

FAIRFIELD ROAD
DROYLSDEN

ADDITIONAL RISK ASSESSMENT
AND UPDATED REMEDIATION STRATEGY
REPORT

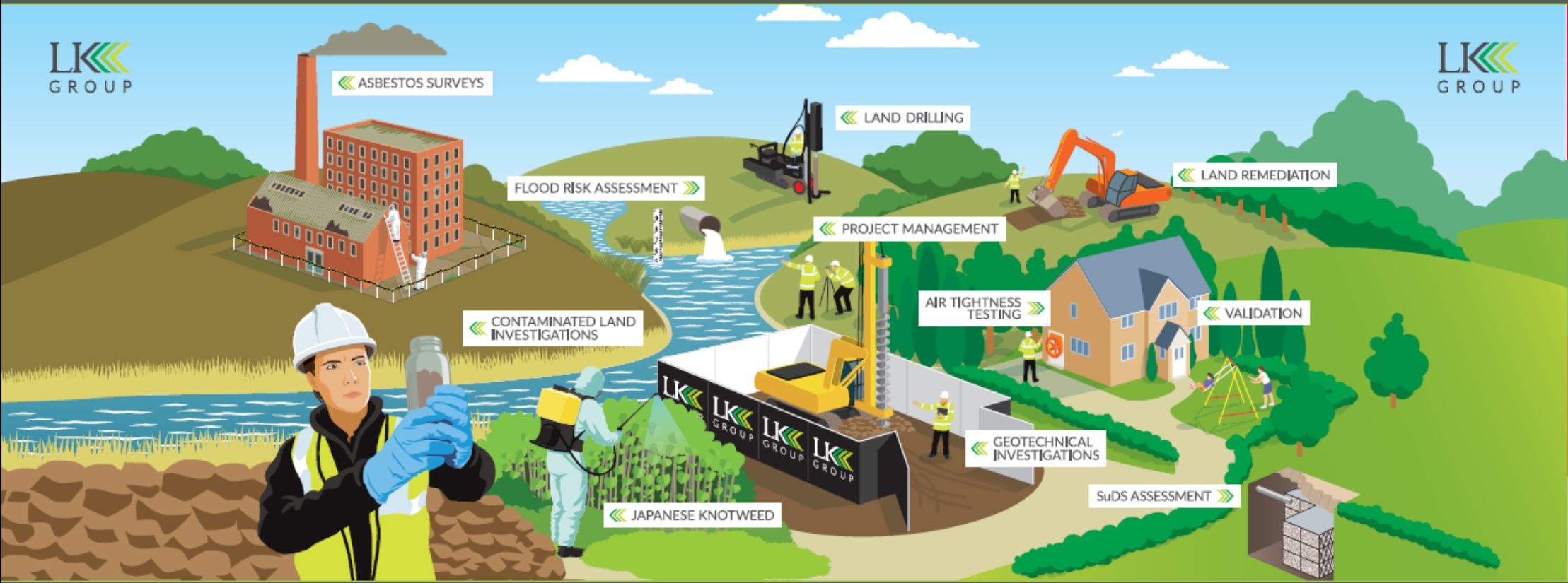
Job Number: LKC 20 1761
Date: August 2023
Client: J Greenwood (Builders) Ltd



INCREASING LAND VALUE

LK
GROUP

INCREASING LAND VALUE



ASBESTOS SURVEYS

LAND DRILLING

LAND REMEDIATION

FLOOD RISK ASSESSMENT

PROJECT MANAGEMENT

AIR TIGHTNESS TESTING

VALIDATION

CONTAMINATED LAND INVESTIGATIONS

GEOTECHNICAL INVESTIGATIONS

JAPANESE KNOTWEED

SuDS ASSESSMENT



LK Consult			
Document Verification			
Site Address	Fairfield Road, Droylsden, Manchester, M43 6AH		
Report Title	Additional Risk Assessment and Updated Remediation Strategy		
Job Number	LKC 20 1761	Document Ref.	LKC 20 1761-B1
Date Issued	24 th August 2023	Report Version	R0
Prepared By	Ella Mcleod	Reviewed By	Catherine Baranek

Revision Record			
Revision No.	Date	Nature of Revision	Approved By

DISCLAIMER

This report has been prepared by LK Consult (LKC) who have exercised such professional skill, care and diligence as may reasonably be expected of a properly qualified and competent consultant, experienced in preparing reports of a similar scope.

However, to the extent that the report is based or relies upon information contained in records, reports or other materials provided to LKC, which have not been independently produced or verified, LKC gives no warranty, representation or assurance as to the accuracy or completeness of such information.

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. Opinions on such conditions, where given, are for general guidance only.

This report is prepared solely for the benefit of J Greenwood (Builders) Ltd. It may not be relied upon by, or submitted to a third party for their reliance for the purposes of valuation, mortgage, insurance and regulatory approval, until all invoices have been settled in full.

Those using this information in subsequent assessments or evaluations do so at their own risk.

CONTENTS

1	Introduction	1
1.1	Background	1
1.2	Site Details	1
1.3	Summary of Earthworks / Material Movement	1
1.4	Tree Preservation Order Areas	3
2	Additional Soil Sampling	4
2.1	Summary of Additional Testing Undertaken	4
2.2	Sampling Protocol	4
3	Soil Risk Assessment	6
4	Recommendations and Updated Remedial Strategy	16
4.1	Remediation and Validation Recommendations	16
4.2	Validation of Subsoil / Topsoil	18
4.3	Site Completion Report	19

FIGURES

Figure 1:	Site Location Plan
Figure 2:	Site Boundary Plan
Figure 3:	Proposed Development Plan
Figure 4:	Site Investigation Location Plan

APPENDICES

Appendix A:	Risk Matrix
Appendix B:	Certificates of Analysis - Soil
Appendix C:	Generic Assessment Criteria Values
Appendix D:	JIWG Output Sheets
Appendix E:	Typical Environmental Cover System

1 Introduction

1.1 Background

LK Consult Ltd (LKC) has been commissioned by J Greenwood (Builders) Ltd to carry out an additional risk assessment report for the Fairfield Road, Droylsden residential development site.

The following reports has previously been undertaken and should be read in conjunction with this report:

- Final Phase 2 Geo-Environmental Investigation, Risk Assessment and Remediation Strategy, undertaken by LKC (Ref: CL-602-LKC 19 1024-02 R3, dated March 2022).
- Additional Phase 2 Geo-Environmental Investigation, Risk Assessment and Remediation Strategy, undertaken by LKC (Ref: CL-602-LKC 20 1761-01 R1, dated March 2021).

The aim of this report is to summarise all additional soil testing and risk assessments undertaken associated with the remedial works in garden / soft landscaping areas at the site.

1.2 Site Details

A summary of the site details is presented in Table 1-1. Figures 1, 2 and 3 indicate the site location, boundary and proposed development.

Site Location	North of Fairfield Road, to the southeast of Edge Lane, Droylsden, Manchester. Centred at approximate National Grid Reference 389530E 397670N.
Approximate Area	7,200m.
Topography	90 metres Above Ordnance Datum (AOD). Site is approximately level.
Proposed Development	Residential development of 62no. 1 & 2-bed units comprising flats and houses with associated infrastructure, vehicle access, car parking and landscaping.

Table 1-1. Summary of site details.

1.3 Summary of Earthworks / Material Movement

During the initial site investigation undertaken by LKC in 2019, asbestos was identified in 5no. investigation locations in the north west of the site which is detailed in the reports previously undertaken for the site. The remediation strategy was agreed on the basis that the made ground soils in the north west site were not subject to any excavation and that levels in the area raised by 900mm using site won soils from the attenuation tank excavation and the east of the site (email 'Plant Hire Depot, Fairfield Road, Droylsden, Tameside (Ref: 20/00096/PLCOND)', dated 28th April 2021).

The following information regarding earthworks and material movement was provided by the former contactors at the site (Brierstone Ltd):

- *“Following the demolition operation, all the cut and fill operations in relation to the above areas were undertaken within the initial 'Enabling Works'. Site levels were raised in accordance with construction drawing; 1285-903P1 Hard Paving dated 30-11-20. Following demolition works, all hardstandings had been removed and crushed to an onsite stockpile. Arising from the attenuation tank*

and site won material were utilised as fill to plots and apartments under proposed piling mats”.

- LKC asked whether verification sampling and analysis undertaken of the materials used to raise site levels and the following response was received: *“Raising of all levels with site won material the material was sampled with the SI”.*
- LKC asked whether any visual asbestos fragments were encountered during earthworks and the following response was received: *“None encountered, No visual asbestos was encountered by any of JJ Mullins on site operatives and staff or Brierstone”.*

The following point was also confirmed as valid by the former contractors at the site (commercial director at Brierstone Ltd):

- *“The crushed material from the demolition of the former building is to be used only as a piling mat and will be restricted to the footprint of the proposed plots. It will not extend beyond the footprint of the buildings and into garden / soft landscaped areas”.*

The following photographs were provided by Brierstone Ltd which were taken during earthworks (Plate 1-2).



Plate 1-2: Site photographs taken during earthworks.

Further information was requested by the Contaminated Land Officer (CLO) at Tameside MBC regarding the earthworks at the site in order to help justify the remediation previously agreed for gardens and soft landscaping areas (email from CLO at Tameside MBC ‘Planning Application Number: 20/01116/FUL (Former A-Plant Hire Site, Fairfield Road, Droylsden, Tameside), dated 25th October 2022). However LKC did not receive any further information from Brierstone Ltd.

Further sampling of the existing made ground across the site beneath proposed gardens / soft landscaping areas was therefore required to undertake additional risk assessments for the garden / soft landscaping areas at the site, which is detailed in this report. The following was requested (email from CLO at Tameside MBC ‘RE: Fairfield Road, Droylsden outstanding validation work’, dated 15th August 2023):

- *“Given the uncertainties regarding the earthworks undertaken at the site and the previous identification of asbestos in this area of the site, additional sampling and analysis of the made ground is required in the rear gardens of plot 45 – 48 in order to confirm the adequacy of the proposed cover system depth / construction”.*
- *“As is the case for plot 45 – 48, we would recommend that additional sampling and analysis of the underlying made ground in rear gardens is undertaken in order to confirm the adequacy of the cover system particularly, given the current uncertainties regarding the earthworks and previous identification of asbestos in this area of the site”.*

1.4 Tree Preservation Order Areas

Tree Preservation Orders (TPOs) are located within the rear gardens of Plots 37-42, the south western corner of the rear garden of Plot 62 and within the strip of soft landscaping which runs along the south east of the site close to Fairfield Road.

Due to the presence of tree roots within these areas, the following remedial work was agreed with the Arboricultural and Countryside Estates Officer at Tameside MBC: ‘where the tree roots extend, the made ground is excavated to the top of the roots, a membrane is installed and clean soil replaced up to original levels (minimum 150mm)’. The following response was received: *“I would find this acceptable from an Arboricultural perspective as we would need to avoid any root damage to the protected trees”* (email received from Tony Hill ‘Fairfield Road, Droylsden’, dated 29th March 2022).

Given the reduced cover systems proposed, the CLO requested that further sampling of the existing made ground in the rear gardens of the plots impacted by TPOs is undertaken to undertake further risk assessment. The following was requested: *“Unfortunately, the analysis in these areas is limited, with only TP105, WS104 and WS105 located in the general area. In light of this, I’d recommend that further sampling and analysis be undertaken in the rear gardens of plots that will be affected by the TPO’s, following the excavation of the soils to the depth of the roots, in order to more confidently determine whether the reduced capping proposed will be sufficiently protective.”*(email from CLO at Tameside MBC ‘Fairfield Road, Droylsden’, dated 23rd March 2022). The additional sampling and risk assessments undertaken are detailed in the following Sections.

2 Additional Soil Sampling

2.1 Summary of Additional Testing Undertaken

Plots 37-42

LKC attended site on 27th May 2022 and collected 2no. samples of existing made ground from beneath the membrane in each rear gardens of Plots 37-42 (2no. samples per rear garden plot). The samples were collected in order to gain further information on the underlying made ground soils in the areas where reduced cover systems are required in TPO areas.

Existing Made Ground

LKC attended site on 7th July 2023 and collected 6no. samples of the existing made ground from beneath the membrane across the site.

LKC attended site on 15th August 2023 and collected an additional 3no. samples of the existing made ground from beneath the membrane in the north west of the site in rear garden areas.

The samples of made ground were collected in order to undertake further soils risk assessment given the uncertainties in earthworks / material movement at the site. The sampling locations are shown on Figure 4.

2.2 Sampling Protocol

2.2.1 *Soil Sampling (Contamination)*

Standard sampling protocol and preservation of samples was undertaken as described in the EA guidance on site investigation¹.

Soil samples of approximately 500g were recovered in amber jars and plastic tubs. All the samples were labelled and stored in cool boxes prior to being collected by courier at the end of the day for delivery to the Chemtest laboratory in Newmarket / DETS laboratory in Kent for chemical testing. If collection was not possible the same day then samples were stored in the sample storage fridge at the LK Group offices below 4°C. Samples were tracked using appropriate Chain of Custody forms provided by Chemtest / DETS.

Many of the contamination tests are UKAS or MCERTS accredited and further details are given in the Certificate of Analysis presented in Appendix B. Table 2-1 shows the soil testing undertaken.

¹ EA (2000). "Technical Aspects of Site Investigation. Volumes 1 & 2 Text Supplements Research and Development Technical Report." P5-065/Tr.

Contaminants	No. Samples	Location	Justification
Metals / metalloids, pH, water soluble sulphate, speciated PAHs, SOM and asbestos screen.	12	Plot 37 MG1 MG2 Plot 38 MG1, MG2 Plot 39 MG1, MG2 Plot 40 MG1, MG2 Plot 41 MG1, MG2 Plot 42 MG1, MG2	A basic suite with a broad selection of contaminants tested on samples from the rear gardens of Plots 37-42 which are impacted by TPOs (reduced cover systems present). No visual / olfactory evidence of hydrocarbons identified during sampling.
Metals / metalloids, pH, water soluble sulphate, cyanide suite, phenol, TPHCWG, BTEX, MTBE, speciated PAHs, SOM and asbestos screen.	9	MG104 MG110 MG111 MG112 MG113 MG114 P47MG P49MG P57MG	Detailed suite undertaken to confirm the contamination risk from the existing made ground beneath cover systems in gardens / soft landscaping areas.

Table 2-1. Summary of soil sample testing undertaken.

Notes:

If asbestos present during screen identification and quantification will be undertaken.

Metal/metalloids=arsenic, cadmium, chromium, (total and hexavalent), copper, lead, mercury, nickel, selenium, vanadium, zinc and boron; TPHCWG=carbon banded and aromatic/aliphatic split petroleum hydrocarbons; PAH=polycyclic aromatic hydrocarbons, BTEX=benzene, toluene, ethylbenzene and xylenes; MTBE=Methyl tert-butyl ether, SOM=Soil Organic Matter.

3 Soil Risk Assessment

3.1.1 Methodology

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

- Category 4 Screening Levels (C4SLs).
- LQM Suitable 4 Use Levels (S4ULs).
- ATRISK Soil Screening Values (SSVs) and CL:AIRE Generic Assessment Criteria (GACs).

C4SLs were published in 2013^{2,3}. The change to the contaminated land guidance has changed the evaluation of risk from 'minimal' (referred to as Health Criteria values (HCVs))⁴ used to generate Soil Guideline Values (SGVs) to 'low' (referred to as Lowest Level of Toxicological Concern (LLTCs)). The policy companion document and supporting letter by Defra, dated 3rd September 2014, states that C4SLs '*could be used under the planning regime, as well as within Part 2A*'. Based on these comments LKC considers the justifications and assumptions used to generate 'low' risk are suitable for the planning regime.

Where no C4SLs have been generated LKC will use the LQM S4ULs⁵. Similar assumptions and land uses to C4SLs have been used. However, toxicological information has been based on 'minimal risk' as per previous guidelines and assumptions^{6,7,8,9}.

If contaminants are not present as C4SLs and S4ULs then LKC will use ATRISK SSVs or CL:AIRE GACs¹⁰. These follow the 'minimal' risk principle and more stringent exposure parameters and will be conservative.

LKC consider the main risk drivers for PAHs are benzo(a)pyrene (B(a)P) and naphthalene. This is due to B(a)P possibly being a carcinogen and most toxic of the PAHs^{11,12} and naphthalene the most volatile and soluble¹³. The new C4SLs indicate B(a)P as a surrogate marker for carcinogenic PAHs, if it falls within appropriate limits, since the risk from other non-carcinogenic PAHs are considered negligible¹⁴. For B(a)P to be used as a surrogate marker it should follow the profile described by the

² Defra (2014). "SP1010: Development of Category 4 Screening Levels and Assessment of Land Affected by Contamination – Policy Companion Document."

³ CL:AIRE (2013). "SP1010: Development of Category 4 Screening Levels and Assessment of Land Affected by Contamination – Final project Report."

⁴ EA (2008). "Human Health Toxicological Assessment of Contaminants in Soils." Science Report – SC050021/SR2.

⁵ LQM (2014). "The LQM/CIEH S4ULs for Human Health Risk Assessment."

⁶ EA (2008). "Updated Technical Background to the CLEA Model." Science Report – SC050021/SR3.

⁷ EA (2008). "Human Health Toxicological Assessment of Contaminants in Soils." Science Report – SC050021/SR2.

⁸ EA (2008). "A Review of Body Weight and Height Data used within the Contaminated Land Exposure Assessment Model (CLEA)." Project SC050021/Technical Review 1.

⁹ EA (2009). "Compilation of Data for Priority Organic Pollutants for Derivation of Soil Guideline Values." Science report SC050021/SR7.

¹⁰ CL:AIRE (2009). "The Soil Generic Assessment Criteria for Human Health Risk Assessment."

¹¹ EA (2002). "Contaminants in Soils: Collation of Toxicological Data and Intake Values for Humans. Benzo[a]pyrene." R&D Publication TOX2.

¹² USEPA (1984). "Health Effects Assessment of Polycyclic Aromatic Hydrocarbons (PAHs). EPA 540/1-86-013."

¹³ EA (2003). "Review of the Fate and Transport of Selected Contaminants in the Soil Environment." Draft technical report P5- 079/TR1.

¹⁴ CL:AIRE (2013). "SP1010: Development of Category 4 Screening Levels and Assessment of Land Affected by Contamination – Final project Report."

HPA (2008)¹⁵ and CL:AIRE (2013). Naphthalene will be treated separately using the LQM S4ULs.

The proposed development is for residential houses with gardens and apartments with shared soft landscaping, therefore the assessment criteria for residential with plant uptake has been used.

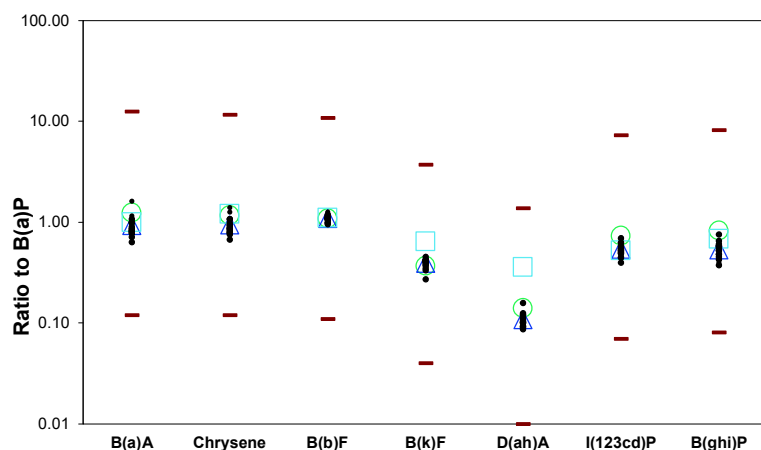
All criteria have been generated using the CLEA V1.06 model¹⁶ based either on 1%, 2.5% and 6% Soil Organic matter (SOM). Results will be compared to the nearest appropriate SOM.

A summary of the generic assessment criteria is provided in Appendix C. ATRISK SSVs and CL:AIRE GACs were not required for this dataset and have not been included.

B(a)P as Surrogate Marker

Based on the above assumption for PAHs, LKC undertook an assessment of the additional soil data for the site with regards to using B(a)P as a surrogate marker for carcinogenic PAHs as per HPA and CL:AIRE guidelines. The primary toxicological study related to Culp *et al.*¹⁷, which was based on coal tar mixtures (>80,000mg/kg of total PAHs) fed in food to mice over a two-year carcinogenicity study.

Graph 3-1 summarises the additional soil sample data with respect to how the ratios of carcinogenic PAHs relate to B(a)P, within the confidence limits provided in the HPA document. It should be noted that this relates only to the additional soil sampling outlined in this report. The ratio of PAH to B(a)P graphs for the previous site investigation work are included in the previous Phase 2 and Additional Phase 2 report completed by LKC.



