	MCERTS	< 2			
Zinc (Zn)	mg/kg	< 3	MCERTS	246			

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
 Subcontracted analysis (S)



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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 23-10771	Date Sampled	18/08/23	18/08/23	18/08/23	17/08/23	18/08/23
Ashdown Site Investigations Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Four Housing Courts, Lansdowne Road, London	TP / BH No	WS01	WS02	WS03	TP05	BH01
Project / Job Ref: P16180_1744	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: 11295	Depth (m)	0.20	0.15	0.50	0.40	0.30
Reporting Date: 29/08/2023	DETS Sample No	671174	671175	671177	671178	671179

Determinand	Unit	RL	Accreditation	(n)		(n)	
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	mg/kg	< 0.1	MCERTS	< 0.1	0.23	0.12	0.23
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	0.80	0.42	0.86
Pyrene	mg/kg	< 0.1	MCERTS	< 0.1	0.72	0.40	0.86
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	0.45	0.24	0.86
Chrysene	mg/kg	< 0.1	MCERTS	< 0.1	0.43	0.25	0.86
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	0.58	0.34	0.86
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	0.17	< 0.1	0.86
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	0.46	0.26	0.86
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	0.33	0.18	0.86
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	0.86
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	< 0.1	0.29	0.16	0.86
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	< 1.6	4.5	2.4	0.86

(n) 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



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Soil Analysis Certificate - EPH Banded (Type F)						
DETS Report No: 23-10771	Date Sampled	18/08/23	18/08/23	18/08/23	17/08/23	18/08/23
Ashdown Site Investigations Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Four Housing Courts, Lansdowne Road, London	TP / BH No	WS01	WS02	WS03	TP05	BH01
Project / Job Ref: P16180_1744	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: 11295	Depth (m)	0.20	0.15	0.50	0.40	0.30
Reporting Date: 29/08/2023	DETS Sample No	671174	671175	671177	671178	671179

Determinand	Unit	RL	Accreditation	(n)		(n)	
EPH (>C8 - C10) : EH 1D Total	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1
EPH (>C10 - C12) : EH 1D Total	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1
EPH (>C12 - C16) : EH 1D Total	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1
EPH (>C16 - C21) : EH 1D Total	mg/kg	< 1	MCERTS	< 1	6	1	35
EPH (>C21 - C40) : EH 1D Total	mg/kg	< 6	MCERTS	< 6	35	12	162
EPH (C8 - C40) : EH 1D Total	mg/kg	< 6	MCERTS	< 6	42	13	201

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Soil Analysis Certificate - PCB (7 Congeners)						
DETS Report No: 23-10771	Date Sampled	17/08/23				
Ashdown Site Investigations Ltd	Time Sampled	None Supplied				
Site Reference: Four Housing Courts, Lansdowne Road, London	TP / BH No	TP05				
Project / Job Ref: P16180_1744	Additional Refs	None Supplied				
Order No: 11295	Depth (m)	0.40				
Reporting Date: 29/08/2023	DETS Sample No	671178				

Determinand	Unit	RL	Accreditation				
PCB Congener 28	mg/kg	0.008	NONE	< 0.008			
PCB Congener 52	mg/kg	0.008	NONE	< 0.008			
PCB Congener 101	mg/kg	0.008	NONE	< 0.008			
PCB Congener 118	mg/kg	0.008	NONE	< 0.008			
PCB Congener 138	mg/kg	0.008	NONE	< 0.008			
PCB Congener 153	mg/kg	0.008	NONE	< 0.008			
PCB Congener 180	mg/kg	0.008	NONE	< 0.008			
Total PCB (7 Congeners)	mg/kg	< 0.1	NONE	< 0.1			



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Waste Acceptance Criteria Analytical Certificate - BS EN 12457/2																																							
DETS Report No: 23-10771		Date Sampled	18/08/23		<table border="1"> <thead> <tr> <th colspan="3">Landfill Waste Acceptance Criteria Limits</th> </tr> <tr> <th>Inert Waste Landfill</th> <th>Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill</th> <th>Hazardous Waste Landfill</th> </tr> </thead> <tbody> <tr> <td>3%</td> <td>5%</td> <td>6%</td> </tr> <tr> <td>--</td> <td>--</td> <td>10%</td> </tr> <tr> <td>6</td> <td>--</td> <td>--</td> </tr> <tr> <td>1</td> <td>--</td> <td>--</td> </tr> <tr> <td>500</td> <td>--</td> <td>--</td> </tr> <tr> <td>100</td> <td>--</td> <td>--</td> </tr> <tr> <td>--</td> <td>>6</td> <td>--</td> </tr> <tr> <td>--</td> <td>To be evaluated</td> <td>To be evaluated</td> </tr> </tbody> </table>					Landfill Waste Acceptance Criteria Limits			Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill	3%	5%	6%	--	--	10%	6	--	--	1	--	--	500	--	--	100	--	--	--	>6	--	--	To be evaluated	To be evaluated
Landfill Waste Acceptance Criteria Limits																																							
Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill																																					
3%	5%	6%																																					
--	--	10%																																					
6	--	--																																					
1	--	--																																					
500	--	--																																					
100	--	--																																					
--	>6	--																																					
--	To be evaluated	To be evaluated																																					
Ashdown Site Investigations Ltd		Time Sampled	None Supplied																																				
Site Reference: Four Housing Courts, Lansdowne Road, London		TP / BH No	WS02																																				
Project / Job Ref: P16180_1744		Additional Refs	None Supplied																																				
Order No: 11295		Depth (m)	0.15																																				
Reporting Date: 29/08/2023		DETS Sample No	671175																																				
Determinand	Unit	MDL																																					
TOC ^{MU}	%	< 0.1	1.5																																				
Loss on Ignition ^{MU}	%	< 0.01	3.06																																				
BTEX ^{MU}	mg/kg	< 0.05	< 0.05																																				
Sum of PCBs	mg/kg	< 0.1	< 0.1																																				
Mineral Oil ^{MU}	mg/kg	< 10	< 10																																				
Total PAH ^{MU}	mg/kg	< 1.7	4.6																																				
pH ^{MU}	pH Units	N/a	9.7																																				
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	< 1																																				
Eluate Analysis			10:1 mg/l			Cumulative 10:1 mg/kg	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)																																
Arsenic ^U		< 0.01			< 0.1	0.5	2	25																															
Barium ^U		0.03			0.3	20	100	300																															
Cadmium ^U		< 0.0005			< 0.005	0.04	1	5																															
Chromium ^U		< 0.005			< 0.05	0.5	10	70																															
Copper ^U		0.01			0.1	2	50	100																															
Mercury ^U		< 0.0005			< 0.005	0.01	0.2	2																															
Molybdenum ^U		< 0.001			< 0.01	0.5	10	30																															
Nickel ^U		< 0.007			< 0.07	0.4	10	40																															
Lead ^U		0.010			0.10	0.5	10	50																															
Antimony ^U		< 0.005			< 0.05	0.06	0.7	5																															
Selenium ^U		< 0.005			< 0.05	0.1	0.5	7																															
Zinc ^U		0.011			0.11	4	50	200																															
Chloride ^U		3.0			30	800	15000	25000																															
Fluoride ^U		< 0.5			< 5	10	150	500																															
Sulphate ^U		4.6			46	1000	20000	50000																															
TDS		93			931	4000	60000	100000																															
Phenol Index ^U		< 0.01			< 0.1	1	-	-																															
DOC ^U		22.9			229	500	800	1000																															
Leach Test Information																																							
Sample Mass (kg)		0.10																																					
Dry Matter (%)		94.2																																					
Moisture (%)		6.2																																					
Stage 1																																							
Volume Eluate L10 (litres)		0.89																																					

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Samples Descriptions page describes if the test is performed on the dried or as-received portion
 Stated limits are for guidance only and DETS Ltd cannot be held responsible for any discrepancies with current legislation
 M Denotes MCERTS accredited test
 U Denotes ISO17025 accredited test



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Bulk Analysis Certificate						
DETS Report No: 23-10771	Date Sampled	18/08/23				
Ashdown Site Investigations Ltd	Time Sampled	None Supplied				
Site Reference: Four Housing Courts, Lansdowne Road, London	TP / BH No	WS02				
Project / Job Ref: P16180_1744	Additional Refs	None Supplied				
Order No: 11295	Depth (m)	0.20				
Reporting Date: 29/08/2023	DETS Sample No	671176				

Determinand	Unit	RL	Accreditation				
Asbestos Type ^(S)	PLM Result	N/a	ISO17025	Amosite			
Sample Matrix ^(S)	Material Type	N/a	NONE	Board			

The samples have been examined to identify the presence of asbestiform minerals by polarising light microscopy and dispersion staining technique to In-House Procedures QTSE600 Determination of Asbestos in Bulk Materials; Asbestos in Soils/Sediments (fibre screening and identification) that is in accordance with the Health and Safety Executive HSG 248 Appendix 2.

This report refers to samples as received, and Dets Ltd, takes no responsibility for the accuracy or competence of sampling by others.

The material description shall be regarded as tentative and is not included in our scope of UKAS Accreditation.

Opinions and interpretations expressed herein are outside the scope of UKAS Accreditation.

