REMEDIATION STRATEGY VERIFICATION REPORT
ECHO ST, MANCHESTER
BOWMER & KIRKLAND
RS-VR-20376K-26-99
JULY 2026

MEREBROOK
CONSULTING



REMEDIATION STRATEGY VERIFICATION REPORT
ECHO ST, MANCHESTER
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BOWMER & KIRKLAND
RS-VR-20376K-26-99
JULY 2026

Document Issue Record

Status	Final	Date of Issue	26/06/2026

Prepared by		Approved by
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Rev	Prepared	Approved	Date of Issue	Reason(s) for Revision
0	LEH	AFJ	11/03/2026	
1	LEH	AFJ	26/06/2026	Updated with imported soils

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SECTION 1 INTRODUCTION

1.1 Bowmer & Kirkland (B&K) have redeveloped an area of brownfield land located at Echo St, Manchester, M1 3QJ. The development comprises Purpose Built Student Accommodation (PBSA). The planning conditions are under Manchester City Council, planning ref: 136874/FO/2023.

1.2 A site location plan (ref: ECHO SRA ZS XX DR A 02001 Rev P02) and the existing site layout (ref: ECHO SRA ZS XX DR A 02002 Rev P02) can be found in Appendix 1.

1.3 Merebrook Consulting Ltd (Merebrook) were commissioned by B&K to undertake validation sampling and prepare a Remediation Strategy Validation Report in support of the planning permission.

1.4 A Remediation Strategy (RS) was prepared by Curtins (Ref: 065374-CUR-00-XX-RP-GE-80004-P03) in April 2023, which set out the principles and measures required to remediate the site and provide a platform on which construction of the development could commence.

1.5 The following reports have been provided for review and informed the Remediation Strategy:

i. Curtins, Echo Street, Phase 2 Site Investigation, Report Ref: 065374-CUR-00-XX-RP-GE-80002-P03, Dated: April 2023

ii. Curtins, Echo Street, Phase 2 Additional Ground Investigation, Report Ref: 065374-CUR-00-XX-RP-GE-8003-P03, Dated: April 2023

iii. Curtins, Echo Street, Manchester – Underground Storage Tank Removal Verification, Report Ref: 65347-CUR-00-XX-RP-GE-004-V01_Tank Removal

iv. 1st Line Defence, Report on Unexploded Ordnance (UXO) Intrusive Magnetometer Survey, Ref: OPN4989C, Dated: March 2020

v. Merebrook Consulting Ltd (formerly IDOM), Echo Street, Asbestos Management Plan, Report Ref: AMP-TBC-20-105, Dated: March 2020

1.6 This report presents the validation data to demonstrate that remediation has been completed in accordance with the approved RS.

1.7 Since Merebrook began on the Echo Street project under the instruction of Vinci, the company name has changed from IDOM to Merebrook Consulting Ltd.

1.8 This report has been prepared for B&K for the sole purpose described above and no extended duty of care to any third party is implied or offered. Third parties making reference to the report should consult B&K and Merebrook as to the extent to which the findings may be appropriate for their use.

SECTION 2 SITE INFORMATION

2.1 SITE LOCATION AND SETTING

2.1.1 The site is centred on National Grid Reference 384670, 397700 with an area of 0.498Ha.

2.1.2 Due to previous access restrictions, the site was split into five phases on four areas of the proposed site development. The five stages of site are listed below:

i. Stage 1 Chandos Hall Investigation (western portion);

ii. Stage 2 Chandos Hall Additional Works (western portion);

iii. Stage 3 Garages and Nursery Pre-Demolition Investigation (part of the southeast and central

iv. portions);

v. Stage 4 Nursery Post-Demolition Investigation (remainder of the central and eastern portions); and

vi. Stage 5 Viaduct Foundation Inspection (southern boundary)

2.1.3 At the time of the Phase 1 Preliminary Risk assessment walkover, the site sloped from an elevation of approximately 41.00m AOD in the east, to approximately 38.43m AOD in the west, a retaining wall separated the higher eastern (nursery and garages) portion of the site from the lower western (residential) portion.

2.1.4 The site is bounded to the north by Granby Row and Lambert House residential apartments, to the east by Echo Street and retail units, a railway line (viaduct) abuts the southern boundary of the site with Altrincham Street beyond, and to the west by Vimto Park.

2.2 SITE HISTORY

2.2.1 The earliest available historical maps, dating from the late 19th century, indicate that the majority of the site was occupied by industrial and commercial premises, including a printing works, battery repair facility and a window cleaner's workshop. The surrounding area featured London Road Railway Station approximately 100 m to the northeast and a fire engine station around 90 m to the north. By the mid to late 20th century, substantial demolition had taken place on the site, followed by the construction of a depot/garage with an underground petrol tank in the northeast, Chandos Hall in the west and additional garages in the southeast. Between the 1990s and 2017, the depot/garage was converted into a nursery.

2.2.2 The conceptual site model determined that possible sources of contamination included sources from the historical land uses on the site including oil / fuel spillages and made ground / demolition materials from the former uses.

2.2 When the project commenced around 2019/2020, the works were being undertaken by Vinci Construction Ltd (Vinci). However, due to unforeseen circumstances, Vinci were unable to continue, and responsibility for the project was subsequently transferred to B&K, who began work on site in October 2023.

2.3 The early stages of the groundworks coincided with the COVID-19 pandemic, which meant that site visits were restricted in line with the national limitations in place at the time.

2.1.1 At the point where B&K took over the project and began their groundworks, the demolition of existing buildings and excavations for the levels had already been completed along with the piling. B&K began on site by digging the pile caps.

2.2 UNEXPLODED ORDNANCE (UXO)

2.2.1 The UXO mapping designated the site as moderate risk. As part of the work carried out by Vinci, a UXO intrusive magnetometer survey was carried out by 1st Line Defence.

2.2.2 The survey was carried out across the 'medium risk area' which included surveying of 100 positions. There was no evidence to indicate the presence of WWII German high explosive bombs of 50kg and above.

2.3 SUMMARY OF CONTAMINATION – SOILS

2.3.1 The results of the soil chemical analysis were screened against the Generic Assessment Criteria (GACs) for a residential without home grown produce end use as this is relevant to the student accommodation. In the areas across site where a basement is planned for plant and storage, a commercial end use was deemed to be more applicable.

2.3.2 When comparing the results against residential without homegrown produce GACs there are a large number of exceedances for the following contaminants:

i. Polycyclic Aromatic Hydrocarbons (PAHs): dibenzo(ah)Anthracene, benzo(a)Pyrene, benzo(a)Anthracene, chrysene, benzo(b)Fluoranthene, naphthalene

ii. Heavy Metals: arsenic, lead

iii. Total Petroleum Hydrocarbons (TPH): Aliphatic C8-C16 and aromatic C8-C35

iv. Benzene: BH03 at 0.3 – 0.4 m bgl

v. Asbestos: Asbestos containing materials (ACMs) were identified in TP202 at 0.72m bgl within the Made Ground as an asbestos tile. Asbestos loose fibres were identified in within TP201 at 0.45m bgl.

2.3.3 Most of the exceedances relate to non-volatile PAHs and heavy metals. Isolated exceedances of volatile contaminants - benzene in TP207 and TPH Aliphatic C8–C10 in BH03 - were discounted on the basis that they were limited in both vertical and lateral extent. In addition, ground levels in these areas have since been significantly reduced to accommodate the proposed basement. Given that the basement end use is more comparable to a Commercial scenario, and that the recorded concentrations were well below the relevant Commercial GACs, these isolated exceedances are not considered to present a significant risk.

2.3.4 The naphthalene exceedance was recorded in TP215 at 1.50m bgl. The soils in this area were removed and validated as part of the removal of the Underground Storage Tanks as discussed in Section 4.1 below.

2.3.5 The asbestos was found as both bulk ACMs and as loose fibres. Curtins recommended the production of an Asbestos Management Plan (AMP) for the works.

2.4 SUMMARY OF CONTAMINATION – GROUND GAS

2.4.1 An initial monitoring regime of six visits over three months was carried out by Curtins between 26th January and 3rd April 2018.

2.4.2 Gas monitoring results recorded a maximum carbon dioxide concentration of 2.4% v/v and a maximum flow of 6.4 l/hr. Concentrations of methane were consistently below 0.1% v/v in all monitoring wells. The risk to the end-user of the development site from soil gases is therefore considered to be Low. The gas regime for the site is CS1, which does not require gas protection measures.

SECTION 3 REMEDIATION STRATEGY

3.1 SUMMARY OF REMEDIATION REQUIREMENTS

3.1.1 This report provides verification that the remediation requirements set out in the Remediation Strategy have been implemented and achieved. Evidence is presented to demonstrate compliance with enabling works, management of previously unidentified contamination, human health risk mitigation measures, environmental and worker protection controls, and adherence to specifications for pipe materials.

3.1.2 The Curtins report outlined three remedial actions as follows:

i. *Remedial Action 1: Appropriate PPE for all construction workers and suitable asbestos management measures;*

ii. *Remedial Action 2: Engineered capping to serve as physical barrier between Made Ground and site surface; and*

iii. *Remedial Action 3: Ensure suitable water supply pipes are used on site.*

3.1.3 As part of Remedial Action one, Merebrook produced an AMP for Vinci in March 2020. Recommendations made for asbestos management on site included:

i. Good site hygiene

ii. PPE to include: minimum glove, safety boots, hard hat and hi-visibility clothing

iii. Damping down where appropriate to avoid dust generation

iv. Washing down of vehicles to avoid mud transfer to highways

v. Management of stockpiles to prevent dust generation / fibre release

vi. Visual assessments for any ACMs during site work

3.1.4 Remedial Action two refers to the implementation of a clean cover system in areas of soft landscaping. As there is no soft landscaping as such, only planting beds on hardstanding. There is no requirement for a clean cover system on site. Soils used within planting beds will still require confirmation that they will not pose a risk to the end user.

3.1.5 The requirement for a barrier pipe was indicated as part of Remedial Action three due to the presence of PAHs and TPHs within the soils.

3.2 ASBESTOS MANAGEMENT

3.2.1 Prior to commencement of the reduced level dig, the Project Lead was briefed on key contamination indicators and the procedures to follow should any be identified. Throughout the works, the Site Supervisor maintained a watching brief, and no visual evidence of ACMs was observed or reported during the excavations.

3.2.2 During the ground works Merebrook attended site on 13 March, 18 March and 22 May 2020. Merebrook did not note any evidence of ACMs whilst carrying out watching briefs.

3.2.3 Merebrook also noted that Vinci were carrying out the asbestos management recommendations set out in the AMP.

3.2.4 The Merebrook site diaries can be found in Appendix 2.

3.3 PLANTING SOILS VALIDATION

3.3.1 The planting proposed on site does not form part of a clean cover system, and there is no general soft landscaping, only discrete raised planting beds and tree pits. As these planting beds will be positioned directly on the hardstanding, a clean cover system is not required. The soils imported for use within the planting beds should comply with the residential without homegrown produce GACs for the intended end use.

3.3.2 A Merebrook Engineer attended site on 02 June 2026 and took three samples from the topsoil within the planting beds. The samples were tested in a UKAS/MCERTS accredited laboratory for analysis of inter alia the following determinands (soil) includes:

Arsenic	*Selenium*	*pH*
Cadmium	*Copper*	*Sulphate Water Soluble*
Chromium III	*Nickel*	*Mercury*
Chromium VI	*Zinc*	*PAHs*
Lead	*Vanadium*	*Phenols Monohydric*
TOC	*Organic Matter*	*TPH CWG inc. BTEX & MTBE*
Barium	*Asbestos*	

3.3.3 The topsoil was imported from SED Bryn Hall, Bryn Hall Farm, Wigan, WN2 5JY who are a topsoil manufacturer. The client provided certificates of analysis are also provided in Appendix 4 (refs: 26-00863-2-S6 (1) and 35357).