Graph 3-1: The ratio of PAH to B(a)P in soil for all available data at the site based on 19 samples (where values were >LOD to allow the calculation of a ratio).

Notes:

B(a)P=Benzo(a)pyrene; D(ah)A=Dibenzo(ah)anthracene; B(a)A=Benzo(a)anthracene; B(b)F=Benzo(b)fluoranthene; B(k)F=Benzo(k)fluoranthene; I(123cd)P=Indeno(123cd)pyrene; B(ghi)P=Benzo(ghi)perylene
 ●=Ratio to B(a)P for all data; ○=Mean ratio to B(a)P for Culp data; △=Mean ratio to B(a)P from all data at the site
 □=Mean ratio to B(a)P for UK data presented by HPA; ■=Upper and Lower limits (order of magnitude from Culp data)

¹⁵ HPA (2010). "HPA Contaminated Land Information Sheet: Risk Assessment Approaches for Polycyclic Aromatic Hydrocarbons (PAHs)." Version 3.

¹⁶ EA (2008). "CLEA Software (Version 1.05) Handbook." Science Report – SC050021/SR4.

¹⁷ Culp, S; Gaylor, D; Sheldon, W; Goldstein, L and Beland, F (1998). "A Comparison of Tumours Induced by Coal Tar and Benzo-a-pyrene in a 2-Year Bioassay." Carcinogenesis. **Vol 19**, no. 1, pp. 117-124.

All the data points that could be used to calculate ratios fall inside the upper or lower limits.

Based on this distribution of data LKC considers B(a)P can be used as a surrogate marker for carcinogenic PAHs and the C4SL criteria is suitable for this dataset.

3.1.2 Soil Results Comparison against Assessment Criteria

The elevated and pertinent results from the initial Phase 2 investigation undertaken in 2019 and the Additional Phase 2 investigation undertaken in 2020 are shown in Tables 3-1, and 3-2, respectively.

The elevated and pertinent results from the additional soil sampling undertaken as outlined in this report are shown in Table 3-3.

Contaminant	Units	No. of samples	Elevated Results	Sample Location	Criteria	Source of Criteria
Metals						
Arsenic	mg/kg	14	1,500	WS101 (1.2-1.6m)	37	C4SL
			170	WS102B (0.6-1.0m)		
			160	WS103 (0.5-0.9m)		
			71	WS104 (0.5-0.6m)		
			550	WS105 (0.4-1.0m)		
			150	WS106 (0.4-1.0m)		
			75	WS106 (2.0-3.0m)		
			61	WS107 (0.2-1.1m)		
			42	WS108 (0.0-0.7m)		
			49	WS109 (0.2-0.1m)		
			210	WS110 (0.4-0.6m)		
			62	SP1/D1		
			68	SP1/D2		
			Lead	mg/kg		
900	WS102B (0.6-1.0m)					
310	WS104 (0.5-0.6m)					
560	WS105 (0.4-1.1m)					
8,900	WS106 (0.4-1.0m)					
3,800	WS106 (2.0-3.0m)					
19,000	WS107 (0.2-1.1m)					
9,100	WS108 0.0-0.7m)					
9,200	WS109 (0.2-1.0m)					
7,100	WS110 (0.4-0.6m)					
3,100	SP1/D1					
3,200	SP1/D2					
1,200	SP1/D3					
Cadmium	mg/kg	14			62	WS107 (0.2-1.0m)
			27	WS108 (0-0.7m)		
			60	WS109 (0.2-1.0m)		

Table 3-1: Summary of elevated and pertinent analytical results from initial Phase 2 investigation (2019).

Notes:

Only results that exceeded assessment criteria have been shown and results from **all depths** are noted. Results have been compared to the nearest appropriate SOM.

Contaminant	Units	No of samples	Elevated Results	Sample Location	Criteria	Source of Criteria
Metals						
Copper	mg/kg	14	12,000	WS106 (0.4-1.0m)	2,400	S4UL
			62,000	WS107 (0.2-1.0m)		
			5,300	WS108 (0-0.7m)		
			11,000	WS109 (0.2-1.0m)		
			2,700	WS110 (1.5-2.0m)		
			2,700	SP1/D1		
Nickel	mg/kg	14	330	WS107 (0.2-1.0m)	180	S4UL
Chromium (III)	mg/kg	14	2,200	WS106 (2.0-3.0m)	910	S4UL
PAHs						
Benzo(a)pyrene	mg/kg	14	16	WS101 (1.2-1.6m)	5.3	C4SL
			13	WS104 (0.5-0.6m)		
			6.9	WS106 (0.4-1.0m)		
			40	WS107 (0.2-1.0m)		
			18	WS108 (0.0-0.7m)		
			8.7	WS109 (0.2-1.0m)		
			420	WS110 (0.4-0.6m)		
			12	SP1/D1		
Naphthalene	mg/kg	14	260	WS110 (0.4-0.6m)	13	S4UL
TPHs						
Aromatic C12-16	mg/kg	9	1,100	WS110 (0.4-0.6m)	660	S4UL
Aromatic C16-C21	mg/kg	9	2,800	WS110 (0.4-0.6m)	1,900	S4UL
Aromatic C21-35	mg/kg	9	6,500	WS110 (0.4-0.6m)	1,900	S4UL
			2,100	SP1/D3		
Asbestos						
Sample Location	Total Asbestos (%)	Type and ID				
WS106 (0.4-1.0m)	0.065	Cement, Fibres/Clumps: amosite, chrysotile, crocidolite				
WS106 (2.0-3.0m)	0.002	Fibres/clumps: chrysotile				
WS107 (0.2-1.1m)	0.35	Fibres/clumps, lagging: amosite, chrysotile, crocidolite				
WS108 (0.0-0.7m)	0.001	Fibres/clumps: amosite, crocidolite				
WS109 (0.2-1.0m)	0.17	Fibres/clumps: amosite, chrysotile, crocidolite				
WS109 (1.0m)	7.9	Cement: chrysotile				
WS110 (0.4-0.6m)	0.018	Fibres/clumps: chrysotile				

Table 3-1 (continued): Summary of elevated and pertinent analytical results from initial Phase 2 investigation (2019).

Notes:

Only results that exceeded assessment criteria have been shown and results from **all depths** are noted. Results have been compared to the nearest appropriate SOM.

Contaminant	Units	No. of samples	Elevated Results	Sample Location	Criteria (6%)	Source of Criteria
Metals						
Arsenic	mg/kg	8	120	TP103 (0.4-0.6m)	40	C4SL
			68	TP104 (0.3-1.3m)		
			62	TP105 (0.4-0.8m)		
Cadmium	mg/kg	8	27	TP101 (0-0.3m)	11	C4SL
Zinc	mg/kg	8	5,200	TP104 (0.3-1.3m)	3,700	S4UL
Copper	mg/kg	8	8,900	TP104 (0.3-1.3m)	2,400	S4UL
Lead	mg/kg	8	350	TP101 (0-0.3m)	310	C4SL
			2000	TP104 (0.3-1.3m)		
GENERAL						
pH	pH	8	Range 4.6 to 9.0			
SOM	%	8	Range 1.0 to 21.0			

Table 3-2: Summary of elevated and pertinent analytical results from Additional Phase 2 investigation (2020).

Notes:

Only results that exceeded assessment criteria have been shown and results from **all depths** are noted. Results have been compared to the nearest appropriate SOM.

Contaminant	Units	No. of samples	Elevated Results	Sample Location	Criteria (6%)	Source of Criteria
Metals						
Lead	mg/kg	22	3,270	MG110	200	C4SL
			810	MG111		
			1,830	MG112		
			710	Plot 37 MG1		
			560	Plot 37 MG2		
			1000	Plot 38 MG1		
			1000	Plot 38 MG2		
			1500	Plot 39 MG1		
			910	Plot 39 MG2		
			1,400	Plot 40 MG1		
			1,400	Plot 40 MG2		
			2,300	Plot 41 MG1		
			1900	Plot 41 MG2		
			1,700	Plot 42 MG1		
			900	Plot 42 MG2		
1,680	P47MG					
1640	P49MG					
28,300	P57MG					
Arsenic	mg/kg	22	43	Plot 38 MG2	37	C4SL
			322	P57MG		
Cadmium	mg/kg	22	26	Plot 41 MG2	22	C4SL
Nickel	mg/kg	22	220	Plot 39 MG1	180	LQM
Copper	mg/kg	22	3,500	P57MG	2,400	S4UL
Zinc	mg/kg	22	4,580	P57MG	3,700	S4UL
PAHs						
Benzo(a)pyrene	mg/kg	22	14	Plot 37 MG1	5	C4SL
			6.9	Plot 38 MG1		
			14	Plot 38 MG2		
			8.6	Plot 39 MG2		
			6.3	Plot 40 MG1		
GENERAL						
pH	pH	22	Range 7.8 to 10.2			
SOM	%	22	Range 1.7 to 21			
Asbestos						
Sample Location	Total Asbestos (%)		Type and ID			
MG111	<0.001		Bundles: chrysotile.			
Plot 39 MG1	0.001		Fibres/clumps: chrysotile.			
Plot 39 MG2	0.017		Fibres/clumps: chrysotile.			
P57MG	0.012		Microscopic insulation: chrysotile.			

Table 3-3: Summary of elevated and pertinent analytical results from additional made ground testing (2022 & 2023).

Notes:

Only results that exceeded assessment criteria have been shown and results from **all depths** are noted. Results have been compared to the nearest appropriate SOM.

3.1.3 Hazard Quotient

As no significant concentrations of petroleum hydrocarbons were identified in any of the made ground soil samples collected as part of this investigation a hazard index

(HI) as described by the Environment Agency¹⁸ technical report (to examine the potential additivity of toxicological effects between the petroleum hydrocarbon fractions) has not been undertaken as part of this assessment.

3.1.4 *Direct Contact Risk*

Metals

Elevated metals (arsenic, lead, copper, zinc, nickel and cadmium) have been identified on site based on results from the previous two investigations and the additional made ground sampling. Elevated zinc was identified in TP104 (0.3-1.3mbgl) during the 2020 investigation and elevated nickel was identified in Plot 39 MG1 during the most recent phase of investigation (220mg/kg). The source of the contamination is anticipated to be the coal and ash noted in the made ground, and the former use of the site as a metal works.

Elevated chromium (III) was also identified in a made ground sample collected during the initial Phase 2 investigation. The source was anticipated to be associated with the former use of the site as a metal works.

PAHs

No elevated PAHs were identified during the additional investigation undertaken by LKC in 2020.

Elevated benzo(a)pyrene was identified in seven investigation locations during the initial Phase 2 investigation. Elevated benzo(a)pyrene has been identified in five sample of made ground collected during the most recent phase of investigation. The contamination is considered to be site wide in the made ground and the source is anticipated to be the coal and ash noted in the made ground.

Petroleum hydrocarbons

No elevated petroleum hydrocarbons were identified during the additional investigation undertaken by LKC in 2020, or from the additional samples of made ground collected from the most recent phase of investigation.

Elevated aromatic C12-16, C16-21 and C21-35 were identified in WS110 at 0.4-0.6mbgl during the initial Phase 2 investigation. A Hazard Index calculated for WS105 (as concentrations of heavy end hydrocarbons were recorded but not above assessment criteria) was greater than 1. It was considered that the hydrocarbon contamination was localised to WS110 and WS105.

Asbestos – Overall Site Assessment

During the initial investigation undertaken by LKC in 2019, asbestos was identified in WS106, WS107, WS108, WS109 and WS110 which are all located in the north west of the site. The asbestos identified included amosite, crocidolite and chrysotile and was predominantly identified as fibres/clumps or cement. One sample from WS107 recorded asbestos lagging and a visible fragment of chrysotile cement was sampled from WS110.

¹⁸ EA (2005). "The UK Approach for Evaluating Human Health Risks from Petroleum Hydrocarbons in Soils." Science Report P5-080/TR3.

No asbestos was identified during the additional investigation undertaken by LKC in 2020.

Asbestos was identified in four locations during the most recent phase of made ground sampling. The asbestos was identified in Plot 39 rear garden (MG1 and MG2), MG111 (located in the north west of the site) and P57MG (located in the north west of the site). The asbestos identified includes bundles / fibres / clumps containing chrysotile.

As stated in Section 1.3, the original remediation strategy was agreed on the basis that made ground soils in the north west site were not subject to any excavation and that levels in the area raised. LKC did not receive detailed information relating to the earthworks / material movement at the site.

LKC have used the Joint Industry Working Group (JIWG) assessment tool for the site. The output sheets are presented in Appendix D. Due to uncertainties in the earthworks/ material movement at the site, the activity type was identified as 'Moderate Disturbance'.

The JIWG tool has been run based on original site conditions (no remediation) where material is present near the surface. This identifies a medium risk. The JIWG was also run assuming an environmental cover system where material will be buried at depth. This identified a very low risk. Given the additional sampling undertaken and the results of the JIWGs, the environmental cover systems proposed for all plots that are not impacted by TPOs (600mm private rear gardens, 300mm private front gardens / shared soft landscaping) are considered suitably appropriate.

It should be noted that the rear gardens of Plots 52, 53 and 54 are relatively small and have been paved. The environmental cover system requirements do not apply to these plots. This was confirmed as follows: "*I note that Plots 52, 53, 54 are small plots and fully flagged. Based on the results of analysis and the apparent size of the garden plots (which means it is unlikely residents will remove the paving flags in the future etc), I accept that no further works are required in these plots.*" (email from CLO at Tameside MBC 'RE: Fairfield Road, Droylsden outstanding validation work', dated 15th August 2023).

Rear Gardens of Plots 37-42 (TPO areas)

Plots 37-44 are located in the south western area of site, and the rear gardens are situated adjacent to Fairfield Road. Four trees are located along the southern part of the rear gardens of Plots 37-42 TPO areas extend within these rear garden areas.

As stated in Section 1.4, a reduced environmental cover system was required in the rear gardens of these plots in order to avoid any root damage to the protected trees.

Due to limited data on existing made ground in the south west of the site, additional testing was undertaken within the rear gardens of Plot 37-42. Soil results were compared to the relevant assessment criteria and elevated results are shown in Table 3-3. A summary of the elevated contaminants within these plots is as follows:

- Plot 37 – 600mm cover system in north of garden. LKC to undertake depth variation in south of garden (assume at least 150mm will be installed). Soil analysis of made ground (2 samples analysed) –elevated lead 560-710mg/kg, elevated B(a)P 14.0mg/kg.

- Plot 38 – 600mm cover system in north of garden. LKC to undertake depth variation in south of garden (assume at least 150mm will be installed. Soil analysis of made ground (2 samples analysed) – elevated arsenic 43mg/kg, elevated lead 1000mg/kg, elevated B(a)P 6.9-14.0mg/kg.
- Plot 39 – 150-220mm cover over geotextile membrane installed. Soil analysis of made ground below (2 samples analysed) – elevated lead 910-1500mg/kg, elevated nickel 220mg/kg, elevated B(a)P 8.6mg/kg, asbestos identified chrysotile fibres/clumps (0.001-0.017%).
- Plot 40 – 180-220mm cover over geotextile membrane installed. Soil analysis of made ground below (2 samples analysed) – elevated lead 1400mg/kg, elevated B(a)P 6.3mg/kg.
- Plot 41 – 200-220mm cover over geotextile membrane installed. Soil analysis of made ground below (2 samples analysed) – elevated lead 1900-2300mg/kg.
- Plot 42 – 180-200mm cover over geotextile membrane installed. Soil analysis of made ground below (2 samples analysed) – elevated lead 900-1700mg/kg.

The made ground in the TPO areas has been found to contain elevated contaminants when compared to residential with plant update assessment criteria. Minimal excavation is anticipated in the garden due to the presence of the trees and associated roots (physical digging will be difficult due to the tree roots and damage to the trees will be prohibited due to the TPOs in place). The membrane installed above the made ground will prevent mixing of the soils. In addition, planting (included produce) will be limited due to the presence of the trees (creating shade). An additional JIWG assessment has been undertaken for Plots 37-42 based on the soil data from these plots. 'Material buried at shallow depth., potential to be disturbed by excavation' was used which reflects the reduced cover systems laid. The overall ranking was identified as LOW.

Given the above justification (minimal excavation anticipated, minimal planting anticipated) and updated JIWG assessment, the remediation in the TPO areas is considered to be appropriate. Furthermore, the contractors completing the remainder of the remedial works at the site have confirmed that the rear gardens of Plots 37-42 will be turfed, which will help to prevent erosion of the surface soil. The following was also requested, which will be stated in the Remediation and Validation Requirements (Section 4.1): *"...we understand that the properties will be housing association rental properties. With this in mind, we would recommend that all tenants are informed (via a note on the tenancy agreement etc) of the depth and construction of cover systems present in garden areas and of the importance of ensuring the capping is not breached / damaged"* (email from CLO at Tameside MBC 'RE: Fairfield Road, Droylsden outstanding validation work', dated 15th August 2023).

Rear Garden of Plot 62

The south western corner of the rear garden of Plot 62 is impacted by a TPO. LKC undertook a depth validation in the central area of the rear garden and the cover system was noted to be 700mm. LKC undertook a second depth validation on the south west corner of the plot, and a cover system of 400mm was recorded.

A sample of the existing made ground was collected from adjacent to the rear garden of Plot 62 (MG114). No elevated contaminants were identified when compared to the relevant assessment criteria and no asbestos was detected., which does not contain any elevated contaminants or asbestos. During the initial site investigation, WS104 was drilled within the location of Plot 62 and WS103 was drilled to the north of the rear garden of Plot 61. Elevated heavy metals (arsenic, lead) and PAHs (B(a)P) were

identified in the samples collected from WS103 and WS104. No asbestos was detected in these boreholes, or in any other investigation location in the east of the site.

It should be noted that paving flags have been placed at the rear of the property, which extend between 0.80-1.60m from the external wall, within the area where the TPO area extends into the garden. As paving flags have been placed at the rear of the property, the area impacted by a TPO where a reduced cover system has been laid is likely to be small. Furthermore, minimal excavation is anticipated in the south western part of the garden due to the presence of the tree roots (physical digging will be difficult due to the tree roots). The membrane installed above the made ground will prevent mixing of the soils. In addition, planting (included produce) will be limited due to the presence of the tree canopy to the south of the rear garden (creating shade).

The depth of the cover system within the TPO area was recorded as 400mm, which LKC consider to be sufficient cover considering the nature of the made ground soils within the area of Plot 62 and the above justification.

Soft Landscaping in South East of Site (TPO area)

The strip of soft landscaping in the south east of the site which runs parallel to Fairfield Road is impacted by TPOs. The area of soft landscaping is located to the south of a car parking area, and to the south of Plot 62. Given the location on site, LKC consider that use of the area is likely to be minimal.

Reduced cover systems have been laid in this area (minimum 150mm environmental cover system over geotextile membrane).

The reduced cover system was agreed on the basis that there is likely to be less use / disturbance within this area of soft landscaping. The following comment was received: *“With regards the soft landscaped areas, we accept that there is likely to be less use / disturbance in these areas (than say gardens) and on this basis, we accept the proposed remedial works and reduced capping proposals for these areas.”* (email from CLO at Tameside MBC ‘RE: Fairfield Road, Droylsden’, dated 23rd March 2022).

4 Recommendations and Updated Remedial Strategy

4.1 Updated Remediation and Validation Recommendations

Table 4-1 details the updated remedial recommendations / requirements.

Remediation Requirements	Validation Requirements
<p><u>Environmental Cover System</u></p> <p>Private Rear Gardens (excluding Plots 37-42, Plots 52-54 and Plot 62): 600mm thick environmental cover system comprising: Geotextile membrane and at least 600mm comprising clean inert fill and sufficient topsoil for a growing medium (minimum 100mm).</p> <p>It should be noted that the rear gardens of Plots 52, 53 and 54 are relatively small and have been paved. The environmental cover system requirements do not apply to these plots.</p> <p>Private Front Gardens and Shared Landscaping (excluding soft landscaping in SE of site): 300mm thick environmental cover system comprising: Geotextile membrane and at least 300mm comprising clean inert fill and sufficient topsoil for a growing medium (minimum 100mm).</p> <p>TPO Areas (Rear Gardens of Plots 37-42 & 62, Soft Landscaping in SE): Due to TPOs, a full 600mm / 300mm cover will not be possible. It is recommended (in the area where the tree roots extend) that the made ground is excavated to the top of the roots, a membrane installed and clean soil replaced up to original levels (minimum of 150mm depth).</p> <p>Rear gardens of Plots 37-42 to be turfed.</p> <p>All tenants to be informed (via a note on the tenancy agreement etc) of the depth and construction of cover systems present in garden areas and of the importance of ensuring the capping is not breached / damaged.</p> <p>The subsoil layer can be replaced by additional topsoil. A diagram of a typical environmental cover system is shown in Appendix E.</p>	<p>Measuring depth of environmental cover system using a staff and providing photographic evidence.</p> <p>Photographic evidence of the geotextile membrane.</p> <p>Chemical validation of imported soils: See Table 4-2.</p>

Table 4-1: Remediation and validation requirements.