RL: Reporting Limit

Subcontracted analysis ^(S)



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Soil Analysis Certificate - Sample Descriptions	
DETS Report No: 23-10771	
Ashdown Site Investigations Ltd	
Site Reference: Four Housing Courts, Lansdowne Road, London	
Project / Job Ref: P16180_1744	
Order No: 11295	
Reporting Date: 29/08/2023	

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
671174	WS01	None Supplied	0.20	17.9	Brown sandy gravel with stones and concrete
671175	WS02	None Supplied	0.15	5.7	Brown loamy sand with stones and concrete
671177	WS03	None Supplied	0.50	7.8	Brown sandy gravel with stones and concrete
671178	TP05	None Supplied	0.40	11.2	Brown loamy sand with stones and brick
671179	BH01	None Supplied	0.30	14.9	Brown loamy sand with stones and vegetation

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

Insufficient Sample ^{u/s}

Unsuitable Sample ^{u/s}



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Soil Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 23-10771

Ashdown Site Investigations Ltd

Site Reference: Four Housing Courts, Lansdowne Road, London

Project / Job Ref: P16180_1744

Order No: 11295

Reporting Date: 29/08/2023

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

D Dried
AR As Received



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Water Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 23-10771

Ashdown Site Investigations Ltd

Site Reference: Four Housing Courts, Lansdowne Road, London

Project / Job Ref: P16180_1744

Order No: 11295

Reporting Date: 29/08/2023

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Water	UF	Alkalinity	Determination of alkalinity by titration against hydrochloric acid using bromocresol green as the end point	E103
Water	F	Ammoniacal Nitrogen	Determination of ammoniacal nitrogen by discrete analyser.	E126
Water	UF	BTEX	Determination of BTEX by headspace GC-MS	E101
Water	F	Cations	Determination of cations by filtration followed by ICP-MS	E102
Water	UF	Chemical Oxygen Demand (COD)	Determination using a COD reactor followed by colorimetry	E112
Water	F	Chloride	Determination of chloride by filtration & analysed by ion chromatography	E109
Water	F	Chromium - Hexavalent	Determination of hexavalent chromium by acidification, addition of 1,5 diphenylcarbazide followed by	E116
Water	UF	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E115
Water	UF	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through liquid:liquid extraction with cyclohexane	E111
Water	F	Diesel Range Organics (C10 - C24)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	Dissolved Organic Content (DOC)	Determination of DOC by filtration followed by low heat with persulphate addition followed by IR dete	E110
Water	UF	Electrical Conductivity	Determination of electrical conductivity by electrometric measurement	E123
Water	F	EPH (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E104
Water	F	Fluoride	Determination of Fluoride by filtration & analysed by ion chromatography	E109
Water	F	Hardness	Determination of Ca and Mg by ICP-MS followed by calculation	E102
Leachate	F	Leachate Preparation - NRA	Based on National Rivers Authority leaching test 1994	E301
Leachate	F	Leachate Preparation - WAC	Based on BS EN 12457 Pt1, 2, 3	E302
Water	F	Metals	Determination of metals by filtration followed by ICP-MS	E102
Water	F	Mineral Oil (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GI-FID	E104
Water	F	Nitrate	Determination of nitrate by filtration & analysed by ion chromatography	E109
Water	UF	Monohydric Phenol	Determination of phenols by distillation followed by colorimetry	E121
Water	F	PAH - Speciated (EPA 16)	Determination of PAH compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E105
Water	F	PCB - 7 Congeners	Determination of PCB compounds by concentration through SPE cartridge, collection in dichloromethane	E108
Water	UF	Petroleum Ether Extract (PEE)	Gravimetrically determined through liquid:liquid extraction with petroleum ether	E111
Water	UF	pH	Determination of pH by electrometric measurement	E107
Water	F	Phosphate	Determination of phosphate by filtration & analysed by ion chromatography	E109
Water	UF	Redox Potential	Determination of redox potential by electrometric measurement	E113
Water	F	Sulphate (as SO4)	Determination of sulphate by filtration & analysed by ion chromatography	E109
Water	UF	Sulphide	Determination of sulphide by distillation followed by colorimetry	E118
Water	F	SVOC	Determination of semi-volatile organic compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E106
Water	UF	Toluene Extractable Matter (TEM)	Gravimetrically determined through liquid:liquid extraction with toluene	E111
Water	UF	Total Organic Carbon (TOC)	Low heat with persulphate addition followed by IR detection	E110
Water	F	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 liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C35. C5 to C8 by headspace GC-MS	E104
Water	F	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 liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C44. C5 to C8 by headspace GC-MS	E104
Water	UF	VOCs	Determination of volatile organic compounds by headspace GC-MS	E101
Water	UF	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E101

Key

F Filtered
UF Unfiltered



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List of HWOL Acronyms and Operators	
DETS Report No: 23-10771	
Ashdown Site Investigations Ltd	
Site Reference: Four Housing Courts, Lansdowne Road, London	
Project / Job Ref: P16180_1744	
Order No: 11295	
Reporting Date: 29/08/2023	

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

Det - Acronym
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
Mineral Oil (C10 - C40) (BS EN 12457-2) - EH_CU_1D_AL
Total BTEX (BS EN 12457-2) - HS_1D_MS_Total

Parameter	Matrix Type	Suite Reference	Expanded Uncertainty Measurement	Unit
TOC	Soil	BS EN 12457	10.4	%
Loss on Ignition	Soil	BS EN 12457	16.9	%
BTEX	Soil	BS EN 12457	14.0	%
Sum of PCBs	Soil	BS EN 12457	21.1	%
Mineral Oil	Soil	BS EN 12457	9.0	%
Total PAH	Soil	BS EN 12457	17.9	%
pH	Soil	BS EN 12457	0.282	Units
Acid Neutralisation Capacity	Soil	BS EN 12457	18.0	%
Arsenic	Leachate	BS EN 12457	19.5	%
Barium	Leachate	BS EN 12457	12.2	%
Cadmium	Leachate	BS EN 12457	17.2	%
Chromium	Leachate	BS EN 12457	20.7	%
Copper	Leachate	BS EN 12457	14.1	%
Mercury	Leachate	BS EN 12457	16.7	%
Molybdenum	Leachate	BS EN 12457	13.3	%
Nickel	Leachate	BS EN 12457	14.0	%
Lead	Leachate	BS EN 12457	12.1	%
Antimony	Leachate	BS EN 12457	16.1	%
Selenium	Leachate	BS EN 12457	15.5	%
Zinc	Leachate	BS EN 12457	14.0	%
Chloride	Leachate	BS EN 12457	15.7	%
Fluoride	Leachate	BS EN 12457	19.1	%
Sulphate	Leachate	BS EN 12457	27.6	%
TDS	Leachate	BS EN 12457	10.0	%
Phenol Index	Leachate	BS EN 12457	12.9	%
DOC	Leachate	BS EN 12457	20.4	%
Clay Content	Soil	BS 3882: 2015	15.0	%
Silt Content	Soil	BS 3882: 2015	14.0	%
Sand Content	Soil	BS 3882: 2015	13.0	%
Loss on Ignition	Soil	BS 3882: 2015	16.9	%
pH	Soil	BS 3882: 2015	0.282	Units
Carbonate	Soil	BS 3882: 2015	12.0	%
Total Nitrogen	Soil	BS 3882: 2015	12.0	%
Phosphorus (Extractable)	Soil	BS 3882: 2015	24.0	%
Potassium (Extractable)	Soil	BS 3882: 2015	20.0	%
Magnesium (Extractable)	Soil	BS 3882: 2015	26.0	%
Zinc	Soil	BS 3882: 2015	19.8	%
Copper	Soil	BS 3882: 2015	23.2	%
Nickel	Soil	BS 3882: 2015	32.6	%
Available Sodium	Soil	BS 3882: 2015	23.0	%
Available Calcium	Soil	BS 3882: 2015	23.0	%
Electrical Conductivity	Soil	BS 3882: 2015	10.0	%



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BN6 8SG

Derwentside Environmental Testing Services Ltd
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t: 01622 850410

DETS Report No: 23-10894

Site Reference: Four Housing Courts, Lansdowne Road, London

Project / Job Ref: P16180 1745

Order No: 11296

Sample Receipt Date: 25/08/2023

Sample Scheduled Date: 25/08/2023

Report Issue Number: 1

Reporting Date: 01/09/2023

Authorised by:

Kevin Old
Operations Director

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.

For Topsoil and WAC analysis the expanded uncertainty measurement should be considered while evaluating results against compliance values.



