

Block D4
Collyhurst Village, Manchester

Site Completion Report

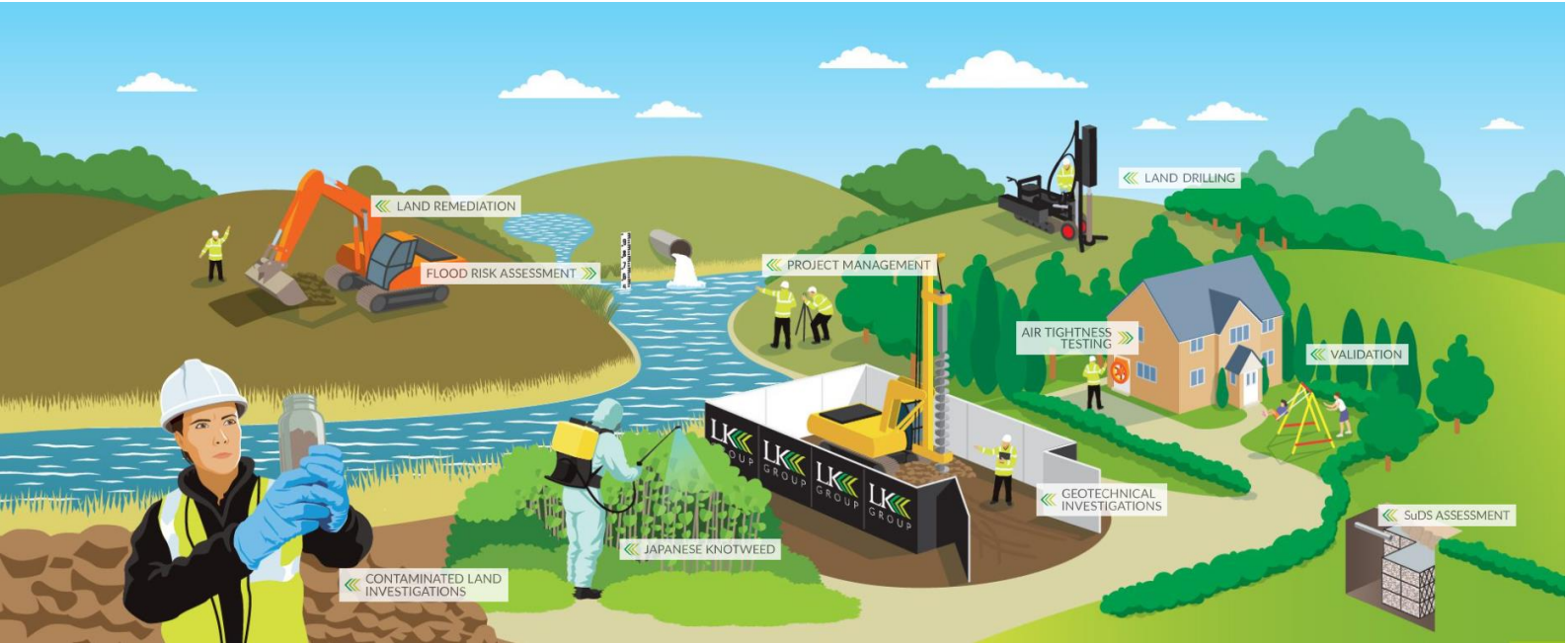
Job Number: LKC201120

Date: May 2025

Client: DEX Construction Limited



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DOCUMENT QUALITY ASSURANCE

Site Address	Land east of Rochdale Road, Manchester M40 8AN
Report Title	Site Completion Report
Job Number	LKC201120
Client	Dex Construction Limited

Revision	0	Date of Issue	09/05/2025
Document Ref:	LKC201120-Block D4 Collyhurst Village, Manchester-Site Completion Report R0		
Status	Final		
Written By	Fraser Peers, Hannah Moss		
Approved By	Catherine Baranek		

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1. Introduction

LK Consult Ltd (LKC) has been commissioned to provide a Site Completion Report for Block D4 (Plots 9 to 22), which is part of the wider Collyhurst Village development in Manchester (planning reference: 129393/VO/2021) for residential use. The development for Block D4 comprises 14no. residential properties with private rear gardens. The front gardens are predominantly hardstood.

The whole development site is located to the east of Rochdale Road in the Collyhurst area of Manchester. Centred at approximate National Grid Reference 385570E 400290N. Block D4 is located in the north of the whole development area. Figure 1 indicates the site location and boundary plan. Figure 2 indicates the proposed development.

The aim of the Site Completion Report will be to demonstrate to the Local Authority that the site has been suitably remediated in line with the Remediation Statement and in accordance with the National Planning Policy Framework (NPPF)¹, where the site is 'suitable for use' for the proposed development.

The Site Completion Report should be sufficient to satisfy Contaminated Land Condition 9 (b). Details are provided in the following Sections.

1.1. Summary of Previous Work

The following reports have been undertaken for the site:

- Preliminary Risk Assessment (PRA) report, undertaken by LKC (Ref: LKC 20 1120B, dated 4th February 2020).
- Updated Preliminary Risk Assessment (PRA) report, undertaken by LKC (Ref: LKC 20 1120, dated August 2020). To incorporate the extended planning boundary.
- Phase 2 Geo-Environmental Investigation and Risk Assessment and Remediation Strategy by LKC (Ref. CL-602-LKC 20 1120-02, dated October 2020).
- Remediation Strategy undertaken by LKC (Ref: CL-602-LKC 20 1120-04 dated October 2020).

The findings of the above reports have been agreed by Manchester City Council.

1.2. Summary of Required Validation Work

Based upon the findings of the above reports, the following remediation was required for Block D4:

- 600mm clean capping layer comprising 600mm of subsoil/topsoil (min. 150mm topsoil) over the existing ground in all private rear garden areas separated by a geotextile marker.
- 450mm clean capping layer comprising 450mm of subsoil/topsoil (min. 150mm topsoil) over the existing ground in all front garden areas separated by a geotextile marker.
- Chemical validation of all imported soils to be used in gardens and soft landscaping.
- Details of any unexpected contamination.

Photographs are presented in Appendix A.

2. Imported Material for Soft Landscaping

Topsoil

Approximately 175m³ of topsoil was imported to site from Freeland Horticulture Limited, Rosedale Nursery. The imported topsoil was sampled on 21st March 2025 (referenced TS101 to TS104) in line with the rates agreed in the remediation strategy (minimum 3 samples, 1 sample per 50m³). LKC visually inspected the topsoil for putrescible material, none of which was encountered.

See Topsoil Suitability Report for assessment and testing results in Appendix B.

Subsoil

Approximately 850m³ of site won subsoil was used. The subsoil was sampled on 21st March 2025 (referenced SS101 to SS109) in line with the rates agreed in the remediation strategy (minimum 3 samples, 1 sample per 100m³). Asbestos was identified in sample ref: SS105. A 100m³ section of the stockpile was subsequently removed, and additional 15no. tests for asbestos were undertaken across the remaining stockpile. No asbestos was identified in any additional samples; therefore, the contaminated result is considered to be anomalous.

See Subsoil Suitability Report for assessment and testing results with waste disposal tickets in Appendix C.

2.1. Generic Assessment Criteria

With regards to the soil risk assessment LKC will use the following hierarchy:

- Category 4 Screening Levels (C4SLs).
- LQM Suitable 4 Use Levels (S4ULs).

An assessment of the data should be undertaken to confirm B(a)P is a suitable surrogate marker by assessing the ratios of carcinogenic PAHs to B(a)P. However, as the majority of the PAHs were recorded as less than detection limits and therefore the assessment could not be undertaken.

When compared to appropriate screening values for residential end use with plant uptake, no elevated contaminants were identified in the imported topsoil and site won subsoil and the material is considered suitable for use within the garden and soft landscaping capping layer. Appropriate screening values are presented in Appendix D.

3. Depth of Cover System

LKC attended site in between March and May 2025 to inspect the cover system construction and depths. Areas checked are shown in Plate 3-1.

Photographs are provided in Appendix A and the observations are summarised in Table 3-1 below.

Location No.	Topsoil Depth (mm)	Subsoil Depth (mm)	Total Depth (mm)	Membrane at base	Required Depth (mm)	Pass (✓) or Fail (x)
9 Rear	300	300	600	Y	600	✓
10 Rear	200	400	600	Y	600	✓
11 Rear	300	300	600	Y	600	✓
12 Rear	200	450	650	Y	600	✓
13 Rear	150	450	600	Y	600	✓
14 Rear	150	440	690	Y	600	✓
15 Rear	200	450	650	Y	600	✓
16 Rear	200	550	750	Y	600	✓
17 Rear	150	450	600	Y	600	✓
18 Rear	200	400	600	Y	600	✓
19 Rear	300	300	600	Y	600	✓
20 Rear	200	400	600	Y	600	✓
21 Rear	200	400	600	Y	600	✓
22 Rear	250	400	650	Y	600	✓
Shared Plot 10-11 Front	220	220	-	MOT/pea gravel	450*	✓
Shared Plot 12-13 Front	200	200	-	MOT/pea gravel	450*	✓
Shared Plot 14-15 Front	260	260	-	MOT/pea gravel	450*	✓
Shared 16-17 Front	250	250	-	MOT/pea gravel	450*	✓
Shared Plot 18-19 Front	200	200	-	MOT/pea gravel	450*	✓
Shared Plot 20-21 Front	200	200	-	MOT/pea gravel	450*	✓

Table 3-1: Summary of validation works undertaken.