Remediation Requirements	Validation Requirements
<p>Gas Protection Measures In line with CS2 as per UK guidance^{19,20}. This should include:</p> <ul style="list-style-type: none"> • Passive subfloor ventilation system. • Carbon dioxide resistant membrane installed as per manufacturer's instructions. • Well-constructed reinforced suspended, raft or cast in situ ground slab. • Minimum penetration of ground slab by services. • All joints and penetrations to be sealed. 	<p>Supply and review of foundation designs.</p> <p>Photographic evidence of sub-floor void, ventilation and suitably sealed gas membrane.</p> <p>Validation of gas protection measures should be in line with CIRIA 735²¹</p>
<p>Sulphate Resistant Concrete Sulphate Resistant Concrete in line with DS-3 AC-3 recommended.</p>	N/A
<p>Potable Water Pipes A United Utilities Risk Assessment has previously been undertaken and barrier pipe is required.</p>	Delivery Notes of Pipe Material or Photographs of the Installed Pipe.
Other Considerations	
<p><u>Earthworks Inspections / Unexpected Contamination</u> The relevant contractors should be briefed that during development works at the site should any unusual ground conditions and / or visual or olfactory evidence of contamination (including asbestos containing material) be encountered at the site, LKC and the Local Authority should be informed, and further assessment of the material may be required.</p>	
<p><u>Grubbing Out of In-Ground Structures</u> It is recommended that in-ground structures are grubbed out as part of the groundworks.</p>	

Table 4-1 (continued): Remediation and validation requirements.

¹⁹ CIRIA (2007). "Assessing Risks Posed by Hazardous Ground Gases to Buildings." CIRIA C665

²⁰ BSI (2015). "Code of Practice for the Design of Protective Measures for Methane and Carbon Dioxide Ground Gases for new buildings." BS8485:2015.

²¹ CIRIA (2014). "Good Practice on the Testing and Verification of Protection Systems for Building Against Hazardous Ground Gas". CIRIA C735.

<p><u>Re-use of site won material</u></p> <p>To ensure material is compliant with appropriate waste regulations, any site won material re-used onsite should be in recourse to appropriate exemptions. A U1 and T5 exemption should be registered.</p> <p>This will allow the following to be used onsite or brought in for use onsite (refer to guidance for types of waste that can be used ²²):</p> <p>5,000 tonnes (c. 2,500m³) <u>treatment</u> of crushed concrete / stone.</p> <p>1,000 tonnes (c. 500³) <u>use of</u> non-hazardous soil</p> <p>5,000 tonnes (c. 2,500m³) <u>use of</u> clays, sand, gravel, brick, concrete, stone etc.</p> <p>50,000 tonnes (c. 25,000m³) <u>use of</u> bituminous material to be used in roadways.</p> <p>A Materials Management Plan (MMP) with recourse to the CL:AIRE Code of Practice may be required if volumes exceed exemption limits. This must be registered before material movement starts onsite.</p> <p>If an MMP is required, this needs to be registered by a Qualified Person (QP) and there must be 'certainty of use' for any material re-used onsite or exported to site to ensure there is no 'sham recovery'.</p> <p>For all the above material will need to be tested at the rate and analytical suites presented in Table 4-2.</p>
<p><u>Asbestos Management Plan</u></p> <p>Due to the presence of asbestos containing material, it is recommended that additional precautions are taken during site clearance, earthworks and construction in the area of concern. The presence of asbestos in the made ground at the site presents a potential risk of generation of airborne fibres if this material is disturbed, such as for excavations to construct new foundations.</p> <p>This risk can be managed by careful procedures and site monitoring to reduce the risk of airborne fibres, and it is recommended that an appropriate 'Asbestos Management Strategy' is developed and adopted for all intrusive ground works which disturb the made ground in the area of concern. This should be carried out in line with CIRIA C733²³.</p> <p>This may include asbestos awareness training for all site staff, provision of suitable personal and respiratory protective equipment and air monitoring.</p> <p>With regards to cement bound asbestos, this can be handpicked, doubled bagged and disposed of appropriately to a licenced landfill. Guidance on removing asbestos cement is described in HSE (2012)²⁴.</p> <p>If ACM is identified in soil arisings then soil should be placed directly into covered skips and disposed of at a suitable licenced landfill, after further testing to quantify the extent of asbestos contamination of the soils. It should be considered that blue asbestos is notifiable and must be removed by a licenced contractor.</p>
<p><u>Health and Safety Considerations</u></p> <p>In working with, removing or treating any contaminating material it is important that any potential risks associated with the actual site works are mitigated by good environmental management of the site during the remedial phases. Standard health and safety precautions (as per HSE guidance²⁵) should be adopted by all workers involved with site enabling and construction works.</p>

Table 4-1 (continued): Remediation and validation requirements.

4.2 Validation of Subsoil / Topsoil

Chemical validation of all imported soils to be used on site in gardens and soft landscaping areas should be undertaken. Imported soils should be accompanied by a certificate of analysis and source details.

²² <https://www.gov.uk/guidance/waste-exemptions-using-waste>

²³ CIRIA (2014). "Asbestos in Soil and Made Ground: A Guide to Understanding and Managing Risks". C733.

²⁴ HSE (2012). "Removing Asbestos Cement (AC) Debris." A11 Asbestos Essential – Non-licenced Tasks.

²⁵ HSE (1991). "Protection of Workers and the General Public During Development of Contaminated Land" London HMSO.

A summary of the required imported material sampling requirements is presented in Table 4-2. Ideally, the material should be sampled at source to prevent double handling if soil fails, with confirmatory sampling undertaken on importation to site. However, where this is not possible then material imported should be segregated based on source and soil type. Validation samples should be taken prior to placement in gardens / soft landscaping to ensure suitability for use.

Material Type	Source	Suite of Analysis	Sampling Rate*
Topsoil / Subsoil	Greenfield	Suite A	1 sample per 50m ³
	Brownfield / Unknown	Suite B	
Subsoil	Natural Site won / imported subsoil	Suite A	1 sample per 150m ³
Recycled Stone	Any	Suite A	1 sample per 500m ³
Stone / subsoil	First Generation i.e. quarried sand (subsoil) or stone (break layer)	No testing is required. Certification of material provenance is required.	

Table 4-2: Sampling requirements for imported and site won soils.

Notes:

Suite A - Heavy metals, pH, water soluble sulphate, speciated PAH, soil organic matter and asbestos screen.

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.

*Minimum sampling rate of 3 samples per source.

Any soil with visual or olfactory evidence of hydrocarbons should be rejected.

In addition, it should be ensured that the matrix of the topsoil is suitable as a growing medium and no undesirable material is present (in line with BS3882²⁶). LKC advise this information is provided by the supplier before material is imported onto site.

Imported material to be used in gardens will be compared against residential with plant uptake criteria (as used in the contamination risk assessment (Section 3-1)). Appropriate remedial target criteria are presented in Appendix C.

4.3 Site Completion Report

It is recommended that any remediation carried out on the site is validated by a third party and suitable documentary evidence provided in a Site Completion Report, such as photographs, consignment documents and analytical results. This should include as a minimum:

- Validation of gas protection measures installed.
- Provision of waste transfer documents.
- Validation of environmental cover system.
- Verification testing of all imported soil for garden and soft landscaping areas.
- Information on the installation of protective pipes and / or sterile trenches.
- Details of any unexpected contamination identified onsite, suitably risk assessed and / or validated.

The Site Completion Report will assist the Local Authority in the discharge of any future relevant planning condition and will also be of use to solicitors acting on behalf of any prospective conveyancer who may have concerns over the former use of the site.

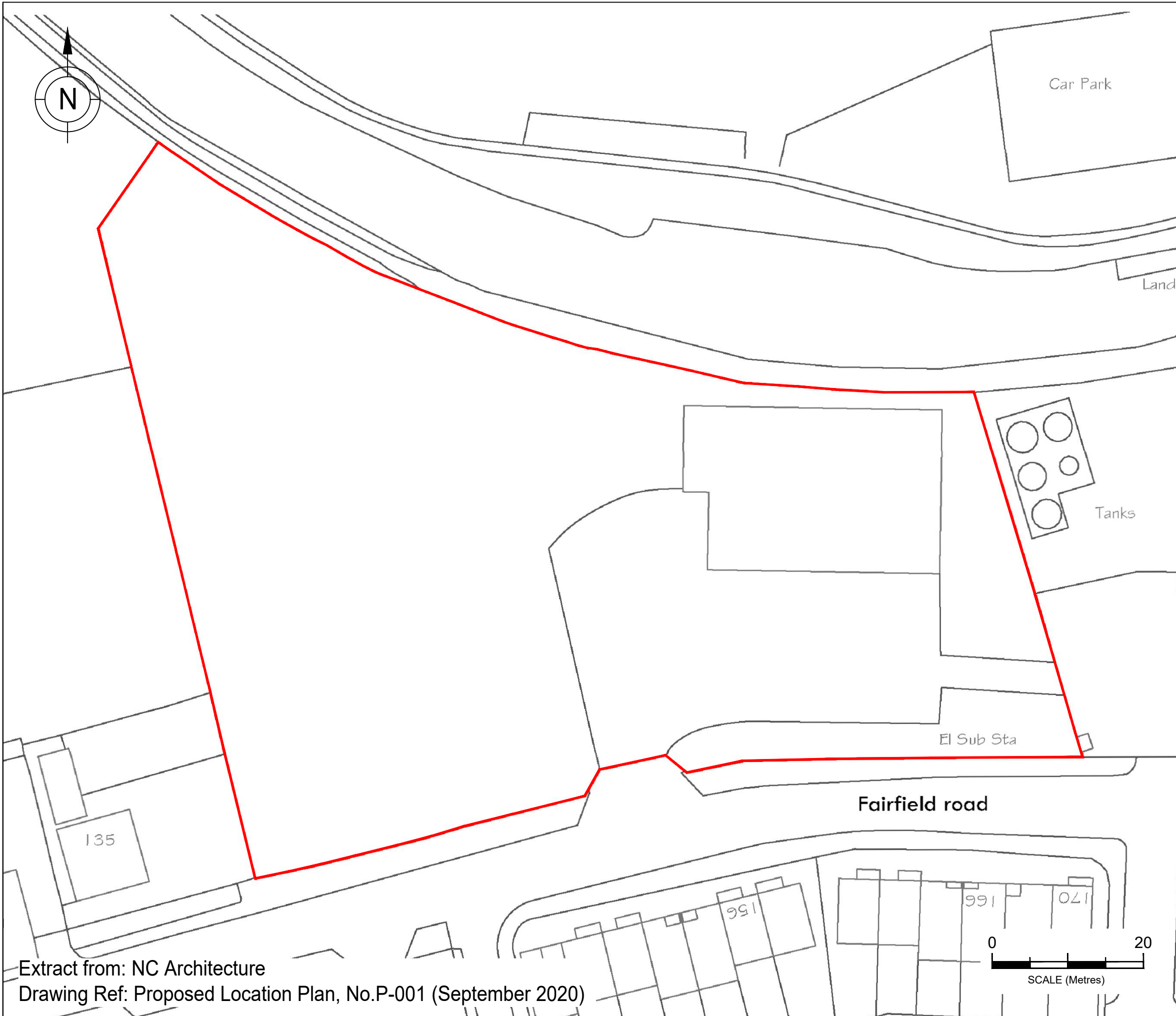
²⁶ BS (2015). "Specifications for Topsoil and Requirements for use." BS3882:2015.

Figures



Figure 1: Site Location Plan, Fairfield Road, Droylsden

Drawn: February 2019 Scale: 1:25,000 @ A4 (see scale bar)



KEY

 Site Boundary

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.



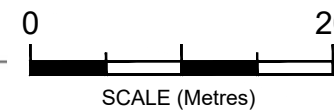
Client:
J Greenwood (Builders) Ltd

Site:
Fairfield Road, Droylsden

Title:
Site Boundary Plan

Job No.: LKC 20 1761	Scale (See Scale Bar): 1:500 @ A3	Figure: 2	Revision:
Drawn By: AC	Checked By: EM	Drawn: Oct 2020	

Extract from: NC Architecture
Drawing Ref: Proposed Location Plan, No.P-001 (September 2020)





KEY

Site Boundary

Accommodation Schedule

1-bed, 2-person apartments over 4 storeys:
36no. apartments @ 50sqm

3-bed, 5/6-person houses over 3 storeys:
26no. semi-detached houses @ 105sqm
(excluding undercroft hardstanding)

Total Units: 62no

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.



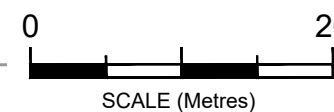
Client:
J Greenwood (Builders) Ltd

Site:
Fairfield Road, Droylsden

Title:
Proposed Development Plan

Job No. LKC 20 1761	Scale (See Scale Bar): 1:500 @ A3	Figure: 3	Revision:
Drawn By: AC	Checked By: EM	Drawn: Jul 2023	

Extract from: NC Architecture
Drawing Ref: Proposed Site Plan, No.P-001, Rev:14 (November 2020)





KEY

Site Boundary

LKC SAMPLING LOCATIONS: July & August 2023

Made Ground (MG)
Sample Collected From Beneath Geotextile Membrane

LKC SAMPLING LOCATIONS: October 2020

Trial Pit (TP)

LKC SAMPLING LOCATIONS: December 2019

Window Sample Borehole (WS)

Cable Percussive Borehole (CP)

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: **Brierstone Ltd**

Site: **Fairfield Road, Droylsden**

Title: **Site Investigation Location Plan**

Job No.: LKC 20 1761	Scale (See Scale Bar): 1:500 @ A3	Figure: 4	Revision:
Drawn By: AC	Checked By: EM	Drawn: Aug 2023	

Extract from: NC Architecture
Drawing Ref: Proposed Site Plan, No.P-001, Rev:14 (November 2020)

Appendix A

Risk Matrix

Risk Evaluation

The method for risk evaluation is a qualitative method of interpreting the output from the risk estimation stage of the assessment, based on CIRIA 552²⁷. It involves the classification of the:

- Magnitude of the potential consequence (severity) of the risk occurring (Table A).
- Magnitude of the probability (likelihood) of the risk occurring (Table B).

Consequence (Severity)		
Classification	Definition	Example
Severe	<ul style="list-style-type: none"> - Short term (acute) risk to human health likely to result in 'significant harm' as defined by the Environment Protection Act 1990, Part IIA. - Short term risk of pollution (note: water Resources Act contains no scope for considering significance of pollution) of sensitive water resource. - Catastrophic damage to buildings/properties. - A short-term risk to a particular ecosystem, or organism forming part of such ecosystem (note: the definition of ecological systems within the Draft Circular on Contaminated Land, DETR, 2000). 	<ul style="list-style-type: none"> - High Concentrations of cyanide on the surface of an informal recreation area. - Major spillage of contaminants from site into controlled waters. - Explosion, causing building collapse (can also equate to short term human health risk if buildings are occupied).
Medium	<ul style="list-style-type: none"> - Chronic damage to Human Health ('significant harm' as defined in DETR, 2000). - Pollution of sensitive water resources (note Water Resources Act contains no scope for considering significance of pollution). - A significant change in a particular ecosystem, or organism forming part of such ecosystem. 	<ul style="list-style-type: none"> - Concentrations of a contaminant from site exceed generic, or site-specific assessment criteria. - Leaching of contaminants from a site to a major or minor aquifer (Principal and Secondary). - Death of a species within a designated nature reserve.
Mild	<ul style="list-style-type: none"> - Pollution of non-sensitive water resources. - Significant damage to crops, buildings, structures and services ('significant harm' as defined in DETR, 2000). - Damage to sensitive buildings/structures/services or the environment. 	<ul style="list-style-type: none"> - Pollution of non-classified groundwater. - Damage to building rendering it unsafe to occupy (e.g. foundation damage resulting in instability).
Minor	<ul style="list-style-type: none"> - Harm, although not necessarily significant harm, which may result in a financial loss, or expenditure to resolve. - Non-permanent health effects to human health (easily prevented by means such as personal protective clothing etc). - Easily repairable damage to buildings, structures and services. 	<ul style="list-style-type: none"> - The presence of contaminants at such concentrations that protective equipment is required during site works. - The loss of plants in a landscaping scheme. - Discoloration of concrete.

Table A. Classification of Consequence

Probability (Likelihood)	
Classification	Definition
High Likelihood	- There is a pollutant 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.
Likely	<ul style="list-style-type: none"> - There is a pollutant 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 Likelihood	<ul style="list-style-type: none"> - There is a pollutant 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.

²⁷ CIRIA C552 (2001) Contaminated Land Risk Assessment - A Guide to Good Practice.

Unlikely	- There is a pollutant linkage, but circumstances are such that it is improbable that an event would occur in the very long term.
-----------------	---

Table B. Classification of Probability.

These classifications are then compared to indicate the risk presented by each pollutant linkage (Table C). It is important that this classification is only applied where there is a possibility (which can range from high likelihood to unlikely) of a pollutant linkage existing.

		Consequence			
		Severe	Medium	Mild	Minor
Probability	High Likelihood	Very High Risk	High Risk	Moderate Risk	Moderate / Low Risk
	Likely	High Risk	Moderate Risk	Moderate / Low Risk	Low Risk
	Low Likelihood	Moderate Risk	Moderate / Low Risk	Low Risk	Very Low Risk
	Unlikely	Moderate / Low Risk	Low Risk	Very Low Risk	Very Low Risk

Table C. Comparison of Consequence against Probability

Once the risk has been determined the corresponding action can be assessed (Table D).

Risk	Action Required
Very High Risk	<ul style="list-style-type: none"> - 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 already undertaken) and remediation are likely to be required.
High Risk	<ul style="list-style-type: none"> - 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 longer term.
Moderate Risk	<ul style="list-style-type: none"> - It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either 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 Risk	<ul style="list-style-type: none"> - It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild.
Very Low Risk	<ul style="list-style-type: none"> - 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.

Table D. Description of the Classification and Likely Action Required.

Where a very low risk is identified no specific remediation is required.

Where a low risk is identified, some form of remediation may be required depending on the pollutant linkage, the type and concentration of contaminants present and the proposed development.

Where there is a moderate/low risk is identified, an assessment will be undertaken to establish what category the pollutant linkage will fall into.

Where LKC identifies a moderate or higher risk, remediation or further investigation work is recommended.

Appendix B

Certificates of Analysis - Soil



Ella Mcleod
LK Consult Limited
Unit 29 Eton Business Park
Eton Hill Road
Manchester
M26 2ZS

Derwentside Environmental Testing Services Ltd
Unit 1
Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
ME17 2JN
t: 01622 850410

DETS Report No: 23-08982

Site Reference: Fairfield Road, Droylsden
Project / Job Ref: LKC 20 1761
Order No: LKC201761-D1
Sample Receipt Date: 11/07/2023
Sample Scheduled Date: 11/07/2023
Report Issue Number: 2
Reporting Date: 09/08/2023

Authorised by:

[REDACTED]
Dave Ashworth
Technical Manager

Dates of laboratory activities for each tested analyte are available upon request.
This report supersedes 23-08982, issue no.1.

Reason for Re-Issue:

Sample Id' amended

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.