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Soil Analysis Certificate					
DETS Report No: 23-10894	Date Sampled	21/08/23	21/08/23	21/08/23	21/08/23
Ashdown Site Investigations Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Four Housing Courts, Lansdowne Road, London	TP / BH No	WS07	WS08	WS09	WS10
Project / Job Ref: P16180_1745	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied
Order No: 11296	Depth (m)	0.35	0.60	0.20	0.50
Reporting Date: 01/09/2023	DETS Sample No	671770	671771	671772	671773

Determinand	Unit	RL	Accreditation					
Asbestos Screen ^(S)	N/a	N/a	ISO17025	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
pH	pH Units	N/a	MCERTS	7.0	7.2	8.7	7.2	7.3
Total Sulphate as SO ₄	mg/kg	< 200	MCERTS	969	1300	863	3484	404
Total Sulphate as SO ₄	%	< 0.02	MCERTS	0.10	0.13	0.09	0.35	0.04
Organic Matter (SOM)	%	< 0.1	MCERTS	5.8	5.3	7.7	14	1.6
Arsenic (As)	mg/kg	< 2	MCERTS	18	23	22	34	8
W/S Boron	mg/kg	< 1	NONE	1.5	1.3	< 1	3.1	1.8
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	0.6	0.7	0.8	2.3	0.3
Chromium (Cr)	mg/kg	< 2	MCERTS	26	27	24	28	34
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
Copper (Cu)	mg/kg	< 4	MCERTS	121	63	108	261	29
Lead (Pb)	mg/kg	< 3	MCERTS	417	449	434	1590	62
Mercury (Hg)	mg/kg	< 1	MCERTS	1	< 1	1	1.3	< 1
Nickel (Ni)	mg/kg	< 3	MCERTS	22	23	23	37	35
Selenium (Se)	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Zinc (Zn)	mg/kg	< 3	MCERTS	289	309	331	1830	280

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
Subcontracted analysis (S)



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Soil Analysis Certificate						
DETS Report No: 23-10894	Date Sampled	21/08/23				
Ashdown Site Investigations Ltd	Time Sampled	None Supplied				
Site Reference: Four Housing Courts, Lansdowne Road, London	TP / BH No	WS11				
Project / Job Ref: P16180_1745	Additional Refs	None Supplied				
Order No: 11296	Depth (m)	0.40				
Reporting Date: 01/09/2023	DETS Sample No	671775				

Determinand	Unit	RL	Accreditation				
Asbestos Screen ^(S)	N/a	N/a	ISO17025	Not Detected			
pH	pH Units	N/a	MCERTS	7.9			
Total Sulphate as SO ₄	mg/kg	< 200	MCERTS	694			
Total Sulphate as SO ₄	%	< 0.02	MCERTS	0.07			
Organic Matter (SOM)	%	< 0.1	MCERTS	2.6			
Arsenic (As)	mg/kg	< 2	MCERTS	14			
W/S Boron	mg/kg	< 1	NONE	< 1			
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	0.5			
Chromium (Cr)	mg/kg	< 2	MCERTS	14			
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2			
Copper (Cu)	mg/kg	< 4	MCERTS	21			
Lead (Pb)	mg/kg	< 3	MCERTS	47			
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1			
Nickel (Ni)	mg/kg	< 3	MCERTS	19			
Selenium (Se)	mg/kg	< 2	MCERTS	< 2			
Zinc (Zn)	mg/kg	< 3	MCERTS	75			

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
 Subcontracted analysis (S)



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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 23-10894	Date Sampled	21/08/23	21/08/23	21/08/23	21/08/23	21/08/23
Ashdown Site Investigations Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Four Housing Courts, Lansdowne Road, London	TP / BH No	WS07	WS08	WS09	WS10	WS10
Project / Job Ref: P16180_1745	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: 11296	Depth (m)	0.35	0.60	0.20	0.50	1.10
Reporting Date: 01/09/2023	DETS Sample No	671770	671771	671772	671773	671774

Determinand	Unit	RL	Accreditation					
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	0.13	0.35	1.21	0.77	< 0.1
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.17	< 0.1	< 0.1
Fluoranthene	mg/kg	< 0.1	MCERTS	0.31	0.89	2.42	1.41	< 0.1
Pyrene	mg/kg	< 0.1	MCERTS	0.29	0.78	2.09	1.17	< 0.1
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	0.15	0.35	1.14	0.45	< 0.1
Chrysene	mg/kg	< 0.1	MCERTS	0.20	0.42	1.24	0.62	< 0.1
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	0.29	0.49	1.68	0.69	< 0.1
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	0.18	0.39	0.27	< 0.1
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	0.20	0.39	1.26	0.53	< 0.1
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	0.15	0.23	0.82	0.33	< 0.1
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.20	< 0.1	< 0.1
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	0.13	0.19	0.76	0.28	< 0.1
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	1.8	4.3	13.4	6.5	< 1.6



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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 23-10894	Date Sampled	21/08/23				
Ashdown Site Investigations Ltd	Time Sampled	None Supplied				
Site Reference: Four Housing Courts, Lansdowne Road, London	TP / BH No	WS11				
Project / Job Ref: P16180_1745	Additional Refs	None Supplied				
Order No: 11296	Depth (m)	0.40				
Reporting Date: 01/09/2023	DETS Sample No	671775				

Determinand	Unit	RL	Accreditation				
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1			
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1			
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1			
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1			
Phenanthrene	mg/kg	< 0.1	MCERTS	< 0.1			
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1			
Fluoranthene	mg/kg	< 0.1	MCERTS	0.36			
Pyrene	mg/kg	< 0.1	MCERTS	0.57			
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	0.27			
Chrysene	mg/kg	< 0.1	MCERTS	0.47			
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	1.49			
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	0.40			
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	1.45			
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	1.20			
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	0.23			
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	1.17			
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	7.6			



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Soil Analysis Certificate - EPH Banded (Type F)					
DETS Report No: 23-10894	Date Sampled	21/08/23	21/08/23	21/08/23	21/08/23
Ashdown Site Investigations Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Four Housing Courts, Lansdowne Road, London	TP / BH No	WS07	WS08	WS09	WS10
Project / Job Ref: P16180_1745	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied
Order No: 11296	Depth (m)	0.35	0.60	0.20	0.50
Reporting Date: 01/09/2023	DETS Sample No	671770	671771	671772	671773

Determinand	Unit	RL	Accreditation					
EPH (>C8 - C10) :	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1	< 1
EH 1D Total								
EPH (>C10 - C12) :	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1	< 1
EH 1D Total								
EPH (>C12 - C16) :	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1	< 1
EH 1D Total								
EPH (>C16 - C21) :	mg/kg	< 1	MCERTS	< 1	3	10	8	< 1
EH 1D Total								
EPH (>C21 - C40) :	mg/kg	< 6	MCERTS	11	16	42	81	< 6
EH 1D Total								
EPH (C8 - C40) :	mg/kg	< 6	MCERTS	11	19	52	89	< 6
EH 1D Total								



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Soil Analysis Certificate - EPH Banded (Type F)

DETS Report No: 23-10894	Date Sampled	21/08/23				
Ashdown Site Investigations Ltd	Time Sampled	None Supplied				
Site Reference: Four Housing Courts, Lansdowne Road, London	TP / BH No	WS11				
Project / Job Ref: P16180_1745	Additional Refs	None Supplied				
Order No: 11296	Depth (m)	0.40				
Reporting Date: 01/09/2023	DETS Sample No	671775				

Determinand	Unit	RL	Accreditation				
EPH (>C8 - C10) :	mg/kg	< 1	MCERTS	< 1			
EH 1D Total	mg/kg	< 1	MCERTS	< 1			
EPH (>C10 - C12) :	mg/kg	< 1	MCERTS	< 1			
EH 1D Total	mg/kg	< 1	MCERTS	< 1			
EPH (>C12 - C16) :	mg/kg	< 1	MCERTS	< 1			
EH 1D Total	mg/kg	< 1	MCERTS	< 1			
EPH (>C16 - C21) :	mg/kg	< 1	MCERTS	19			
EH 1D Total	mg/kg	< 6	MCERTS	615			
EPH (>C21 - C40) :	mg/kg	< 6	MCERTS	634			
EH 1D Total	mg/kg	< 6	MCERTS	634			



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Soil Analysis Certificate - PCB (7 Congeners)						
DETS Report No: 23-10894	Date Sampled	21/08/23				
Ashdown Site Investigations Ltd	Time Sampled	None Supplied				
Site Reference: Four Housing Courts, Lansdowne Road, London	TP / BH No	WS10				
Project / Job Ref: P16180_1745	Additional Refs	None Supplied				
Order No: 11296	Depth (m)	1.10				
Reporting Date: 01/09/2023	DETS Sample No	671774				

Determinand	Unit	RL	Accreditation				
PCB Congener 28	mg/kg	0.008	NONE	< 0.008			
PCB Congener 52	mg/kg	0.008	NONE	< 0.008			
PCB Congener 101	mg/kg	0.008	NONE	< 0.008			
PCB Congener 118	mg/kg	0.008	NONE	< 0.008			
PCB Congener 138	mg/kg	0.008	NONE	< 0.008			
PCB Congener 153	mg/kg	0.008	NONE	< 0.008			
PCB Congener 180	mg/kg	0.008	NONE	< 0.008			
Total PCB (7 Congeners)	mg/kg	< 0.1	NONE	< 0.1			