*The front areas are mostly hardstood with very small (2m x 2m) shared strips of soil. A nominal soil cover comprising approximately 200mm of clean soil is present above pea gravel / MOT (service runs). The cover is considered sufficient the very small size, as these areas are not likely to be used extensively by receptors.

4. Unexpected Contamination

LKC understand that no unexpected contamination was encountered during development works.

5. Conclusions

LKC consider that the work onsite to date has been validated in accordance with the agreed Remediation Strategy.

Based on the above information LKC considers Block D4 within the Collyhurst Village, Manchester development site is 'suitable for use' for a residential development.

LKC considers there is sufficient information to discharge the outstanding contaminated land planning Condition 9 (b) by Manchester City Council.

Appendix A – Photographs

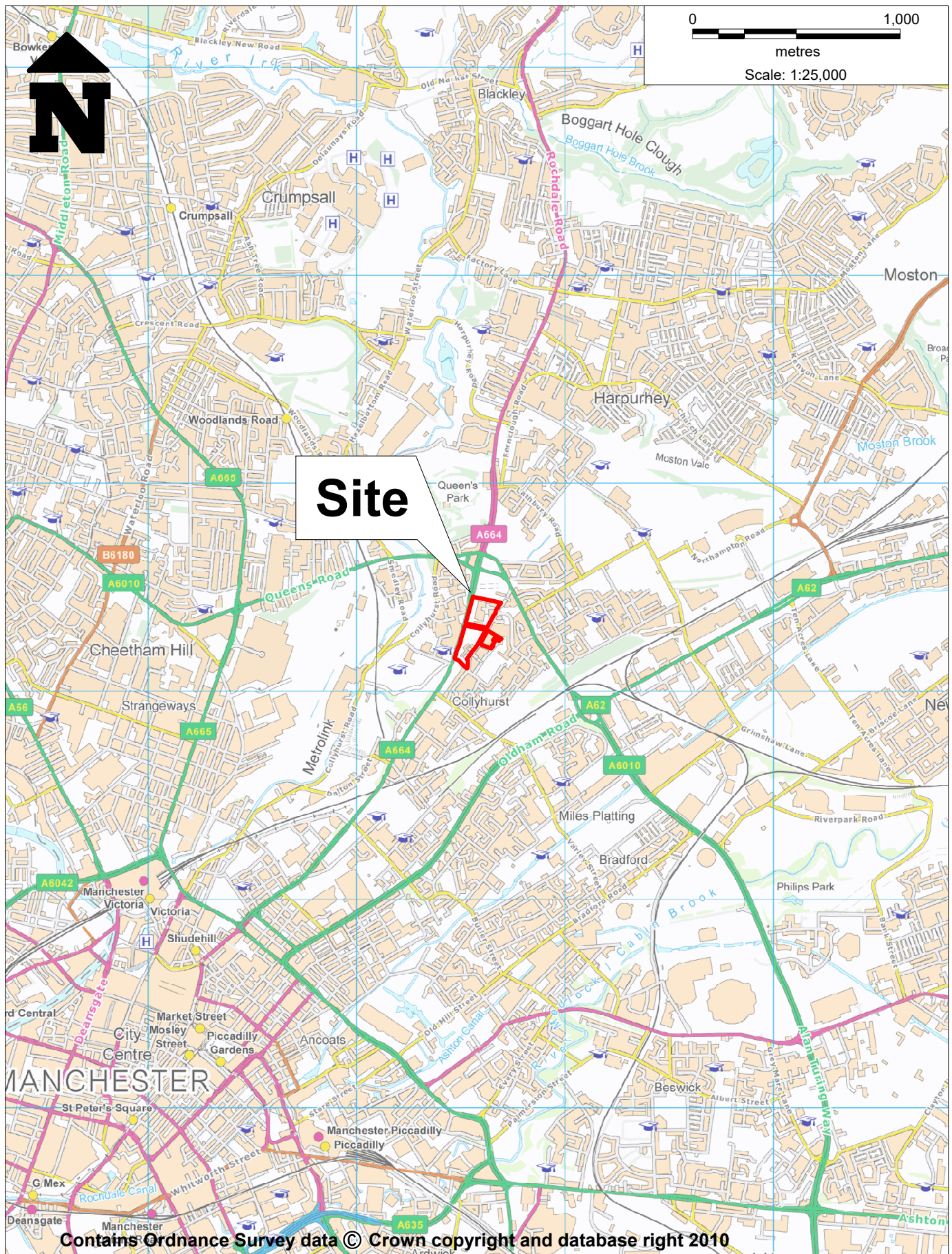
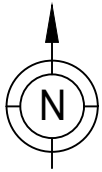


Figure 1: Site Location Plan, Collyhurst Village, Manchester

Drawn: October 2020 Scale: 1:25,000 @ A4 (see scale bar)



KEY

-  Planning Boundary
-  Current Development Area
-  Public Open Space
-  To be Developed in Future Once Unoccupied

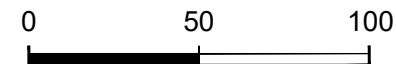
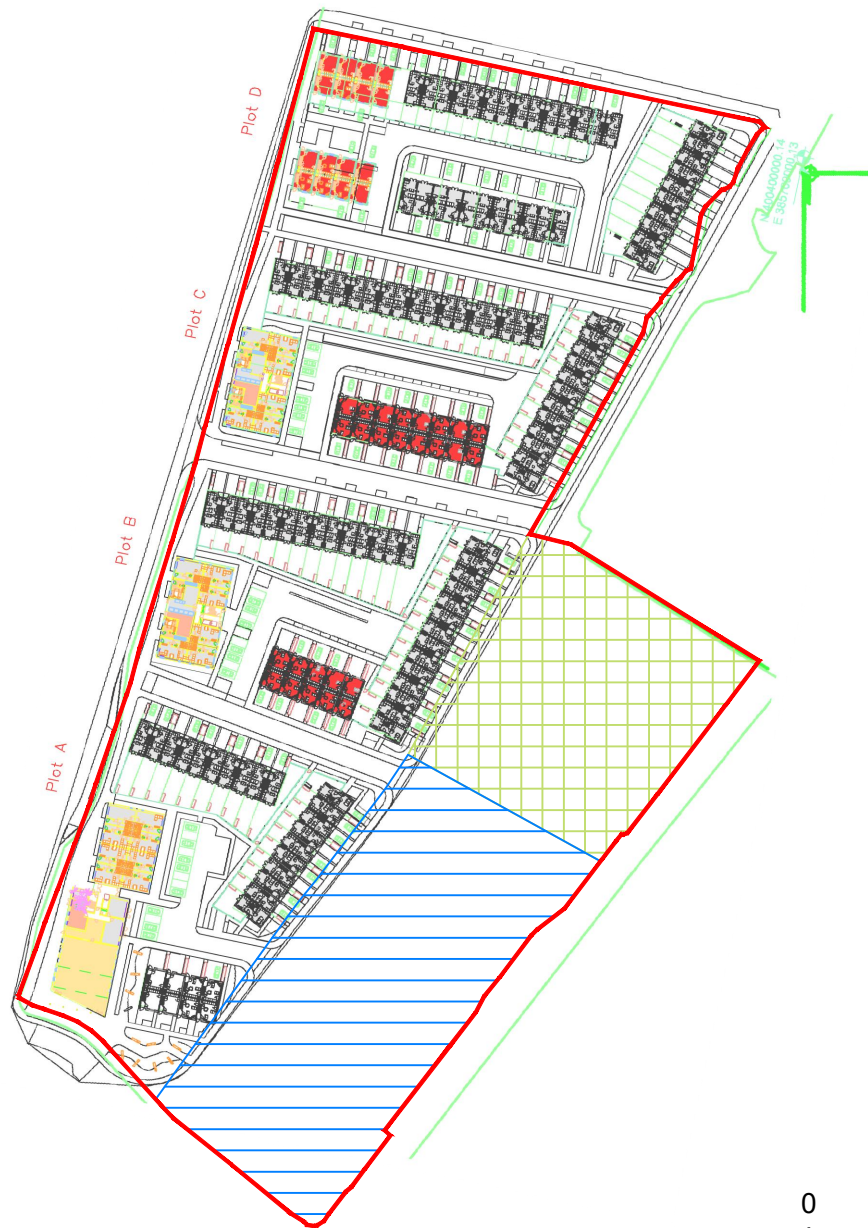
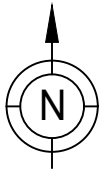
Sampling Locations and features annotated by LK Consult Ltd are approximate and are based upon observed measurements unless otherwise stated. Do not scale from this drawing and work from marked dimensions only. All dimensions and features should be confirmed on site by the Contractor. Where this drawing includes information provided to LK Consult Ltd by others, LK Consult Ltd gives no warranty, representation or assurance as to the accuracy of such information.