3.3.4 The chemical analysis results are provided in Appendix 4 of this report (i2 laboratory report number: 26-029458).

3.3.5 The required acceptance criteria for material used in the clean cover system is set out in the RS. The criteria are derived from Suitable for Use Levels (S4ULs) published in 2015 by LQM/CIEH for residential use without home grown produce and are also suitable to sustain healthy plant growth. Merebrook have screened the chemical analysis results which are summarised in Table 1 below:

Table 1: Screening of results against residential with home grown produce GACs

CONTAMINANT	N	LOD	MIN	MAX	MEAN	SCREENING LEVEL (SL)	No. > SL
		(mg.kg^{-1} unless stated)					
HUMAN HEALTH RISK ASSESSMENT							
Asbestos in soil (% w/w)	3	0.0001	nd	nd	-	Detected	0
pH (pH units)	3	N/A	7.9	8.2	8.1	5 – 9	0
Arsenic	3	1	8.4	9.5	9.1	40	0
Barium	3	1	58.0	85.0	70.3	1300	0
Cadmium	3	0.2	0.3	0.3	0.3	85	0
Chromium (III)	3	1	14.0	20.0	16.7	910	0
Hexavalent Chromium	3	1.8	1.8	1.8	1.8	6	0
Lead	3	1	48.0	65.0	56.3	310	0
Mercury	3	0.3	0.3	0.3	0.3	56	0
Nickel	3	1	11.0	17.0	13.0	180	0
Selenium	3	1	1.0	1.0	1.0	430	0
Vanadium	3	1	18.0	22.0	19.3	1200	0

CONTAMINANT	N	LOD	MIN	MAX	MEAN	SCREENING LEVEL (SL)	No. > SL
		(mg.kg^{-1} unless stated)					
TPH Aliphatic >EC_5 - EC_6	3	0.01	0.010	0.010	0.010	78	0
TPH Aliphatic >EC_6 - EC_8	3	0.01	0.010	0.010	0.010	230	0
TPH Aliphatic >EC_8 - EC_{10}	3	0.01	0.010	0.010	0.010	65	0
TPH Aliphatic >EC_{10} - EC_{12}	3	1	1.00	1.00	1.00	330	0
TPH Aliphatic >EC_{12} - EC_{16}	3	2	2.00	2.00	2.00	2400	0
TPH Aliphatic >EC_{16} - EC_{21}	3	8	8.00	8.00	8.00	92000	0
TPH Aliphatic >EC_{21} - EC_{35}	3	8	19.00	37.00	27.33	92000	0
TPH Aromatic >EC_5 - EC_7	3	0.01	0.010	0.010	0.010	690	0
TPH Aromatic >EC_7 - EC_8	3	0.01	0.010	0.010	0.010	1800	0
TPH Aromatic >EC_8 - EC_{10}	3	0.02	0.020	0.020	0.020	110	0
TPH Aromatic >EC_{10} - EC_{12}	3	1	1.00	1.00	1.00	590	0
TPH Aromatic >EC_{12} - EC_{16}	3	2	2.00	2.00	2.00	2300	0
TPH Aromatic >EC_{16} - EC_{21}	3	10	10.00	10.00	10.00	1900	0
TPH Aromatic >EC_{21} - EC_{35}	3	10	10.00	24.00	17.67	1900	0
Benzene	3	0.005	0.005	0.005	0.005	0.7	0
Toluene	3	0.005	0.005	0.005	0.005	1900	0
Ethylbenzene	3	0.005	0.005	0.005	0.005	190	0
Xylene (total p,m and o)	3	0.013	0.013	0.013	0.013	180	0
Naphthalene	3	0.05	0.05	0.07	0.06	5.6	0
Acenaphthylene	3	0.05	0.05	0.05	0.05	4600	0
Acenaphthene	3	0.05	0.05	0.06	0.05	4700	0
Fluorene	3	0.05	0.05	0.05	0.05	3800	0
Phenanthrene	3	0.05	0.10	0.60	0.27	1500	0
Anthracene	3	0.05	0.05	0.16	0.09	35000	0
Fluoranthene	3	0.05	0.25	1.60	0.75	1600	0
Pyrene	3	0.05	0.21	1.50	0.69	3800	0
Benzo(a)anthracene	3	0.05	0.13	0.51	0.27	14	0
Chrysene	3	0.05	0.12	0.58	0.30	31	0
Benzo(b)fluoranthene	3	0.05	0.14	0.68	0.37	4	0
Benzo(k)fluoranthene	3	0.05	0.08	0.26	0.15	110	0
Benzo(a)pyrene	3	0.05	0.10	0.48	0.26	3.2	0
Indeno(1,2,3-c,d)pyrene	3	0.05	0.07	0.30	0.17	46	0
Dibenzo(a,h)anthracene	3	0.05	0.05	0.05	0.05	0.32	0
Benzo(g,h,i)perylene	3	0.05	0.07	0.34	0.19	360	0
Phenol	3	1	1.0	1.0	1.0	690	0
PHYTOTOXICITY RISK ASSESSMENT							

CONTAMINANT	N	LOD	MIN	MAX	MEAN	SCREENING LEVEL (SL)	No. > SL
		(mg.kg^{-1} unless stated)					
Copper	3	1	30.0	37.0	34.3	200	0
Nickel	3	1	11.0	17.0	13.0	110	0
Zinc	3	1	99.0	130.0	116.3	300	0

Notes

nd - not detected

below laboratory limit of detection
LOD used as surrogate for analysis and risk assessment

3.3.6 The table above shows that there are no exceedances of the screening criteria.

3.3.7 The drawing named 'Tree Pit and Soiling Plan' (ref: 63073-PLA-ZZ-ZZ-DR-L-2002 Rev C02) is provided in Appendix 1.

3.4 WATER SERVICE PIPES

3.4.1 Merebrook have been informed that a standard PE pipe has been installed at the site. This is due to the cut levels removing the contaminated soils and the pipes were installed into fill material.

SECTION 4 UNEXPECTED CONTAMINATION

4.1 UNDERGROUND STORAGE TANKS (USTS)

4.1.1 In July 2019 two USTs were identified in the area of the former nursery; both tanks were adjacent. Curtins supervised the removal of USTs on 06 August 2019.

4.1.2 The removal of the USTs has been documented in Curtins letter report 'Underground Storage Tank Removal Verification'.

4.1.3 The Curtins letter report is provided in Appendix 3.

4.1.4 The tanks were generally found to be in good condition, contained within a concrete bund. The bund base of the concrete strata was approximately 400mm to 500mm thick. The concrete base was situated on top of the natural clay strata.

4.1.5 During the removal of the tanks and surrounding concrete casing, the engineer noted a slight hydrocarbon odour along with occasional areas of black staining on the concrete.

4.1.6 Once the tanks were removed were placed on polyethene membrane to protect the surrounding soils from leakages of any remaining liquids. No further leakages were observed. They were later put into skips for disposal.

APPENDIX 1 ▪ Drawings



KEY

- DEVELOPMENT BOUNDARY
- NETWORK RAIL OWNERSHIP BOUNDARY
- LAND OWNERSHIP BOUNDARY

TREE PITS & SOILING

- **TREE PLANTING IN RAISED PLANTER**
  - Volumes as shown
  - Minimum soil depth 900mm
- **ORNAMENTAL SHRUB & HERBACEOUS PLANTING IN RAISED PLANTER**
  - Volumes as shown
  - Minimum soil depth 600mm

Notes:
Refer to tree pit details and plangter details:
- 63073-PLA-ZZ-ZZ-DR-L-7011
- 63073-PLA-ZZ-ZZ-DR-L-7012

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NOTES:

1. Do not scale from this drawing.
2. Always work to noted dimensions.
3. All dimensions are in millimetres unless otherwise stated.
4. All setting out, levels and dimensions to be agreed on site.
5. The dimensions of all materials must be checked on site before being laid out.
6. This drawing must be read with the relevant specification clauses and detail drawings.
7. Order of construction and setting out to be agreed on site.

Revision	Date	Description	Drawn	Apprvd.
C02	26/02/26	Full Construction Issue	EK	RM
P07	08/12/25	As indicated	YH	RM
P06	26/11/25	Stage 4 issue updates	AG	YH
P05	14/11/25	Stage 4 issue updates	HX	RM
P04	31/10/25	Stage 4 issue	HX	RM

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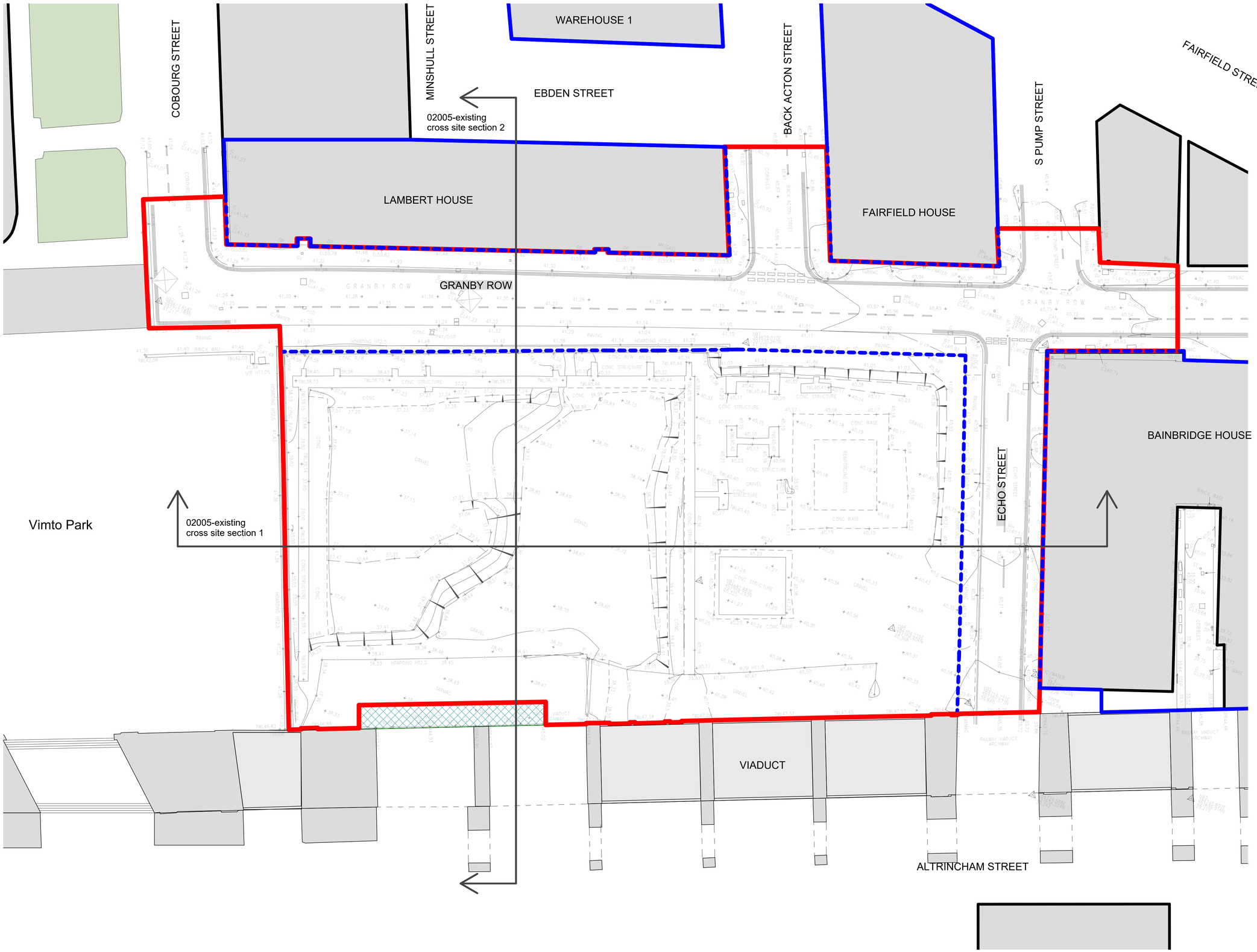
Client	IQ Student Accommodation
Project	Chandos House, Manchester
Drg Title	Tree Pit and Soiling Plan