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



Soil Analysis Certificate					
DETS Report No: 23-08982	Date Sampled	07/07/23	07/07/23	07/07/23	07/07/23
LK Consult Limited	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Fairfield Road, Droylsden	TP / BH No	Plot 49 Rear SS101	Plot 50 Front SS102	Plot 51 Rear SS103	Plot 55 Rear SS105
Project / Job Ref: LKC 20 1761	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied
Order No: LKC201761-D1	Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 09/08/2023	DETS Sample No	663050	663051	663052	663053

Determinand	Unit	RL	Accreditation	(n)	(n)	(n)	(n)
Asbestos Screen ^(S)	N/a	N/a	ISO17025	Not Detected	Not Detected	Not Detected	Not Detected
Sample Matrix ^(S)	Material Type	N/a	NONE				
Asbestos Type ^(S)	PLM Result	N/a	ISO17025				
Asbestos Quantification ^(S)	%	< 0.001	ISO17025				
pH	pH Units	N/a	MCERTS	7.9	7.9	7.7	8.1
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	107	17	58	50
W/S Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	0.11	0.02	0.06	0.05
Organic Matter (SOM)	%	< 0.1	MCERTS	4.3	4.2	5.8	8.5
Arsenic (As)	mg/kg	< 2	MCERTS	7	8	8	3
W/S Boron	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	0.8	0.3	1	1.2
Chromium (Cr)	mg/kg	< 2	MCERTS	9	23	8	6
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2
Copper (Cu)	mg/kg	< 4	MCERTS	95	27	297	26
Lead (Pb)	mg/kg	< 3	MCERTS	163	61	231	67
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1
Nickel (Ni)	mg/kg	< 3	MCERTS	9	19	10	9
Selenium (Se)	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2
Vanadium (V)	mg/kg	< 1	MCERTS	11	27	9	7
Zinc (Zn)	mg/kg	< 3	MCERTS	172	73	274	77
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2

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



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



Soil Analysis Certificate					
DETS Report No: 23-08982	Date Sampled	07/07/23	07/07/23	07/07/23	07/07/23
LK Consult Limited	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Fairfield Road, Droylsden	TP / BH No	Plot 58 Rear SS107	Plot 54 Front SS108	Plot 58 Front SS109	Plot 60 Rear SS115
Project / Job Ref: LKC 20 1761	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied
Order No: LKC201761-D1	Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 09/08/2023	DETS Sample No	663055	663056	663057	663058

Determinand	Unit	RL	Accreditation	(n)		(n)		(n)
Asbestos Screen ^(S)	N/a	N/a	ISO17025	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Sample Matrix ^(S)	Material Type	N/a	NONE					
Asbestos Type ^(S)	PLM Result	N/a	ISO17025					
Asbestos Quantification ^(S)	%	< 0.001	ISO17025					
pH	pH Units	N/a	MCERTS	7.9	7.8	7.7	7.9	7.9
Total Cyanide	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1	< 1
Free Cyanide	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1	< 1
W/S Sulphate as SO ₄ (2:1)	mg/l	< 10	MCERTS	585	33	17	95	56
W/S Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	0.58	0.03	0.02	0.09	0.06
Organic Matter (SOM)	%	< 0.1	MCERTS	4.7	2.8	4.6	3.3	2.4
Arsenic (As)	mg/kg	< 2	MCERTS	16	8	9	9	5
W/S Boron	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1	< 1
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	2.4	0.4	0.3	2	0.7
Chromium (Cr)	mg/kg	< 2	MCERTS	16	25	19	10	10
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
Copper (Cu)	mg/kg	< 4	MCERTS	170	70	30	234	264
Lead (Pb)	mg/kg	< 3	MCERTS	799	72	79	448	152
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1	< 1
Nickel (Ni)	mg/kg	< 3	MCERTS	16	24	14	11	11
Selenium (Se)	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Vanadium (V)	mg/kg	< 1	MCERTS	25	29	24	11	11
Zinc (Zn)	mg/kg	< 3	MCERTS	338	116	72	454	277
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2

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)



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



Soil Analysis Certificate					
DETS Report No: 23-08982	Date Sampled	07/07/23	07/07/23	07/07/23	07/07/23
LK Consult Limited	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Fairfield Road, Droylsden	TP / BH No	MG110	MG111	MG112	MG113
Project / Job Ref: LKC 20 1761	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied
Order No: LKC201761-D1	Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 09/08/2023	DETS Sample No	663060	663061	663062	663063

Determinand	Unit	RL	Accreditation	(n)	(n)	(n)	(n)	(n)
Asbestos Screen ^(S)	N/a	N/a	ISO17025	Not Detected	Detected	Not Detected	Not Detected	Not Detected
Sample Matrix ^(S)	Material Type	N/a	NONE		Chrysotile present in bundles			
Asbestos Type ^(S)	PLM Result	N/a	ISO17025		Chrysotile			
Asbestos Quantification ^(S)	%	< 0.001	ISO17025	< 0.001	< 0.001			
pH	pH Units	N/a	MCERTS	8.9	7.9	8.9	8.3	8.3
Total Cyanide	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1	< 1
Free Cyanide	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1	< 1
W/S Sulphate as SO ₄ (2:1)	mg/l	< 10	MCERTS	347	81	487	108	94
W/S Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	0.35	0.08	0.49	0.11	0.09
Organic Matter (SOM)	%	< 0.1	MCERTS	3.7	4.9	5.2	2.6	1.7
Arsenic (As)	mg/kg	< 2	MCERTS	28	15	26	4	2
W/S Boron	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1	< 1
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	5.1	2.4	5.3	0.4	0.3
Chromium (Cr)	mg/kg	< 2	MCERTS	23	15	23	9	6
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
Copper (Cu)	mg/kg	< 4	MCERTS	1190	255	1950	29	16
Lead (Pb)	mg/kg	< 3	MCERTS	3270	810	1830	64	34
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1	< 1
Nickel (Ni)	mg/kg	< 3	MCERTS	21	15	27	11	6
Selenium (Se)	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Vanadium (V)	mg/kg	< 1	MCERTS	19	14	23	11	7
Zinc (Zn)	mg/kg	< 3	MCERTS	980	553	2440	84	55
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2

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)



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: 23-08982	Date Sampled	07/07/23	07/07/23	07/07/23	07/07/23	07/07/23
LK Consult Limited	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Fairfield Road, Droylsden	TP / BH No	Plot 49 Rear SS101	Plot 50 Front SS102	Plot 51 Rear SS103	Plot 55 Rear SS105	Plot 56 Rear SS106
Project / Job Ref: LKC 20 1761	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: LKC201761-D1	Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 09/08/2023	DETS Sample No	663050	663051	663052	663053	663054

Determinand	Unit	RL	Accreditation	(n)	(n)	(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	0.24	< 0.1	0.13	< 0.1
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	mg/kg	< 0.1	MCERTS	0.38	0.15	0.19	< 0.1
Pyrene	mg/kg	< 0.1	MCERTS	0.37	0.12	0.18	< 0.1
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	0.20	< 0.1	< 0.1	< 0.1
Chrysene	mg/kg	< 0.1	MCERTS	0.21	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	0.21	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	0.18	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
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	< 0.1	< 0.1	< 0.1	< 0.1
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	1.8	< 1.6	< 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



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: 23-08982	Date Sampled	07/07/23	07/07/23	07/07/23	07/07/23	07/07/23
LK Consult Limited	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Fairfield Road, Droylsden	TP / BH No	Plot 58 Rear SS107	Plot 54 Front SS108	Plot 58 Front SS109	Plot 60 Rear SS115	MG104
Project / Job Ref: LKC 20 1761	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: LKC201761-D1	Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 09/08/2023	DETS Sample No	663055	663056	663057	663058	663059

Determinand	Unit	RL	Accreditation	(n)	(n)	(n)	(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	0.19	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	mg/kg	< 0.1	MCERTS	0.11	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	mg/kg	< 0.1	MCERTS	1.10	< 0.1	< 0.1	0.22	0.11
Anthracene	mg/kg	< 0.1	MCERTS	0.28	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	mg/kg	< 0.1	MCERTS	1.79	< 0.1	0.19	0.28	0.18
Pyrene	mg/kg	< 0.1	MCERTS	1.73	< 0.1	0.19	0.29	0.18
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	0.86	< 0.1	< 0.1	0.16	< 0.1
Chrysene	mg/kg	< 0.1	MCERTS	0.81	< 0.1	< 0.1	0.14	< 0.1
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	0.96	< 0.1	< 0.1	0.18	0.13
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	0.34	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	0.94	< 0.1	0.12	0.17	0.12
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	0.34	< 0.1	< 0.1	< 0.1	< 0.1
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	0.33	< 0.1	< 0.1	< 0.1	< 0.1
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	9.8	< 1.6	< 1.6	< 1.6	< 1.6



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: 23-08982	Date Sampled	07/07/23	07/07/23	07/07/23	07/07/23	07/07/23
LK Consult Limited	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Fairfield Road, Droylsden	TP / BH No	MG110	MG111	MG112	MG113	MG114
Project / Job Ref: LKC 20 1761	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: LKC201761-D1	Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 09/08/2023	DETS Sample No	663060	663061	663062	663063	663064

Determinand	Unit	RL	Accreditation	(n)	(n)	(n)	(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	0.14	< 0.1	0.19	< 0.1	< 0.1
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.15	< 0.1	< 0.1
Phenanthrene	mg/kg	< 0.1	MCERTS	1.03	0.38	1.39	< 0.1	0.13
Anthracene	mg/kg	< 0.1	MCERTS	0.25	< 0.1	0.35	< 0.1	< 0.1
Fluoranthene	mg/kg	< 0.1	MCERTS	1.74	0.65	2.70	< 0.1	0.25
Pyrene	mg/kg	< 0.1	MCERTS	1.72	0.65	2.67	< 0.1	0.25
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	1.05	0.37	1.39	< 0.1	0.14
Chrysene	mg/kg	< 0.1	MCERTS	0.94	0.38	1.31	< 0.1	0.16
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	1.16	0.46	1.57	< 0.1	0.18
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	0.43	0.16	0.38	< 0.1	< 0.1
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	1.17	0.48	1.40	< 0.1	0.17
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	0.52	0.19	0.62	< 0.1	< 0.1
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	0.12	< 0.1	0.15	< 0.1	< 0.1
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	0.50	0.18	0.63	< 0.1	< 0.1
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	10.8	3.9	14.9	< 1.6	< 1.6



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



Soil Analysis Certificate - TPH CWG Banded

DETS Report No: 23-08982	Date Sampled	07/07/23	07/07/23	07/07/23	07/07/23	07/07/23
LK Consult Limited	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Fairfield Road, Droylsden	TP / BH No	Plot 49 Rear SS101	Plot 50 Front SS102	Plot 51 Rear SS103	Plot 55 Rear SS105	Plot 56 Rear SS106
Project / Job Ref: LKC 20 1761	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: LKC201761-D1	Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 09/08/2023	DETS Sample No	663050	663051	663052	663053	663054

Determinand	Unit	RL	Accreditation	(n)	(n)	(n)	(n)
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 : HS_1D_MS+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	< 3	< 3	< 3	< 3
Aromatic >C21 - C35 : EH_CU_1D_AR	mg/kg	< 10	MCERTS	< 10	< 10	< 10	< 10
Aromatic >C35 - C44 : HS_1D_MS+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

(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



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



Soil Analysis Certificate - TPH CWG Banded

DETS Report No: 23-08982	Date Sampled	07/07/23	07/07/23	07/07/23	07/07/23	07/07/23
LK Consult Limited	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Fairfield Road, Droylsden	TP / BH No	Plot 58 Rear SS107	Plot 54 Front SS108	Plot 58 Front SS109	Plot 60 Rear SS115	MG104
Project / Job Ref: LKC 20 1761	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: LKC201761-D1	Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 09/08/2023	DETS Sample No	663055	663056	663057	663058	663059

Determinand	Unit	RL	Accreditation	(n)		(n)		(n)
Aliphatic >C5 - C6 : HS_1D_MS_AL	mg/kg	< 0.01	NONE	< 0.01	< 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	< 0.05
Aliphatic >C8 - C10 : EH_CU_1D_AL	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aliphatic >C10 - C12 : EH_CU_1D_AL	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aliphatic >C12 - C16 : EH_CU_1D_AL	mg/kg	< 3	MCERTS	< 3	< 3	< 3	< 3	< 3
Aliphatic >C16 - C21 : EH_CU_1D_AL	mg/kg	< 3	MCERTS	< 3	< 3	< 3	< 3	< 3
Aliphatic >C21 - C34 : EH_CU_1D_AL	mg/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	< 10
Aliphatic >C34 - C44	mg/kg	< 10	NONE	< 10	< 10	< 10	< 10	< 10
Aliphatic (C5 - C44) : HS_1D_MS+EH_CU_1D_AL	mg/kg	< 21	NONE	< 21	< 21	< 21	< 21	< 21
Aromatic >C5 - C7 : HS_1D_MS_AR	mg/kg	< 0.01	NONE	< 0.01	< 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	< 0.05
Aromatic >C8 - C10 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aromatic >C10 - C12 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aromatic >C12 - C16 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aromatic >C16 - C21 : EH_CU_1D_AR	mg/kg	< 3	MCERTS	9	< 3	< 3	< 3	< 3
Aromatic >C21 - C35 : EH_CU_1D_AR	mg/kg	< 10	MCERTS	11	< 10	< 10	< 10	< 10
Aromatic >C35 - C44	mg/kg	< 10	NONE	< 10	< 10	< 10	< 10	< 10
Aromatic (C5 - C44) : HS_1D_MS+EH_CU_1D_AR	mg/kg	< 21	NONE	< 21	< 21	< 21	< 21	< 21
Total >C5 - C44 : HS_1D_MS+EH_CU_1D_Tot	mg/kg	< 42	NONE	< 42	< 42	< 42	< 42	< 42



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



Soil Analysis Certificate - TPH CWG Banded

DETS Report No: 23-08982	Date Sampled	07/07/23	07/07/23	07/07/23	07/07/23	07/07/23
LK Consult Limited	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Fairfield Road, Droylsden	TP / BH No	MG110	MG111	MG112	MG113	MG114
Project / Job Ref: LKC 20 1761	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: LKC201761-D1	Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 09/08/2023	DETS Sample No	663060	663061	663062	663063	663064

Determinand	Unit	RL	Accreditation	(n)	(n)	(n)	(n)	(n)
Aliphatic >C5 - C6 : HS_1D_MS_AL	mg/kg	< 0.01	NONE	< 0.01	< 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	< 0.05
Aliphatic >C8 - C10 : EH_CU_1D_AL	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aliphatic >C10 - C12 : EH_CU_1D_AL	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aliphatic >C12 - C16 : EH_CU_1D_AL	mg/kg	< 3	MCERTS	< 3	< 3	6	< 3	< 3
Aliphatic >C16 - C21 : EH_CU_1D_AL	mg/kg	< 3	MCERTS	< 3	< 3	17	< 3	< 3
Aliphatic >C21 - C34 : EH_CU_1D_AL	mg/kg	< 10	MCERTS	< 10	< 10	81	< 10	< 10
Aliphatic >C34 - C44 : HS_1D_MS+EH_CU_1D_AL	mg/kg	< 10	NONE	< 10	< 10	< 10	< 10	< 10
Aliphatic (C5 - C44) : HS_1D_MS+EH_CU_1D_AL	mg/kg	< 21	NONE	< 21	< 21	103	< 21	< 21
Aromatic >C5 - C7 : HS_1D_MS_AR	mg/kg	< 0.01	NONE	< 0.01	< 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	< 0.05
Aromatic >C8 - C10 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aromatic >C10 - C12 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aromatic >C12 - C16 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aromatic >C16 - C21 : EH_CU_1D_AR	mg/kg	< 3	MCERTS	3	3	5	< 3	< 3
Aromatic >C21 - C35 : EH_CU_1D_AR	mg/kg	< 10	MCERTS	13	< 10	23	< 10	< 10
Aromatic >C35 - C44 : HS_1D_MS+EH_CU_1D_AR	mg/kg	< 10	NONE	< 10	< 10	< 10	< 10	< 10
Aromatic (C5 - C44) : HS_1D_MS+EH_CU_1D_AR	mg/kg	< 21	NONE	< 21	< 21	28	< 21	< 21
Total >C5 - C44 : HS_1D_MS+EH_CU_1D_Tot	mg/kg	< 42	NONE	< 42	< 42	131	< 42	< 42



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



Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 23-08982	Date Sampled	07/07/23	07/07/23	07/07/23	07/07/23	07/07/23
LK Consult Limited	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Fairfield Road, Droylsden	TP / BH No	Plot 49 Rear SS101	Plot 50 Front SS102	Plot 51 Rear SS103	Plot 55 Rear SS105	Plot 56 Rear SS106
Project / Job Ref: LKC 20 1761	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: LKC201761-D1	Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 09/08/2023	DETS Sample No	663050	663051	663052	663053	663054

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

(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



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



Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 23-08982	Date Sampled	07/07/23	07/07/23	07/07/23	07/07/23	07/07/23
LK Consult Limited	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Fairfield Road, Droylsden	TP / BH No	Plot 58 Rear SS107	Plot 54 Front SS108	Plot 58 Front SS109	Plot 60 Rear SS115	MG104
Project / Job Ref: LKC 20 1761	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: LKC201761-D1	Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 09/08/2023	DETS Sample No	663055	663056	663057	663058	663059

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



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



Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 23-08982	Date Sampled	07/07/23	07/07/23	07/07/23	07/07/23	07/07/23
LK Consult Limited	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Fairfield Road, Droylsden	TP / BH No	MG110	MG111	MG112	MG113	MG114
Project / Job Ref: LKC 20 1761	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: LKC201761-D1	Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 09/08/2023	DETS Sample No	663060	663061	663062	663063	663064

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



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



Soil Analysis Certificate - Sample Descriptions

DETS Report No: 23-08982	
LK Consult Limited	
Site Reference: Fairfield Road, Droylsden	
Project / Job Ref: LKC 20 1761	
Order No: LKC201761-D1	
Reporting Date: 09/08/2023	

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
663050	Plot 49 Rear SS101	None Supplied	None Supplied	5.5	Brown sandy gravel with stones and concrete
663051	Plot 50 Front SS102	None Supplied	None Supplied	11.6	Brown sandy clay with stones and vegetation
663052	Plot 51 Rear SS103	None Supplied	None Supplied	6.7	Brown sandy gravel with stones and concrete
663053	Plot 55 Rear SS105	None Supplied	None Supplied	4.6	Brown sandy gravel with stones
663054	Plot 56 Rear SS106	None Supplied	None Supplied	8.9	Brown sandy gravel with stones and concrete
663055	Plot 58 Rear SS107	None Supplied	None Supplied	9.4	Brown sandy gravel with stones and concrete
663056	Plot 54 Front SS108	None Supplied	None Supplied	11.7	Brown sandy clay with stones and vegetation
663057	Plot 58 Front SS109	None Supplied	None Supplied	14	Brown sandy clay with stones and vegetation
663058	Plot 60 Rear SS115	None Supplied	None Supplied	7.5	Brown sandy gravel with stones and concrete
663059	MG104	None Supplied	None Supplied	3.3	Brown sandy gravel with stones and concrete
663060	MG110	None Supplied	None Supplied	7.7	Brown sandy gravel with stones and brick
663061	MG111	None Supplied	None Supplied	5.7	Brown sandy gravel with stones and concrete
663062	MG112	None Supplied	None Supplied	10.9	Brown sandy gravel with stones and concrete
663063	MG113	None Supplied	None Supplied	4	Brown sandy gravel with stones and concrete
663064	MG114	None Supplied	None Supplied	4.1	Brown sandy gravel with stones and concrete

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

Insufficient Sample ^{1/5}

Unsuitable Sample ^{U/5}

Soil Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 23-08982

LK Consult Limited

Site Reference: Fairfield Road, Droylsden

Project / Job Ref: LKC 20 1761

Order No: LKC201761-D1

Reporting Date: 09/08/2023

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 @ 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



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



List of HWOL Acronyms and Operators
DETS Report No: 23-08982
LK Consult Limited
Site Reference: Fairfield Road, Droylsden
Project / Job Ref: LKC 20 1761
Order No: LKC201761-D1
Reporting Date: 09/08/2023

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
Benzene - HS_1D_MS
Ethylbenzene - HS_1D_MS
MTBE - HS_1D_MS
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 >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 >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



Final Report

Report No.: 22-20258-1

Initial Date of Issue: 08-Jun-2022

Client: LK Consult

Client Address: Unit 29 Eton Business Park
Eton Hill Road
Radcliffe
Manchester
Lancashire
M26 2ZS

Contact(s): Contaminated Land
Ella Mcleod

Project: LKC 20 1761 Fairfield Road, Droylsden

Quotation No.: **Date Received:** 31-May-2022

Order No.: 740322 **Date Instructed:** 31-May-2022

No. of Samples: 18

Turnaround (Wkdays): 5 **Results Due:** 08-Jun-2022

Date Approved: 08-Jun-2022

Approved By:


Details: Stuart Henderson, Technical Manager

Results - Soil

Project: LKC 20 1761 Fairfield Road, Droylsden

Client: LK Consult		Chemtest Job No.:		22-20258	22-20258	22-20258	22-20258	22-20258	22-20258	22-20258	22-20258	22-20258
Quotation No.:		Chemtest Sample ID.:		1439016	1439017	1439018	1439019	1439020	1439021	1439022	1439023	
		Client Sample ID.:		Plot 37 MG1	Plot 37 MG2	Plot 38 MG1	Plot 38 MG2	Plot 39 MG1	Plot 39 MG2	Plot 40 MG1	Plot 40 MG2	
		Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	
		Date Sampled:		27-May-2022	27-May-2022	27-May-2022	27-May-2022	27-May-2022	27-May-2022	27-May-2022	27-May-2022	
		Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	
Determinand	Accred.	SOP	Units	LOD								
ACM Type	U	2192		N/A	-	-	-	-	Fibres/Clumps	Fibres/Clumps	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	Chrysotile	Chrysotile	No Asbestos Detected	No Asbestos Detected
Asbestos by Gravimetry	U	2192	%	0.001					0.001	0.017		
Total Asbestos	U	2192	%	0.001					0.001	0.017		
Moisture	N	2030	%	0.020	23	24	13	13	19	21	14	13
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones	Stones and Roots	Stones and Roots	Stones and Roots	Stones	Stones	Stones and Roots	Stones
Soil Texture	N	2040		N/A	Sand	Sand	Sand	Sand	Clay	Clay	Clay	Clay
Chromatogram (TPH)	N			N/A								
pH	M	2010		4.0	8.3	7.8	8.2	8.4	9.3	9.6	8.8	9.0
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40								
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	0.056	0.084	0.13	0.15	1.4	1.9	0.71	0.61
Cyanide (Free)	M	2300	mg/kg	0.50								
Cyanide (Total)	M	2300	mg/kg	0.50								
Arsenic	M	2455	mg/kg	0.5	24	13	35	43	33	22	22	22
Cadmium	M	2455	mg/kg	0.10	1.2	0.98	1.9	6.4	2.7	2.4	3.0	3.2
Chromium	M	2455	mg/kg	0.5	20	14	27	32	24	14	18	19
Copper	M	2455	mg/kg	0.50	390	210	550	900	910	370	830	1400
Mercury	M	2455	mg/kg	0.05	0.14	0.11	0.16	0.15	0.21	0.19	0.17	0.17
Nickel	M	2455	mg/kg	0.50	12	10	18	20	220	14	22	21
Lead	M	2455	mg/kg	0.50	710	560	1000	1000	1500	910	1400	1400
Selenium	M	2455	mg/kg	0.25	0.94	0.83	1.4	1.6	2.0	1.3	0.97	0.99
Vanadium	U	2455	mg/kg	0.5	15	13	19	23	14	10	13	13
Zinc	M	2455	mg/kg	0.50	500	450	960	1200	890	660	1200	1000
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	M	2625	%	0.40	21	13	9.5	10	4.1	5.1	6.3	3.6
Diesel Present	N	2670		N/A								
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0								
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0								
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0								
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0								
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0								
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0								
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0								
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0								
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0								
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0								
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0								

Results - Soil

Project: LKC 20 1761 Fairfield Road, Droylsden

Client: LK Consult		Chemtest Job No.:		22-20258	22-20258	22-20258	22-20258	22-20258	22-20258	22-20258	22-20258
Quotation No.:		Chemtest Sample ID.:		1439016	1439017	1439018	1439019	1439020	1439021	1439022	1439023
		Client Sample ID.:		Plot 37 MG1	Plot 37 MG2	Plot 38 MG1	Plot 38 MG2	Plot 39 MG1	Plot 39 MG2	Plot 40 MG1	Plot 40 MG2
		Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Date Sampled:		27-May-2022	27-May-2022	27-May-2022	27-May-2022	27-May-2022	27-May-2022	27-May-2022	27-May-2022
		Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	Accred.	SOP	Units	LOD							
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0							
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0							
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0							
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0							
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0							
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0							
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0							
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0							
Benzene	M	2760	µg/kg	1.0							
Toluene	M	2760	µg/kg	1.0							
Ethylbenzene	M	2760	µg/kg	1.0							
m & p-Xylene	M	2760	µg/kg	1.0							
o-Xylene	M	2760	µg/kg	1.0							
Methyl Tert-Butyl Ether	M	2760	µg/kg	1.0							
Naphthalene	M	2800	mg/kg	0.10	1.8	< 0.10	< 0.10	2.7	0.55	0.64	0.45
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	0.13	0.16	0.11	< 0.10
Acenaphthene	M	2800	mg/kg	0.10	4.1	< 0.10	< 0.10	6.0	0.63	1.1	0.61
Fluorene	M	2800	mg/kg	0.10	2.8	< 0.10	< 0.10	4.1	0.51	0.81	0.45
Phenanthrene	M	2800	mg/kg	0.10	28	1.4	13	34	4.1	8.8	3.9
Anthracene	M	2800	mg/kg	0.10	6.6	0.26	3.0	8.5	1.2	2.2	0.93
Fluoranthene	M	2800	mg/kg	0.10	29	2.3	13	31	5.9	14	6.8
Pyrene	M	2800	mg/kg	0.10	29	2.4	14	31	6.3	15	7.3
Benzo[a]anthracene	M	2800	mg/kg	0.10	14	1.3	6.8	15	3.3	7.1	4.5
Chrysene	M	2800	mg/kg	0.10	15	1.2	6.8	15	3.7	7.6	4.9
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	15	1.9	7.3	15	4.4	9.5	7.3
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	5.9	0.72	2.7	5.8	1.7	3.5	2.6
Benzo[a]pyrene	M	2800	mg/kg	0.10	14	1.6	6.9	14	4.0	8.6	6.3
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	6.8	1.1	3.4	7.0	2.5	4.7	3.9
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	1.7	0.20	0.63	1.4	0.48	0.74	0.63
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	7.3	1.2	3.3	6.7	2.6	5.0	3.7
Total Of 16 PAH's	N	2800	mg/kg	2.0	180	16	81	200	42	89	54
Total Phenols	M	2920	mg/kg	0.10							

Results - Soil

Project: LKC 20 1761 Fairfield Road, Droylsden

Client: LK Consult	Chemtest Job No.:		22-20258	22-20258	22-20258	22-20258	22-20258	22-20258	22-20258	22-20258	22-20258	22-20258
Quotation No.:	Chemtest Sample ID.:		1439024	1439025	1439026	1439027	1439028	1439029	1439030	1439031		
	Client Sample ID.:		Plot 41 MG1	Plot 41 MG2	Plot 42 MG1	Plot 42 MG2	Plot 43 SS105	Plot 44 SS106	Plot 45 SS101	Plot 46 SS102		
	Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL		
	Date Sampled:		27-May-2022	27-May-2022	27-May-2022	27-May-2022	27-May-2022	27-May-2022	27-May-2022	27-May-2022		
	Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM		
Determinand	Accred.	SOP	Units	LOD								
ACM Type	U	2192		N/A	-	-	-	-	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Asbestos by Gravimetry	U	2192	%	0.001								
Total Asbestos	U	2192	%	0.001								
Moisture	N	2030	%	0.020	14	10	15	12	6.2	6.1	12	15
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones	Stones	Stones and Roots	Stones	Stones	Stones	Stones and Roots	Stones and Roots
Soil Texture	N	2040		N/A	Clay	Clay	Clay	Clay	Sand	Sand	Sand	Clay
Chromatogram (TPH)	N			N/A					See Attached	See Attached	See Attached	See Attached
pH	M	2010		4.0	9.0	10.2	9.2	8.8	9.3	9.1	8.6	8.6
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40					1.6	0.45	1.2	0.67
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	0.85	1.0	0.96	0.82	0.28	0.087	0.48	0.69
Cyanide (Free)	M	2300	mg/kg	0.50					< 0.50	< 0.50	< 0.50	< 0.50
Cyanide (Total)	M	2300	mg/kg	0.50					< 0.50	< 0.50	0.50	< 0.50
Arsenic	M	2455	mg/kg	0.5	29	25	30	19	2.7	1.9	4.8	7.3
Cadmium	M	2455	mg/kg	0.10	4.3	26	4.3	2.1	0.18	0.14	0.53	0.68
Chromium	M	2455	mg/kg	0.5	22	21	21	14	11	9.3	10	8.9
Copper	M	2455	mg/kg	0.50	1500	920	1100	460	11	9.4	90	160
Mercury	M	2455	mg/kg	0.05	0.20	0.18	0.31	0.16	< 0.05	< 0.05	< 0.05	< 0.05
Nickel	M	2455	mg/kg	0.50	24	25	21	13	16	14	10	8.3
Lead	M	2455	mg/kg	0.50	2300	1900	1700	900	16	14	160	330
Selenium	M	2455	mg/kg	0.25	1.1	1.2	1.1	0.65	0.40	0.26	0.25	0.32
Vanadium	U	2455	mg/kg	0.5	14	15	15	9.8	10	7.8	7.7	6.9
Zinc	M	2455	mg/kg	0.50	1400	1300	1800	730	50	40	140	210
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	M	2625	%	0.40	3.4	5.1	4.7	4.5	0.67	< 0.40	3.4	2.3
Diesel Present	N	2670		N/A					False	False	False	False
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0					< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0					< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0					< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0					< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0					< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0					< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0					< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0					< 1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0					< 5.0	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0					< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0					< 1.0	< 1.0	< 1.0	< 1.0

Results - Soil

Project: LKC 20 1761 Fairfield Road, Droylsden

Client: LK Consult		Chemtest Job No.:		22-20258	22-20258	22-20258	22-20258	22-20258	22-20258	22-20258	22-20258	22-20258
Quotation No.:		Chemtest Sample ID.:		1439024	1439025	1439026	1439027	1439028	1439029	1439030	1439031	1439031
		Client Sample ID.:		Plot 41 MG1	Plot 41 MG2	Plot 42 MG1	Plot 42 MG2	Plot 43 SS105	Plot 44 SS106	Plot 45 SS101	Plot 46 SS102	
		Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	
		Date Sampled:		27-May-2022	27-May-2022	27-May-2022	27-May-2022	27-May-2022	27-May-2022	27-May-2022	27-May-2022	
		Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	
Determinand	Accred.	SOP	Units	LOD								
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0					< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0					< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0					< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0					< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0					< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0					< 1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0					< 5.0	< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0					< 10	< 10	< 10	< 10
Benzene	M	2760	µg/kg	1.0					< 1.0	< 1.0	< 1.0	< 1.0
Toluene	M	2760	µg/kg	1.0					< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	M	2760	µg/kg	1.0					< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	M	2760	µg/kg	1.0					< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	M	2760	µg/kg	1.0					< 1.0	< 1.0	< 1.0	< 1.0
Methyl Tert-Butyl Ether	M	2760	µg/kg	1.0					< 1.0	< 1.0	< 1.0	< 1.0
Naphthalene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	M	2800	mg/kg	0.10	5.6	2.3	3.9	2.3	< 0.10	< 0.10	2.5	0.83
Anthracene	M	2800	mg/kg	0.10	1.7	0.61	1.0	0.67	< 0.10	< 0.10	0.76	0.35
Fluoranthene	M	2800	mg/kg	0.10	8.1	4.6	6.1	4.9	0.58	< 0.10	3.4	1.6
Pyrene	M	2800	mg/kg	0.10	8.0	5.0	6.2	5.7	0.50	< 0.10	3.5	1.7
Benzo[a]anthracene	M	2800	mg/kg	0.10	4.2	3.1	3.2	2.7	< 0.10	< 0.10	1.4	0.80
Chrysene	M	2800	mg/kg	0.10	4.3	3.3	3.4	2.9	< 0.10	< 0.10	1.5	0.85
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	5.4	4.6	4.3	4.2	< 0.10	< 0.10	2.0	1.2
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	2.0	1.6	1.6	1.5	< 0.10	< 0.10	0.68	0.24
Benzo[a]pyrene	M	2800	mg/kg	0.10	4.9	4.0	4.0	4.3	< 0.10	< 0.10	1.7	0.90
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	2.6	2.2	2.1	2.5	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	0.50	0.37	0.36	0.68	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	2.7	2.3	2.1	2.6	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	N	2800	mg/kg	2.0	50	34	38	35	< 2.0	< 2.0	17	8.5
Total Phenols	M	2920	mg/kg	0.10					< 0.10	< 0.10	< 0.10	< 0.10

Results - Soil

Project: LKC 20 1761 Fairfield Road, Droylsden

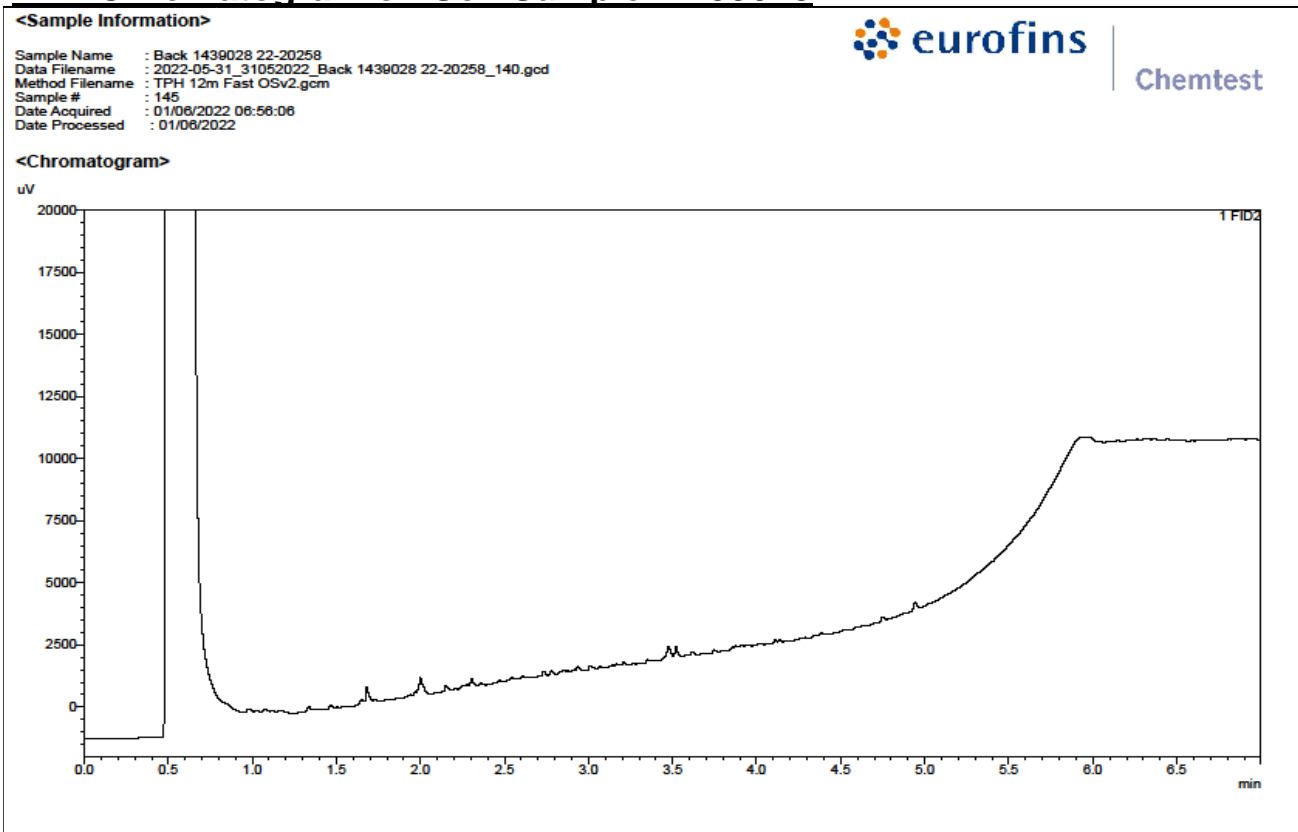
Client: LK Consult		Chemtest Job No.:		22-20258	22-20258	
Quotation No.:		Chemtest Sample ID.:		1439032	1439033	
		Client Sample ID.:		Plot 47 SS103	Plot 48 SS104	
		Sample Type:		SOIL	SOIL	
		Date Sampled:		27-May-2022	27-May-2022	
		Asbestos Lab:		DURHAM	DURHAM	
Determinand	Accred.	SOP	Units	LOD		
ACM Type	U	2192		N/A	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected
Asbestos by Gravimetry	U	2192	%	0.001		
Total Asbestos	U	2192	%	0.001		
Moisture	N	2030	%	0.020	22	19
Soil Colour	N	2040		N/A	Brown	Brown
Other Material	N	2040		N/A	Stones and Roots	Stones and Roots
Soil Texture	N	2040		N/A	Clay	Clay
Chromatogram (TPH)	N			N/A	See Attached	See Attached
pH	M	2010		4.0	8.6	8.8
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40	0.43	0.74
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	0.21	0.49
Cyanide (Free)	M	2300	mg/kg	0.50	< 0.50	< 0.50
Cyanide (Total)	M	2300	mg/kg	0.50	< 0.50	< 0.50
Arsenic	M	2455	mg/kg	0.5	2.3	8.3
Cadmium	M	2455	mg/kg	0.10	0.19	0.80
Chromium	M	2455	mg/kg	0.5	5.3	9.7
Copper	M	2455	mg/kg	0.50	29	110
Mercury	M	2455	mg/kg	0.05	< 0.05	< 0.05
Nickel	M	2455	mg/kg	0.50	4.7	9.6
Lead	M	2455	mg/kg	0.50	66	290
Selenium	M	2455	mg/kg	0.25	< 0.25	0.32
Vanadium	U	2455	mg/kg	0.5	5.2	9.0
Zinc	M	2455	mg/kg	0.50	46	240
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50
Organic Matter	M	2625	%	0.40	4.1	2.1
Diesel Present	N	2670		N/A	False	False
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0

Results - Soil

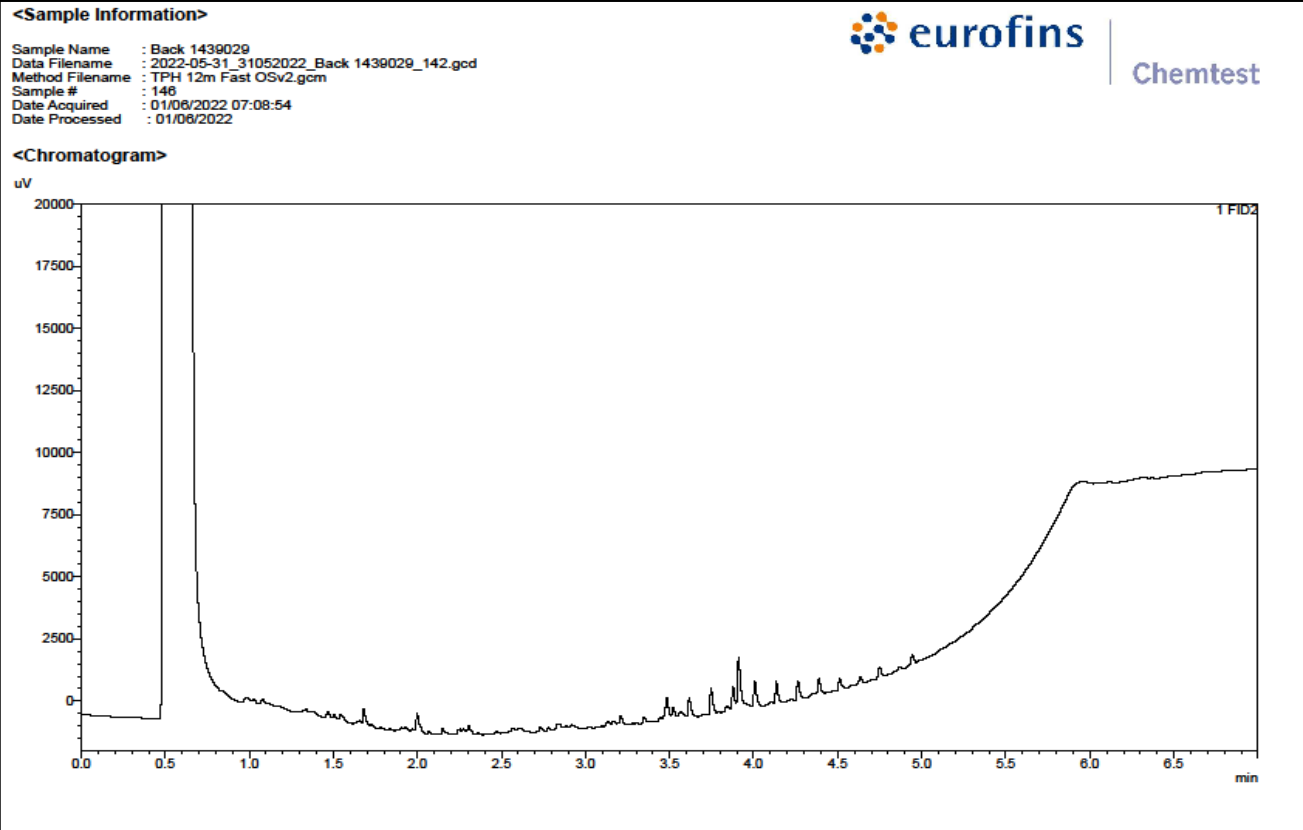
Project: LKC 20 1761 Fairfield Road, Droylsden