Client:			
Civic Engineers			
Site:			
Collyhurst Village, Manchester			
Title:			
Site Boundary Plan			
Job No.:	Scale (See Scale Bar):	Figure:	Revision:
LKC 20 1120	See Scale Bar		
Drawn By:	Checked By:	Drawn:	
AC	CH	Oct 2020	
			2

Extract from: Buttress
Drawing Ref: Existing Site Location Plan, No.(01)100, Rev:P0 (04/02/2020)

SCALE (Metres)



SCALE (Metres)

KEY

-  Site Boundary
-  Public Open Space
-  To be Developed in Future Once Unoccupied

Housetypes:

	2B3P	—	20
	Apt 2B4P	—	17
	Apt 2B4P	—	24
	Duplex 2B4P	—	50
	TH 3B4P	—	2
	Apt 3B5P	—	6
	Duplex 3B5P	—	15
	Apt 3B5P	—	88
	TH 3B6P	—	0
	Duplex 3B6P	—	0
	Apt 4B6P	—	0
	TH 4B6P	—	18
			240

Sampling Locations and features annotated by LK Consult Ltd are approximate and are based upon observed measurements unless otherwise stated. Do not scale from this drawing and work from marked dimensions only. All dimensions and features should be confirmed on site by the Contractor. Where this drawing includes information provided to LK Consult Ltd by others, LK Consult Ltd gives no warranty, representation or assurance as to the accuracy of such information.



Client:			
Civic Engineers			
Site:			
Collyhurst Village, Manchester			
Title:			
Proposed Development Plan			
Job No.:	LKC 20 1120	Scale (See Scale Bar):	See Scale Bar
Drawn By:	AC	Checked By:	HM
Drawn:	Aug 2020	Figure:	3
		Revision:	

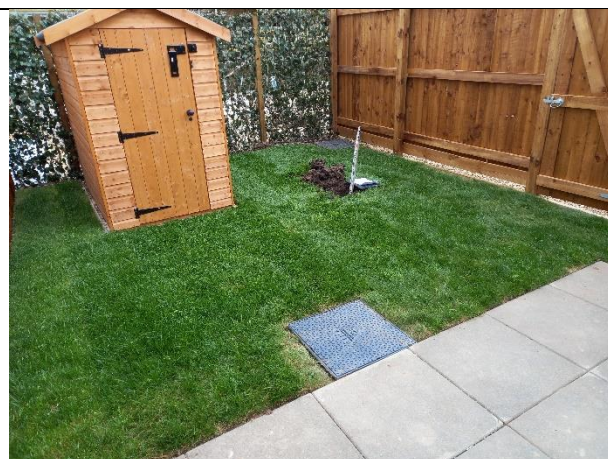
Extract from: Buttress
Drawing Ref: Collyhurst Village Housetype Plan (19/08/2020)



Photograph 1: Evidence of suitably chemically validated soil cover to 600mm in the rear garden of plot 9.



Photograph 2: Evidence of geotextile membrane in plot 9.



Photograph 3: View showing rear of plot 9.



Photograph 4: View showing front of plot 9.



Photograph 5: Evidence of suitably chemically validated soil cover to 600mm in the rear garden of plot 10.



Photograph 6: Evidence of geotextile membrane in plot 10.



Photograph 7: View showing rear of plot 10.



Photograph 8: View showing front of plot 10.



Photograph 9: Evidence of suitably chemically validated topsoil with a minimum of 150mm growing medium in the shared front strip of Plot 10-11 over MOT.





Photograph 10: Evidence of suitably chemically validated soil cover to 600mm in the rear garden of plot 11.



Photograph 11: Evidence of geotextile membrane in plot 11.



Photograph 12: View showing rear of plot 11.



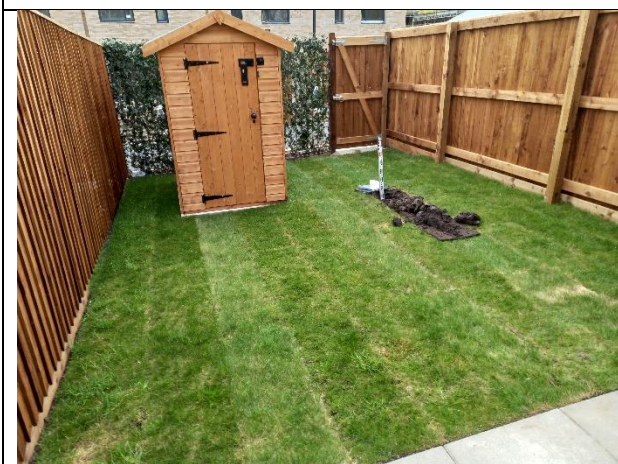
Photograph 13: View showing front of plot 11.



Photograph 14: Evidence of suitably chemically validated soil cover to 600mm in the rear garden of plot 12.



Photograph 15: Evidence of geotextile membrane in plot 12.



Photograph 16: View showing rear of plot 12.



Photograph 17: View showing front of plot 12.



Photograph 18: Evidence of suitably chemically validated topsoil with a minimum of 150mm growing medium in the shared front strip of Plot 12-13 over MOT.

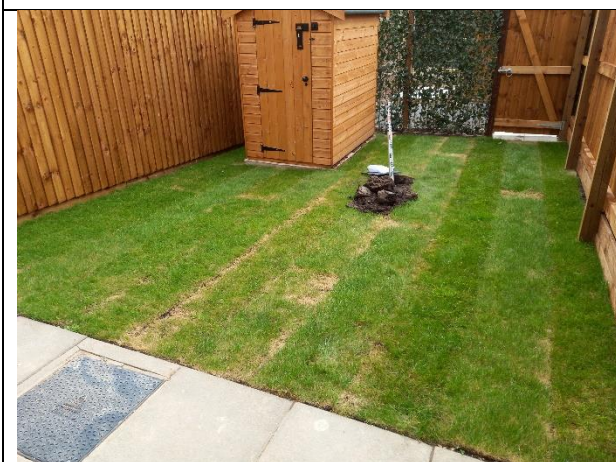




Photograph 19: Evidence of suitably chemically validated soil cover to 600mm in the rear garden of plot 13.



Photograph 20: Evidence of geotextile membrane in plot 13.



Photograph 21: View showing rear of plot 13.



Photograph 22: View showing front of plot 13.



Photograph 23: Evidence of suitably chemically validated soil cover to 600mm in the rear garden of plot 13.



Photograph 24: Evidence of geotextile membrane in plot 13.



Photograph 25: View showing rear of plot 13.



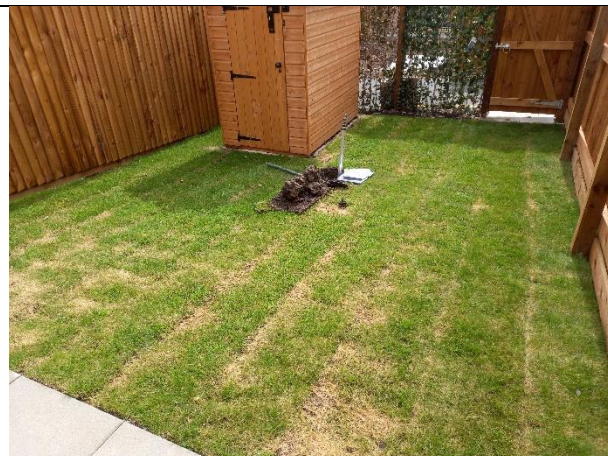
Photograph 26: View showing front of plot 13.



Photograph 27: Evidence of suitably chemically validated soil cover to 620mm in the rear garden of plot 14.



Photograph 28: Evidence of geotextile membrane in plot 14.



Photograph 29: View showing rear of plot 14.



Photograph 30: View showing front of plot 14.



Photograph 31: Evidence of suitably chemically validated topsoil with a minimum of 150mm growing medium in the shared front strip of Plot 14-15 over MOT.

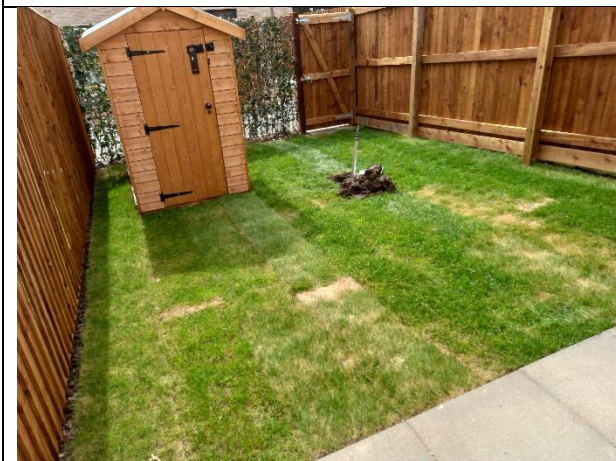




Photograph 32: Evidence of suitably chemically validated soil cover to 640mm in the rear garden of plot 15.



Photograph 33: Evidence of geotextile membrane in plot 15.



Photograph 34: View showing rear of plot 15.



Photograph 35: View showing front of plot 15.



Photograph 36: Evidence of suitably chemically validated soil cover to 700mm in the rear garden of plot 16.



Photograph 37: Evidence of geotextile membrane in plot 16.



Photograph 38: View showing rear of plot 16.



Photograph 39: View showing front of plot 16.



Photograph 9: Evidence of suitably chemically validated topsoil with a minimum of 150mm growing medium in the shared front strip of Plot 16-17 over MOT.