Created on	Created by	Approved by
02-03-23	YH	RM

Scale	Size	Workstage
1:200	A1	STAGE 4

Drg No.	Suitability	Revision
63073-PLA-ZZ-ZZ-DR-L-2002	S3	C02

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A1

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PLAN KEY

- Site Boundaries
- Planning Application Boundary
- Applicant Ownership
- Network Rail Ownership
- Footprint of Proposed Building (at Ground Floor Level)

REV.	DATE	AMENDMENT
P01	23/03/23	Draft Issue for Planning
P02	14/04/23	Planning Issue

KEYPLAN

CLIENT

iQ Student Accommodation

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PROJECT
Echo Street PBSA

SCALE@A1	DATE	ORIGINATOR	CHECKED	AUTHORISED
As indicated	**14/04/23**	**LA**	**VC**	**RG**

Existing Site Plan with Planning Application Boundaries and Topo Overlay

Stage 2

STATUS	PURPOSE FOR ISSUE	SR NO.
S2	**Planning**	**7054**

DRAWING NO.	REV.
ECHO-SRA-ZS-XX-DR-A-02002	**P02**



Location Plan
1 : 1250

A1

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PLAN KEY

Site Boundaries

Planning Application Boundary

Applicant Ownership

1 Warehouse
2 Warehouse
3 Fairfield Hall
4 Lambert House
5 Bainbridge House
6 Pendulum Hotel & Conference Centre
7 Weston Hall

REV.	DATE	AMENDMENT
P01	23/03/23	Draft Issue for Planning
P02	14/04/23	Planning Issue

KEYPLAN

CLIENT

iQ Student Accommodation

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PROJECT
Echo Street PBSA

SCALE@A1	DATE	ORIGINATOR	CHECKED	AUTHORISED
As indicated	**23/03/23**	**LA**	**VC**	**RG**

Location Plan

Stage 2

STATUS	PURPOSE FOR ISSUE	SR NO.
S2	**Planning**	**7054**

DRAWING NO.	REV.
ECHO-SRA-ZS-XX-DR-A-02001	**P02**



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REV.	DATE	AMENDMENT
P01	13/03/23	Draft Issue for Planning
P02	14/04/23	Planning Issue
P03	26/04/23	Planning Issue (minor updates)
P04	02/05/23	Stage 2 Issue
P05	14/07/23	Updates to windows, metalwork and courtyards

KEYPLAN

CLIENT
iQ Student Accommodation

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PROJECT
Echo Street PBSA

SCALE@A1	DATE	ORIGINATOR	CHECKED	AUTHORISED
1 : 200	14/07/23	LA	VC	RG

Proposed Site Plan with Planning Application Boundary

Stage 3

STATUS	PURPOSE FOR ISSUE	SR NO.
S2	For Planning	7054

DRAWING NO: **ECHO-SRA-ZS-XX-DR-A-02004** REV: **P05**

APPENDIX 2 ▪ Site Diaries

PROJECT	Echo Street		
JOB NUMBER	20376		
DATE	22/05/2020		
RECORDED BY	Ryan Lindsay		
TIME ON SITE	07:15	**TIME OFF SITE**	13:00

SITE OBSERVATIONS / NOTES

PERSONNEL / CONTRACTORS PRESENT
IDOM Merebrook - Ryan Lindsay Murraywood – Matt Palmer Vinci Piling contractors

SITE ACTIVITIES
Piling General site tidy up Removal of contamination hotspot

WEATHER
Sunny

KEY OBSERVATIONS

COMMUNICATIONS
Removal of contamination hotspot under IDOM Merebrook supervision. No visual evidence of contamination identified but segregated for Haz-Removal regardless.

KEY PHOTOGRAPHS (see also job folder for all site photos)







PROJECT	Echo Street		
JOB NUMBER	20376		
DATE	18/03/2020		
RECORDED BY	Ryan Lindsay		
TIME ON SITE	07:15	**TIME OFF SITE**	13:00

SITE OBSERVATIONS / NOTES

PERSONNEL / CONTRACTORS PRESENT
IDOM Merebrook- Ryan Lindsay Murraywood – Matt Palmer Vinci Piling contractors

SITE ACTIVITIES
Piling General site tidy up Removal of made ground form site as non-hazardous materials Excavations for pile caps

WEATHER
Dry

KEY OBSERVATIONS

COMMUNICATIONS
Discussion regarding segregation of natural sands from MG during piling and logistics. No contamination issues identified or reported.

KEY PHOTOGRAPHS (see also job folder for all site photos)










WELDEX
WELDEX

PROJECT	Echo Street		
JOB NUMBER	20376		
DATE	22/05/2020		
RECORDED BY	Ryan Lindsay		
TIME ON SITE	11:15	**TIME OFF SITE**	12:15

SITE OBSERVATIONS / NOTES

PERSONNEL / CONTRACTORS PRESENT
IDOM- Ryan Lindsay Murraywood – Matt Palmer Vinci

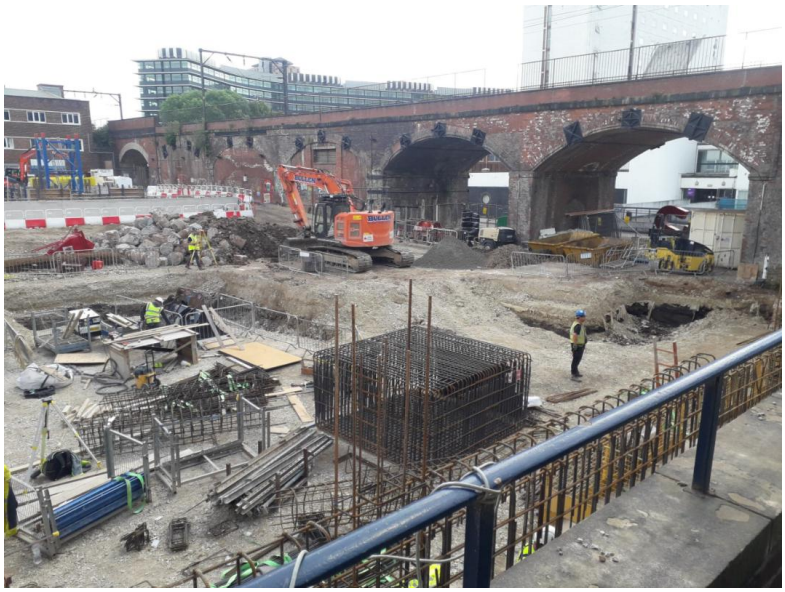
SITE ACTIVITIES
Ongoing construction works – steel fixings etc

WEATHER
Dry

KEY OBSERVATIONS

COMMUNICATIONS
Excavations in area of ex-chandos hall have been ongoing, looking at exposed areas predominantly natural clays with some brick seen just below piling mat membrane. No Asbestos or unexpected contamination encountered. No Issues seen or raised regarding contamination or material movements.

KEY PHOTOGRAPHS (see also job folder for all site photos)













APPENDIX 3 ▪ Tank Removal Report

17-19 Whitworth Street West
Manchester
M1 5WG

t: 0161 236 2394
e: manchester@curtins.com
w: www.curtins.com

Our reference: 65347-CUR-00-XX-RP-GE-004-V01_Tank Removal

27 September 2019

Mr J Atkinson
IQ Student Accommodation
Suite 8a (8th Floor)
Manchester One
53 Portland Street
Manchester
M1 3LD

Dear James,

Re: Echo Street, Manchester – Underground Storage Tank Removal Verification

Introduction

In July 2019, two adjacent Underground Storage Tank (UST) were identified by Connell Brothers at Echo Street, underlying the former nursey in the north east of the site. Curtins were instructed to supervise the removal of the underground tanks.

Connell Brothers indicated the structure had been decommissioned as the top was seen to be filled with concrete. It is assumed that the tank, its surrounding concrete and contents, are being removed, tested and disposed of by another party. This letter report details these verification works.

Curtins attended site on 6th August 2019 in order to:

- Observe the removal of the tanks to inspect their integrity;
- Collect soil samples from within the tank pit excavation to validate soils remaining in-situ;
- Collect soil samples from the material removed around the tank;
- Collect soil samples of the soils temporarily used to backfill the excavation; and
- Collect a photographic record of the tank removal.

Tank Removal

A Curtins engineer attended site on 6th August 2019 to supervise the removal of the two UST undertaken by Connell Brothers, check for any evidence of historical contamination associated with leakages and to collect soil samples from within the tank pit and arisings for laboratory environmental chemistry analysis.

A photographic record of the tank removal works is enclosed within *Attachment A*.

Tank 1 was cynlindrcial in shape, circa 2.4m in length with a diameter of circa 1.5m with an approximate volume of 4.24m^3.

Tank 2 was cynlindrcial in shape, circa 3.5m in length with a diameter of circa 2.1m with an approximate volume of 12.12m^3.

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Registered Office: 51-55 Tithebarn Street, Liverpool, L2 2SB
Branch registered in Ireland No. 908625

The tanks were generally found to be in good condition, contained within a concrete bund. The bund base of the concrete strata was approximately 400mm to 500mm thick. The concrete base was situated on top of the natural clay strata.

During removal of the tanks and concrete casing, a slight hydrocarbon odour and occasional black staining of the concrete was observed by the engineer.

On removal of Tank 1 a small volume of liquids with a slight sheen were observed, on top of the concrete base. The liquids were removed through use of a spill kit before the concrete was broken out.

Tank 2 was broken in situ due to its size to allow removal. A polythene membrane was placed underneath during this process to protect the surrounding soils from leakages of any remaining liquids. No leakages were observed.

Once the tanks were removed were placed on polyethene membrane to protect the surrounding soils from leakages of any remaining liquids. No further leakages were observed. They were later put into skips for disposal.

Upon removal of the tank, surrounding concrete and soils, a visual inspection confirmed the surrounding remaining soils showed no evidence of contamination four soil samples TP601A, TP601B, TP601E and TP601F were collected from the side walls around the tank depths of 3.0 – 3.20m bgl and two soil samples TP601C and TP601D were collected from the base of the excavation at 3.20m bgl. All soil samples were sent to the UKAS accredited laboratory (Envirolab) and analysed for lead, BTEX, TPHs and PAHs for validation to remain in-situ. A sample location plan is presented within *Attachment B* laboratory analytical results presented within *Attachment C.*

Soil samples SP01A – SP01C were collected from the stockpile of material that had been removed from around the tank to verify that the material was suitable for *'Commercial'* use and be returned to the excavation or disposed of off-site. The locations of these samples are presented within *Attachment B*.

Soil samples SP02A - B were taken after the excavation had been temporarily backfilled with material from an adjacent excavation to verify if these materials were suitable for use.. The locations of these samples are presented within *Attachment B*.

Environmental Testing Results

As the site is currently being developed for student accommodation with commercial uses on the ground floor, the environmental chemistry analysis results have been compared against the General Assessment Criteria (GAC) for a *'Residential without Home Grown Produce'* end use (SOM 1%). These can be referred to within *Attachment D* at the end of this report.

No exceedances of the GAC were recorded in any sample and therefore all the soils which were surrounding the tank, underlying soils and soil used to backfill are considered 'suitable for use'. On this basis, no further excavation or delineation is required.

However, it is understood that due to the requirement of a piling mat in the area the soils surrounding the tank and the soils temporarily placed into the excavation have been removed from site with the excavation filled with clean stone (virgin quarried material) to prevent soft spots. The excavated soils have been disposed of off-site.