Waste Acceptance Criteria Analytical Certificate - BS EN 12457/2																																							
DETS Report No: 23-10894		Date Sampled		21/08/23		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3" style="text-align: left; padding: 5px;">Landfill Waste Acceptance Criteria Limits</th> </tr> <tr> <th style="width: 33%; padding: 5px;">Inert Waste Landfill</th> <th style="width: 33%; padding: 5px;">Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill</th> <th style="width: 33%; padding: 5px;">Hazardous Waste Landfill</th> </tr> </thead> <tbody> <tr> <td style="text-align: center; padding: 5px;">3%</td> <td style="text-align: center; padding: 5px;">5%</td> <td style="text-align: center; padding: 5px;">6%</td> </tr> <tr> <td style="text-align: center; padding: 5px;">--</td> <td style="text-align: center; padding: 5px;">--</td> <td style="text-align: center; padding: 5px;">10%</td> </tr> <tr> <td style="text-align: center; padding: 5px;">6</td> <td style="text-align: center; padding: 5px;">--</td> <td style="text-align: center; padding: 5px;">--</td> </tr> <tr> <td style="text-align: center; padding: 5px;">1</td> <td style="text-align: center; padding: 5px;">--</td> <td style="text-align: center; padding: 5px;">--</td> </tr> <tr> <td style="text-align: center; padding: 5px;">500</td> <td style="text-align: center; padding: 5px;">--</td> <td style="text-align: center; padding: 5px;">--</td> </tr> <tr> <td style="text-align: center; padding: 5px;">100</td> <td style="text-align: center; padding: 5px;">--</td> <td style="text-align: center; padding: 5px;">--</td> </tr> <tr> <td style="text-align: center; padding: 5px;">--</td> <td style="text-align: center; padding: 5px;">>6</td> <td style="text-align: center; padding: 5px;">--</td> </tr> <tr> <td style="text-align: center; padding: 5px;">--</td> <td style="text-align: center; padding: 5px;">To be evaluated</td> <td style="text-align: center; padding: 5px;">To be evaluated</td> </tr> </tbody> </table>				Landfill Waste Acceptance Criteria Limits			Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill	3%	5%	6%	--	--	10%	6	--	--	1	--	--	500	--	--	100	--	--	--	>6	--	--	To be evaluated	To be evaluated
Landfill Waste Acceptance Criteria Limits																																							
Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill																																					
3%	5%	6%																																					
--	--	10%																																					
6	--	--																																					
1	--	--																																					
500	--	--																																					
100	--	--																																					
--	>6	--																																					
--	To be evaluated	To be evaluated																																					
Ashdown Site Investigations Ltd		Time Sampled		None Supplied																																			
Site Reference: Four Housing Courts, Lansdowne Road, London		TP / BH No		WS07																																			
Project / Job Ref: P16180_1745		Additional Refs		None Supplied																																			
Order No: 11296		Depth (m)		0.35																																			
Reporting Date: 01/09/2023		DETS Sample No		671770																																			
Determinand		Unit		MDL																																			
TOC ^{MU}		%		< 0.1		3.4																																	
Loss on Ignition ^{MU}		%		< 0.01		6.10																																	
BTEX ^{MU}		mg/kg		< 0.05		0.09																																	
Sum of PCBs		mg/kg		< 0.1		< 0.1																																	
Mineral Oil ^{MU}		mg/kg		< 10		< 10																																	
Total PAH ^{MU}		mg/kg		< 1.7		1.8																																	
pH ^{MU}		pH Units		N/a		7.0																																	
Acid Neutralisation Capacity		mol/kg (+/-)		< 1		< 1																																	
Eluate Analysis				10:1 mg/l		Cumulative 10:1 mg/kg		Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)																															
Arsenic ^U				< 0.01		< 0.1		0.5																															
Barium ^U				0.02		0.2		20																															
Cadmium ^U				< 0.0005		< 0.005		0.04																															
Chromium ^U				< 0.005		< 0.05		0.5																															
Copper ^U				< 0.01		< 0.1		2																															
Mercury ^U				< 0.0005		< 0.005		0.01																															
Molybdenum ^U				0.009		0.09		0.5																															
Nickel ^U				< 0.007		< 0.07		0.4																															
Lead ^U				< 0.005		< 0.05		0.5																															
Antimony ^U				0.012		0.12		0.06																															
Selenium ^U				< 0.005		< 0.05		0.1																															
Zinc ^U				0.008		0.08		4																															
Chloride ^U				2.5		25		800																															
Fluoride ^U				0.8		7.9		10																															
Sulphate ^U				12.9		129		1000																															
TDS				75		750		4000																															
Phenol Index ^U				< 0.01		< 0.1		1																															
DOC ^U				12.6		126		500																															
Leach Test Information																																							
Sample Mass (kg)				0.11																																			
Dry Matter (%)				79.8																																			
Moisture (%)				25.4																																			
Stage 1																																							
Volume Eluate L10 (litres)				0.88																																			

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Samples Descriptions page describes if the test is performed on the dried or as-received portion

Stated limits are for guidance only and DETS Ltd cannot be held responsible for any discrepancies with current legislation

M Denotes MCERTS accredited test

U Denotes ISO17025 accredited test

Waste Acceptance Criteria Analytical Certificate - BS EN 12457/2										
DETS Report No: 23-10894		Date Sampled	21/08/23		Landfill Waste Acceptance Criteria Limits			Inert Waste Landfill Stable Non- reactive HAZARDOUS waste in non- hazardous Landfill Hazardous Waste Landfill		
Ashdown Site Investigations Ltd		Time Sampled	None Supplied							
Site Reference: Four Housing Courts, Lansdowne Road, London		TP / BH No	WS10							
Project / Job Ref: P16180_1745		Additional Refs	None Supplied							
Order No: 11296		Depth (m)	0.50							
Reporting Date: 01/09/2023		DETS Sample No	671773							
Determinand		Unit	MDL							
TOC ^{MU}		%	< 0.1 8.1							
Loss on Ignition ^{MU}		%	< 0.01 11.30							
BTEX ^{MU}		mg/kg	< 0.05 0.07							
Sum of PCBs		mg/kg	< 0.1 < 0.1							
Mineral Oil ^{MU}		mg/kg	< 10 < 10							
Total PAH ^{MU}		mg/kg	< 1.7 6.5							
pH ^{MU}		pH Units	N/a 7.2							
Acid Neutralisation Capacity		mol/kg (+/-)	< 1 1.1							
Eluate Analysis			10:1 mg/l			Cumulative 10:1 mg/kg	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)			
Arsenic ^U			< 0.01			< 0.1	0.5	2	25	
Barium ^U			0.05			0.5	20	100	300	
Cadmium ^U			< 0.0005			< 0.005	0.04	1	5	
Chromium ^U			< 0.005			< 0.05	0.5	10	70	
Copper ^U			< 0.01			< 0.1	2	50	100	
Mercury ^U			< 0.0005			< 0.005	0.01	0.2	2	
Molybdenum ^U			0.021			0.21	0.5	10	30	
Nickel ^U			< 0.007			< 0.07	0.4	10	40	
Lead ^U			< 0.005			< 0.05	0.5	10	50	
Antimony ^U			0.038			0.38	0.06	0.7	5	
Selenium ^U			< 0.005			< 0.05	0.1	0.5	7	
Zinc ^U			0.028			0.28	4	50	200	
Chloride ^U			2.3			23	800	15000	25000	
Fluoride ^U			< 0.5			< 5	10	150	500	
Sulphate ^U			69.5			695	1000	20000	50000	
TDS			167			1669	4000	60000	100000	
Phenol Index ^U			< 0.01			< 0.1	1	-	-	
DOC ^U			12.4			124	500	800	1000	
Leach Test Information										
Sample Mass (kg)			0.12							
Dry Matter (%)			75.3							
Moisture (%)			33							
Stage 1										
Volume Eluate L10 (litres)			0.87							
Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Samples Descriptions page describes if the test is performed on the dried or as-received portion Stated limits are for guidance only and DETS Ltd cannot be held responsible for any discrepancies with current legislation M Denotes MCERTS accredited test U Denotes ISO17025 accredited test										



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Soil Analysis Certificate - Sample Descriptions

DETS Report No: 23-10894	
Ashdown Site Investigations Ltd	
Site Reference: Four Housing Courts, Lansdowne Road, London	
Project / Job Ref: P16180_1745	
Order No: 11296	
Reporting Date: 01/09/2023	

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
671770	WS07	None Supplied	0.35	20.2	Brown sandy clay
671771	WS08	None Supplied	0.60	17.6	Brown sandy clay with concrete
671772	WS09	None Supplied	0.20	9.7	Brown gravelly sand with stones and vegetation
671773	WS10	None Supplied	0.50	24.7	Brown sandy clay with stones and concrete
671774	WS10	None Supplied	1.10	20.8	Brown sandy clay
671775	WS11	None Supplied	0.40	7.1	Brown gravelly sand with stones

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

Insufficient Sample ^{U/S}

Unsuitable Sample ^{U/S}



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Soil Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 23-10894

Ashdown Site Investigations Ltd

Site Reference: Four Housing Courts, Lansdowne Road, London

Project / Job Ref: P16180_1745

Order No: 11296

Reporting Date: 01/09/2023

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 dphenylcarbazide 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 @ 450°C	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 (all: 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 (all: 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

D Dried
AR As Received



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Water Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 23-10894