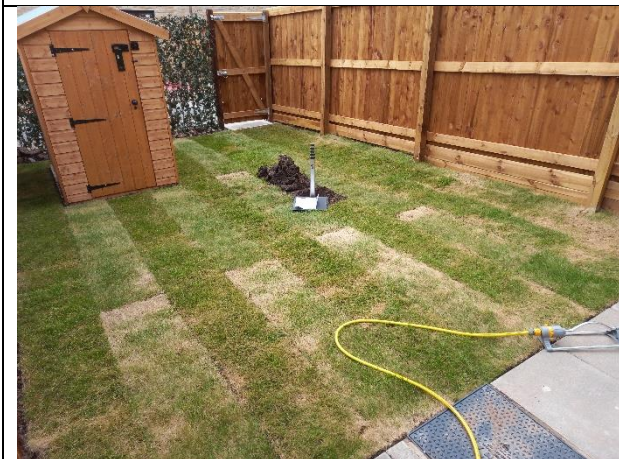




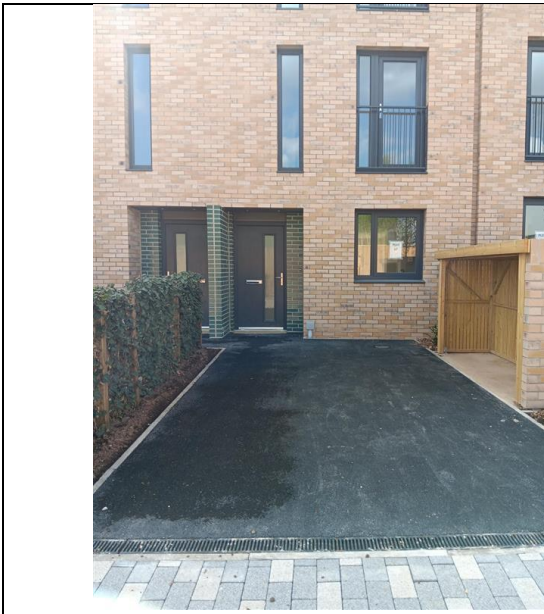
Photograph 40: Evidence of suitably chemically validated soil cover to 620mm in the rear garden of plot 17.



Photograph 41: Evidence of geotextile membrane in plot 17.



Photograph 42: View showing rear of plot 17.



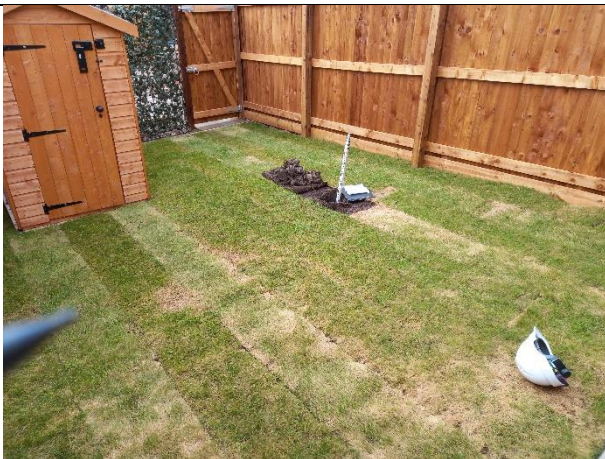
Photograph 43: View showing front of plot 17.



Photograph 44: Evidence of suitably chemically validated soil cover to 600mm in the rear garden of plot 18.



Photograph 45: Evidence of geotextile membrane in plot 18.



Photograph 46: View showing rear of plot 18.



Photograph 47: View showing front of plot 18.



Photograph 48 Evidence of suitably chemically validated topsoil with a minimum of 150mm growing medium in the shared front strip of Plot 18-19 over MOT.



Photograph 49: Evidence of suitably chemically validated soil cover to 600mm in the rear garden of plot 19.



Photograph 50: Evidence of geotextile membrane in plot 19.



Photograph 51: View showing rear of plot 19.



Photograph 52: View showing front of plot 19.



Photograph 53: Evidence of suitably chemically validated soil cover to 600mm in the rear garden of plot 20. Note that soil was laid over a period of time, therefore was partially dry by time of inspection.



Photograph 54: Evidence of geotextile membrane in plot 20.



Photograph 55: View showing rear of plot 20.



Photograph 56: View showing front of plot 20.



Photograph 57: Evidence of suitably chemically validated topsoil with a minimum of 150mm growing medium in the shared front strip of Plot 20-21 over MOT.





Photograph 58: Evidence of suitably chemically validated soil cover to 600mm in the rear garden of plot 21.



Photograph 59: Evidence of geotextile membrane in plot 21.



Photograph 60: View showing rear of plot 21.



Photograph 61: View showing front of plot 21.



Photograph 62: Evidence of suitably chemically validated soil cover to 640mm in the rear garden of plot 22.



Photograph 63: Evidence of geotextile membrane in plot 22.



Photograph 64: View showing rear of plot 22.



Photograph 65: View showing front of plot 22.

Appendix B – Topsoil Suitability Report

Appendix C – Subsoil Suitability Report

SOIL VERIFICATION REPORT

Topsoil Suitability

Site Name	Collyhurst Village, Rochdale Road, Manchester Block D4	Document Ref	LKC 20 1120-SSR01-Topsoil Suitability Report R0
Developer	Dex Construction	Material Source	Freeland Horticulture, Roseland Nursery
No. of Samples Tested	4 For Suite B.	Material Volume (m³)	175
Inspected By	MB	Inspection Date	23/03/25

Rationale

Sampling rates and sampling suites were specified in the Remediation Strategy by LKC (ref: CL-602-LKC 20 1120-04, dated January 2021) and comprised:

- **Topsoil:** Tested at a rate of 1 sample per 50m³ (min. 3 per source).
- **Analysis Suite B:** Heavy metals, pH, water soluble sulphate, speciated PAH, phenol, total and free cyanide, soil organic matter, asbestos screen, banded petroleum hydrocarbons (TPH CWG), BTEX, MTBE.

Methodology

Composite samples were taken from the plots by hand auger and collected in plastic tubs and amber jars and stored in ice packed coolboxes for same day collection by DETS. Soil results are enclosed.

Risk Assessment – Human Health

Remedial targets followed rationale described in the Remediation Strategy. Results and appropriate criteria are enclosed. No elevated contaminants were identified.



View of general composition.

LKC has inspected the soil, tested the appropriate number of samples and carried out a generic risk assessment on the results. With regards to human health, LKC can confirm that the soil is 'suitable for use'.

Report Prepared By:	Hannah Moss	Report Reviewed By	Rachel Peart
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This report is issued on the condition that LKC will not be held liable for any loss arising from ground conditions between sampling points (i.e. boreholes/trial pits/hand augers/surface samples) which have not been shown by the sampling points or related testing carried out during the investigation, nor for any loss arising from conditions below the maximum depth of the investigation, or for any works done to the garden areas following the date of inspection. Opinions on such conditions, where given, are for general guidance only.

Other works including inter alia hotspot removal, drainage, soil texture, nutrients, permitting, invasive species management and geotechnical requirements are out with this scope and should be dealt with by others.

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t: 01622 850410

DETS Report No: 25-03207

Site Reference: Collyhurst

Project / Job Ref: LKC201120

Order No: None Supplied

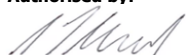
Sample Receipt Date: 21/03/2025

Sample Scheduled Date: 21/03/2025

Report Issue Number: 1

Reporting Date: 27/03/2025

Authorised by:



Dave Ashworth
Technical Manager

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

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

Soil Analysis Certificate

DETS Report No: 25-03207	~Date Sampled	19/03/25	19/03/25	19/03/25	19/03/25
LK Consult Limited	~Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: Collyhurst	~TP / BH No	D2-2	D4-2	D4-3	D4-13
~Project / Job Ref: LKC201120	~Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied
~Order No: None Supplied	~Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 27/03/2025	DETS Sample No	769728	769729	769730	769731

Determinand	Unit	RL	Accreditation				
Asbestos Screen ^(S)	N/a	N/a	ISO17025	Not Detected	Not Detected	Not Detected	Not Detected
pH	pH Units	N/a	MCERTS	8.1	7.6	7.6	7.4
Total Cyanide	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1
Free Cyanide	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1
W/S Sulphate as SO ₄ (2:1)	mg/l	< 10	MCERTS	205	268	252	189
W/S Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	0.20	0.27	0.25	0.19
Organic Matter (SOM)	%	< 0.1	MCERTS	6.5	6.1	7.2	0.7
Arsenic (As)	mg/kg	< 2	MCERTS	5	6	6	5
W/S Boron	mg/kg	< 1	NONE	1.3	1.2	1.2	1.7
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	0.2	0.2	0.2	< 0.2
Chromium (Cr)	mg/kg	< 2	MCERTS	15	10	11	10
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2
Copper (Cu)	mg/kg	< 4	MCERTS	27	27	27	24
Lead (Pb)	mg/kg	< 3	MCERTS	76	59	61	58
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1
Nickel (Ni)	mg/kg	< 3	MCERTS	10	9	10	9
Selenium (Se)	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2
Vanadium (V)	mg/kg	< 1	MCERTS	12	12	13	11
Zinc (Zn)	mg/kg	< 3	MCERTS	54	57	60	53
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2