Client: LK Consult		Chemtest Job No.:		22-20258	22-20258	
Quotation No.:		Chemtest Sample ID.:		1439032	1439033	
		Client Sample ID.:		Plot 47 SS103	Plot 48 SS104	
		Sample Type:		SOIL	SOIL	
		Date Sampled:		27-May-2022	27-May-2022	
		Asbestos Lab:		DURHAM	DURHAM	
Determinand	Accred.	SOP	Units	LOD		
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10	< 10
Benzene	M	2760	µg/kg	1.0	< 1.0	< 1.0
Toluene	M	2760	µg/kg	1.0	< 1.0	< 1.0
Ethylbenzene	M	2760	µg/kg	1.0	< 1.0	< 1.0
m & p-Xylene	M	2760	µg/kg	1.0	< 1.0	< 1.0
o-Xylene	M	2760	µg/kg	1.0	< 1.0	< 1.0
Methyl Tert-Butyl Ether	M	2760	µg/kg	1.0	< 1.0	< 1.0
Naphthalene	M	2800	mg/kg	0.10	< 0.10	< 0.10
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10	< 0.10
Acenaphthene	M	2800	mg/kg	0.10	< 0.10	< 0.10
Fluorene	M	2800	mg/kg	0.10	< 0.10	< 0.10
Phenanthrene	M	2800	mg/kg	0.10	0.43	0.84
Anthracene	M	2800	mg/kg	0.10	0.14	0.37
Fluoranthene	M	2800	mg/kg	0.10	0.79	1.6
Pyrene	M	2800	mg/kg	0.10	0.76	1.7
Benzo[a]anthracene	M	2800	mg/kg	0.10	< 0.10	1.0
Chrysene	M	2800	mg/kg	0.10	< 0.10	1.0
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	< 0.10	1.2
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	< 0.10	0.59
Benzo[a]pyrene	M	2800	mg/kg	0.10	< 0.10	1.2
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	< 0.10	< 0.10
Total Of 16 PAH's	N	2800	mg/kg	2.0	2.1	9.5
Total Phenols	M	2920	mg/kg	0.10	< 0.10	< 0.10

TPH Chromatogram on Soil Sample: 1439028



TPH Chromatogram on Soil Sample: 1439029



TPH Chromatogram on Soil Sample: 1439030

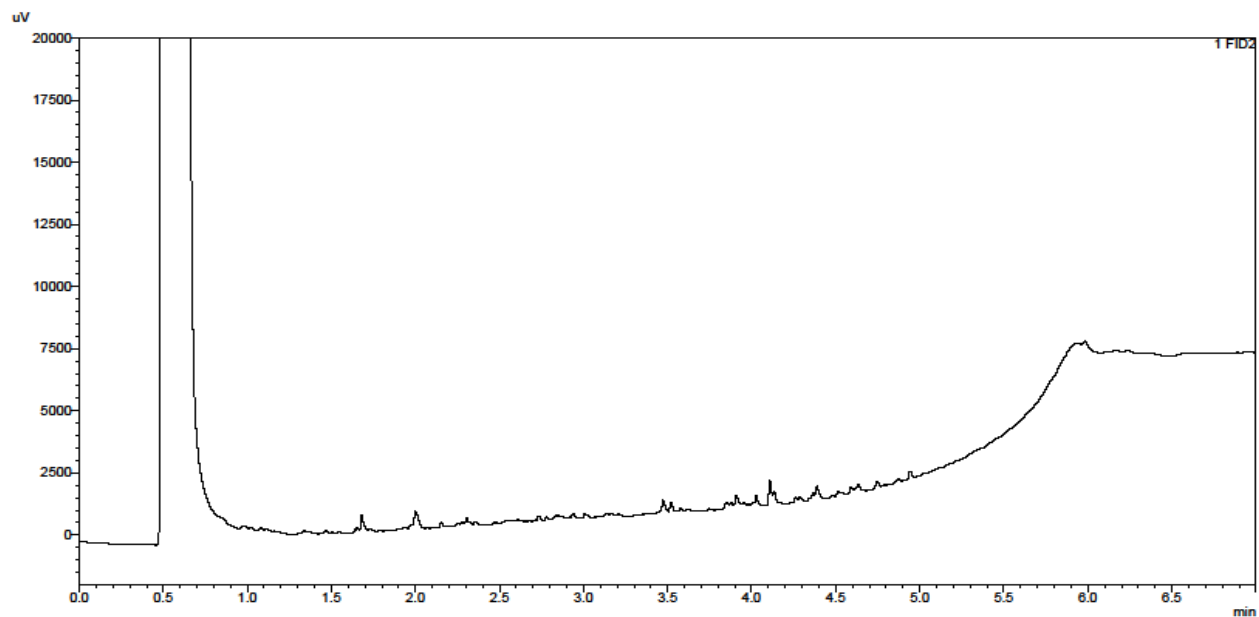
<Sample Information>

Sample Name : Back 1439030
Data Filename : 2022-05-31_31052022_Back 1439030_144.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 147
Date Acquired : 01/06/2022 07:21:39
Date Processed : 01/06/2022

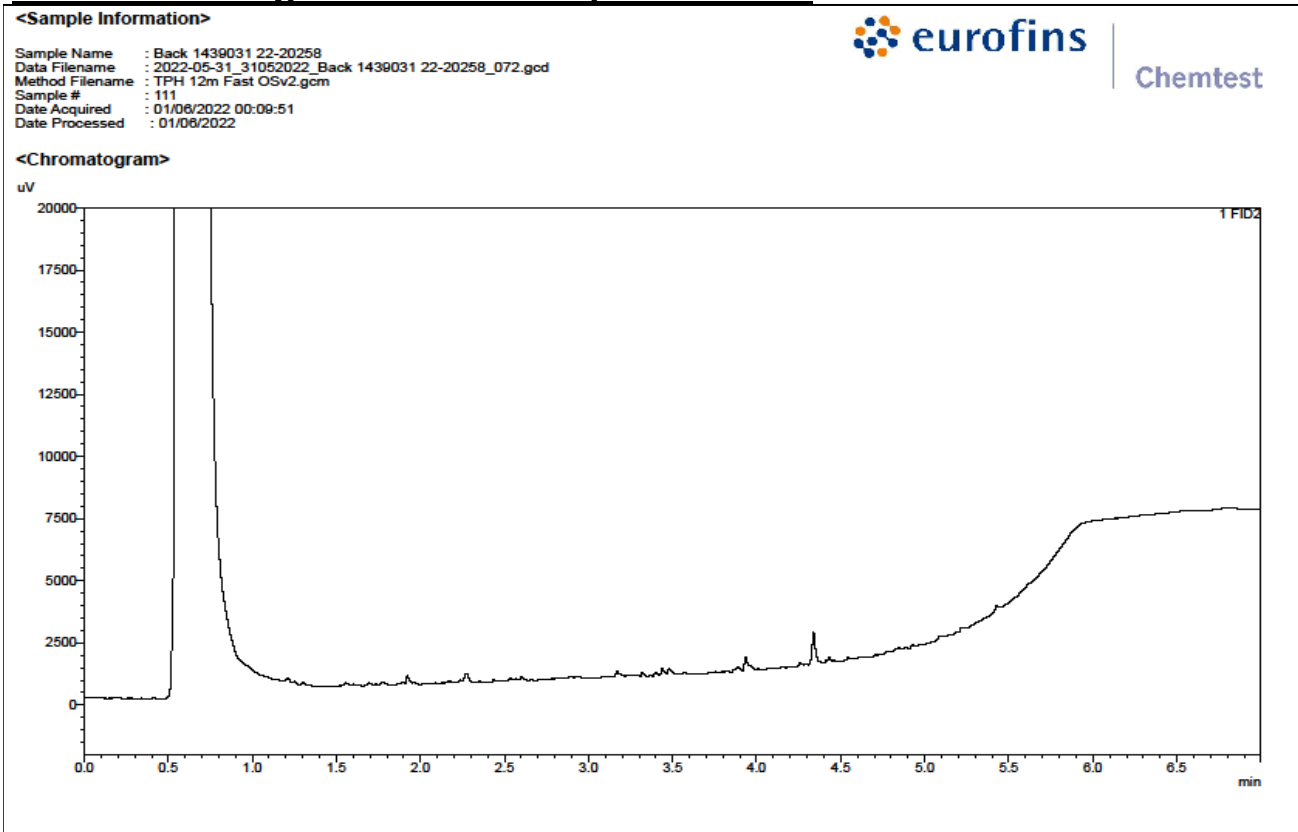


Chemtest

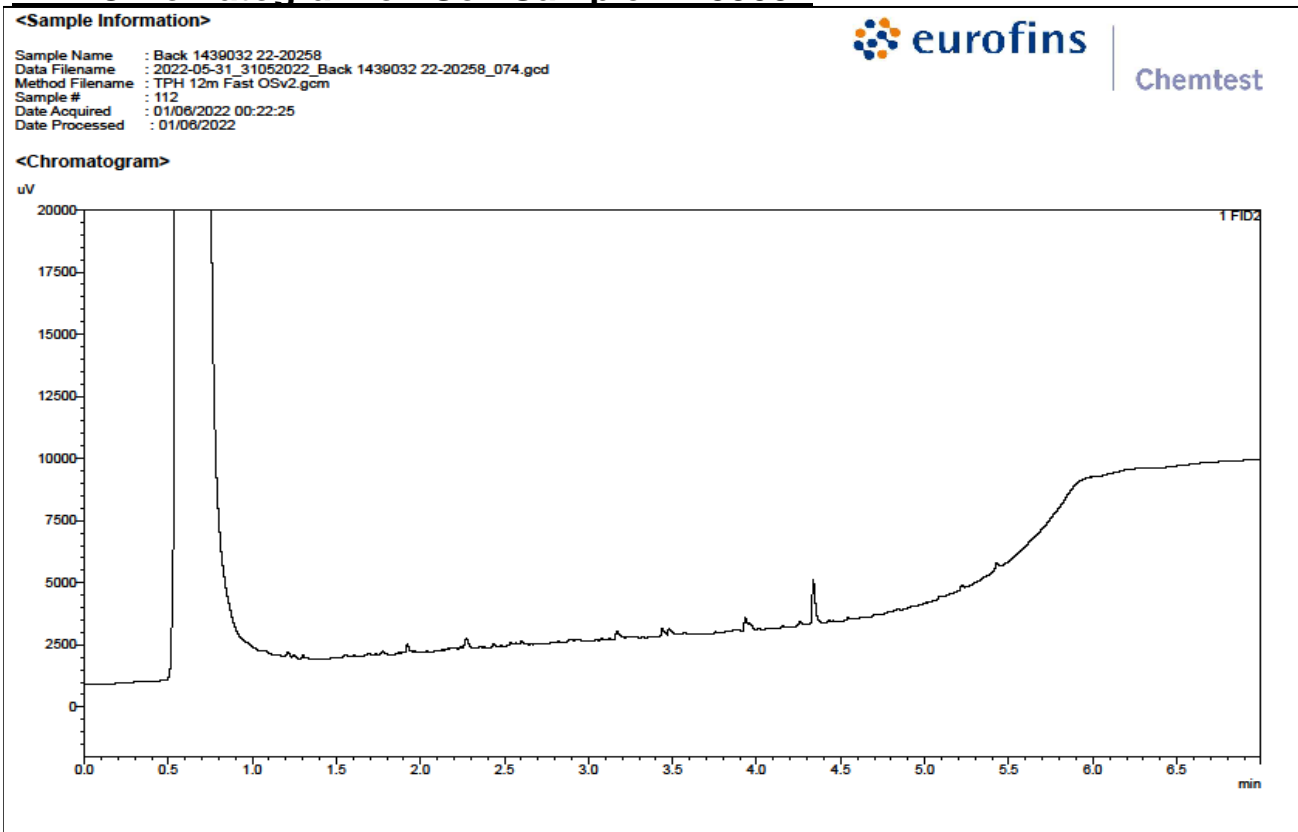
<Chromatogram>



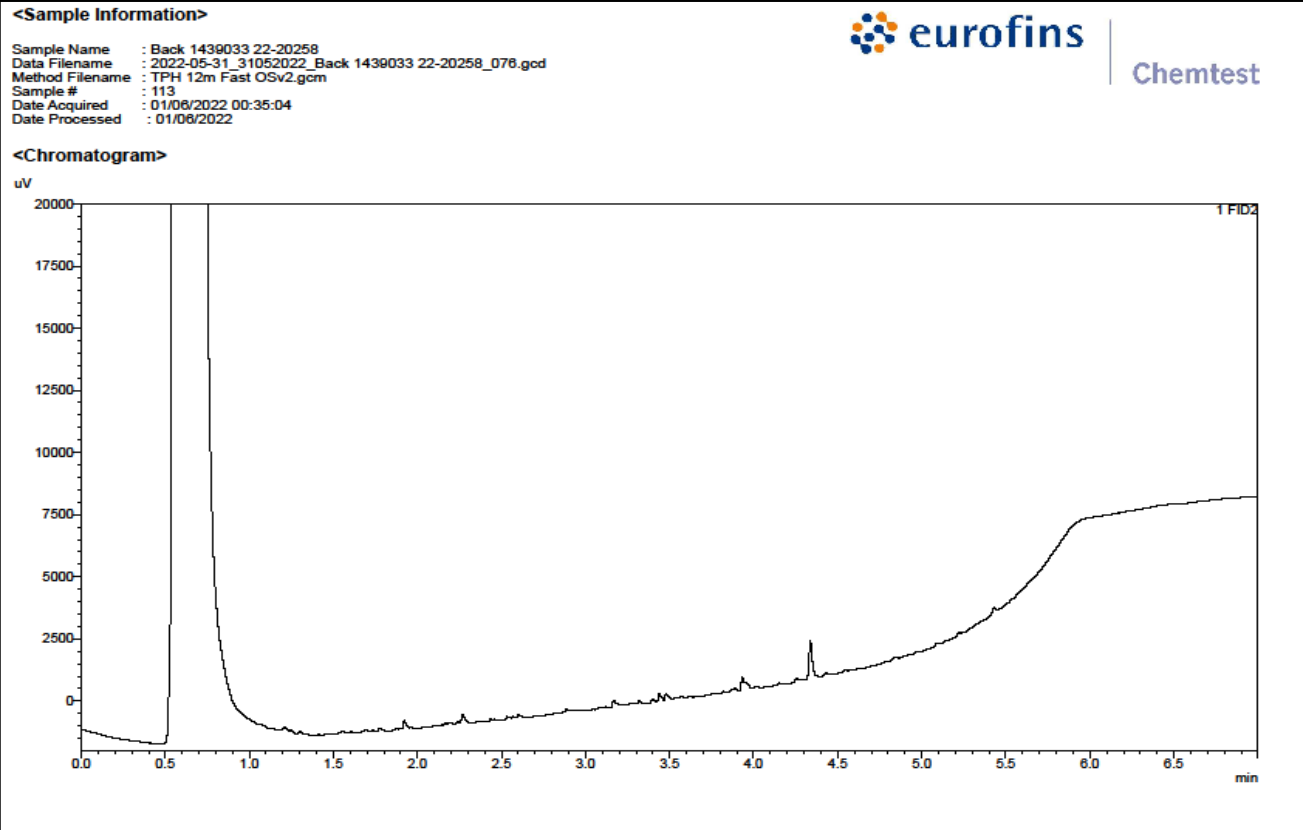
TPH Chromatogram on Soil Sample: 1439031



TPH Chromatogram on Soil Sample: 1439032



TPH Chromatogram on Soil Sample: 1439033



TPH Interpretation

Job	Sample	Matrix	Location	Sample Ref	Sample ID	Sample Depth (m)	Gasoline / Diesel Present	TPH Interpretation
22-20258	1439028	S			Plot 43 SS105		No	N/A
22-20258	1439029	S			Plot 44 SS106		No	N/A
22-20258	1439030	S			Plot 45 SS101		No	N/A
22-20258	1439031	S			Plot 46 SS102		No	N/A
22-20258	1439032	S			Plot 47 SS103		No	N/A
22-20258	1439033	S			Plot 48 SS104		No	N/A

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazine.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

Report Information

Key

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

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

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

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

All Asbestos testing is performed at the indicated laboratory

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

Sample Deviation Codes

A - Date of sampling not supplied

B - Sample age exceeds stability time (sampling to extraction)

C - Sample not received in appropriate containers

D - Broken Container

E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt

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

Charges may apply to extended sample storage

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

customerservices@chemtest.com



Ella Mcleod
LK Consult Limited
Unit 29 Eton Business Park
Eton Hill Road
Manchester
M26 2ZS

Derwentside Environmental Testing Services Ltd
Unit 1
Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
ME17 2JN
t: 01622 850410

DETS Report No: 23-10586

Site Reference: Fairfield Road, Droylsden Post Demo

Project / Job Ref: LKC 20 1761

Order No: LKC201761 - EM

Sample Receipt Date: 17/08/2023

Sample Scheduled Date: 17/08/2023

Report Issue Number: 1

Reporting Date: 23/08/2023

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.



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



Soil Analysis Certificate						
DETS Report No: 23-10586	Date Sampled	15/08/23	15/08/23	15/08/23		
LK Consult Limited	Time Sampled	None Supplied	None Supplied	None Supplied		
Site Reference: Fairfield Road, Droylsden Post Demo	TP / BH No	P47Mg	P49Mg	P57Mg		
Project / Job Ref: LKC 20 1761	Additional Refs	ES	ES	S		
Order No: LKC201761 - EM	Depth (m)	None Supplied	None Supplied	None Supplied		
Reporting Date: 23/08/2023	DETS Sample No	670450	670451	670452		

Determinand	Unit	RL	Accreditation				
Asbestos Screen ^(S)	N/a	N/a	ISO17025	Not Detected	Not Detected	Detected	
Sample Matrix ^(S)	Material Type	N/a	NONE			Chrysotile present in microscopic insulation	
Asbestos Type ^(S)	PLM Result	N/a	ISO17025			Chrysotile	
Asbestos Quantification ^(S)	%	< 0.001	ISO17025			0.012	
pH	pH Units	N/a	MCERTS	8.0	7.7	7.7	
Total Cyanide	mg/kg	< 1	NONE	< 1	< 1	< 1	
Free Cyanide	mg/kg	< 1	NONE	< 1	< 1	< 1	
W/S Sulphate as SO ₄ (2:1)	mg/l	< 10	MCERTS	239	323	118	
W/S Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	0.24	0.32	0.12	
Organic Matter (SOM)	%	< 0.1	MCERTS	3.5	3	15.2	
Arsenic (As)	mg/kg	< 2	MCERTS	25	35	322	
W/S Boron	mg/kg	< 1	NONE	< 1	< 1	< 1	
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	6.6	5.2	21.7	
Chromium (Cr)	mg/kg	< 2	MCERTS	23	17	34	
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2	
Copper (Cu)	mg/kg	< 4	MCERTS	820	785	3500	
Lead (Pb)	mg/kg	< 3	MCERTS	1680	1640	28300	
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1	< 1	1.3	
Nickel (Ni)	mg/kg	< 3	MCERTS	20	40	41	
Selenium (Se)	mg/kg	< 2	MCERTS	< 2	< 2	< 2	
Vanadium (V)	mg/kg	< 1	MCERTS	19	18	27	
Zinc (Zn)	mg/kg	< 3	MCERTS	827	1110	4580	
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2	< 2	< 2	

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)



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: 23-10586	Date Sampled	15/08/23	15/08/23	15/08/23		
LK Consult Limited	Time Sampled	None Supplied	None Supplied	None Supplied		
Site Reference: Fairfield Road, Droylsden	TP / BH No	P47Mg	P49Mg	P57Mg		
Post Demo	Additional Refs	ES	ES	S		
Project / Job Ref: LKC 20 1761	Depth (m)	None Supplied	None Supplied	None Supplied		
Order No: LKC201761 - EM	DETS Sample No	670450	670451	670452		
Reporting Date: 23/08/2023						

Determinand	Unit	RL	Accreditation				
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	0.24	< 0.1	
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	0.20	< 0.1	
Phenanthrene	mg/kg	< 0.1	MCERTS	0.44	1.54	0.33	
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	0.38	< 0.1	
Fluoranthene	mg/kg	< 0.1	MCERTS	0.41	1.25	0.46	
Pyrene	mg/kg	< 0.1	MCERTS	0.36	1.22	0.48	
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	0.16	0.61	0.23	
Chrysene	mg/kg	< 0.1	MCERTS	0.16	0.48	0.28	
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	0.16	0.40	0.25	
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	0.15	< 0.1	
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	0.15	0.38	0.20	
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	0.18	0.14	
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	< 0.1	0.15	< 0.1	
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	1.8	7.2	2.4	



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



Soil Analysis Certificate - TPH CWG Banded

DETS Report No: 23-10586	Date Sampled	15/08/23	15/08/23	15/08/23
LK Consult Limited	Time Sampled	None Supplied	None Supplied	None Supplied
Site Reference: Fairfield Road, Droylsden	TP / BH No	P47Mg	P49Mg	P57Mg
Post Demo	Additional Refs	ES	ES	S
Project / Job Ref: LKC 20 1761	Depth (m)	None Supplied	None Supplied	None Supplied
Order No: LKC201761 - EM	DETS Sample No	670450	670451	670452
Reporting Date: 23/08/2023				