Ashdown Site Investigations Ltd

Site Reference: Four Housing Courts, Lansdowne Road, London

Project / Job Ref: P16180_1745

Order No: 11296

Reporting Date: 01/09/2023

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Water	UF	Alkalinity	Determination of alkalinity by titration against hydrochloric acid using bromocresol green as the end point	E103
Water	F	Ammoniacal Nitrogen	Determination of ammoniacal nitrogen by discrete analyser.	E126
Water	UF	BTEX	Determination of BTEX by headspace GC-MS	E101
Water	F	Cations	Determination of cations by filtration followed by ICP-MS	E102
Water	UF	Chemical Oxygen Demand (COD)	Determination using a COD reactor followed by colorimetry	E112
Water	F	Chloride	Determination of chloride by filtration & analysed by ion chromatography	E109
Water	F	Chromium - Hexavalent	Determination of hexavalent chromium by acidification, addition of 1,5 diphenylcarbazide followed by	E116
Water	UF	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E115
Water	UF	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through liquid:liquid extraction with cyclohexane	E111
Water	F	Diesel Range Organics (C10 - C24)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	Dissolved Organic Content (DOC)	Determination of DOC by filtration followed by low heat with persulphate addition followed by IR detection	E110
Water	UF	Electrical Conductivity	Determination of electrical conductivity by electrometric measurement	E123
Water	F	EPH (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E104
Water	F	Fluoride	Determination of Fluoride by filtration & analysed by ion chromatography	E109
Water	F	Hardness	Determination of Ca and Mg by ICP-MS followed by calculation	E102
Leachate	F	Leachate Preparation - NRA	Based on National Rivers Authority leaching test 1994	E301
Leachate	F	Leachate Preparation - WAC	Based on BS EN 12457 Pt1, 2, 3	E302
Water	F	Metals	Determination of metals by filtration followed by ICP-MS	E102
Water	F	Mineral Oil (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	Nitrate	Determination of nitrate by filtration & analysed by ion chromatography	E109
Water	UF	Monohydric Phenol	Determination of phenols by distillation followed by colorimetry	E121
Water	F	PAH - Speciated (EPA 16)	Determination of PAH compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E105
Water	F	PCB - 7 Congeners	Determination of PCB compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E108
Water	UF	Petroleum Ether Extract (PEE)	Gravimetrically determined through liquid:liquid extraction with petroleum ether	E111
Water	UF	pH	Determination of pH by electrometric measurement	E107
Water	F	Phosphate	Determination of phosphate by filtration & analysed by ion chromatography	E109
Water	UF	Redox Potential	Determination of redox potential by electrometric measurement	E113
Water	F	Sulphate (as SO4)	Determination of sulphate by filtration & analysed by ion chromatography	E109
Water	UF	Sulphide	Determination of sulphide by distillation followed by colorimetry	E118
Water	F	SVOC	Determination of semi-volatile organic compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E106
Water	UF	Toluene Extractable Matter (TEM)	Gravimetrically determined through liquid:liquid extraction with toluene	E111
Water	UF	Total Organic Carbon (TOC)	Low heat with persulphate addition followed by IR detection	E110
Water	F	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 liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C35. C5 to C8 by headspace GC-MS	E104
Water	F	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 liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C44. C5 to C8 by headspace GC-MS	E104
Water	UF	VOCs	Determination of volatile organic compounds by headspace GC-MS	E101
Water	UF	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E101

Key

F Filtered
UF Unfiltered



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List of HWOL Acronyms and Operators

DETS Report No: 23-10894

Ashdown Site Investigations Ltd

Site Reference: Four Housing Courts, Lansdowne Road, London

Project / Job Ref: P16180_1745

Order No: 11296

Reporting Date: 01/09/2023

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

Det - Acronym

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

Mineral Oil (C10 - C40) (BS EN 12457-2) - EH_CU_1D_AL

Total BTEX (BS EN 12457-2) - HS_1D_MS_Total

Parameter	Matrix Type	Suite Reference	Expanded Uncertainty Measurement	Unit
TOC	Soil	BS EN 12457	10.4	%
Loss on Ignition	Soil	BS EN 12457	16.9	%
BTEX	Soil	BS EN 12457	14.0	%
Sum of PCBs	Soil	BS EN 12457	21.1	%
Mineral Oil	Soil	BS EN 12457	9.0	%
Total PAH	Soil	BS EN 12457	17.9	%
pH	Soil	BS EN 12457	0.282	Units
Acid Neutralisation Capacity	Soil	BS EN 12457	18.0	%
Arsenic	Leachate	BS EN 12457	19.5	%
Barium	Leachate	BS EN 12457	12.2	%
Cadmium	Leachate	BS EN 12457	17.2	%
Chromium	Leachate	BS EN 12457	20.7	%
Copper	Leachate	BS EN 12457	14.1	%
Mercury	Leachate	BS EN 12457	16.7	%
Molybdenum	Leachate	BS EN 12457	13.3	%
Nickel	Leachate	BS EN 12457	14.0	%
Lead	Leachate	BS EN 12457	12.1	%
Antimony	Leachate	BS EN 12457	16.1	%
Selenium	Leachate	BS EN 12457	15.5	%
Zinc	Leachate	BS EN 12457	14.0	%
Chloride	Leachate	BS EN 12457	15.7	%
Fluoride	Leachate	BS EN 12457	19.1	%
Sulphate	Leachate	BS EN 12457	27.6	%
TDS	Leachate	BS EN 12457	10.0	%
Phenol Index	Leachate	BS EN 12457	12.9	%
DOC	Leachate	BS EN 12457	20.4	%
Clay Content	Soil	BS 3882: 2015	15.0	%
Silt Content	Soil	BS 3882: 2015	14.0	%
Sand Content	Soil	BS 3882: 2015	13.0	%
Loss on Ignition	Soil	BS 3882: 2015	16.9	%
pH	Soil	BS 3882: 2015	0.282	Units
Carbonate	Soil	BS 3882: 2015	12.0	%
Total Nitrogen	Soil	BS 3882: 2015	12.0	%
Phosphorus (Extractable)	Soil	BS 3882: 2015	24.0	%
Potassium (Extractable)	Soil	BS 3882: 2015	20.0	%
Magnesium (Extractable)	Soil	BS 3882: 2015	26.0	%
Zinc	Soil	BS 3882: 2015	19.8	%
Copper	Soil	BS 3882: 2015	23.2	%
Nickel	Soil	BS 3882: 2015	32.6	%
Available Sodium	Soil	BS 3882: 2015	23.0	%
Available Calcium	Soil	BS 3882: 2015	23.0	%
Electrical Conductivity	Soil	BS 3882: 2015	10.0	%

APPENDIX D

Summary of In Situ CBR Test Results
Graph of Subgrade Surface Modulus vs Depth
Graph of CBR vs Depth

BH	Depth (m)	CBR (%)	Ks (Mpa)
WS02	0.04	7	59
WS02	0.05	17	109
WS02	0.07	12	84
WS02	0.09	13	90
WS02	0.10	26	143
WS02	0.12	39	182
WS02	0.13	42	192
WS02	0.15	80	292
WS02	0.17	50	215
WS02	0.18	65	256
WS02	0.20	95	324
WS02	0.23	37	178
WS02	0.27	26	143
WS02	0.29	26	143
WS02	0.31	24	134
WS02	0.33	26	143
WS02	0.35	22	127
WS02	0.37	24	134
WS02	0.39	36	174
WS02	0.41	24	134
WS02	0.44	16	104
WS02	0.48	14	95
WS02	0.51	7	64
WS02	0.57	4	45
WS02	0.63	4	43
WS02	0.67	6	53
WS02	0.69	12	84
WS02	0.71	14	96
WS02	0.73	16	104
WS02	0.74	26	143
WS02	0.77	17	109
WS02	0.80	17	109
WS02	0.84	11	83
WS04	0.04	7	61
WS04	0.06	13	90
WS04	0.07	15	100
WS04	0.08	34	167
WS04	0.11	19	117
WS04	0.13	26	143
WS04	0.15	28	148
WS04	0.16	45	202
WS04	0.18	55	229
WS04	0.20	58	237
WS04	0.23	68	261
WS04	0.28	48	208
WS04	0.30	48	208
WS04	0.33	40	187
WS04	0.35	39	182
WS04	0.38	36	174