Soil Analysis Certificate - Speciated PAHs

DETS Report No: 25-03207	~Date Sampled	19/03/25	19/03/25	19/03/25	19/03/25
LK Consult Limited	~Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: Collyhurst	~TP / BH No	D2-2	D4-2	D4-3	D4-13
~Project / Job Ref: LKC201120	~Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied
~Order No: None Supplied	~Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 27/03/2025	DETS Sample No	769728	769729	769730	769731

Determinand	Unit	RL	Accreditation				
Naphthalene	mg/kg	< 0.1	MCERTS	0.16	< 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	0.17	0.15	0.17	< 0.1
Fluorene	mg/kg	< 0.1	MCERTS	0.15	< 0.1	< 0.1	< 0.1
Phenanthrene	mg/kg	< 0.1	MCERTS	0.94	0.90	0.82	0.59
Anthracene	mg/kg	< 0.1	MCERTS	0.20	0.18	0.18	0.13
Fluoranthene	mg/kg	< 0.1	MCERTS	1.07	1.32	1.13	0.77
Pyrene	mg/kg	< 0.1	MCERTS	1.03	1.26	1.11	0.73
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	0.51	0.69	0.56	0.41
Chrysene	mg/kg	< 0.1	MCERTS	0.45	0.55	0.49	0.35
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	0.33	0.46	0.42	0.27
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.14	0.14
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	0.37	0.53	0.43	0.31
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	0.17	0.28	0.22	0.14
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	0.15	0.23	0.18	< 0.1
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	5.7	6.6	5.8	3.8

Soil Analysis Certificate - TPH CWG Banded

DETS Report No: 25-03207	~Date Sampled	19/03/25	19/03/25	19/03/25	19/03/25
LK Consult Limited	~Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: Collyhurst	~TP / BH No	D2-2	D4-2	D4-3	D4-13
~Project / Job Ref: LKC201120	~Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied
~Order No: None Supplied	~Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 27/03/2025	DETS Sample No	769728	769729	769730	769731

Determinand	Unit	RL	Accreditation					
Aliphatic >C5 - C6 : HS 1D MS AL	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	
Aliphatic >C6 - C8 : HS 1D MS AL	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	
Aliphatic >C8 - C10 : EH CU 1D AL	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	
Aliphatic >C10 - C12 : EH CU 1D AL	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	
Aliphatic >C12 - C16 : EH CU 1D AL	mg/kg	< 3	MCERTS	< 3	< 3	< 3	< 3	
Aliphatic >C16 - C21 : EH CU 1D AL	mg/kg	< 3	MCERTS	< 3	< 3	< 3	< 3	
Aliphatic >C21 - C34 : EH CU 1D AL	mg/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	
Aliphatic >C34 - C44 : EH CU 1D AL	mg/kg	< 10	NONE	< 10	< 10	< 10	< 10	
Aliphatic (C5 - C44) : HS 1D MS+EH CU 1D AL	mg/kg	< 21	NONE	< 21	< 21	< 21	< 21	
Aromatic >C5 - C7 : HS 1D MS AR	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	
Aromatic >C7 - C8 : HS 1D MS AR	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	
Aromatic >C8 - C10 : EH CU 1D AR	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	
Aromatic >C10 - C12 : EH CU 1D AR	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	
Aromatic >C12 - C16 : EH CU 1D AR	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	
Aromatic >C16 - C21 : EH CU 1D AR	mg/kg	< 3	MCERTS	6	6	6	< 3	
Aromatic >C21 - C35 : EH CU 1D AR	mg/kg	< 10	MCERTS	< 10	14	< 10	< 10	
Aromatic >C35 - C44 : EH CU 1D AR	mg/kg	< 10	NONE	< 10	< 10	< 10	< 10	
Aromatic (C5 - C44) : HS 1D MS+EH CU 1D AR	mg/kg	< 21	NONE	< 21	< 21	< 21	< 21	
Total >C5 - C44 : HS_1D_MS+EH_CU_1D_Tot al	mg/kg	< 42	NONE	< 42	< 42	< 42	< 42	

Soil Analysis Certificate - BTEX / MTBE

DETS Report No: 25-03207	~Date Sampled	19/03/25	19/03/25	19/03/25	19/03/25
LK Consult Limited	~Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: Collyhurst	~TP / BH No	D2-2	D4-2	D4-3	D4-13
~Project / Job Ref: LKC201120	~Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied
~Order No: None Supplied	~Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 27/03/2025	DETS Sample No	769728	769729	769730	769731

Determinand	Unit	RL	Accreditation					
Benzene : HS 1D MS	µg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Toluene : HS 1D MS	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Ethylbenzene : HS 1D MS	µg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
p & m-xylene : HS 1D MS	µg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
o-xylene : HS 1D MS	µg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
MTBE : HS 1D MS	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5

Soil Analysis Certificate - Sample Descriptions

DETS Report No: 25-03207	
LK Consult Limited	
~Site Reference: Collyhurst	
~Project / Job Ref: LKC201120	
~Order No: None Supplied	
Reporting Date: 27/03/2025	

DETS Sample No	~TP / BH No	~Additional Refs	~Depth (m)	Moisture Content (%)	Sample Matrix Description
769728	D2-2	None Supplied	None Supplied	24.2	Brown loamy sand
769729	D4-2	None Supplied	None Supplied	22.2	Brown loamy sand with stones
769730	D4-3	None Supplied	None Supplied	21.8	Brown loamy sand with vegetation
769731	D4-13	None Supplied	None Supplied	21.9	Brown loamy sand

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

Soil Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 25-03207

LK Consult Limited

~Site Reference: Collyhurst

~Project / Job Ref: LKC201120

~Order No: None Supplied

Reporting Date: 27/03/2025

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 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 (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

List of HWOL Acronyms and Operators
DETS Report No: 25-03207
LK Consult Limited
~Site Reference: Collyhurst
~Project / Job Ref: LKC201120
~Order No: None Supplied
Reporting Date: 27/03/2025

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

Benzene - HS_1D_MS
 Ethylbenzene - HS_1D_MS
 MTBE - HS_1D_MS
 TPH - Aliphatic >C34 - C44 - raw data - EH_CU_1D_AL
 TPH CWG - Aliphatic >C10 - C12 - EH_CU_1D_AL
 TPH CWG - Aliphatic >C12 - C16 - EH_CU_1D_AL
 TPH CWG - Aliphatic >C16 - C21 - EH_CU_1D_AL
 TPH CWG - Aliphatic >C21 - C34 - EH_CU_1D_AL
 TPH CWG - Aliphatic >C34 - C44 - EH_CU_1D_AL
 TPH CWG - Aliphatic >C5 - C44 - HS_1D_MS+EH_CU_1D_AL
 TPH CWG - Aliphatic >C5 - C6 - HS_1D_MS_AL
 TPH CWG - Aliphatic >C6 - C8 - HS_1D_MS_AL
 TPH CWG - Aliphatic >C8 - C10 - EH_CU_1D_AL
 TPH CWG - Aromatic >C10 - C12 - EH_CU_1D_AR
 TPH CWG - Aromatic >C12 - C16 - EH_CU_1D_AR
 TPH CWG - Aromatic >C16 - C21 - EH_CU_1D_AR
 TPH CWG - Aromatic >C21 - C35 - EH_CU_1D_AR
 TPH CWG - Aromatic >C35 - C44 - EH_CU_1D_AR
 TPH CWG - Aromatic >C5 - C44 - HS_1D_MS+EH_CU_1D_AR
 TPH CWG - Aromatic >C5 - C7 - HS_1D_MS_AR
 TPH CWG - Aromatic >C7 - C8 - HS_1D_MS_AR
 TPH CWG - Aromatic >C8 - C10 - EH_CU_1D_AR
 TPH CWG - Total >C5 - C44 - HS_1D_MS+EH_CU_1D_Total
 Toluene - HS_1D_MS
 m & p-xylene - HS_1D_MS
 o-Xylene - HS_1D_MS

Certificate Key

<u>Symbol</u>	<u>Description</u>
F	Filtered sample
UF	Unfiltered sample
D	Dried sample
AR	As received sample
RL	Reporting limit
~	Sample details provided by customer and can affect the validity of results
M/S	Missing Sample
S	Subcontracted analysis
M	MCERTS accredited test
U	UKAS accredited test

SOIL VERIFICATION REPORT

Topsoil Suitability



Enclosed:

Laboratory Results – Soils

Generic Assessment Criteria – Soils

Generic Assessment Criteria Values

Contaminant		SOM	Res +	Res -	Allot.	Comm.	POS ^{resi}	POS ^{park}	Source
Metals	Inorganic Arsenic	N/A	37	40	49	640	79	168	DEFRA C4SL
	Beryllium	N/A	1.7	1.7	35	12	2.2	63	LQM S4UL
	Boron	N/A	290	11,000	45	240,000	21,000	46,000	LQM S4UL
	Cadmium	N/A	26	149	4.9	410	220	880	DEFRA C4SL
	Chromium (III)	N/A	910	910	18,000	8,600	1,500	33,000	LQM S4UL
	Chromium (VI)	N/A	21.0	21.0	170.0	49	23.0	250	DEFRA C4SL
	Copper	N/A	2,400	7,100	520	68,000	12,000	44,000	LQM S4UL
	Lead	N/A	200	310	80	2,330	630	1,300	DEFRA C4SL
	Elemental Mercury	N/A	1.2	1.2	21	58 (25.8) ^{vap}	16	30 (25.8) ^{vap}	LQM S4UL
	Inorganic Mercury	N/A	40	56	19	1,100	120	240	LQM S4UL
	Methylmercury	N/A	11	15	6.0	320	40	68	LQM S4UL
	Nickel (2015 update)	N/A	130	180	53	980	230	800	LQM S4UL
	Selenium	N/A	250	430	88	12,000	1,100	1,800	LQM S4UL
	Vanadium	N/A	410	1,200	91	9,000	2,000	5,000	LQM S4UL
	Zinc	N/A	3,700	40,000	620	730,000	81,000	170,000	LQM S4UL
Polycyclic Aromatic Hydrocarbons (PAHs)	Acenaphthene	1%	210	3,000 (57.1) ^{sol}	34	84,000 (57.0) ^{sol}	15,000	29,000	LQM S4UL
		2.5%	510	4,700 (141) ^{sol}	85	97,000 (141) ^{sol}	15,000	30,000	LQM S4UL
		6%	1,100	6,000 (336) ^{sol}	200	100,000	15,000	30,000	LQM S4UL
	Acenaphthylene	1%	170	2,900 (86.1) ^{sol}	28	83,000 (86.1) ^{sol}	15,000	29,000	LQM S4UL
		2.5%	420	4,600 (212) ^{sol}	69	97,000 (212) ^{sol}	15,000	30,000	LQM S4UL
		6%	920	6,000 (506) ^{sol}	160	100,000	15,000	30,000	LQM S4UL
	Anthracene	1%	2,400	31,000 (1.17) ^{vap}	380	520,000	74,000	150,000	LQM S4UL
		2.5%	5,400	35,000	950	540,000	74,000	150,000	LQM S4UL
		6%	11,000	37,000	2,200	540,000	74,000	150,000	LQM S4UL
	Benz(a)anthracene	1%	7.2	11	2.9	170	29	49	LQM S4UL
		2.5%	11	14	6.5	170	29	56	LQM S4UL
		6%	13	15	13	180	29	62	LQM S4UL
	Benzo(a)pyrene (only)	1%	5.0	5.3	5.70	77	10.0	21	DEFRA C4SL
		2.5%	5.0	5.3	5.70	77	10.0	21	DEFRA C4SL
		6%	5.0	5.3	5.70	77	10.0	21	DEFRA C4SL
	Benzo(a)pyrene (surrogate marker Coal Tar)	1%	0.8	1.2	0.32	15	2.2	4	LQM S4UL
		2.5%	1.0	1.2	0.67	15	2.2	5	LQM S4UL
		6%	1.1	1.2	1.20	15	2.2	5	LQM S4UL
	Benzo(b)fluoranthene	1%	2.6	3.9	0.99	44	7.1	13	LQM S4UL
		2.5%	3.3	4.0	2.1	44	7.2	15	LQM S4UL
		6%	3.7	4.0	3.9	45	7.2	16	LQM S4UL
	Benzo(ghi)perylene	1%	320	360	290	3,900	640	1,400	LQM S4UL
		2.5%	340	360	470	4,000	640	1,500	LQM S4UL
		6%	350	360	640	4,000	640	1,600	LQM S4UL
	Benzo(k)fluoranthene	1%	77	110	37	1,200	190	370	LQM S4UL
		2.5%	93	110	75	1,200	190	410	LQM S4UL
		6%	100	110	130	1,200	190	440	LQM S4UL
	Chrysene	1%	15	30	4.1	350	57	93	LQM S4UL
		2.5%	22	31	9.4	350	57	110	LQM S4UL
		6%	27	32	19	350	57	120	LQM S4UL
	Dibenzo(ah)anthracene	1%	0.24	0.31	0.14	3.5	0.57	1.1	LQM S4UL
		2.5%	0.28	0.32	0.27	3.6	0.58	1.3	LQM S4UL
		6%	0.3	0.32	0.43	3.6	0.58	1.4	LQM S4UL
	Fluoranthene	1%	280	1,500	52	23,000	3,100	6,300	LQM S4UL
		2.5%	560	1,600	130	23,000	3,100	6,300	LQM S4UL
		6%	890	1,600	290	23,000	3,100	6,400	LQM S4UL
	Fluorene	1%	170	2,800 (36.0) ^{sol}	27	63,000 (30.9) ^{sol}	9,900	20,000	LQM S4UL
		2.5%	400	3,800 (76.5) ^{sol}	67	68,000	9,900	20,000	LQM S4UL
		6%	860	4,500 (183) ^{sol}	160	71,000	9,900	20,000	LQM S4UL
	Indeno(123-cd)pyrene	1%	27	45	9.5	500	82	150	LQM S4UL
		2.5%	36	46	21	510	82	170	LQM S4UL
		6%	41	46	39	510	82	180	LQM S4UL
	Naphthalene	1%	15	15	65	1,600*	11,000*	8,400*	DEFRA C4SL
		2.5%	36	36	130	3,700*	15,000*	17,00*	DEFRA C4SL
		6%	85	85	200	8,400*	1,200*	1,900*	DEFRA C4SL
	Phenanthrene	1%	95	1,300 (36.0) ^{sol}	15	22,000	3,100	6,200	LQM S4UL
		2.5%	220	1,500	38	22,000	3,100	6,200	LQM S4UL
		6%	440	1,500	90	22,000	3,100	6,300	LQM S4UL
	Pyrene	1%	620	3,700	110	54,000	7,400	15,000	LQM S4UL
		2.5%	1,200	3,800	270	54,000	7,400	15,000	LQM S4UL
		6%	2,000	3,800	620	54,000	7,400	15,000	LQM S4UL
	Coal Tar (B(a)P as surrogate marker)	1%	0.79	1.2	0.32	15	2.2	4.4	LQM S4UL
		2.5%	0.98	1.2	0.67	15	2.2	4.7	LQM S4UL
		6%	1.1	1.2	1.2	15	2.2	4.8	LQM S4UL