An initial assessment for the waste classification of the Made Ground and natural soils encountered on site was carried out through a comparison of the soil testing results against Tier 1 Thresholds and

using the Waste Soils Characterisation Assessment Tool. The initial assessment found that each of the soil samples tested have indicated to be non-hazardous with respect to Environment Agency waste classes, under guidance given in WM3.

Construction workers should be provided with appropriate PPE and sanitary facilities with reference to the environmental testing results presented in attachment C.

Conclusions

Curtins have verified the removal of the two UST beneath the former nursey at Echo Street.

The tanks were filled with concrete and appeared to be in relatively good condition with limited evidence of significant historic leakages and spills. On removal of Tank 1 a small volume of liquids with a slight sheen were observed, on top of the concrete base. The liquids were removed through use of a spill kit before the concrete was broken out.

Once the tanks were removed were placed on polyethene membrane to protect the surrounding soils from leakages of any remaining liquids. No further leakages were observed. They were later put into skips for disposal.

Environmental chemistry analysis results for representative soil samples taken from within and around the excavation identified no exceedances against General Assessment Criteria (GAC) for a *'Residential without Home Grown Produce'* end use (SOM 1%). On this basis, these soils are considered suitable for use.

However, it is understood that due to the requirement of a piling mat in the area the soils surrounding the tank and the soils temporarily placed into the excavation have been removed from site with the excavation filled with clean stone to prevent soft spots. The excavated soils have been disposed of off-site.

If you have any queries about the above or the attached documents, please don't hesitate to contact the undersigned.

Yours sincerely,

[redacted]

P Neesham
Geo-Environmental Engineer
For and on behalf of
Curtins Consulting Ltd

Enclosed:

Attachment A – Photographic Record
Attachment B – Drawings
Attachment C – Environmental Chemical Analysis Results
Attachment D – Generic Assessment Criteria

Attachment A – Photographic Record

Photo No: 1	**Description:** Tanks In-Situ



Photo No: 2 & 3	**Description:** Polythene laid out for emplacement of excavation arisings and tanks





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Photo No: 4	**Description:** Removal of concrete bund to the side of the two tanks



Photo No: 5	**Description:** Removal of concrete bund to the side of the two tanks



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Photo No: 6	**Description:** Slight sheen observed in water observed beneath Tank 1



Photo No: 7	**Description:** Ground beneath the tank after the use of a spill kit



Photo No: 8	**Description:** Removal of Tank 1



Photo No: 9	**Description:** Tank 1



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Photo No: 10	**Description:** Tank 2 in-situ



Photo No: 11	**Description:** Polythene put in place prior to cutting Tank 2



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Photo No: 12	**Description:** Tank 2 broken in half exposing concrete used for decommissioning



Photo No: 13	**Description:** Concrete base removed



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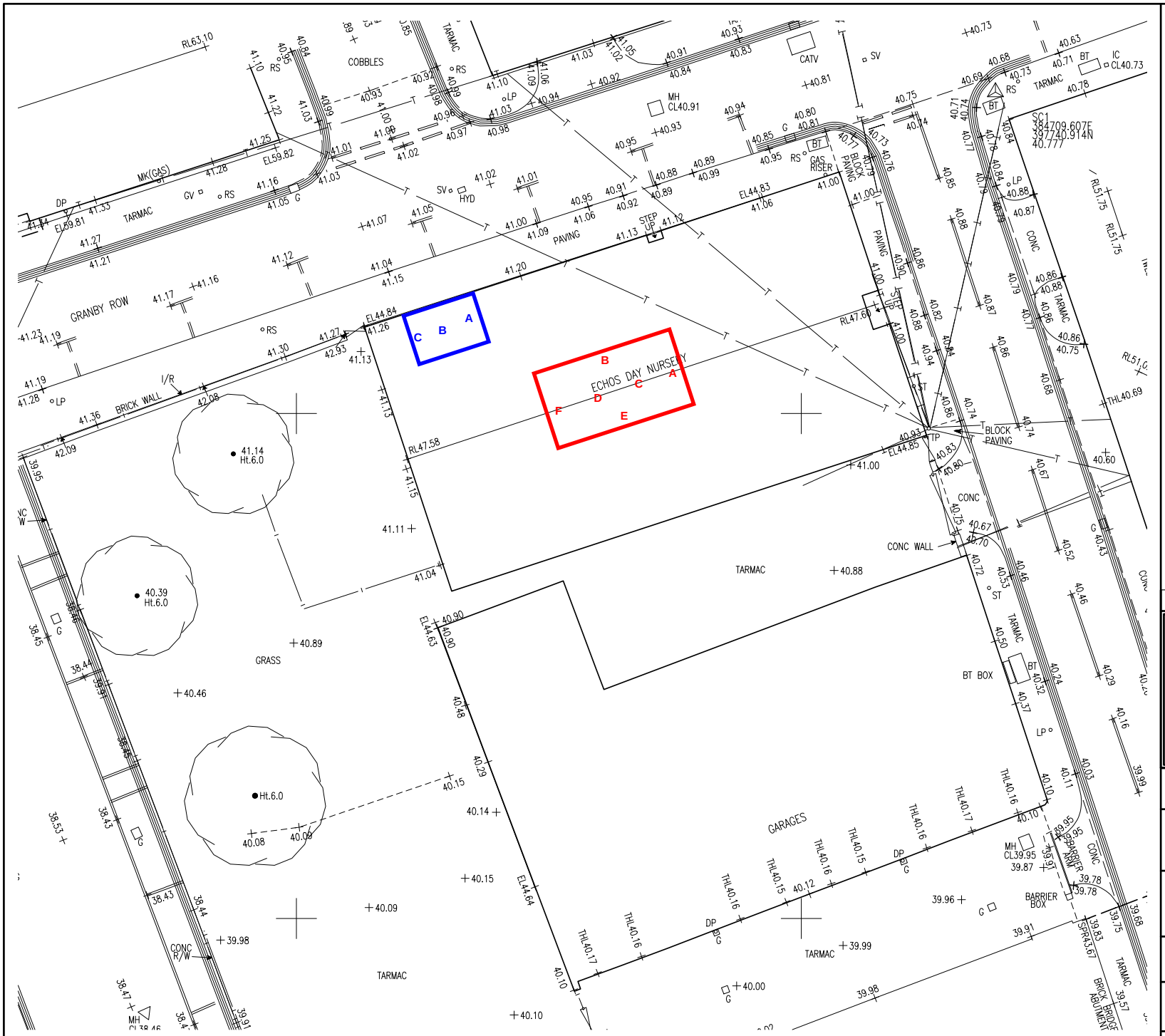
Photo No: 15	**Description:** Stockpiled material removed from around the tank (SP01)



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Attachment B – Drawings

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APPROXIMATE TANK EXCAVATION (TP601)

APPROXIMATE STOCKPILE LOCATION (SP01) (TANK EXCAVATION)

A A APPROXIMATE SOIL SAMPLE LOCATION

Rev:	Description:	Date:	By:	Chkd:

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e: manchester@curtins.com
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Structures - Civils - Environmental - Infrastructure - Transport Planning - Sustainability - Expert Advisory Services
Birmingham - Bristol - Cardiff - Douglas - Edinburgh - Kendal - Leeds - Liverpool - London - Manchester - Nottingham

Status: INFORMATION

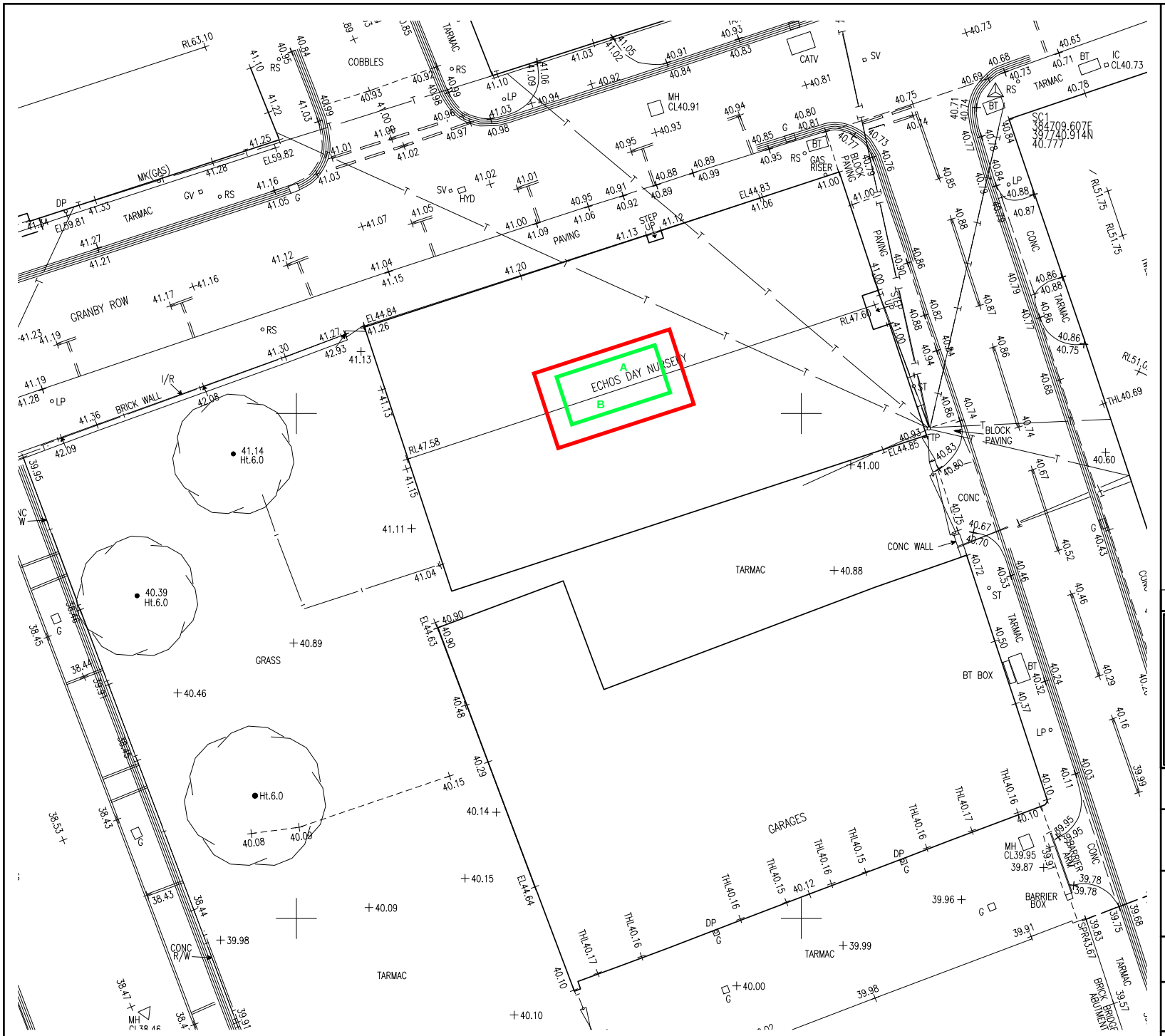
Project: **ECHO STREET, TANK REMOVAL**

Drg Title: **APPROXIMATE EXCAVATION LOCATION PLAN**

Scale:	Size:	First Issue:	Drawn:	Checked:
NTS	A3	27/08/2019	MH	PN

Drg No: **065374-CUR-00-XX-DR-GE-007-V01** Rev: **V01**

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APPROXIMATE STOCKPILE LOCATION (SP02) (GENERAL SITE WON SOILS)

A APPROXIMATE SOIL SAMPLE LOCATION

Rev:	Description:	Date:	By:	Chkd:

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www.curtins.com

Structures - Civils - Environmental - Infrastructure - Transport Planning - Sustainability - Expert Advisory Services
Birmingham - Bristol - Cardiff - Douglas - Edinburgh - Kendal - Leeds - Liverpool - London - Manchester - Nottingham

Status:

INFORMATION

Project:

ECHO STREET, TANK REMOVAL

Drg Title:

APPROXIMATE EXCAVATION LOCATION PLAN

Scale:	Size:	First Issue:	Drawn:	Checked:
NTS	A3	27/08/2019	MH	PN

Drg No: **065374-CUR-00-XX-DR-GE-008-V01**

Rev: **V01**

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Attachment C – Environmental Chemical Analysis Results

envirolab
Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT
SUPPLEMENT TO TEST REPORT 19/06313/1

Amendments: Request for Additional Analysis

Envirolab Job Number: 19/06313
Issue Number: 2 **Date:** 08 August, 2019

Client:
Curtins Consulting
Merchant Exchange
17-19 Whitworth Street
Manchester
UK
M1 5WG

Project Manager: Amber Hatch-Walling/Jonathan Lord/Niall Farnworth
Project Name: Echo Street
Project Ref: B065374.001
Order No: EBMA1949
Date Samples Received: 03/07/19
Date Instructions Received: 04/07/19
Date Analysis Completed: 06/08/19

Prepared by:

[redacted]
Melanie Marshall
Laboratory Coordinator

Approved by:

[redacted]
Holly Neary-King
Client Manager

Envirolab Job Number: 19/06313

Client Project Name: Echo Street

Client Project Ref: B065374.001

Lab Sample ID	19/06313/1	19/06313/2	19/06313/3	19/06313/4	19/06313/5	19/06313/6	19/06313/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH201	BH201	BH201	BH201	BH201	BH201	BH201			
Depth to Top	0.32	2.40	3.60	3.00	5.00	7.00	7.20			
Depth To Bottom				3.45	5.45					
Date Sampled	01-Jul-19	01-Jul-19	01-Jul-19	01-Jul-19	01-Jul-19	01-Jul-19	02-Jul-19			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - U	Soil - U	Soil - ES	Soil - U			
Sample Matrix Code	4A	5AB	5A			5	4A			
% Stones >10mm$_A$	15.1	3.4	<0.1	-	-	<0.1	<0.1	% w/w	0.1	A-T-044
pH$_D^{M\#}$	8.64	8.20	7.87	-	-	8.55	8.65	pH	0.01	A-T-031s
Sulphate (water sol 2:1)$_D^{M\#}$	0.08	0.26	0.10	-	-	0.11	0.08	g/l	0.01	A-T-026s
Cyanide (total)$_A^{M\#}$	<1	<1	<1	-	-	-	-	mg/kg	1	A-T-042sTCN
Phenols - Total by HPLC$_A$	<0.2	<0.2	<0.2	-	-	-	-	mg/kg	0.2	A-T-050s
Organic matter$_D^{M\#}$	8.7	3.4	0.8	-	-	-	-	% w/w	0.1	A-T-032 OM
Arsenic$_D^{M\#}$	11	11	4	-	-	-	-	mg/kg	1	A-T-024s
Boron (water soluble)$_D^{M\#}$	<1.0	1.1	<1.0	-	-	-	-	mg/kg	1	A-T-027s
Cadmium$_D^{M\#}$	1.1	1.1	0.9	-	-	-	-	mg/kg	0.5	A-T-024s
Copper$_D^{M\#}$	65	26	9	-	-	-	-	mg/kg	1	A-T-024s
Chromium$_D^{M\#}$	25	27	31	-	-	-	-	mg/kg	1	A-T-024s
Chromium (hexavalent)$_D$	<1	<1	<1	-	-	-	-	mg/kg	1	A-T-040s
Lead$_D^{M\#}$	25	75	16	-	-	-	-	mg/kg	1	A-T-024s
Mercury$_D$	<0.17	<0.17	<0.17	-	-	-	-	mg/kg	0.17	A-T-024s
Nickel$_D^{M\#}$	35	26	24	-	-	-	-	mg/kg	1	A-T-024s
Selenium$_D^{M\#}$	<1	<1	<1	-	-	-	-	mg/kg	1	A-T-024s
Zinc$_D^{M\#}$	33	51	43	-	-	-	-	mg/kg	5	A-T-024s
1.01 % Moisture BS1377 1990 pt2 cl3.2$_D^{\#}$	-	-	-	-	-	Appended	Appended		0.1	Subcon SS
1.02 Atterburg 4Pt BS1377 1990 pt2 cl4.4,5.3+5.4$_D^{\#}$	-	-	-	-	-	Appended	-		1	Subcon SS
1.10 PSD (Grading/63um/sand fraction/wet sieve) BS1377 pt 2 1990 cl 9.2$_D^{\#}$	-	-	-	-	-	-	Appended		0.1	Subcon SS
4.01 Dimensional Consolidation (5 days) (75mm) BS1377:1990 Part5 cl 3$_D$	-	-	-	Appended	-	-	-	N/A		Subcon SS
5.02 Hand Vane Test (Natural Shear Strength by Hand Vane) (3 measurements)$_D$	-	-	-	-	Appended	-	-			Subcon SS
5.05 QUT Multistage (100mm) BS1377 1990 pt7 cl9 (Undrained Shear Strength)$_D^{\#}$	-	-	-	-	US	-	-	N/A		Subcon SS

Envirolab Job Number: 19/06313

Client Project Name: Echo Street

Client Project Ref: B065374.001

Lab Sample ID	19/06313/1	19/06313/2	19/06313/3	19/06313/4	19/06313/5	19/06313/6	19/06313/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH201	BH201	BH201	BH201	BH201	BH201	BH201			
Depth to Top	0.32	2.40	3.60	3.00	5.00	7.00	7.20			
Depth To Bottom				3.45	5.45					
Date Sampled	01-Jul-19	01-Jul-19	01-Jul-19	01-Jul-19	01-Jul-19	01-Jul-19	02-Jul-19			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - U	Soil - U	Soil - ES	Soil - U			
Sample Matrix Code	4A	5AB	5A			5	4A			
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_D$#	NAD	NAD	NAD	-	-	-	-			A-T-045
Asbestos ACM - Suitable for Water Absorption Test?	N/A	N/A	N/A	-	-	-	-			

Envirolab Job Number: 19/06313

Client Project Name: Echo Street

Client Project Ref: B065374.001

Lab Sample ID	19/06313/1	19/06313/2	19/06313/3	19/06313/4	19/06313/5	19/06313/6	19/06313/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH201	BH201	BH201	BH201	BH201	BH201	BH201			
Depth to Top	0.32	2.40	3.60	3.00	5.00	7.00	7.20			
Depth To Bottom				3.45	5.45					
Date Sampled	01-Jul-19	01-Jul-19	01-Jul-19	01-Jul-19	01-Jul-19	01-Jul-19	02-Jul-19			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - U	Soil - U	Soil - ES	Soil - U			
Sample Matrix Code	4A	5AB	5A			5	4A			
PAH-16MS										
Acenaphthene$_A^{M\#}$	1.29	<0.01	<0.01	-	-	-	-	mg/kg	0.01	A-T-019s
Acenaphthylene$_A^{M\#}$	0.08	<0.01	<0.01	-	-	-	-	mg/kg	0.01	A-T-019s
Anthracene$_A^{M\#}$	4.96	<0.02	<0.02	-	-	-	-	mg/kg	0.02	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	8.81	<0.04	<0.04	-	-	-	-	mg/kg	0.04	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	5.40	<0.04	<0.04	-	-	-	-	mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	6.90	<0.05	<0.05	-	-	-	-	mg/kg	0.05	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	2.30	<0.05	<0.05	-	-	-	-	mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	2.78	<0.07	<0.07	-	-	-	-	mg/kg	0.07	A-T-019s
Chrysene$_A^{M\#}$	7.75	<0.06	<0.06	-	-	-	-	mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene$_A^{M\#}$	0.66	<0.04	<0.04	-	-	-	-	mg/kg	0.04	A-T-019s
Fluoranthene$_A^{M\#}$	21.8	0.09	<0.08	-	-	-	-	mg/kg	0.08	A-T-019s
Fluorene$_A^{M\#}$	1.14	<0.01	<0.01	-	-	-	-	mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	2.84	<0.03	<0.03	-	-	-	-	mg/kg	0.03	A-T-019s
Naphthalene $_A^{M\#}$	0.24	<0.03	<0.03	-	-	-	-	mg/kg	0.03	A-T-019s
Phenanthrene$_A^{M\#}$	20.6	0.09	<0.03	-	-	-	-	mg/kg	0.03	A-T-019s
Pyrene$_A^{M\#}$	17.2	<0.07	<0.07	-	-	-	-	mg/kg	0.07	A-T-019s
Total PAH-16MS$_A^{M\#}$	105	0.18	<0.08	-	-	-	-	mg/kg	0.01	A-T-019s

Envirolab Job Number: 19/06313

Client Project Name: Echo Street

Client Project Ref: B065374.001

Lab Sample ID	19/06313/1	19/06313/2	19/06313/3	19/06313/4	19/06313/5	19/06313/6	19/06313/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH201	BH201	BH201	BH201	BH201	BH201	BH201			
Depth to Top	0.32	2.40	3.60	3.00	5.00	7.00	7.20			
Depth To Bottom				3.45	5.45					
Date Sampled	01-Jul-19	01-Jul-19	01-Jul-19	01-Jul-19	01-Jul-19	01-Jul-19	02-Jul-19			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - U	Soil - U	Soil - ES	Soil - U			
Sample Matrix Code	4A	5AB	5A			5	4A			
TPH CWG										
Ali >C5-C6$_A^{\#}$	<0.01	<0.05	<0.01	-	-	-	-	mg/kg	0.01	A-T-022s
Ali >C6-C8$_A^{\#}$	<0.01	<0.05	<0.01	-	-	-	-	mg/kg	0.01	A-T-022s
Ali >C8-C10$_A$	<1	22	<1	-	-	-	-	mg/kg	1	A-T-055s
Ali >C10-C12$_A^{M\#}$	<1	9	<1	-	-	-	-	mg/kg	1	A-T-055s
Ali >C12-C16$_A^{M\#}$	2	<1	<1	-	-	-	-	mg/kg	1	A-T-055s
Ali >C16-C21$_A^{M\#}$	6	2	<1	-	-	-	-	mg/kg	1	A-T-055s
Ali >C21-C35$_A$	15	8	<1	-	-	-	-	mg/kg	1	A-T-055s
Total Aliphatics$_A$	22	43	<1	-	-	-	-	mg/kg	1	A-T-055s
Aro >C5-C7$_A^{\#}$	<0.01	<0.05	<0.01	-	-	-	-	mg/kg	0.01	A-T-022s
Aro >C7-C8$_A^{\#}$	<0.01	<0.05	<0.01	-	-	-	-	mg/kg	0.01	A-T-022s
Aro >C8-C10$_A$	2	7	<1	-	-	-	-	mg/kg	1	A-T-055s
Aro >C10-C12$_A^{M\#}$	3	2	<1	-	-	-	-	mg/kg	1	A-T-055s
Aro >C12-C16$_A$	29	1	<1	-	-	-	-	mg/kg	1	A-T-055s
Aro >C16-C21$_A^{M\#}$	261	2	<1	-	-	-	-	mg/kg	1	A-T-055s
Aro >C21-C35$_A^{M\#}$	610	6	1	-	-	-	-	mg/kg	1	A-T-055s
Total Aromatics$_A$	906	20	1	-	-	-	-	mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C35)$_A$	928	62	1	-	-	-	-	mg/kg	1	A-T-055s
BTEX - Benzene$_A^{\#}$	<0.01	<0.05	<0.01	-	-	-	-	mg/kg	0.01	A-T-022s
BTEX - Toluene$_A^{\#}$	<0.01	<0.05	<0.01	-	-	-	-	mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene$_A^{\#}$	<0.01	<0.05	<0.01	-	-	-	-	mg/kg	0.01	A-T-022s
BTEX - m & p Xylene$_A^{\#}$	<0.01	<0.05	<0.01	-	-	-	-	mg/kg	0.01	A-T-022s
BTEX - o Xylene$_A^{\#}$	<0.01	<0.05	<0.01	-	-	-	-	mg/kg	0.01	A-T-022s
MTBE$_A^{\#}$	<0.01	<0.05	<0.01	-	-	-	-	mg/kg	0.01	A-T-022s