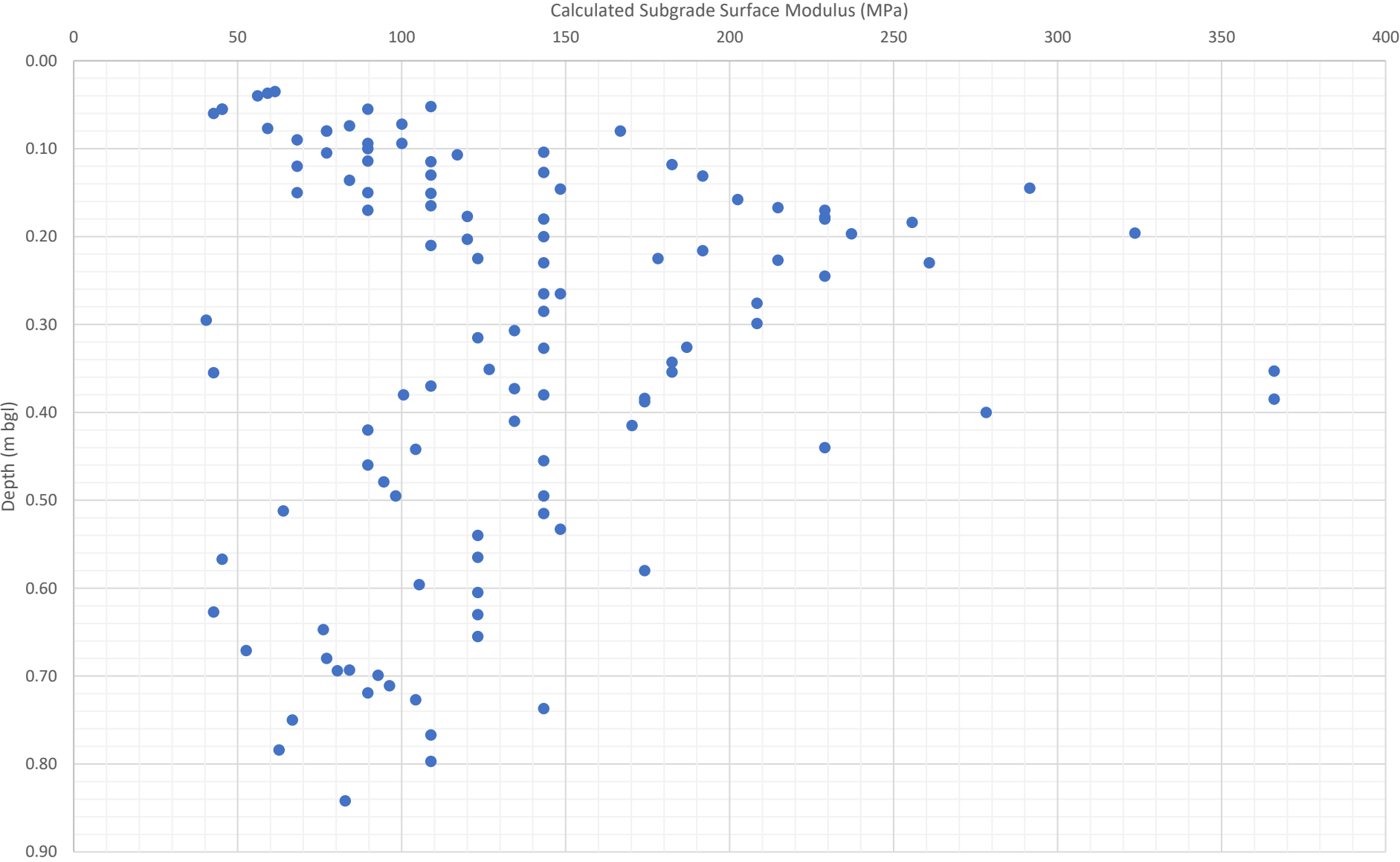
BH	Depth (m)	CBR (%)	Ks (Mpa)
WS04	0.42	35	170
WS04	0.46	26	143
WS04	0.50	26	143
WS04	0.53	28	148
WS04	0.60	16	105
WS04	0.65	10	76
WS04	0.69	11	80
WS05	0.04	6	56
WS05	0.08	7	59
WS05	0.09	15	100
WS05	0.11	13	90
WS05	0.14	12	84
WS05	0.15	17	109
WS05	0.18	20	120
WS05	0.20	20	120
WS05	0.22	42	192
WS05	0.23	50	215
WS05	0.27	28	148
WS05	0.32	21	123
WS05	0.34	39	182
WS05	0.35	115	366
WS12	0.06	4	43
WS12	0.09	8	68
WS12	0.12	8	68
WS12	0.15	8	68
WS12	0.17	17	109
WS12	0.17	55	229
WS12	0.18	26	143
WS12	0.20	26	143
WS12	0.23	21	123
WS12	0.25	55	229
WS12	0.38	15	101
WS12	0.42	13	90
WS12	0.46	13	90
WS12	0.50	15	98
WS12	0.52	26	143
WS12	0.54	21	123
WS12	0.57	21	123
WS12	0.58	36	174
WS12	0.61	21	123
WS12	0.63	21	123
WS12	0.66	21	123
WS12	0.68	10	77
WS12	0.70	13	93
WS12	0.72	13	90
WS12	0.75	8	67
WS12	0.78	7	63
TP01	0.06	4	45
TP01	0.08	10	77

BH	Depth (m)	CBR (%)	Ks (Mpa)
TP01	0.10	13	90
TP01	0.12	17	109
TP01	0.13	17	109
TP01	0.15	13	90
TP01	0.17	13	90
TP01	0.18	55	229
TP01	0.21	17	109
TP01	0.23	26	143
TP01	0.30	4	40
TP01	0.36	4	43
TP01	0.37	17	109
TP01	0.38	26	143
TP01	0.39	115	366
TP01	0.40	75	278
TP01	0.44	55	229
TP02	0.06	4	45
TP02	0.08	10	77
TP02	0.11	10	77
TP02	0.12	17	109
TP02	0.13	26	143
TP02	0.16	10	77
TP02	0.18	13	90
TP02	0.19	17	109
TP02	0.20	26	143
TP02	0.23	17	109
TP02	0.26	21	123
TP02	0.29	15	98
TP02	0.32	17	109
TP02	0.39	7	61
TP02	0.40	115	366
TP02	0.44	13	90
TP02	0.48	13	90
TP02	0.51	17	109
TP02	0.53	26	143
TP02	0.56	36	174
TP02	0.60	30	157
TP02	0.67	15	98
TP02	0.70	17	109
TP02	0.72	26	143
TP02	0.74	21	123
TP02	0.76	26	143
TP02	0.78	26	143
TP02	0.80	26	143
TP03	0.05	5	48
TP03	0.10	5	48
TP03	0.15	5	48
TP03	0.20	5	48
TP03	0.23	8	68
TP03	0.26	10	77

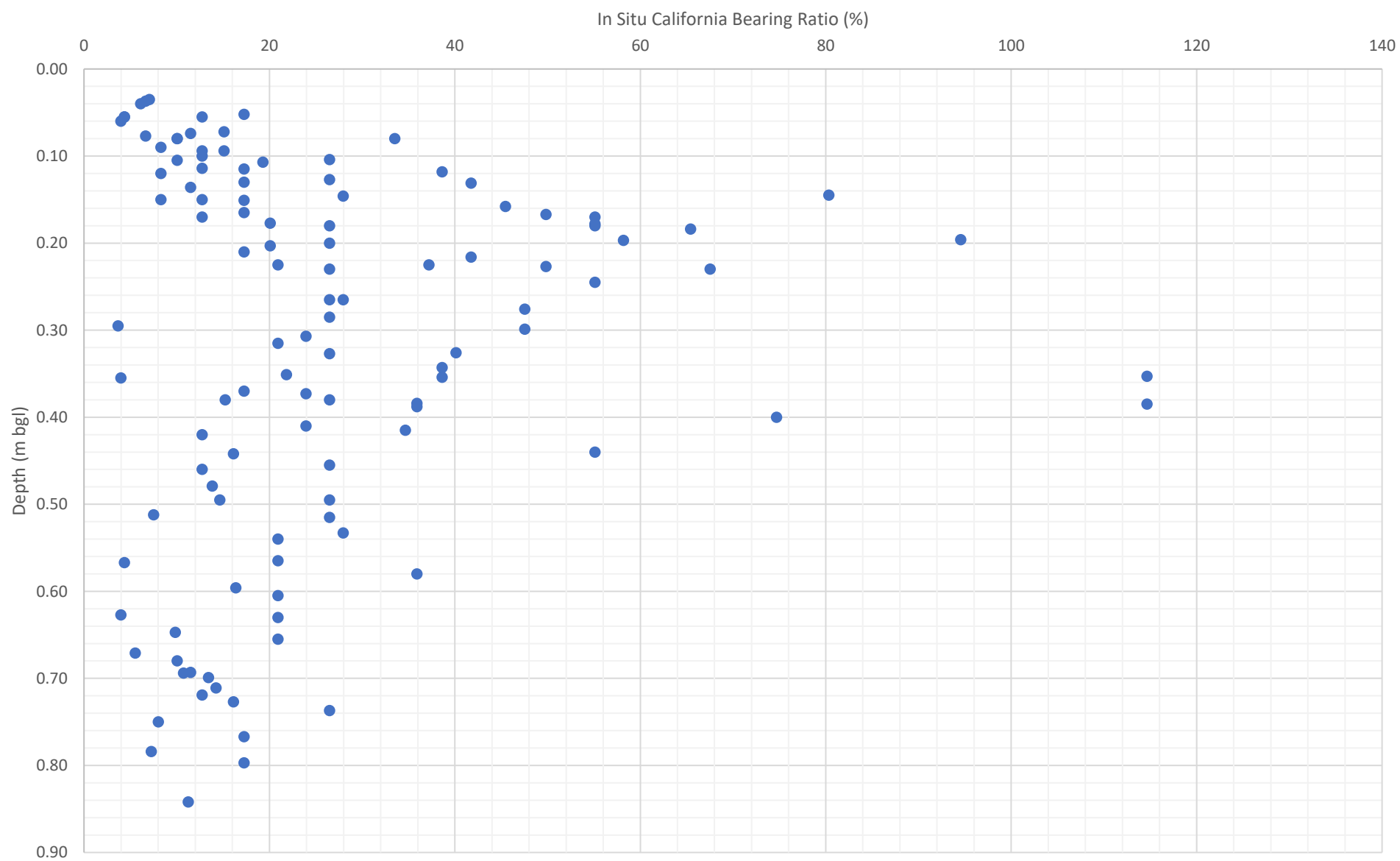
BH	Depth (m)	CBR (%)	Ks (Mpa)
TP03	0.26	115	366
TP03	0.28	55	229
TP03	0.31	36	174
TP03	0.36	21	123
TP03	0.40	13	90
TP03	0.43	21	123
TP03	0.46	17	109
TP03	0.48	21	123
TP03	0.50	36	174
TP03	0.53	30	157
TP03	0.58	21	123
TP03	0.64	9	72
TP03	0.70	8	65
TP03	0.74	6	56
TP03	0.76	13	90
TP03	0.77	26	143
TP03	0.80	8	68
TP03	0.83	10	77
TP03	0.84	17	109
TP04	0.04	7	61
TP04	0.08	5	52
TP04	0.12	6	56
TP04	0.19	4	40
TP04	0.22	7	61
TP04	0.23	26	143
TP04	0.24	26	143
TP04	0.26	26	143
TP04	0.27	55	229
TP04	0.30	21	123
TP04	0.31	55	229
TP04	0.32	75	278
TP04	0.34	55	229
TP04	0.35	115	366
TP04	0.38	36	174
TP04	0.42	15	98
TP04	0.44	21	123
TP04	0.47	17	109
TP04	0.50	17	109
TP04	0.52	26	143
TP04	0.54	36	174
TP04	0.55	75	278
TP04	0.57	55	229
TP04	0.59	75	278
TP04	0.60	75	278
TP04	0.65	21	123
TP04	0.71	8	68
TP04	0.74	17	109
TP04	0.78	15	98
TP04	0.80	10	77