Generic Assessment Criteria Values

Contaminant		SOM	Res +	Res -	Allot.	Comm.	POS ^{res} i	POS ^{park}	Source
BTEX Compounds	Benzene	1%	0.87	0.38	0.017	27	72	90	LQM S4UL
		2.5%	0.17	0.70	0.034	47	72	100	LQM S4UL
		6%	0.37	1.4	0.075	90	73	110	LQM S4UL
	Toluene	1%	130	880 (869) ^{vap}	22	56,000 (869) ^{vap}	56,000	87,000 (869) ^{vap}	LQM S4UL
		2.5%	290	1,900	51	110,000 (1,920) ^{vap}	56,000	95,000 (1,920) ^{vap}	LQM S4UL
		6%	660	3,900	120	180,000 (4,360) ^{vap}	56,000	100,000 (4,360) ^{vap}	LQM S4UL
	Ethylbenzene	1%	47	83	16	5,700 (518) ^{vap}	24,000	17,000 (518) ^{vap}	LQM S4UL
		2.5%	110	190	39	13,000 (1,220) ^{vap}	24,000	22,000 (1,220) ^{vap}	LQM S4UL
		6%	260	440	91	27,000 (2,840) ^{vap}	25,000	27,000 (2,840) ^{vap}	LQM S4UL
	o-xylene	1%	60	88	28	6,600 (478) ^{sol}	41,000	17,000 (478) ^{sol}	LQM S4UL
		2.5%	140	210	67	15,000 (1,120) ^{sol}	42,000	24,000 (1,120) ^{sol}	LQM S4UL
		6%	330	480	160	33,000 (2,620) ^{sol}	43,000	33,000 (2,620) ^{sol}	LQM S4UL
	m-xylene	1%	59	82	31	6,200 (625) ^{vap}	41,000	17,000 (625) ^{vap}	LQM S4UL
		2.5%	140	190	74	14,000 (1,470) ^{vap}	42,000	24,000 (1,470) ^{vap}	LQM S4UL
		6%	320	450	170	31,000 (3,460) ^{vap}	43,000	32,000 (3,460) ^{vap}	LQM S4UL
	p-xylene	1%	56	79	29	5,900 (576) ^{sol}	41,000	17,000 (576) ^{sol}	LQM S4UL
		2.5%	130	180	69	14,000 (1,350) ^{sol}	42,000	23,000 (1,350) ^{sol}	LQM S4UL
		6%	310	430	160	30,000 (3,170) ^{sol}	43,000	31,000 (3,170) ^{sol}	LQM S4UL
Petroleum Hydroc	Aliphatic								
	EC 5-6	1%	42	42	730	3,200 (304) ^{sol}	570,000 (304) ^{sol}	95,000 (304) ^{sol}	LQM S4UL
	EC>6-8	1%	100	100	2,300	7,800 (144) ^{sol}	600,000	150,000 (144) ^{sol}	LQM S4UL
	EC>8-10	1%	27	27	320	2,000 (78) ^{sol}	13,000	14,000 (78) ^{vap}	LQM S4UL
	EC>10-12	1%	130 (48) ^{vap}	130 (48) ^{vap}	2,200	9,700 (48) ^{sol}	13,000	21,000 (48) ^{vap}	LQM S4UL
	EC>12-16	1%	1,100 (24) ^{sol}	1,100 (24) ^{sol}	11,000	59,000 (24) ^{sol}	13,000	25,000 (24) ^{sol}	LQM S4UL
	EC>16-35	1%	65,000 (8.48)	65,000 (8.48) ^{f, sol}	260,000 ^f	160,000 ^f	250,000 ^f	450,000 ^f	LQM S4UL
	EC>35-44	1%	65,000 (8.48)	65,000 (8.48) ^{f, sol}	260,000 ^f	160,000 ^f	250,000 ^f	450,000 ^f	LQM S4UL
	Aliphatic								
	EC 5-6	2.5%	78	78	1,700	5,900 (558) ^{sol}	590,000	130,000 (558) ^{sol}	LQM S4UL
	EC>6-8	2.5%	230	230	5,600	17,000 (322) ^{sol}	610,000	220,000 (322) ^{sol}	LQM S4UL
	EC>8-10	2.5%	65	65	770	4,800 (190) ^{vap}	13,000	18,000 (190) ^{vap}	LQM S4UL
	EC>10-12	2.5%	330 (118) ^{vap}	330 (118) ^{vap}	4,400	23,000 (118) ^{vap}	13,000	23,000 (118) ^{vap}	LQM S4UL
	EC>12-16	2.5%	2,400 (59) ^{sol}	2,400 (59) ^{sol}	13,000	82,000 (59) ^{sol}	13,000	25,000 (59) ^{sol}	LQM S4UL
	EC>16-35	2.5%	92,000 (21)	92,000 (21) ^{f, sol}	270,000 ^f	1,700,000 ^f	250,000 ^f	480,000 ^f	LQM S4UL
	EC>35-44	2.5%	92,000 (21)	92,000 (21) ^{f, sol}	270,000 ^f	1,700,000 ^f	250,000 ^f	480,000 ^f	LQM S4UL
	Aliphatic								
	EC 5-6	6%	160	160	3,900	12,000 (1,150) ^{sol}	600,000	180,000 (1,150)	LQM S4UL
	EC>6-8	6%	530	530	13,000	40,000 (736) ^{sol}	620,000	320,000 (736) ^{sol}	LQM S4UL
	EC>8-10	6%	150	150	1,700	11,000 (451) ^{vap}	13,000	21,000 (451) ^{vap}	LQM S4UL
	EC>10-12	6%	760 (283) ^{vap}	760 (283) ^{vap}	7,300	47,000 (283) ^{vap}	13,000	24,000 (283) ^{vap}	LQM S4UL
	EC>12-16	6%	4,300 (142) ^{sol}	4,400 (142) ^{sol}	13,000	90,000 (142) ^{sol}	13,000	26,000 (142) ^{sol}	LQM S4UL
	EC>16-35	6%	110,000 ^f	110,000 ^f	270,000 ^f	1,800,000 ^f	250,000 ^f	490,000 ^f	LQM S4UL
	EC>35-44	6%	110,000 ^f	110,000 ^f	270,000 ^f	1,800,000 ^f	250,000 ^f	490,000 ^f	LQM S4UL
	Aromatic								
	EC5-7(benzene as non-	1%	70	370	13	26,000 (1,220) ^{sol}	56,000	76,000 (1,220) ^{sol}	LQM S4UL
	EC>7-8(toluene)	1%	130	860	22	56,000 (869) ^{vap}	56,000	87,000 (869) ^{vap}	LQM S4UL
	EC>8-10	1%	34	47	8.6	3,500 (613) ^{vap}	5,000	7,200 (613) ^{vap}	LQM S4UL
	EC>10-12	1%	74	250	13	16,000 (364) ^{sol}	5,000	9,200 (364) ^{sol}	LQM S4UL
	EC>12-16	1%	140	1,800	23	36,000 (169) ^{sol}	5,100	10,000	LQM S4UL
	EC>16-21	1%	260 ^f	1,900 ^f	46 ^f	28,000 ^f	3,800 ^f	7,600 ^f	LQM S4UL
	EC>21-35	1%	1,100 ^f	1,900 ^f	370 ^f	28,000 ^f	3,800 ^f	7,800 ^f	LQM S4UL
	EC>35-44	1%	1,100 ^f	1,900 ^f	370 ^f	28,000 ^f	3,800 ^f	7,800 ^f	LQM S4UL
	Aromatic								
	EC5-7(benzene as non-	2.5%	140	690	27	46,000 (2,260) ^{sol}	56,000	84,000 (2,260) ^{sol}	LQM S4UL
	EC>7-8(toluene)	2.5%	290	1,800	51	110,000 (1,920) ^{sol}	56,000	95,000 (1,920) ^{sol}	LQM S4UL
	EC>8-10	2.5%	83	110	21	8,100 (1,500) ^{vap}	5,000	8,500 (1,500) ^{vap}	LQM S4UL
	EC>10-12	2.5%	180	590	31	28,000 (899) ^{sol}	5,000	9,700 (899) ^{sol}	LQM S4UL
	EC>12-16	2.5%	330	2,300 (419) ^{sol}	57	37,000	5,100	10,000	LQM S4UL
	EC>16-21	2.5%	540 ^f	1,900 ^f	110 ^f	28,000 ^f	3,800 ^f	7,700 ^f	LQM S4UL
	EC>21-35	2.5%	1,500 ^f	1,900 ^f	820 ^f	28,000 ^f	3,800 ^f	7,800 ^f	LQM S4UL
	EC>35-44	2.5%	1,500 ^f	1,900 ^f	820 ^f	28,000 ^f	3,800 ^f	7,800 ^f	LQM S4UL
	Aromatic								
	EC5-7(benzene as non-	6%	300	1,400	57	86,000 (4,710) ^{sol}	56,000	92,000 (4,710) ^{sol}	LQM S4UL
	EC>7-8(toluene)	6%	660	3,900	120	180,000 (4,360) ^{vap}	56,000	100,000 (4,360)	LQM S4UL
	EC>8-10	6%	190	270	51	17,000 (3,580) ^{vap}	5,000	9,300 (3,580) ^{vap}	LQM S4UL
	EC>10-12	6%	380	1,200	4	34,000 (2,150) ^{sol}	5,000	10,000	LQM S4UL
	EC>12-16	6%	660	2,500	130	38,000	5,100	10,000	LQM S4UL
	EC>16-21	6%	930 ^f	1,900 ^f	260 ^f	28,000 ^f	3,800 ^f	7,800 ^f	LQM S4UL
	EC>21-35	6%	1,700 ^f	1,900 ^f	1,600 ^f	28,000 ^f	3,800 ^f	7,900 ^f	LQM S4UL
	EC>35-44	6%	1,700 ^f	1,900 ^f	1,600 ^f	28,000 ^f	3,800 ^f	7,900 ^f	LQM S4UL
	Aliphatic +Aromatic >EC44	1%	1,600 ^f	1,900 ^f	1,200 ^f	28,000 ^f	3,800 ^f	7,800 ^f	LQM S4UL
		2.5%	1,800 ^f	1,900 ^f	2,100 ^f	28,000 ^f	3,800 ^f	7,800 ^f	LQM S4UL
		6%	1,900 ^f	1,900 ^f	3,000 ^f	28,000 ^f	3,800 ^f	7,900 ^f	LQM S4UL