Envirolab Job Number: 19/06313

Client Project Name: Echo Street

Client Project Ref: B065374.001

Lab Sample ID	19/06313/9							Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH201									
Depth to Top	3.45									
Depth To Bottom	3.50									
Date Sampled										
Sample Type	Soil - D									
Sample Matrix Code	5A									
% Stones >10mm$_A$	<0.1							% w/w	0.1	A-T-044
pH$_D^{M\#}$	8.04							pH	0.01	A-T-031s
Sulphate (water sol 2:1)$_D^{M\#}$	0.08							g/l	0.01	A-T-026s
1.01 % Moisture BS1377 1990 pt2 cl3.2$_D^{\#}$	Appended								0.1	Subcon SS
1.02 Atterburg 4Pt BS1377 1990 pt2 cl4.4,5.3+5.4$_D^{\#}$	Appended								1	Subcon SS

REPORT NOTES

General
This report shall not be reproduced, except in full, without written approval from Envirolab.
The results reported herein relate only to the material supplied to the laboratory.
The residue of any samples contained within this report, and any received with the same delivery, will be disposed of six weeks after initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of six months after the initial Asbestos testing is completed.
Analytical results reflect the quality of the sample at the time of analysis only.
Opinions and interpretations expressed are outside the scope of our accreditation.
If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.
A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.
The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

Soil chemical analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any “A” subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:
Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis.
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:
1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.
Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.
Secondary Matrix Codes:
A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

Key:
IS indicates Insufficient Sample for analysis.
US indicates Unsuitable Sample for analysis.
NDP indicates No Determination Possible.
NAD indicates No Asbestos Detected.
N/A indicates Not Applicable.
Superscript # indicates method accredited to ISO 17025.
Superscript "M" indicates method accredited to MCERTS.
Subscript "A" indicates analysis performed on the sample as received.
Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: Curtins Consulting, Merchant Exchange, 17-19 Whitworth Street , Manchester, UK, M1 5WG

Project: Echo Street

Clients Project No: B065374.001

Project No: 19/06313

Date Received: 04/07/2019 (am)

Cool Box Temperatures (°C): 20.6

Lab Sample ID	19/06313/9
Client Sample No	
Client Sample ID/Depth	BH201 3.45-3.50m
Date Sampled	
Deviation Code	
E (no date)	✓

Key
E (no date) *No sampling date provided (all results affected if not provided)*

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Attachment D – General Assessment Criteria

Curtins Consulting Limited
17-19 Whitworth Street West, Manchester, M1 5WG
t: 0161 236 2394 e: manchester@curtins.com w: www.curtins.com

Adopted Soil Generic Assessment Criteria
Sandy loam with 6% SOM

curtins

Contaminants	Residential with home grown produce	Residential without home grown produce	Allotments	Commercial	Public open space near residential housing POS_{resi}	Public park POS_{park}
Metals						
Beryllium	*1.7*	*1.7*	*35*	*12*	*2.2*	*63*
Boron	*290*	*11,000*	*45*	*240,000*	*21,000*	*46,000*
Cadmium	**10**[13] 22	**85**[13] 150	**1.8** 3.9	**230** 410	*120* 220	*560* 880
Chromium III	*910*	*910*	*18,000*	*8,600*	*1,500*	*33,000*
Chromium VI	*6* 21	*6* 21	*1.8* 170	*33* 49	*7.7* 21	*220* 250
Lead	200	310	80	2,300	630	1,300
Mercury *(elemental)*	**1**	**1**	**26**	**26**	*16*	**26**[8] [*30*]
Mercury (inorganic)	**170**	**240**	**80**	**3600**	*120*	*240*
Nickel	*130*[10]	*180*[10]	*53*[11]	*980*[10]	*230*	*800*
Vanadium	*410*	*1200*	*91*	*9000*	*2000*	*5000*
Copper	*2400*	*7100*	*520*	*68000*	*12000*	*44000*
Zinc	*3700*	*40000*	*620*	*730000*	*81000*	*170000*
Semi-Metals and non-metals						
Arsenic	**32**[12] 37	**35**[12] 40	**43**[12] 49	**640**[12] 640	*79* 79	*170* 170
Antimony		***550***		***7500***	***1500***	***3300***
Selenium	**350**	**600**	**120**	**13000**	*1100*	*1800*
Inorganic chemicals						
Cyanide	34	34	34	34	34	34
Organic contaminants						
Aliphatic risk banded hydrocarbons - TPHCWG method						
$EC_{>5}$ - EC_6	*160*	*160*	*3900*	*12000*	*600000*	*180000*
$EC_{>6}$ - EC_8	*530*	*530*	*13000*	*40000*	*620000*	*320000*
$EC_{>8}$ - EC_{10}	*150*	*150*	*1700*	*11000*	*13000*	*21000*
EC_{10}-EC_{12}	*760*	*770*	*7300*	*47000*	*13000*	*24000*
EC_{12}-EC_{16}	*4300*	*4400*	*13000*	*90000*	*13000*	*26000*
$EC_{>16}$ - EC_{35}	*110000*	*110000*	*270000*	*1800000*	*250000*	*490000*
$EC>_{35}$ - EC_{44}	*110000*	*110000*	*270000*	*1800000*	*250000*	*490000*
Aromatic risk banded hydrocarbons - TPHCWG method						
$EC>_5$ - EC_7	*300*	*1400*	*57*	*86000*	*56000*	*92000*
$EC>_7$ - EC_8	*660*	*3900*	*120*	*180000*	*56000*	*100000*
$EC_{>8}$ - EC_{10}	*190*	*270*	*51*	*17000*	*5000*	*9300*
EC_{10} - EC_{12}	*380*	*1200*	*74*	*34000*	*5000*	*10000*
EC_{12} - EC_{16}	*660*	*2500*	*130*	*38000*	*5000*	*10000*
$EC_{>16}$ - EC_{21}	*930*	*1900*	*260*	*28000*	*3800*	*7800*
$EC_{>21}$ - EC_{35}	*1700*	*1900*	*1600*	*28000*	*3800*	*7900*
$EC>_{35}$ - EC_{44}	*1700*	*1900*	*1600*	*28000*	*3800*	*7900*
Aliph + Arom EC >44-70	*1900*	*1900*	*3000*	*28000*	3800	7900
Aromatic						
Benzene	**0.33** 0.87	**1.0** 3.3	**0.07** 0.18	**95** 98	*73* 140	*110* 230
Ethyl benzene	**350**	**840**	**90**	**2800**[8] [66000]	**2800**[8] [*25000*]	**2800**[8] [*27000*]
Toluene	**610**	**2700**	**120**	**4400**[8] [190000]	**4400**[8] [*56000*]	**4400**[8] [*100000*]
Xylene[9]	**230**	**290**	**160**	**2600**[8] [32000]	**2600**[8] [*43000*]	**2600**[8] [*31000*]
Phenol	**420**	**520**	**280**	**3200**[14] (38000)	**3200**[14] (*10000*)	**3200**[14] (*9300*)
Polycyclic Aromatic Hydrocarbons (PAH)						
Naphthalene	*13*	*13*	*24*	*1100*	*4900*	*3000*
Acenaphthylene	*920*	*6000*	*160*	*100000*	*15000*	*30000*
Acenaphthene	*1100*	*6000*	*200*	*100000*	*15000*	*30000*
Fluorene	*860*	*4500*	*160*	*71000*	*9900*	*20000*
Phenanthrene	*440*	*1500*	*90*	*23000*	*3100*	*6300*
Anthracene	*11000*	*37000*	*2200*	*540000*	*74000*	*150000*
Fluoranthene	*890*	*1600*	*290*	*23000*	*3100*	*6400*
Pyrene	*2000*	*3800*	*620*	*54000*	*7400*	*15000*
Benz(a)anthracene	*13*	*15*	*13*	*180*	*29*	*62*
Chrysene	*27*	*32*	*19*	*350*	*57*	*120*
Benzo(b)fluoranthene	*3.7*	*4.0*	*3.9*	*45*	*7.2*	*16.0*
Benzo(k)fluoranthene	*100*	*110*	*130*	*1200*	*190*	*440*
Benzo(a)pyrene	*3.0* 5.0	*3.2* 5.3	*3.5* 5.7	*36* 77	*5.7* 10	*13* 21
Indeno(123cd)pyrene	*41*	*46*	*39*	*510*	*82*	*180*
Dibenzo(ah)anthracene	*0.3*	*0.32*	*0.43*	*3.6*	*0.58*	*1.4*
Benzo(ghi)perylene	*350*	*360*	*640*	*4000*	*640*	*1600*
Chlorinated Aliphatic Hydrocarbons						
Vinyl chloride	*0.0014*	*0.0015*	*0.0018*	*0.12*	*3.5*	*5.4*
Trichloroethene (TCE)	*0.075*	*0.08*	*0.21*	*5.7*	*120*	*120*
1,1,1,2 Tetrachlorethane	*6.4*	*8.2*	*4.4*	*560*	*1400*	*2100*
Tetrachlorethene (PCE)	*0.90*	*0.92*	*3.6*	*95*	*1400*	*1500*
1,1,1 Trichlorethane	*39*	*40*	*240*	*3000*	*140000*	*100000*

Notes

1. All values above are in mg/kg
2. **Numbers in bold are SGVs or GAC that are derived based on SGV report input parameters**, *numbers in italics are S4ULs*, ***numbers in bold-italics are based on EIC/AGS/CL:AIRE numbers & input parameters*** and underlined numbers are C4SLs
3. Soil organic matter (SOM) is assumed to be 6% - DEFAULT VALUE
4. Soil type is assumed to be sandy loam - DEFAULT SOIL TYPE
5. For residential, the building type is conservatively assumed to be a small terrace house where the development includes bungalows change to more conservative bungalow setting in computer model
6. For commercial, the building type is conservatively assumed to be a pre 1970s office building, where the proposed development comprises houses, flat with living spaces changes setting in model accordingly
7. For classrooms consider increasing the dust loading fator in the 'Soil and Building Data' of the CLEA 1.04 model from 50 to 100µg m^{-3}
8. Based on vapour saturation limt as suggested by EA / [ ] model value
9. Lowest of o-, m- and p-xylene
10. Based on comparison of inhalation exposure with inhalation TDI
11. Based on comparison of oral, dermal, and inhalation exposure with the oral TDI
12. Based on a comparison of oral and dermal soil exposure with oral Index Dose only
13. Averaged over and based on lifetime exposure
14. Based on critical concentration for skin irritation in humans arising from contact with phenol in aqueous solution (number in brackets based on health effects following long term exposure for illustration)
15. NA: Not applicable