Determinand	Unit	RL	Accreditation				
Aliphatic >C5 - C6 : HS_1D_MS_AL	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	
Aliphatic >C6 - C8 : HS_1D_MS_AL	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	
Aliphatic >C8 - C10 : EH_CU_1D_AL	mg/kg	< 2	MCERTS	< 2	< 2	< 2	
Aliphatic >C10 - C12 : EH_CU_1D_AL	mg/kg	< 2	MCERTS	< 2	< 2	< 2	
Aliphatic >C12 - C16 : EH_CU_1D_AL	mg/kg	< 3	MCERTS	< 3	< 3	< 3	
Aliphatic >C16 - C21 : EH_CU_1D_AL	mg/kg	< 3	MCERTS	< 3	< 3	< 3	
Aliphatic >C21 - C34 : EH_CU_1D_AL	mg/kg	< 10	MCERTS	< 10	< 10	< 10	
Aliphatic >C34 - C44	mg/kg	< 10	NONE	< 10	< 10	< 10	
Aliphatic (C5 - C44) : HS_1D_MS+EH_CU_1D_AL	mg/kg	< 21	NONE	< 21	< 21	< 21	
Aromatic >C5 - C7 : HS_1D_MS_AR	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	
Aromatic >C7 - C8 : HS_1D_MS_AR	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	
Aromatic >C8 - C10 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2	< 2	< 2	
Aromatic >C10 - C12 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2	< 2	< 2	
Aromatic >C12 - C16 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2	3	< 2	
Aromatic >C16 - C21 : EH_CU_1D_AR	mg/kg	< 3	MCERTS	< 3	9	< 3	
Aromatic >C21 - C35 : EH_CU_1D_AR	mg/kg	< 10	MCERTS	< 10	33	12	
Aromatic >C35 - C44	mg/kg	< 10	NONE	< 10	< 10	< 10	
Aromatic (C5 - C44) : HS_1D_MS+EH_CU_1D_AR	mg/kg	< 21	NONE	< 21	45	< 21	
Total >C5 - C44 : HS_1D_MS+EH_CU_1D_Tot al	mg/kg	< 42	NONE	< 42	45	< 42	



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



Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 23-10586	Date Sampled	15/08/23	15/08/23	15/08/23		
LK Consult Limited	Time Sampled	None Supplied	None Supplied	None Supplied		
Site Reference: Fairfield Road, Droylsden	TP / BH No	P47Mg	P49Mg	P57Mg		
Post Demo	Additional Refs	ES	ES	S		
Project / Job Ref: LKC 20 1761	Depth (m)	None Supplied	None Supplied	None Supplied		
Order No: LKC201761 - EM	DETS Sample No	670450	670451	670452		
Reporting Date: 23/08/2023						

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



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



Soil Analysis Certificate - Sample Descriptions

DETS Report No: 23-10586	
LK Consult Limited	
Site Reference: Fairfield Road, Droylsden Post Demo	
Project / Job Ref: LKC 20 1761	
Order No: LKC201761 - EM	
Reporting Date: 23/08/2023	

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
670450	P47Mg	ES	None Supplied	11.6	Brown sandy clay with stones
670451	P49Mg	ES	None Supplied	12.9	Brown sandy clay with stones and concrete
670452	P57Mg	S	None Supplied	21.3	Black sandy clay with stones and brick

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

Insufficient Sample ^{1/5}

Unsuitable Sample ^{U/5}

Soil Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 23-10586

LK Consult Limited

Site Reference: Fairfield Road, Droylsden Post Demo

Project / Job Ref: LKC 20 1761

Order No: LKC201761 - EM

Reporting Date: 23/08/2023

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 @ 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



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



List of HWOL Acronyms and Operators
DETS Report No: 23-10586
LK Consult Limited
Site Reference: Fairfield Road, Droylsden Post Demo
Project / Job Ref: LKC 20 1761
Order No: LKC201761 - EM
Reporting Date: 23/08/2023

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
Benzene - HS_1D_MS
Ethylbenzene - HS_1D_MS
MTBE - HS_1D_MS
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 >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 >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

Appendix C

Generic Assessment Criteria Values

CATEGORY 4 SCREENING LEVELS

Substance	Residential (with home- grown produce)	Residential (without home- grown produce)	Allotments	Commercial	Public Open Space 1	Public Open Space 2
Arsenic	37 mg/kg	40 mg/kg	49 mg/kg	640 mg/kg	79 mg/kg	170 mg/kg
Benzene	0.87 mg/kg	3.3 mg/kg	0.18 mg/kg	98 mg/kg	140 mg/kg	230 mg/kg
Benzo(a)pyrene	5.0 mg/kg	5.3 mg/kg	5.7 mg/kg	77 mg/kg	10 mg/kg	21 mg/kg
Cadmium	22 mg/kg	150 mg/kg	3.9 mg/kg	410 mg/kg	220 mg/kg	880 mg/kg
Chromium VI	21 mg/kg	21 mg/kg	170 mg/kg	49 mg/kg	21 mg/kg	250 mg/kg
Lead	200 mg/kg	310 mg/kg	80 mg/kg	2300 mg/kg	630 mg/kg	1300 mg/kg

Tetrachlorethene (PCE) – 1% SOM	0.31 mg/kg	0.32 mg/kg	2.0 mg/kg	24 mg/kg	3,200 mg/kg	1,400 mg/kg
Tetrachlorethene (PCE) – 2.5% SOM	0.70 mg/kg	0.71 mg/kg	4.8 mg/kg	55 mg/kg	3,300 mg/kg	1,900 mg/kg
Tetrachlorethene (PCE) – 6% SOM	1.6 mg/kg	1.6 mg/kg	11 mg/kg	130 mg/kg	3,400 mg/kg	2,500 mg/kg
Trichlorethene (TCE) – 1% SOM	0.0093 mg/kg	0.0097 mg/kg	0.032 mg/kg	0.73 mg/kg	76 mg/kg	41 mg/kg
Trichlorethene (TCE) – 2.5% SOM	0.020 mg/kg	0.020 mg/kg	0.072 mg/kg	1.5 mg/kg	78 mg/kg	54 mg/kg
Trichlorethene (TCE) – 6% SOM	0.043 mg/kg	0.045 mg/kg	0.16 mg/kg	3.4 mg/kg	79 mg/kg	69 mg/kg
Vinyl Chloride (VC) – 1% SOM	0.0064 mg/kg	0.015 mg/kg	0.0017 mg/kg	1.1 mg/kg	7.8 mg/kg	18 mg/kg
Vinyl Chloride (VC) – 2.5% SOM	0.010 mg/kg	0.019 mg/kg	0.0031 mg/kg	1.4 mg/kg	7.8 mg/kg	19 mg/kg
Vinyl Chloride (VC) – 6% SOM	0.017 mg/kg	0.029 mg/kg	0.0058 mg/kg	2.2 mg/kg	7.8 mg/kg	19 mg/kg

Summary Table for the Generic Assessment Criteria for Human Health Risk Assessment Land Quality Management (LQM) S4ULs.

All GAC are based on sandy loam soils with a pH 7.

		LQM Generic Assessment Criteria (mg/kg) Dry weight soil						
Contaminant		SOM	Res +	Res -	Allot.	Comm.	POS _{resi}	POS _{park}
Metals	Inorganic Arsenic	6%	37	40	43	640	79	170
	Beryllium	6%	1.7	1.7	35	12	2.2	63
	Boron	6%	290	11,000	45	240,000	21,000	46,000
	Cadmium	6%	11	85	1.9	190	120	532
	Chromium (III)	6%	910	910	18,000	8,600	1,500	33,000
	Chromium (VI)	6%	6.0	6.0	1.8	33	7.7	220
	Copper	6%	2,400	7,100	520	68,000	12,000	44,000
	Elemental Mercury	6%	1.2	1.2	21	58 (25.8) ^{vap}	16	30 (25.8) ^{vap}
	Inorganic Mercury	6%	40	56	19	1,100	120	240
	Methylmercury	6%	11	15	6.0	320	40	68
	Nickel	6%	180	180	230	980	230	3,400
	Selenium	6%	250	430	88	12,000	1,100	1,800
	Vanadium	6%	410	1,200	91	9,000	2,000	5,000
	Zinc	6%	3,700	40,000	620	730,000	81,000	170,000
BTEX Compounds	Benzene	1%	0.087	0.38	0.017	27	72	90
		2.5%	0.17	0.70	0.034	47	72	100
		6%	0.37	1.4	0.075	90	73	110
	Toluene	1%	130	880 (869) ^{vap}	22	56,000 (869) ^{vap}	56,000	87,000 (869) ^{vap}
		2.5%	290	1,900	51	110,000 (1,920) ^{vap}	56,000	95,000 (1,920) ^{vap}
		6%	660	3,900	120	180,000 (4,360) ^{vap}	56,000	100,000 (4,360) ^{vap}
	Ethylbenzene	1%	47	83	16	5,700 (518) ^{vap}	24,000	17,000 (518) ^{vap}
		2.5%	110	190	39	13,000 (1,220) ^{vap}	24,000	22,000 (1,220) ^{vap}
		6%	260	440	91	27,000 (2,840) ^{vap}	25,000	27,000 (2,840) ^{vap}
	o-xylene	1%	60	88	28	6,600 (478) ^{sol}	41,000	17,000 (478) ^{sol}
		2.5%	140	210	67	15,000 (1,120) ^{sol}	42,000	24,000 (1,120) ^{sol}
		6%	330	480	160	33,000 (2,620) ^{sol}	43,000	33,000 (2,620) ^{sol}
	m-xylene	1%	59	82	31	6,200 (625) ^{vap}	41,000	17,000 (625) ^{vap}
		2.5%	140	190	74	14,000 (1,470) ^{vap}	42,000	24,000 (1,470) ^{vap}
		6%	320	450	170	31,000 (3,460) ^{vap}	43,000	32,000 (3,460) ^{vap}
	p-xylene	1%	56	79	29	5,900 (576) ^{sol}	41,000	17,000 (576) ^{sol}
		2.5%	130	180	69	14,000 (1,350) ^{sol}	42,000	23,000 (1,350) ^{sol}
		6%	310	430	160	30,000 (3,170) ^{sol}	43,000	31,000 (3,170) ^{sol}

NOTES

^{sol/vap} = solubility / vapour limit (potentially use if free product identified, although highly conservative).
f = oral, dermal and inhalation exposures compared to oral HCV.

All GAC are based on sandy loam soils with a pH 7.

LQM Generic Assessment Criteria (mg/kg) Dry weight soil

Contaminant	SOM	Res +	Res -	Allot.	Comm.	POS _{resi}	POS _{park}
Acenaphthene	1%	210	3,000 (57.1) ^{sol}	34	84,000 (57.0) ^{sol}	15,000	29,000
	2.5%	510	4,700 (141) ^{sol}	85	97,000 (141) ^{sol}	15,000	30,000
	6%	1,100	6,000 (336) ^{sol}	200	100,000	15,000	30,000
Acenaphthylene	1%	170	2,900 (86.1) ^{sol}	28	83,000 (86.1) ^{sol}	15,000	29,000
	2.5%	420	4,600 (212) ^{sol}	69	97,000 (212) ^{sol}	15,000	30,000
	6%	920	6,000 (506) ^{sol}	160	100,000	15,000	30,000
Anthracene	1%	2,400	31,000 (1.17) ^{vap}	380	520,000	74,000	150,000
	2.5%	5,400	35,000	950	540,000	74,000	150,000
	6%	11,000	37,000	2,200	540,000	74,000	150,000
Benz(a)anthracene	1%	7.2	11	2.9	170	29	49
	2.5%	11	14	6.5	170	29	56
	6%	13	15	13	180	29	62
Benzo(a)pyrene (only)	1%	2.2	3.2	0.97	35	5.7	11
	2.5%	2.7	3.2	2.0	35	5.7	12
	6%	3.0	3.2	3.5	36	5.7	13
Benzo(b)fluoranthene	1%	2.6	3.9	0.99	44	7.1	13
	2.5%	3.3	4.0	2.1	44	7.2	15
	6%	3.7	4.0	3.9	45	7.2	16
Benzo(ghi)perylene	1%	320	360	290	3,900	640	1,400
	2.5%	340	360	470	4,000	640	1,500
	6%	350	360	640	4,000	640	1,600
Benzo(k)fluoranthene	1%	77	110	37	1,200	190	370
	2.5%	93	110	75	1,200	190	410
	6%	100	110	130	1,200	190	440
Chrysene	1%	15	30	4.1	350	57	93
	2.5%	22	31	9.4	350	57	110
	6%	27	32	19	350	57	120
Dibenzo(ah)anthracene	1%	0.24	0.31	0.14	3.5	0.57	1.1
	2.5%	0.28	0.32	0.27	3.6	0.58	1.3
	6%	0.3	0.32	0.43	3.6	0.58	1.4
Fluoranthene	1%	280	1,500	52	23,000	3,100	6,300
	2.5%	560	1,600	130	23,000	3,100	6,300
	6%	890	1,600	290	23,000	3,100	6,400
Fluorene	1%	170	2,800 (36.0) ^{sol}	27	63,000 (30.9) ^{sol}	9,900	20,000
	2.5%	400	3,800 (76.5) ^{sol}	67	68,000	9,900	20,000
	6%	860	4,500 (183) ^{sol}	160	71,000	9,900	20,000
Indeno(123-cd)pyrene	1%	27	45	9.5	500	82	150
	2.5%	36	46	21	510	82	170
	6%	41	46	39	510	82	180
Naphthalene	1%	2.3 ^f	2.3 ^f	4.1 ^f	190 ^f (76.4) ^{sol}	4,900 ^f	1,200 ^f (76.4) ^{sol}
	2.5%	5.6 ^f	5.6 ^f	10 ^f	460 ^f (183) ^{sol}	4,900 ^f	1,900 ^f (183) ^{sol}
	6%	13 ^f	13 ^f	24 ^f	1,100 ^f (432) ^{sol}	4,900 ^f	3,000
Phenanthrene	1%	95	1,300 (36.0) ^{sol}	15	22,000	3,100	6,200
	2.5%	220	1,500	38	22,000	3,100	6,200
	6%	440	1,500	90	22,000	3,100	6,300
Pyrene	1%	620	3,700	110	54,000	7,400	15,000
	2.5%	1,200	3,800	270	54,000	7,400	15,000
	6%	2,000	3,800	620	54,000	7,400	15,000
Coal Tar (B(a)P as surrogate marker)	1%	0.79	1.2	0.32	15	2.2	4.4
	2.5%	0.98	1.2	0.67	15	2.2	4.7
	6%	1.1	1.2	1.2	15	2.2	4.8

NOTES

^{sol/vap} = solubility / vapour limit (potentially use if free product identified, although highly conservative).

^f = naphthalene is based on comparison of inhalation exposure with TDI_{Inhal} for localised effect.

All GAC are based on sandy loam soils with a pH 7.

LQM Generic Assessment Criteria (mg/kg) Dry weight soil

Contaminant	SOM	Res +	Res -	Allot.	Comm.	POS _{resi}	POS _{park}
Aliphatic							
EC 5-6	1%	42	42	730	3,200 (304) ^{sol}	570,000(304) ^{sol}	95,000 (304) ^{sol}
EC>6-8	1%	100	100	2,300	7,800 (144) ^{sol}	600,000	150,000 (144) ^{sol}
EC>8-10	1%	27	27	320	2,000 (78) ^{sol}	13,000	14,000 (78) ^{vap}
EC>10-12	1%	130 (48) ^{vap}	130 (48) ^{vap}	2,200	9,700 (48) ^{sol}	13,000	21,000 (48) ^{vap}
EC>12-16	1%	1,100 (24) ^{sol}	1,100 (24) ^{sol}	11,000	59,000 (24) ^{sol}	13,000	25,000 (24) ^{sol}
EC>16-35	1%	65,000 (8.48) ^{f, sol}	65,000 (8.48) ^{f, sol}	260,000 ^f	160,000 ^f	250,000 ^f	450,000 ^f
EC>35-44	1%	65,000 (8.48) ^{f, sol}	65,000 (8.48) ^{f, sol}	260,000 ^f	160,000 ^f	250,000 ^f	450,000 ^f
Aliphatic							
EC 5-6	2.5%	78	78	1,700	5,900 (558) ^{sol}	590,000	130,000 (558) ^{sol}
EC>6-8	2.5%	230	230	5,600	17,000 (322) ^{sol}	610,000	220,000 (322) ^{sol}
EC>8-10	2.5%	65	65	770	4,800 (190) ^{vap}	13,000	18,000 (190) ^{vap}
EC>10-12	2.5%	330 (118) ^{vap}	330 (118) ^{vap}	4,400	23,000 (118) ^{vap}	13,000	23,000 (118) ^{vap}
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}
EC>16-35	2.5%	92,000 (21) ^{f, sol}	92,000 (21) ^{f, sol}	270,000 ^f	1,700,000 ^f	250,000 ^f	480,000 ^f
EC>35-44	2.5%	92,000 (21) ^{f, sol}	92,000 (21) ^{f, sol}	270,000 ^f	1,700,000 ^f	250,000 ^f	480,000 ^f
Aliphatic							
EC 5-6	6%	160	160	3,900	12,000 (1,150) ^{sol}	600,000	180,000 (1,150) ^{sol}
EC>6-8	6%	530	530	13,000	40,000 (736) ^{sol}	620,000	320,000 (736) ^{sol}
EC>8-10	6%	150	150	1,700	11,000 (451) ^{vap}	13,000	21,000 (451) ^{vap}
EC>10-12	6%	760 (283) ^{vap}	760 (283) ^{vap}	7,300	47,000 (283) ^{vap}	13,000	24,000 (283) ^{vap}
EC>12-16	6%	4,300 (142) ^{sol}	4,400 (142) ^{sol}	13,000	90,000 (142) ^{sol}	13,000	26,000 (142) ^{sol}
EC>16-35	6%	110,000 ^f	110,000 ^f	270,000 ^f	1,800,000 ^f	250,000 ^f	490,000 ^f
EC>35-44	6%	110,000 ^f	110,000 ^f	270,000 ^f	1,800,000 ^f	250,000 ^f	490,000 ^f
Aromatic							
EC5-7(benzene as non-threshold)	1%	70	370	13	26,000 (1,220) ^{sol}	56,000	76,000 (1,220) ^{sol}
EC>7-8(toluene)	1%	130	860	22	56,000 (869) ^{vap}	56,000	87,000 (869) ^{vap}
EC>8-10	1%	34	47	8.6	3,500 (613) ^{vap}	5,000	7,200 (613) ^{vap}
EC>10-12	1%	74	250	13	16,000 (364) ^{sol}	5,000	9,200 (364) ^{sol}
EC>12-16	1%	140	1,800	23	36,000 (169) ^{sol}	5,100	10,000
EC>16-21	1%	260 ^f	1,900 ^f	46 ^f	28,000 ^f	3,800 ^f	7,600 ^f
EC>21-35	1%	1,100 ^f	1,900 ^f	370 ^f	28,000 ^f	3,800 ^f	7,800 ^f
EC>35-44	1%	1,100 ^f	1,900 ^f	370 ^f	28,000 ^f	3,800 ^f	7,800 ^f
Aromatic							
EC5-7(benzene as non-threshold)	2.5%	140	690	27	46,000 (2,260) ^{sol}	56,000	84,000 (2,260) ^{sol}
EC>7-8(toluene)	2.5%	290	1,800	51	110,000 (1,920) ^{sol}	56,000	95,000 (1,920) ^{sol}
EC>8-10	2.5%	83	110	21	8,100 (1,500) ^{vap}	5,000	8,500 (1,500) ^{vap}
EC>10-12	2.5%	180	590	31	28,000 (899) ^{sol}	5,000	9,700 (899) ^{sol}
EC>12-16	2.5%	330	2,300 (419) ^{sol}	57	37,000	5,100	10,000
EC>16-21	2.5%	540 ^f	1,900 ^f	110 ^f	28,000 ^f	3,800 ^f	7,700 ^f
EC>21-35	2.5%	1,500 ^f	1,900 ^f	820 ^f	28,000 ^f	3,800 ^f	7,800 ^f
EC>35-44	2.5%	1,500 ^f	1,900 ^f	820 ^f	28,000 ^f	3,800 ^f	7,800 ^f
Aromatic							
EC5-7(benzene as non-threshold)	6%	300	1,400	57	86,000 (4,710) ^{sol}	56,000	92,000 (4,710) ^{sol}
EC>7-8(toluene)	6%	660	3,900	120	180,000 (4,360) ^{vap}	56,000	100,000 (4,360) ^{vap}
EC>8-10	6%	190	270	51	17,000 (3,580) ^{vap}	5,000	9,300 (3,580) ^{vap}
EC>10-12	6%	380	1,200	4	34,000 (2,150) ^{sol}	5,000	10,000
EC>12-16	6%	660	2,500	130	38,000	5,100	10,000
EC>16-21	6%	930 ^f	1,900 ^f	260 ^f	28,000 ^f	3,800 ^f	7,800 ^f
EC>21-35	6%	1,700 ^f	1,900 ^f	1,600 ^f	28,000 ^f	3,800 ^f	7,900 ^f
EC>35-44	6%	1,700 ^f	1,900 ^f	1,600 ^f	28,000 ^f	3,800 ^f	7,900 ^f
Aliphatic +Aromatic >EC44	1%	1,600 ^f	1,900 ^f	1,200 ^f	28,000 ^f	3,800 ^f	7,800 ^f
	2.5%	1,800 ^f	1,900 ^f	2,100 ^f	28,000 ^f	3,800 ^f	7,800 ^f
	6%	1,900 ^f	1,900 ^f	3,000 ^f	28,000 ^f	3,800 ^f	7,900 ^f

NOTES

^{sol/vap} = solubility / vapour limit (potentially use if free product identified, although highly conservative).