Generic Assessment Criteria Values

Contaminant		SOM	Res +	Res -	Allot.	Comm.	POS ^{res} i	POS ^{park}	Source
Chloroalkanes and Alkenes & Explosives	1,2 Dichloroethane (DCA)	1%	0.0071	0.0092	0.0046	0.67	29	21	LQM S4UL
		2.5%	0.0110	0.0130	0.0083	0.97	29	24	LQM S4UL
		6%	0.0190	0.0230	0.0160	1.7	29	28	LQM S4UL
	1,1,1 Trichloroethane (TCA)	1%	8.8	9.0	48	660	140,000	57,000 (1,425) ^{vap}	LQM S4UL
		2.5%	18	18	110	1,300	140,000	76,000 (2,915) ^{vap}	LQM S4UL
		6%	39	40	240	3,000	140,000	100,000 (6,392)	LQM S4UL
	1,1,2,2-Tetrachloroethanes (PCA)	1%	1.6	3.9	0.41	270	1,400	1,800	LQM S4UL
		2.5%	3.4	8.0	0.89	550	1,400	2,100	LQM S4UL
		6%	7.5	17	2.0	1,100	1,400	2,300	LQM S4UL
	1,1,1,2-Tetrachloroethanes (PCA)	1%	1.2	1.5	0.79	110	1,400	1,500	LQM S4UL
		2.5%	2.8	3.5	1.9	250	1,400	1,800	LQM S4UL
		6%	6.4	8.2	4.4	560	1,400	2,100	LQM S4UL
	Tetrachloroethene (PCE)	1%	0.31	0.32	2.00	24	3,200	1400	DEFRA C4SL
		2.5%	0.70	0.71	4.8	55	3,300	1900	DEFRA C4SL
		6%	1.60	1.60	11.0	130	3,400	2,500	DEFRA C4SL
	Tetrachloromethane (carbon tetrachloride)	1%	0.03	0.03	0.45	2.9	890	190	LQM S4UL
		2.5%	0.06	0.06	1.0	6.3	920	270	LQM S4UL
		6%	0.13	0.13	2.4	14	950	400	LQM S4UL
	Trichloroethene (TCE)	1%	0.009	0.010	0.032	0.7	76.0	41.0	DEFRA C4SL
		2.5%	0.020	0.020	0.072	1.5	78.0	51.0	DEFRA C4SL
		6%	0.043	0.045	0.160	3.4	79.0	69.0	DEFRA C4SL
	cis 1,2-dichloroethene	1%	0.46	0.50	0.890	38	3,800	2,000	DEFRA C4SL
		2.5%	0.78	0.84	1.70	64	3,800	2,400	DEFRA C4SL
		6%	1.50	1.60	3.60	120	3,900	3,100	DEFRA C4SL
	Trichloromethane (chloroform)	1%	0.91	1.2	0.42	99	2,500	2,600	LQM S4UL
		2.5%	1.7	2.1	0.83	170	2,500	2,800	LQM S4UL
		6%	3.4	4.2	1.7	350	2,500	3,100	LQM S4UL
	Trans-1,2 Dichloroethene	1%	0.9	0.9	3.7	69	13,000	5,600	DEFRA C4SL
		2.5%	1.6	1.7	7.5	120	13,000	7,000	DEFRA C4SL
		6%	3.3	3.4	16.0	260	13,000	9,100	DEFRA C4SL
	Chloroethene (vinyl chloride)	1%	0.006	0.015	0.0017	1.1E+00	7.8	18.0	DEFRA C4SL
		2.5%	0.010	0.019	0.0031	1.4E+00	7.8	19.0	DEFRA C4SL
		6%	0.017	0.029	0.0058	2.20	7.8	19.0	DEFRA C4SL
	2,4,6-Trinitrotoluene (TNT)	1%	1.6	65	0.24	1,000	130	260	LQM S4UL
		2.5%	3.7	66	0.58	1,000	130	270	LQM S4UL
		6%	8.1	66	1.4	1,000	130	270	LQM S4UL
	RDX	1%	120	13,000	17	210,000	26,000	49,000 (18.7) ^{sol}	LQM S4UL
		2.5%	250	13,000	38	210,000	26,000	51,000	LQM S4UL
		6%	540	13,000	85	210,000	27,000	53,000	LQM S4UL
	HMX	1%	5.7	6,700	0.86	110,000	13,000	23,000 (0.35) ^{vap}	LQM S4UL
		2.5%	13	6,700	1.9	110,000	13,000	23,000 (0.39) ^{vap}	LQM S4UL
		6%	26	6,700	3.9	110,000	13,000	24,000 (0.48) ^{vap}	LQM S4UL
Pesticides	Aldrin	1%	5.7	7.3	3.2	170	18	30	LQM S4UL
		2.5%	6.6	7.4	6.1	170	18	31	LQM S4UL
		6%	7.1	7.5	9.8	170	18	31	LQM S4UL
	Dieldrin	1%	0.97	7.0	0.17	170	18	30	LQM S4UL
		2.5%	2.0	7.3	0.41	170	18	30	LQM S4UL
		6%	3.5	7.4	0.96	170	18	31	LQM S4UL
	Atrazine	1%	3.3	610	0.5	9,300	1,200	2,300	LQM S4UL
		2.5%	7.8	620	1.2	9,400	1,200	2,400	LQM S4UL
		6%	17.4	620	2.7	9,400	1,200	2,400	LQM S4UL
	Dichlorvos	1%	3.2E-02	6.4	4.9E-03	140	16	26	LQM S4UL
		2.5%	6.6E-02	6.5	1.0E-02	140	16	26	LQM S4UL
		6%	0.14	6.6	2.2E-02	140	16	27	LQM S4UL
	Endosulfans (2 isomers)	1%	7.4	160 (3.0E-03) ^{vap}	1.2	5,600 (3.0E-03) ^{vap}	1,200	2,300	LQM S4UL
		2.5%	18	280 (7.0E-03) ^{vap}	2.9	7,400 (7.0E-03) ^{vap}	1,200	2,400	LQM S4UL
		6%	41	410 (1.6E-02) ^{vap}	6.8	8,400 (1.6E-02) ^{vap}	1,200	2,500	LQM S4UL
	Hexachlorocyclohexane (3 isomers), inc Lindane	1%	8.5E-02	3.7	1.3E-02	65	8.1	15	LQM S4UL
		2.5%	0.2	3.8	3.2E-02	65	8.1	15	LQM S4UL
		6%	0.46	3.8	7.7E-02	65	8.1	16	LQM S4UL
Chlorobenzenes	Chlorobenzene	1%	0.46	0.46	5.9	56	11,000	1,300 (675) ^{sol}	LQM S4UL
		2.5%	1.0	1.0	14	130	13,000	2,000 (1,520) ^{sol}	LQM S4UL
		6%	2.4	2.4	32	290	14,000	2,900	LQM S4UL
	Dichlorobenzenes (3 isomers)	1%	23	24	94	2,000 (571) ^{sol}	90,000	24,000 (571) ^{sol}	LQM S4UL
		2.5%	55	57	230	4,800 (1,370) ^{sol}	95,000	36,000 (1,370) ^{sol}	LQM S4UL
		6%	130	130	540	11,000 (3,240) ^{sol}	98,000	51,000 (3,270) ^{sol}	LQM S4UL
	Trichlorobenzenes (3 isomers)	1%	2.6	2.6	55	220	15,000	1,700 (318) ^{vap}	LQM S4UL
		2.5%	6.4	6.4	140	530	17,000	2,600 (786) ^{vap}	LQM S4UL
		6%	15	15	320	1,300	19,000	4,000 (1,880) ^{vap}	LQM S4UL
	Tetrachlorobenzenes (3 isomers)	1%	0.66	0.75	0.38	49 (39.4) ^{vap}	78	110 (39) ^{vap}	LQM S4UL
		2.5%	1.6	1.9	0.90	120 (98.1) ^{vap}	79	120	LQM S4UL
		6%	3.7	4.3	2.2	240 (235) ^{vap}	79	130	LQM S4UL
	Pentachlorobenzene	1%	5.8	19	1.2	640 (43.0) ^{sol}	100	190	LQM S4UL
		2.5%	12	30	3.1	770 (107) ^{sol}	100	190	LQM S4UL
		6%	22	38	7.0	830	100	190	LQM S4UL
	Hexachlorobenzene	1%	1.8 (0.20) ^{vap}	4.1 (0.20) ^{vap}	0.47	110 (0.20) ^{vap}	16	30	LQM S4UL
		2.5%	3.3 (0.50) ^{vap}	5.7 (0.50) ^{vap}	1.1	120	16	30	LQM S4UL
		6%	4.9	6.7 (1.2) ^{vap}	2.5	120	16	30	LQM S4UL

Generic Assessment Criteria Values

Contaminant		SOM	Res +	Res -	Allot.	Comm.	^{POS} resi	^{POS} park	Source
Chlorophenol	Chlorophenols (4 congeners)	1%	0.87 ^g	94	0.13 ^g	3,500	620	1,100	LQM S4UL
		2.5%	2.0	150	0.30	4,000	620	1,100	LQM S4UL
		6%	4.5	210	0.70	4,300	620	1,100	LQM S4UL
	Pentachlorophenol	1%	0.22	27 (16.4) ^{vap}	3.0E-02	400	60	110	LQM S4UL
		2.5%	0.52	29	8.0E-02	400	60	120	LQM S4UL
		6%	1.2	31	0.19	400	60	120	LQM S4UL
Others	Carbon Disulphide	1%	0.14	0.14	4.8	11	11,000	1,300	LQM S4UL
		2.5%	0.29	0.29	10	22	11,000	1,900	LQM S4UL
		6%	0.62	0.62	23	47	11,000	2,700	LQM S4UL
	Hexachlorobutadiene	1%	0.29	0.32	0.25	31	25	48	LQM S4UL
		2.5%	0.7	0.78	0.61	66	25	50	LQM S4UL
		6%	1.6	1.8	1.4	120	25	51	LQM S4UL
	Phenol	1%	120	440 (460)	23	440 ^{dir} (26,000)	440 ^{dir} (10,000)	440 ^{dir} (7,600)	LQM S4UL
		2.5%	200	690	42	690 ^{dir} (30,000)	690 ^{dir} (10,000)	690 ^{dir} (8,300)	LQM S4UL
		6%	380	1,200	83	1,300 ^{dir} (34,000)	1,300 ^{dir} (10,000)	1,300 ^{dir} (9,300)	LQM S4UL
sol/vap = solubility/vapour limit (potentially use if free product identified, although highly conservative)									
* = naphthalene C4SL exceeds the CLEA calculated soil saturation concentration (76 mg kg-1 for 1% SOM, 183 mg kg-1 for 2.5% SOM and 432 mg kg-1 for 6% SOM)									
f = oral, dermal and inhalation exposures compared to oral HCV									
dir = S4ULs based on threshold protective of direct skin contact with phenol)brackets long term exposure for illustration purposes)									
g = derived based on 2,3,4-tetrachlorophenol									

Appendix D – Generic Assessment Criteria

Appendix E - References

¹ DCL (2021). "National Planning Policy Framework." Department of Communities and Local Government.

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