Adopted Soil Generic Assessment Criteria
Sandy loam with 2.5% SOM

curtins

Contaminants	Residential with home grown produce	Residential without home grown produce	Allotments	Commercial	Public open space near residential housing POS_{resi}	Public park POS_{park}
Metals						
Beryllium	*1.7*	*1.7*	*35*	*12*	*2.2*	*63*
Boron	*290*	*11,000*	*45*	*240,000*	*21,000*	*46,000*
Cadmium	**10**[13] 22	**85**[13] 150	**1.8** 3.9	**230** 410	*120* 220	*560* 880
Chromium III	*910*	*910*	*18,000*	*8,600*	*1,500*	*33,000*
Chromium VI	*6* 21	*6* 21	*1.8* 170	*33* 49	*7.7* 21	*220* 250
Lead	200	310	80	2,300	630	1,300
Mercury *(elemental)*	**1**	**1**	**26**	**26**	*16*	**26**[8] [*30*]
Mercury (inorganic)	**170**	**240**	**80**	**3600**	*120*	*240*
Nickel	*130*[10]	*180*[10]	*53*[11]	*980*[10]	*230*	*800*
Vanadium	*410*	*1200*	*91*	*9000*	*2000*	*5000*
Copper	*2400*	*7100*	*520*	*68000*	*12000*	*44000*
Zinc	*3700*	*40000*	*620*	*730000*	*81000*	*170000*
Semi-Metals and non-metals						
Arsenic	**32**[12] 37	**35**[12] 40	**43**[12] 49	**640**[12] 640	*79* 79	*170* 170
Antimony		***550***		***7500***	***1500***	***3300***
Selenium	**350**	**600**	**120**	**13000**	*1100*	*1800*
Inorganic chemicals						
Cyanide	34	34	34	34	34	34
Organic contaminants						
Aliphatic risk banded hydrocarbons - TPHCWG method						
$EC_{>5}$ - EC_6	*78*	*78*	*1700*	*5900*	*590000*	*130000*
$EC_{>6}$ - EC_8	*230*	*230*	*5600*	*17000*	*610000*	*220000*
$EC_{>8}$ - EC_{10}	*65*	*65*	*770*	*4800*	*13000*	*18000*
EC_{10}-EC_{12}	*330*	*330*	*4400*	*23000*	*13000*	*23000*
EC_{12}-EC_{16}	*2400*	*2400*	*13000*	*82000*	*13000*	*25000*
$EC_{>16}$ - EC_{35}	*92000*	*92000*	*270000*	*1700000*	*250000*	*480000*
$EC>_{35}$ - EC_{44}	*92000*	*92000*	*270000*	*1700000*	*250000*	*480000*
Aromatic risk banded hydrocarbons - TPHCWG method						
$EC>_5$ - EC_7	*140*	*690*	*27*	*46000*	*56000*	*84000*
$EC>_7$ - EC_8	*290*	*1800*	*51*	*110000*	*56000*	*95000*
$EC_{>8}$ - EC_{10}	*83*	*110*	*21*	*8100*	*5000*	*8500*
EC_{10} - EC_{12}	*180*	*590*	*31*	*28000*	*5000*	*9700*
EC_{12} - EC_{16}	*330*	*2300*	*57*	*37000*	*5100*	*10000*
$EC_{>16}$ - EC_{21}	*540*	*1900*	*110*	*28000*	*3800*	*7700*
$EC_{>21}$ - EC_{35}	*1500*	*1900*	*820*	*28000*	*3800*	*7800*
$EC>_{35}$ - EC_{44}	*1500*	*1900*	*820*	*28000*	*3800*	*7800*
Aliph + Arom EC >44-70	*1800*	*1900*	*2100*	*28000*	3800	7800
Aromatic						
Benzene	**0.16**	**0.49**	**0.035**	**50**	*72*	*100*
Ethyl benzene	**150**	**380**	**39**	**1200**[8] [35000]	**1200**[8] [*24000*]	**1200**[8] [*22000*]
Toluene	**270**	**1300**	**51**	**1900**[8] [110000]	**1900**[8] [*56000*]	**1900**[8] [*95000*]
Xylene[9]	**98**	**120**	**70**	**1200**[8] [14000]	**1200**[8] [*42000*]	**1200**[8] [*23000*]
Phenol	**290**	**420**	**140**	**1500**[14] (35000)	**1500**[14] (*10000*)	**1500**[14] (*8300*)
Polycyclic Aromatic Hydrocarbons (PAH)						
Naphthalene	*5.6*	*5.6*	*10*	*460*	*4900*	*1900*
Acenaphthylene	*420*	*4600*	*69*	*97000*	*15000*	*30000*
Acenaphthene	*510*	*4700*	*85*	*97000*	*15000*	*30000*
Fluorene	*400*	*3800*	*67*	*68000*	*9900*	*20000*
Phenanthrene	*220*	*1500*	*38*	*22000*	*3100*	*6200*
Anthracene	*5400*	*35000*	*950*	*540000*	*74000*	*150000*
Fluoranthene	*560*	*1600*	*130*	*23000*	*3100*	*6300*
Pyrene	*1200*	*3800*	*270*	*54000*	*7400*	*15000*
Benz(a)anthracene	*11*	*14*	*6.5*	*170*	*29*	*56*
Chrysene	*22*	*31*	*9.4*	*350*	*57*	*110*
Benzo(b)fluoranthene	*3.3*	*4.0*	*2.1*	*44*	*7.2*	*15*
Benzo(k)fluoranthene	*93*	*110*	*75*	*1200*	*190*	*410*
Benzo(a)pyrene	*2.7*	*3.2*	*2*	*35*	*5.7*	*12*
Indeno(123cd)pyrene	*36*	*46*	*21*	*510*	*82*	*170*
Dibenzo(ah)anthracene	*0.28*	*0.32*	*0.27*	*3.6*	*0.57*	*1.3*
Benzo(ghi)perylene	*340*	*360*	*470*	*4000*	*640*	*1500*
Chlorinated Aliphatic Hydrocarbons						
Vinyl chloride	*0.00087*	*0.001*	*0.001*	*0.077*	*3.5*	*5*
Trichloroethene (TCE)	*0.034*	*0.036*	*0.091*	*2.6*	*120*	*91*
1,1,1,2 Tetrachlorethane	*2.8*	*3.5*	*1.9*	*250*	*1400*	*1800*
Tetrachlorethene (PCE)	*0.39*	*0.4*	*1.5*	*42*	*1400*	*1100*
1,1,1 Trichlorethane	*18*	*18*	*110*	*1300*	*140000*	*76000*

Notes

1. All values above are in mg/kg
2. **Numbers in bold are SGVs or GAC that are derived based on SGV report input parameters**, *numbers in italics are S4ULs*, ***numbers in bold-italics are based on EIC/AGS/CL:AIRE numbers & input parameters*** and underlined numbers are C4SLs
3. Soil organic matter (SOM) is assumed to be 2.5% - DEFAULT VALUE
4. Soil type is assumed to be sandy loam - DEFAULT SOIL TYPE
5. For residential, the building type is conservatively assumed to be a small terrace house where the development includes bungalows change to more conservative bungalow setting in computer model
6. For commercial, the building type is conservatively assumed to be a pre 1970s office building, where the proposed development comprises houses, flat with living spaces changes setting in model accordingly
7. For classrooms consider increasing the dust loading fator in the 'Soil and Building Data' of the CLEA 1.04 model from 50 to 100µg m^{-3}
8. Based on vapour saturation limt as suggested by EA / [ ] model value
9. Lowest of o-, m- and p-xylene
10. Based on comparison of inhalation exposure with inhalation TDI
11. Based on comparison of oral, dermal, and inhalation exposure with the oral TDI
12. Based on a comparison of oral and dermal soil exposure with oral Index Dose only
13. Averaged over and based on lifetime exposure
14. Based on critical concentration for skin irritation in humans arising from contact with phenol in aqueous solution (number in brackets based on health effects following long term exposure for illustration)
15. NA: Not applicable

Adopted Soil Generic Assessment Criteria
Sandy loam with 1% SOM

curtins

Contaminants	Residential with home grown produce	Residential without home grown produce	Allotments	Commercial	Public open space near residential housing POS_{resi}	Public park POS_{park}
Metals						
Beryllium	*1.7*	*1.7*	*35*	*12*	*2.2*	*63*
Boron	*290*	*11,000*	*45*	*240,000*	*21,000*	*46,000*
Cadmium	**10**[13] 22	**85**[13] 150	**1.8** 3.9	**230** 410	*120* 220	*560* 880
Chromium III	*910*	*910*	*18,000*	*8,600*	*1,500*	*33,000*
Chromium VI	*6* 21	*6* 21	*1.8* 170	*33* 49	*7.7* 21	*220* 250
Lead	200	310	80	2,300	630	1,300
Mercury *(elemental)*	**1**	**1**	**26**	**26**	*16*	**26**[8] *[30]*
Mercury (inorganic)	**170**	**240**	**80**	**3600**	*120*	*240*
Nickel	*130*[10]	*180*[10]	*53*[11]	*980*[10]	*230*	*800*
Vanadium	*410*	*1200*	*91*	*9000*	*2000*	*5000*
Copper	*2400*	*7100*	*520*	*68000*	*12000*	*44000*
Zinc	*3700*	*40000*	*620*	*730000*	*81000*	*170000*
Semi-Metals and non-metals						
Arsenic	**32**[12] 37	**35**[12] 40	**43**[12] 49	**640**[12] 640	*79* 79	*170* 170
Antimony		***550***		***7500***	***1500***	***3300***
Selenium	**350**	**600**	**120**	**13000**	*1100*	*1800*
Inorganic chemicals						
Cyanide	34	34	34	34	34	34
Organic contaminants						
Aliphatic risk banded hydrocarbons - TPHCWG method						
$EC_{>5}$ - EC_6	*42*	*42*	*730*	*3200*	*570000*	*95000*
$EC_{>6}$ - EC_8	*100*	*100*	*2300*	*7800*	*600000*	*150000*
$EC_{>8}$ - EC_{10}	*27*	*27*	*320*	*2000*	*13000*	*14000*
EC_{10}-EC_{12}	*130*	*130*	*2200*	*9700*	*13000*	*21000*
EC_{12}-EC_{16}	*1100*	*1100*	*11000*	*59000*	*13000*	*25000*
$EC_{>16}$ - EC_{35}	*65000*	*65000*	*260000*	*1600000*	*250000*	*450000*
$EC_{>35}$ - EC_{44}	*65000*	*65000*	*260000*	*1600000*	*250000*	*450000*
Aromatic risk banded hydrocarbons - TPHCWG method						
$EC_{>5}$ - EC_7	*70*	*370*	*13*	*26000*	*56000*	*76000*
$EC_{>7}$ - EC_8	*130*	*860*	*22*	*56000*	*56000*	*87000*
$EC_{>8}$ - EC_{10}	*34*	*47*	*8.6*	*3500*	*5000*	*7200*
EC_{10} - EC_{12}	*74*	*250*	*13*	*16000*	*5000*	*9200*
EC_{12} - EC_{16}	*140*	*1800*	*23*	*36000*	*5100*	*10000*
$EC_{>16}$ - EC_{21}	*260*	*1900*	*46*	*28000*	*3800*	*7600*
$EC_{>21}$ - EC_{35}	*1100*	*1900*	*370*	*28000*	*3800*	*7800*
$EC_{>35}$ - EC_{44}	*1100*	*1900*	*370*	*28000*	*3800*	*7800*
Aliph + Arom EC >44-70	*1600*	*1900*	*1200*	*28000*	3800	7800
Aromatic						
Benzene	**0.08**	**0.3**	**0.017**	**28**	*72*	*90*
Ethyl benzene	**65**	**170**	**16**	**520**[8] [17000]	**520**[8] *[24000]*	**520**[8] *[17000]*
Toluene	**120**	**610**	**22**	**860**[8] [59000]	**860**[8] *[56000]*	**860**[8] *[87000]*
Xylene[9]	**41**	**53**	**28**	**480**[8] [69000]	**480**[8] *[41000]*	**480**[8] *[17000]*
Phenol	**180**	**310**	**66**	**760**[14] (31000)	**760**[14] *(10000)*	**760**[14] *(7600)*
Polycyclic Aromatic Hydrocarbons (PAH)						
Naphthalene	*2.3*	*2.3*	*4.1*	*190*	*4900*	*1200*
Acenaphthylene	*170*	*2900*	*28*	*83000*	*15000*	*29000*
Acenaphthene	*210*	*3000*	*34*	*84000*	*15000*	*29000*
Fluorene	*170*	*2800*	*27*	*63000*	*9900*	*20000*
Phenanthrene	*95*	*1300*	*15*	*22000*	*3100*	*6200*
Anthracene	*2400*	*31000*	*380*	*520000*	*74000*	*150000*
Fluoranthene	*280*	*1500*	*52*	*23000*	*3100*	*6300*
Pyrene	*620*	*3700*	*110*	*54000*	*7400*	*15000*
Benz(a)anthracene	*7.2*	*11*	*2.9*	*170*	*29*	*49*
Chrysene	*15*	*30*	*4.1*	*350*	*57*	*93*
Benzo(b)fluoranthene	*2.6*	*3.9*	*0.99*	*44*	*7.1*	*13*
Benzo(k)fluoranthene	*77*	*110*	*37*	*1200*	*190*	*370*
Benzo(a)pyrene	*2.2*	*3.2*	*0.97*	*35*	*5.7*	*11*
Indeno(123cd)pyrene	*27*	*45*	*9.5*	*500*	*82*	*150*
Dibenzo(ah)anthracene	*0.24*	*0.31*	*0.14*	*3.5*	*0.57*	*1.1*
Benzo(ghi)perylene	*320*	*360*	*290*	*3900*	*640*	*1400*
Chlorinated Aliphatic Hydrocarbons						
Vinyl chloride	*0.00064*	*0.00077*	*0.00055*	*0.059*	*3.5*	*4.8*
Trichloroethene (TCE)	*0.016*	*0.017*	*0.041*	*1.2*	*120*	*70*
1,1,1,2 Tetrachlorethane	*1.2*	*1.5*	*0.79*	*110*	*1400*	*1500*
Tetrachlorethene (PCE)	*0.18*	*0.18*	*0.65*	*19*	*1400*	*810*
1,1,1 Trichlorethane	*8.8*	*9*	*48*	*660*	*140000*	*57000*