BH	Depth (m)	CBR (%)	Ks (Mpa)
TP04	0.83	8	68
TP05	0.04	7	59
TP05	0.06	13	93
TP05	0.07	22	127
TP05	0.08	20	120
TP05	0.10	19	114
TP05	0.12	20	120
TP05	0.16	15	100
TP05	0.19	16	104
TP05	0.22	19	114
TP05	0.24	21	123
TP05	0.26	26	143
TP05	0.28	26	143
TP05	0.30	26	143
TP05	0.34	15	98
TP05	0.39	10	77
TP05	0.55	3	35
TP05	0.61	8	68
TP05	0.65	11	80
TP05	0.69	13	91
TP05	0.73	13	91
TP05	0.76	21	123
TP06	0.08	3	35
TP06	0.12	6	56
TP06	0.16	6	56
TP06	0.18	13	90
TP06	0.22	7	61
TP06	0.24	13	90
TP06	0.26	10	77
TP06	0.29	8	68
TP06	0.31	17	109
TP06	0.31	55	229
TP06	0.33	36	174
TP06	0.34	115	366
TP06	0.36	91	315

Calculated Subgrade Surface Modulus (MPa)



In Situ California Bearing Ratio (%)



APPENDIX E

Preliminary Conceptual Models

Table 13 Risk estimation for potentially complete contaminant linkages

Potential source	Potential receptor	Possible pathway	Likelihood	Severity	Potential risk	Justification
On-site Made ground and historically infilled ponds	Current and future residential site users	Oral, dermal and inhalation exposure with impacted soil, soil vapour and dust/fibres, ingestion of home-grown produce, inhalation of vapours from groundwater and / or NAPL if present	Low likelihood	Medium	Moderate / low	While exposure via direct contact pathways is considered of low likelihood due to the predominant hardstanding and grassed landscaping at the sites (current and future layouts), the thickness and composition of potential made ground, and the nature of infill within historic pond areas is unknown. Neither infilled pond area is scheduled for proposed redevelopment, however.
	Current adjacent residential site users	Migration of contamination via dust/fibre deposition, vapour or groundwater migration combined with inhalation				
	Current and future residential site users	Migration and ingress of ground gases into buildings, build-up in confined spaces and explosion/asphyxiation	Unlikely	Severe	Moderate / Low	The former on-site ponds are assumed to have been infilled, however the materials used are unknown. It is considered that the materials used are unlikely to contain significant quantities of putrescible materials, however due to the age of infilling. Given the relatively limited site development history, it is unlikely that significant volumes of putrescible material would be present within made ground, however the thickness and composition of potential made ground is unknown.
	Current adjacent residential site users					
	Current/future buildings and services	Direct contact with contaminated soils or groundwater and chemical attack	Low likelihood	Mild	Low	It is possible that buried concrete and underground services could come into contact with contaminants within the shallow made ground, if present; however, this risk could be mitigated through upgrading of supply pipe construction and concrete specification, if required.

Potential source	Potential receptor	Possible pathway	Likelihood	Severity	Potential risk	Justification
		Migration and ingress of ground gases into buildings, build-up in confined spaces and explosion/asphyxiation	Unlikely	Severe	Moderate / Low	Given the relatively limited site development history, it is unlikely that significant volumes of putrescible material would be present within made ground, however the thickness and composition of potential made ground is unknown. The former on-site ponds are assumed to have been infilled, however the materials used are unknown. It is considered that the materials used are unlikely to contain significant quantities of putrescible materials, however due to the age of filling.
<u>On-site</u> Electrical substation	Current and future residential site users	Oral, dermal and inhalation exposure with impacted soil, soil vapour and dust/fibres, ingestion of home-grown produce, inhalation of vapours from groundwater and / or NAPL if present	Unlikely	Medium	Low	Due to the relatively low mobility and volatility of PCB and allied contaminants, it is considered unlikely that the existing substation and any historic contamination will have the potential to impact the identified receptors, particularly as redevelopment is not proposed within the area of the substation on the Western site boundary.
	Current adjacent residential site users	Migration of contamination via dust/fibre deposition, vapour or groundwater migration combined with inhalation	Unlikely	Medium	Low	
	Current/future buildings and services	Direct contact with contaminated soils or groundwater and chemical attack	Unlikely	Medium	Low	Direct contact is considered unlikely as redevelopment is not proposed within the area of the substation on the Western site boundary.
<u>On-site</u> Vehicle storage garages	Current and future residential site users	Oral, dermal and inhalation exposure with impacted soil, soil vapour and dust/fibres, ingestion of home-grown produce, inhalation of vapours from groundwater and / or NAPL if present	Low likelihood	Medium	Moderate / low	The nature of the activities undertaken, and chemicals stored/used within vehicle garages onsite is uncertain, and as such, there exists a low likelihood of potential impacts associated with such activities.

Potential source	Potential receptor	Possible pathway	Likelihood	Severity	Potential risk	Justification
	Current adjacent residential site users	Migration of contamination via dust/fibre deposition, vapour or groundwater migration combined with inhalation	Low likelihood	Medium	Moderate / low	
	Current/future buildings and services	Direct contact with contaminated soils or groundwater and chemical attack	Low likelihood	Mild	Low	It is possible that buried concrete and underground services could come into contact with contaminants within the shallow made ground, if present; however, this risk could be mitigated through upgrading of supply pipe construction and concrete specification, if required.
On-site Made Ground, historically infilled ponds, electrical substation and vehicle storage garages	Groundwater within source protection zone onsite	Vertical and lateral migration including leaching	Unlikely	Medium	Low	The SPZ recorded onsite is considered to relate to bedrock strata, likely deep bedrock chalk, underlying both superficial and bedrock unproductive strata – which would act to retard the vertical migration of (any) contaminants within groundwater onsite.
	Groundwater within nearest superficial Secondary A aquifer – Kempton Park Gravel c.200m west of site		Unlikely	Medium	Low	The existing site and proposed development comprises mostly hardstanding, with some areas of soft landscaping, therefore infiltration is likely to be low, limiting mobilisation of any contaminants within the potential source areas to the underlying ground. The potential for significant lateral migration of any contaminants in groundwater within the local superficial and bedrock unproductive strata is considered low.
Off-site Tanks associated with Bell Brewery (c. 90m north west)	Current and future residential site users	Inhalation of vapours from groundwater and / or NAPL if present	Unlikely	Medium	Low	The subject site has since been redeveloped into residential properties, and it is assumed any impact associated with the tanks observed at this time may have been addressed during the redevelopment process. Migration of any contaminants onto site is considered unlikely given the intervening distance and presence of unproductive strata.