^f = oral, dermal and inhalation exposures compared to oral HCV.

All GAC are based on sandy loam soils with a pH 7.

LQM Generic Assessment Criteria (mg/kg) Dry weight soil

Contaminant		SOM	Res +	Res -	Allot.	Comm.	POS _{resi}	POS _{park}
Chloroalkanes and Alkenes & Explosives	1,2 Dichloroethane (DCA)	1%	7.1E-03	9.2E-03	4.6E-03	0.67	29	21
		2.5%	1.1E-02	1.3E-02	8.3E-03	0.97	29	24
		6%	1.9E-02	2.3E-02	1.6E-02	1.7	29	28
	1,1,1 Trichloroethane (TCA)	1%	8.8	9.0	48	660	140,000	57,000 (1,425) ^{vap}
		2.5%	18	18	110	1,300	140,000	76,000 (2,915) ^{vap}
		6%	39	40	240	3,000	140,000	100,000 (6,392) ^{vap}
	1,1,2,2-Tetrachloroethanes (PCA)	1%	1.6	3.9	0.41	270	1,400	1,800
		2.5%	3.4	8.0	0.89	550	1,400	2,100
		6%	7.5	17	2.0	1,100	1,400	2,300
	1,1,1,2-Tetrachloroethanes (PCA)	1%	1.2	1.5	0.79	110	1,400	1,500
		2.5%	2.8	3.5	1.9	250	1,400	1,800
		6%	6.4	8.2	4.4	560	1,400	2,100
	Tetrachloroethene (PCE)	1%	0.18	0.18	0.65	19	1,400	810 (424) ^{sol}
		2.5%	0.39	0.40	1.5	42	1,400	1,100 (951) ^{sol}
		6%	0.90	0.92	3.6	95	1,400	1,500
	Tetrachloromethane (carbon tetrachloride)	1%	2.6E-02	2.6E-02	0.45	2.9	890	190
		2.5%	5.6E-02	5.6E-02	1.0	6.3	920	270
		6%	0.13	0.13	2.4	14	950	400
	Trichloroethene (TCE)	1%	1.6E-02	1.7E-02	4.1E-02	1.2	120	70
		2.5%	3.4E-02	3.6E-02	9.1E-02	2.6	120	91
6%		7.5E-02	8.0E-02	0.21	5.7	120	120	
Trichloromethane (chloroform)	1%	0.91	1.2	0.42	99	2,500	2,600	
	2.5%	1.7	2.1	0.83	170	2,500	2,800	
	6%	3.4	4.2	1.7	350	2,500	3,100	
Chloroethene (vinyl chloride)	1%	6.4E-04	7.7E-04	5.5E-04	5.9E-02	3.5	4.8	
	2.5%	8.7E-04	1.0E-03	1.0E-03	7.7E-02	3.5	5.0	
	6%	1.4E-03	1.5E-03	1.8E-03	0.12	3.5	5.4	
2,4,6-Trinitrotoluene (TNT)	1%	1.6	65	0.24	1,000	130	260	
	2.5%	3.7	66	0.58	1,000	130	270	
	6%	8.1	66	1.4	1,000	130	270	
RDX	1%	120	13,000	17	210,000	26,000	49,000 (18.7) ^{sol}	
	2.5%	250	13,000	38	210,000	26,000	51,000	
	6%	540	13,000	85	210,000	27,000	53,000	
HMX	1%	5.7	6,700	0.86	110,000	13,000	23,000 (0.35) ^{vap}	
	2.5%	13	6,700	1.9	110,000	13,000	23,000 (0.39) ^{vap}	
	6%	26	6,700	3.9	110,000	13,000	24,000 (0.48) ^{vap}	
Pesticides	Aldrin	1%	5.7	7.3	3.2	170	18	30
		2.5%	6.6	7.4	6.1	170	18	31
		6%	7.1	7.5	9.8	170	18	31
	Dieldrin	1%	0.97	7.0	0.17	170	18	30
		2.5%	2.0	7.3	0.41	170	18	30
		6%	3.5	7.4	0.96	170	18	31
	Atrazine	1%	3.3	610	0.5	9,300	1,200	2,300
		2.5%	7.8	620	1.2	9,400	1,200	2,400
		6%	17.4	620	2.7	9,400	1,200	2,400
	Dichlorvos	1%	3.2E-02	6.4	4.9E-03	140	16	26
		2.5%	6.6E-02	6.5	1.0E-02	140	16	26
		6%	0.14	6.6	2.2E-02	140	16	27
	Endosulfans (2 isomers)	1%	7.4	160 (3.0E-03) ^{vap}	1.2	5,600 (3.0E-03) ^{vap}	1,200	2,300
		2.5%	18	280 (7.0E-03) ^{vap}	2.9	7,400 (7.0E-03) ^{vap}	1,200	2,400
		6%	41	410 (1.6E-02) ^{vap}	6.8	8,400 (1.6E-02) ^{vap}	1,200	2,500
Hexachlorocyclohexane (3 isomers), inc Lindane	1%	8.5E-02	3.7	1.3E-02	65	8.1	15	
	2.5%	0.2	3.8	3.2E-02	65	8.1	15	
	6%	0.46	3.8	7.7E-02	65	8.1	16	

NOTES

^{sol} / ^{vap} = solubility / vapour limit (potentially use if free product identified, although highly conservative).

All GAC are based on sandy loam soils with a pH 7.

LQM Generic Assessment Criteria (mg/kg) Dry weight soil

Contaminant		SOM	Res +	Res -	Allot.	Comm.	POS _{resi}	POS _{park}
Chlorobenzenes	Chlorobenzene	1%	0.46	0.46	5.9	56	11,000	1,300 (675) ^{sol}
		2.5%	1.0	1.0	14	130	13,000	2,000 (1,520) ^{sol}
		6%	2.4	2.4	32	290	14,000	2,900
	Dichlorobenzenes (3 isomers)	1%	23	24	94	2,000 (571) ^{sol}	90,000	24,000 (571) ^{sol}
		2.5%	55	57	230	4,800 (1,370) ^{sol}	95,000	36,000 (1,370) ^{sol}
		6%	130	130	540	11,000 (3,240) ^{sol}	98,000	51,000 (3,270) ^{sol}
	Trichlorobenzenes (3 isomers)	1%	2.6	2.6	55	220	15,000	1,700 (318) ^{vap}
		2.5%	6.4	6.4	140	530	17,000	2,600 (786) ^{vap}
		6%	15	15	320	1,300	19,000	4,000 (1,880) ^{vap}
	Tetrachlorobenzenes (3 isomers)	1%	0.66	0.75	0.38	49 (39.4) ^{vap}	78	110 (39) ^{vap}
		2.5%	1.6	1.9	0.90	120 (98.1) ^{vap}	79	120
		6%	3.7	4.3	2.2	240 (235) ^{vap}	79	130
	Pentachlorobenzene	1%	5.8	19	1.2	640 (43.0) ^{sol}	100	190
		2.5%	12	30	3.1	770 (107) ^{sol}	100	190
		6%	22	38	7.0	830	100	190
Hexachlorobenzene	1%	1.8 (0.20) ^{vap}	4.1 (0.20) ^{vap}	0.47	110 (0.20) ^{vap}	16	30	
	2.5%	3.3 (0.50) ^{vap}	5.7 (0.50) ^{vap}	1.1	120	16	30	
	6%	4.9	6.7 (1.2) ^{vap}	2.5	120	16	30	
Chlorophenol	Chlorophenols (4 congeners)	1%	0.87 ^g	94	0.13 ^g	3,500	620	1,100
		2.5%	2.0	150	0.30	4,000	620	1,100
		6%	4.5	210	0.70	4,300	620	1,100
	Pentachlorophenol	1%	0.22	27 (16.4) ^{vap}	3.0E-02	400	60	110
		2.5%	0.52	29	8.0E-02	400	60	120
		6%	1.2	31	0.19	400	60	120
Others	Carbon Disulphide	1%	0.14	0.14	4.8	11	11,000	1,300
		2.5%	0.29	0.29	10	22	11,000	1,900
		6%	0.62	0.62	23	47	11,000	2,700
	Hexachlorobutadiene	1%	0.29	0.32	0.25	31	25	48
		2.5%	0.7	0.78	0.61	66	25	50
		6%	1.6	1.8	1.4	120	25	51
	Phenol	1%	280	750	66	760 ^{dir} (31,000)	760 ^{dir} (11,000)	760 ^{dir} (8,600)
		2.5%	550	1,300	140	1,500 ^{dir} (35,000)	1,500 ^{dir} (11,000)	1,500 ^{dir} (9,700)
		6%	1,100	2,300	280	3,200 ^{dir} (37,000)	3,200 ^{dir} (11,000)	3,200 ^{dir} (11,000)

NOTES

^{sol/vap} = solubility / vapour limit (potentially use if free product identified, although highly conservative).

^{dir} = S4uls based on threshold protective of direct skin contact with phenol (brackets long term exposure for illustration purposes).

^g = derived based on 2,3,4,6-tetrachlorophenol.

Appendix D

JIWG Output Sheets

Decision Support Tool for Receptor Risk Ranking

Stage 1		Score
Hazard Identification		
Select ACM type (run model for each type to generate 'Worst Case' output)	Free dispersed fibres/fibre bundles	2
Extent of degradation of ACMs	Disaggregated (dominated by loose fibrous material; extreme degradation in ACM and/or free asbestos fibres/fibre bundles)	4
Friability and degree of bonding by matrix (ACM matrix, not ground materials)	Friable ACM or ACM with fibres not linked in any matrix (free dispersed fibres/fibre bundles)	4
Distribution of Visible Asbestos Across Affected Area	Occasional/random occurrences of visible contamination by ACMs	1
Asbestos fibre type	Mainly amphibole and chrysotile mixtures, including trace crocidolite	2
Sub-total		13
Hazard ranking		Medium

No warranty, expressed or implied, or reliance, is provided in relation to the use of this tool.
It is contingent on users to satisfy themselves that the output from the tool is relevant and appropriate to the assessment being made.

Stage 2		
Emission Factors	Score	
Amount of asbestos fibre in selected ACM/fibre type as % of host material	Large quantities - ≥ 0.1 %wt/wt	4
Respirable fibre index for ACM - RIVM report 711701034 (2003)	Medium	3
Activity type and effect on deterioration of ACMs	Moderate disturbance, slight deterioration expected	3
Best description of primary host material matrix	Coarse to Fine Sand	2
Sub-total		12
Exposure ranking		Medium

Stage 3		Score
Pathway and Receptor Sensitivity		
Receptor category	Residential	No score required
Age of Receptor	Infant (under 5)	4
Duration of exposure/site occupancy	>> 10 hours per day (e.g. 24 hour residential exposure)	4
Receptor ranking		8 High
Combined hazard, exposure and receptor ranking		Medium
Pathway: Distance of Receptor from Source	In or within 10m of area of disturbance	4
Pathway: Depth to impacted material	Material present near the surface, potential to be disturbed during non-construction/routine use of land	D
Pathway ranking		4D Medium
Overall ranking		Medium

Project Reference	
Site Name	LKC 19 1024 Fairfield Road, Droylsden
Client	Droylsden Properties Ltd
Run by	Ella Mcleod
Date	21-Mar-22
Reviewed by	C Baranek
Characterisation of scenario being evaluated	Moderate disturbance used due to uncertainty in earthworks / material movement at the site. Assessment based on no remediation (no environmental cover system - material present close to the surface).
Interpretation of scenario ranking by DST	Medium Risk - Remediation Required.

Decision Support Tool for Receptor Risk Ranking

Stage 1		Score
Hazard Identification		
Select ACM type (run model for each type to generate 'Worst Case' output)	Free dispersed fibres/fibre bundles	2
Extent of degradation of ACMs	Disaggregated (dominated by loose fibrous material; extreme degradation in ACM and/or free asbestos fibres/fibre bundles)	4
Friability and degree of bonding by matrix (ACM matrix, not ground materials)	Friable ACM or ACM with fibres not linked in any matrix (free dispersed fibres/fibre bundles)	4
Distribution of Visible Asbestos Across Affected Area	Occasional/random occurrences of visible contamination by ACMs	1
Asbestos fibre type	Mainly amphibole and chrysotile mixtures, including trace crocidolite	2
Sub-total		13
Hazard ranking		Medium

No warranty, expressed or implied, or reliance, is provided in relation to the use of this tool.
It is contingent on users to satisfy themselves that the output from the tool is relevant and appropriate to the assessment being made.

Stage 2		
Emission Factors	Score	
Amount of asbestos fibre in selected ACM/fibre type as % of host material	Large quantities - ≥ 0.1 %wt/wt	4
Respirable fibre index for ACM - RIVM report 711701034 (2003)	Medium	3
Activity type and effect on deterioration of ACMs	Moderate disturbance, slight deterioration expected	3
Best description of primary host material matrix	Coarse to Fine Sand	2
Sub-total		12
Exposure ranking		Medium

Stage 3		Score
Pathway and Receptor Sensitivity		
Receptor category	Residential	No score required
Age of Receptor	Infant (under 5)	4
Duration of exposure/site occupancy	>> 10 hours per day (e.g. 24 hour residential exposure)	4
Receptor ranking		8 High
Combined hazard, exposure and receptor ranking		Medium
Pathway: Distance of Receptor from Source	In or within 10m of area of disturbance	4
Pathway: Depth to impacted material	Material buried at depth, unlikely to be disturbed except for deeper construction related excavation	B
Pathway ranking		4B Very Low
Overall ranking		Very Low

Project Reference	
Site Name	LKC 20 1761 Fairfield Road, Droyslden
Client	J Greenwood (Builders) Ltd
Run by	E Mcleod
Date	22-Aug-23
Reviewed by	C Baranek
Characterisation of scenario being evaluated	Moderate disturbance used due to uncertainties in earthworks / material movement at the site. Assessment based on remediation (environmental cover system - material buried at depth).
Interpretation of scenario ranking by DST	Very low risk assuming environmental cover system.

Decision Support Tool for Receptor Risk Ranking

Stage 1		Score
Hazard Identification		
Select ACM type (run model for each type to generate 'Worst Case' output)	Free dispersed fibres/fibre bundles	2
Extent of degradation of ACMs	Disaggregated (dominated by loose fibrous material; extreme degradation in ACM and/or free asbestos fibres/fibre bundles)	4
Friability and degree of bonding by matrix (ACM matrix, not ground materials)	Friable ACM or ACM with fibres not linked in any matrix (free dispersed fibres/fibre bundles)	4
Distribution of Visible Asbestos Across Affected Area	No visible ACMs/fibre bundles	0
Asbestos fibre type	Chrysotile alone	0
Sub-total		10
Hazard ranking		Low

No warranty, expressed or implied, or reliance, is provided in relation to the use of this tool.
It is contingent on users to satisfy themselves that the output from the tool is relevant and appropriate to the assessment being made.

Stage 2		
Emission Factors	Score	
Amount of asbestos fibre in selected ACM/fibre type as % of host material	Low quantities - >0.01 to <0.05 %wt/wt	2
Respirable fibre index for ACM - RIVM report 711701034 (2003)	Medium	3
Activity type and effect on deterioration of ACMs	Minimal disturbance, no deterioration expected	1
Best description of primary host material matrix	Coarse to Fine Sand	2
Sub-total		8
Exposure ranking		Low

Stage 3		Score
Pathway and Receptor Sensitivity		
Receptor category	Residential	No score required
Age of Receptor	Infant (under 5)	4
Duration of exposure/site occupancy	>> 10 hours per day (e.g. 24 hour residential exposure)	4
Receptor ranking		8 High
Combined hazard, exposure and receptor ranking		Medium
Pathway: Distance of Receptor from Source	In or within 10m of area of disturbance	4
Pathway: Depth to impacted material	Material buried at shallow depth, potential to be disturbed by excavation	C
Pathway ranking		4C Low
Overall ranking		Low

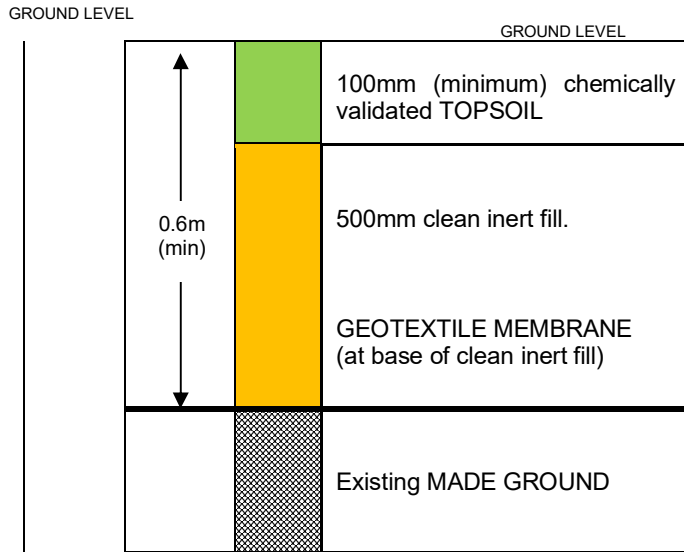
Project Reference	
Site Name	LKC 20 1761 Fairfield Road, Droylsden
Client	J Greenwood (Builders) Ltd
Run by	C Baranek
Date	3rd August 2022
Reviewed by	P Quimby
Characterisation of scenario being evaluated	TPO area (rear gardens of Plots 37-42) - limited environmental cover system.
Interpretation of scenario ranking by DST	Low risk. Remediation considered appropriate.

Appendix E

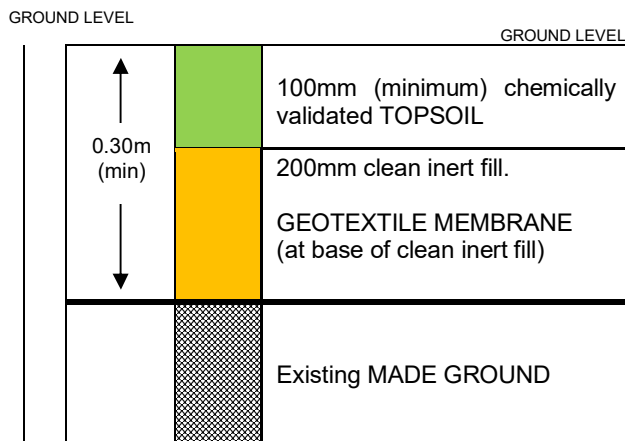
Environmental Cover System Construction

Private Gardens
Shared Landscaping
TPO Areas

PRIVATE BACK GARDENS:



PRIVATE FRONT GARDENS / SHARED LANDSCAPING:



TPO AREAS

Due to TPOs, a full 600mm / 300mm cover will not be possible. It is recommended (in the area where the tree roots extend) that the made ground is excavated to the top of the roots, a membrane installed and clean soil replaced up to original levels (minimum of 150mm depth).

HARDSTOOD AREAS

(including paved rear gardens of Plots 52, 53 and 54) – No Remediation Required

Based across the UK with offices in
Manchester, London,
Liverpool, Swindon and Glasgow.

Manchester (Head Office)

Unit 29
Eton Business Park
Eton Hill Rd, Radcliffe
M26 2ZS

t: 0161 763 7200
e: info@thelkgroup.com

Swindon

39 Bowman House Business Centre
Bowman Court
Whitehill Lane
Royal Wootton Bassett
Swindon
SN4 7DB

t: 01793 987 390
e: info@thelkgroup.com

London

Brooklands Business Park
Wellington Way
Weybridge
KT13 0TT

t: 01932 871872
e: info@thelkgroup.com

Glasgow

Wright Business Centre
1 Lonmay Road
Glasgow
G33 4EL

t: 0141 773 6269
e: info@thelkgroup.com

Liverpool

The Corn Exchange
Fenwick Street
Liverpool
L2 7QL

t: 0151 235 8716
e: info@thelkgroup.com



- » Geotechnical
- » Contaminated Land
- » Flood Risk and Drainage
- » Asbestos
- » Invasive Species
- » Land Remediation
- » Project Management
- » Land Drilling