Risk matrix		Consequences			
		Severe	Medium	Mild	Minor
Probability	Highly likely	Very high	High	Moderate	Moderate/low
	Likely	High	Moderate	Moderate/low	Low
	Low likelihood	Moderate	Moderate/low	Low	Very low
	Unlikely	Moderate/low	Low	Very low	Very low

Table 13 Risk estimation for potentially complete contaminant linkages

Potential source	Potential receptor	Possible pathway	Likelihood	Severity	Potential risk	Justification
Made ground (i.e. fill material) both on and off-site	Current/future site users	Oral, dermal and inhalation exposure with impacted soil, soil vapour and dust/fibres, ingestion of home-grown produce	Unlikely	Medium	Low	The site has only been redeveloped once prior to the currently proposed redevelopment, with the site not undergoing any significant changes since 1970. No significantly contaminative site uses have been recorded, with a consistent residential end-use. On this basis, the underlying made ground is likely to be lightly contaminated and unlikely to act as a significant source of contamination or ground gas
		Migration and ingress of ground gases into buildings, build-up in confined spaces and explosion/asphyxiation	Unlikely	Severe	Moderate/low	
	Current adjacent site users	Migration of contamination via dust/fibre deposition, vapour, or groundwater migration combined with inhalation	Unlikely	Medium	Low	
		Migration and ingress of ground gases into buildings, build-up in confined spaces and explosion/asphyxiation	Unlikely	Severe	Moderate/low	
		Direct contact with contaminated soils	Low	Mild	Low	

Potential source	Potential receptor	Possible pathway	Likelihood	Severity	Potential risk	Justification
	Current/future buildings and services	Migration and ingress of ground gases into buildings, build-up in confined spaces and explosion	Unlikely	Severe	Moderate/low	
Electrical substation	Current/future site users	Oral, dermal and inhalation exposure with impacted soil, soil vapour and dust/fibres, ingestion of home-grown produce	Unlikely	Medium	Low	The substation on site has not changed in position for over 50 years and is unlikely to have acted as a source of contamination during its general use. Contamination may have been released during any replacement of equipment within the substation, however as the substation is located on an area of hardstanding, any contamination remaining from such a release is likely to be of low concentration and relatively immobile.
	Current adjacent site users	Migration of contamination via dust/fibre deposition, vapour or groundwater migration combined with inhalation	Unlikely	Medium	Low	
Vehicle storage garages	Current/future site users	Oral, dermal and inhalation exposure with impacted soil, soil vapour and dust/fibres, ingestion of home-grown produce	Low	Medium	Moderate/low	The interior of the garages could not be inspected during the walkover; however they may have been used to store various contaminative substances. Hardstanding within the area of the garages appeared to be in generally good condition, however occasional cracks were present and contamination
		Migration and ingress of vapours into buildings, build-up in confined spaces and explosion/asphyxiation	Unlikely	Severe	Moderate/low	

Potential source	Potential receptor	Possible pathway	Likelihood	Severity	Potential risk	Justification
	Current adjacent site users	Migration of contamination via dust/fibre deposition, vapour or groundwater migration combined with inhalation	Low	Medium	Moderate/low	within the garages may have been able to affect the underlying soils. As the garages within the area of proposed development on site, contaminated soils may be disturbed by the proposed works, allowing them to affect current receptors in the vicinity as well as the proposed development.
		Migration and ingress of vapours into buildings, build-up in confined spaces and explosion/asphyxiation	Unlikely	Severe	Moderate/low	
	Current/future buildings and services	Direct contact with contaminated soils	Low	Medium	Moderate/low	
		Migration and ingress of vapours into buildings, build-up in confined spaces and explosion	Unlikely	Severe	Moderate/low	
Off site ponds infilled prior to 1894	Current/future site users	Migration and ingress of ground gases into buildings, build-up in confined spaces and explosion/asphyxiation	Unlikely	Severe	Moderate/low	The ponds were infilled over a century ago and while they are a potential source of ground gas due to their age and the distance from site, they are unlikely to affect receptors on site.
	Current/future buildings and services	Migration and ingress of ground gases into buildings, build-up in confined spaces and explosion/asphyxiation	Unlikely	Severe	Moderate/low	

Potential source	Potential receptor	Possible pathway	Likelihood	Severity	Potential risk	Justification
Historic Brewery (tanks)	Current/future site users	Migration of contamination via dust/fibre deposition, vapour or groundwater migration combined with inhalation	Unlikely	Medium	Low	The use of the tanks marked on the historic map of the Brewery is unknown. If they contained hydrocarbons, contamination may have been released during their use and their removal. As the underlying strata are relatively impermeable, pathways between the historic tank location and the site are likely to be limited.
		Migration and ingress of vapours into buildings, build-up in confined spaces and explosion/asphyxiation	Unlikely	Severe	Moderate/low	
	Current/future buildings and services	Direct contact with contaminated soils	Unlikely	Medium	Low	
		Migration and ingress of vapours into buildings, build-up in confined spaces and explosion	Unlikely	Severe	Moderate/low	

Risk matrix		Consequences			
		Severe	Medium	Mild	Minor
Probability	Highly likely	Very high	High	Moderate	Moderate/low
	Likely	High	Moderate	Moderate/low	Low
	Low likelihood	Moderate	Moderate/low	Low	Very low
	Unlikely	Moderate/low	Low	Very low	Very low

Table 13 Risk estimation for potentially complete contaminant linkages

Potential source	Potential receptor	Possible pathway	Likelihood	Severity	Potential risk	Justification
On-site Made ground	Current and future residential site users	Oral, dermal and inhalation exposure with impacted soil, soil vapour and dust/fibres, ingestion of home-grown produce, inhalation of vapours from groundwater and / or NAPL if present	Low likelihood	Medium	Moderate / low	While exposure via direct contact pathways is considered of low likelihood due to the predominant hardstanding and grassed landscaping at the site (current and future layouts), the thickness and composition of potential made ground is unknown.
	Current adjacent residential site users	Migration of contamination via dust/fibre deposition, vapour or groundwater migration combined with inhalation				
	Current and future residential site users	Migration and ingress of ground gases into buildings, build-up in confined spaces and explosion/ asphyxiation	Unlikely	Severe	Moderate / Low	Given the relatively limited site development history, it is unlikely that significant volumes of putrescible material would be present within made ground, however the thickness and composition of potential made ground is unknown.
	Current adjacent residential site users					
	Current/future buildings and services	Direct contact with contaminated soils or groundwater and chemical attack	Low likelihood	Mild	Low	It is possible that buried concrete and underground services could come into contact with contaminants within the shallow made ground, if present; however, this risk could be mitigated through upgrading of supply pipe construction and concrete specification, if required.
		Migration and ingress of ground gases into buildings, build-up in confined spaces and explosion/ asphyxiation	Unlikely	Severe	Moderate / Low	Given the relatively limited site development history, it is unlikely that significant volumes of putrescible material would be present within made ground, however the thickness and composition of potential made ground is unknown.

Potential source	Potential receptor	Possible pathway	Likelihood	Severity	Potential risk	Justification
<u>On-site</u> Vehicle storage garages	Current and future residential site users	Oral, dermal and inhalation exposure with impacted soil, soil vapour and dust/fibres, ingestion of home-grown produce, inhalation of vapours from groundwater and / or NAPL if present	Low likelihood	Medium	Moderate / low	The nature of the activities undertaken, and chemicals stored/used within vehicle garages onsite is uncertain, and as such, there exists a low likelihood of potential impacts associated with such activities.
	Current adjacent residential site users	Migration of contamination via dust/fibre deposition, vapour or groundwater migration combined with inhalation	Low likelihood	Medium	Moderate / low	
	Current/future buildings and services	Direct contact with contaminated soils or groundwater and chemical attack	Low likelihood	Mild	Low	It is possible that buried concrete and underground services could come into contact with contaminants within the shallow made ground, if present; however, this risk could be mitigated through upgrading of supply pipe construction and concrete specification, if required.
<u>On-site</u> Made Ground and vehicle storage garages	Groundwater within source protection zone offsite - 148m west of site	Vertical and lateral migration including leaching	Unlikely	Medium	Low	The SPZ recorded 148m west of site is considered to relate to bedrock strata, likely deep bedrock chalk, underlying both superficial and bedrock unproductive strata – which would act to retard the vertical migration of (any) contaminants within groundwater onsite.
	Groundwater within nearest superficial Secondary A aquifer – Kempton Park Gravel c.300m west of site		Unlikely	Medium	Low	The existing site and proposed development comprises mostly hardstanding, with some areas of soft landscaping, therefore infiltration is likely to be low, limiting mobilisation of any contaminants within the potential source areas to the underlying ground. The potential for significant lateral migration of any contaminants in groundwater within the local superficial and bedrock unproductive strata is considered low.

Potential source	Potential receptor	Possible pathway	Likelihood	Severity	Potential risk	Justification
Off-site Electrical substation	Current and future residential site users	Oral, dermal and inhalation exposure with impacted soil, soil vapour and dust/fibres, ingestion of home-grown produce, inhalation of vapours from groundwater and / or NAPL if present	Unlikely	Medium	Low	Due to the relatively low mobility and volatility of PCB and allied contaminants, it is considered unlikely that the existing substations and any historic contamination will have the potential to impact the identified receptors, particularly as significant redevelopment activity is not proposed within the area of the substation, situated just past the site south-eastern boundary.
	Current adjacent residential site users	Migration of contamination via dust/fibre deposition, vapour or groundwater migration combined with inhalation	Unlikely	Medium	Low	
	Current/future buildings and services	Direct contact with contaminated soils or groundwater and chemical attack	Unlikely	Medium	Low	Direct contact is considered unlikely as significant redevelopment activity is not proposed within the area of the substation, situated just past the site south-eastern boundary.

Risk matrix		Consequences			
		Severe	Medium	Mild	Minor
Probability	Highly likely	Very high	High	Moderate	Moderate/low
	Likely	High	Moderate	Moderate/low	Low
	Low likelihood	Moderate	Moderate/low	Low	Very low
	Unlikely	Moderate/low	Low	Very low	Very low

APPENDIX F

Classification of Probability, Consequence and 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 G

Quantitative Conceptual Models