Notes

1. All values above are in mg/kg
2. **Numbers in bold are SGVs or GAC that are derived based on SGV report input parameters**, *numbers in italics are S4ULs*, ***numbers in bold-italics are based on EIC/AGS/CL:AIRE numbers & input parameters*** and underlined numbers are C4SLs
3. Soil organic matter (SOM) is assumed to be 1% - DEFAULT VALUE
4. Soil type is assumed to be sandy loam - DEFAULT SOIL TYPE
5. For residential, the building type is conservatively assumed to be a small terrace house where the development includes bungalows change to more conservative bungalow setting in computer model
6. For commercial, the building type is conservatively assumed to be a pre 1970s office building, where the proposed development comprises houses, flat with living spaces changes setting in model accordingly
7. For classrooms consider increasing the dust loading fator in the 'Soil and Building Data' of the CLEA 1.04 model from 50 to 100µg m^{-3}
8. Based on vapour saturation limt as suggested by EA / [ ] model value
9. Lowest of o-, m- and p-xylene
10. Based on comparison of inhalation exposure with inhalation TDI
11. Based on comparison of oral, dermal, and inhalation exposure with the oral TDI
12. Based on a comparison of oral and dermal soil exposure with oral Index Dose only
13. Averaged over and based on lifetime exposure
14. Based on critical concentration for skin irritation in humans arising from contact with phenol in aqueous solution (number in brackets based on health effects following long term exposure for illustration)
15. NA: Not applicable

Curtins Consulting Limited
17-19 Whitworth Street West, Manchester, M1 5WG
t: 0161 236 2394 e: manchester@curtins.com w: www.curtins.com

APPENDIX 4 ▪ Laboratory Reports

Certificate of Analysis

Client: STUART BALDWIN
(T283) SED SERVICES LTD
LANDGATE FARM
LANDGATE LANE
BRYN
WIGAN WN4 0EJ

Originator: TOPSOIL
SOIL

Lab ID: 35357 - 780211
Sample ID: TOPSOIL
Sample Weight: 1958g

Date Received: 12/01/2026
Date Reported: 26/01/2026

BS 3882 : 2015 SPECIFICATION FOR TOPSOIL
Multipurpose Grade

		Unit	Result		Compliant with range (Y/N) Multi-P	Acid	Calc	Low-F	Low-F Acid	Low-F Calc
Texture:	Clay	% w/w	18							
	Silt	% w/w	17			*See area of permitted soil textural*				
	Sand	% w/w	65			*classes in Fig. 1.*				
	Textural Class		Sandy Loam		Y	Y	Y	Y	Y	Y
Organic Matter:		% w/w	8.4		Y	Y	Y	Y	Y	Y
Coarse	>2 mm	% w/w	1.5		Y	Y	Y	Y	Y	Y
Fragment	>20 mm	% w/w	0.0		Y	Y	Y	Y	Y	Y
Content:	>50 mm	% w/w	0.0		Y	Y	Y	Y	Y	Y
Soil pH:			7.8		Y	N	Y	Y	N	Y
Carbonate:		% w/w	36.4				Y			Y
Available	Nitrogen	% w/w	0.318		Y	Y	Y			
Plant	Phosphorus	mg/l	81.4	(5)*	Y	Y	Y	N	N	N
Nutrients:	Potassium	mg/l	129.7	(2-)*	Y	Y	Y			
	Magnesium	mg/l	128.6	(3)*	Y	Y	Y			
Carbon:Nitrogen Ratio:		:1	15.3		Y	Y	Y	Y	Y	Y
Exchangeable Sodium Percentage:		%	1.1							
Phytotoxic	Total Zinc	mg/kg	76.3		Y	Y	Y	Y	Y	Y
Contaminants:	Total Copper	mg/kg	24.1		Y	Y	Y	Y	Y	Y
	Total Nickel	mg/kg	13.9		Y	Y	Y	Y	Y	Y
Visible	> 2mm	% w/w	0.02		Y	Y	Y	Y	Y	Y
Contaminants:	Plastics	% w/w	0.00		Y	Y	Y	Y	Y	Y
	Number of Sharps		0		Y	Y	Y	Y	Y	Y
Additional	Available Sodium	mg/l	33.5							
Analysis:	Available Calcium	mg/l	2295.0							
	Conductivity	uS/cm	2310		Y					
Compliancy:					**Y**	**N**	**Y**	**N**	**N**	**N**

Results are expressed on a dry matter basis.
* Soil indices from RB209

Released by: *Teresa Clyne* **Date: 26/01/2026**

DECLARATION: I certify that this sample has been analysed by NRM in accordance with BS 3882 Specification for Topsoil (2015).

NRM Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
Tel: +44 (0) 1344 886338 **Fax:** +44 (0) 1344 890972 **Email:** enquiries@nrm.uk.com **www**.nrm.uk.com

NRM Laboratories is a division of Cawood Scientific Ltd, Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS Registered Number: 05655711

Analytical Report

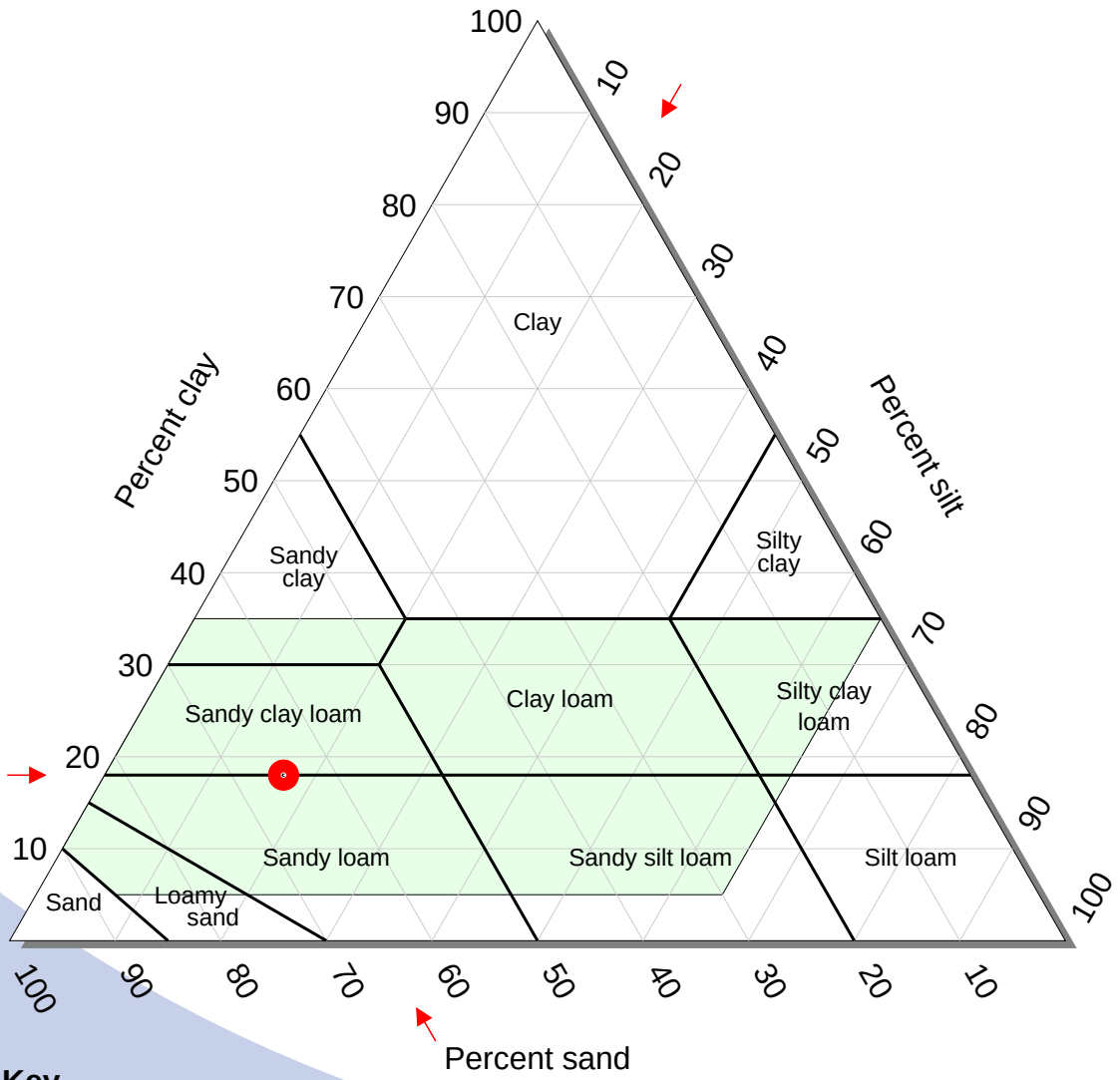
Client: STUART BALDWIN
(T283) SED SERVICES LTD
LANDGATE FARM
LANDGATE LANE
BRYN
WIGAN WN4 0EJ

Originator: TOPSOIL
SOIL

Lab ID: 35357 - 780211
Sample ID: TOPSOIL
Sample Weight: 1958g

Date Received: 12/01/2026
Date Reported: 26/01/2026

Fig. 1. Textural Class: Sandy Loam (compliant)



Key

Area within which texture of topsoil is required to fall.

Analytical Notes

Accreditation and method details

NRM is a UKAS-accredited testing laboratory (No 2334), accredited to BS EN ISO 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer joint ISO-ILAC-IAF communique dated April 2017). http://ilac.org/?ddownload=120917

NRM is accredited for particular determinands in specific matrices as set out in the laboratory's current UKAS schedule of accreditation https://www.ukas.com/wp-content/uploads/schedule_uploads/00002/2334Testing-Multiple.pdf

Accreditation applies to the following parameters in this report and is applicable to SOIL samples only. All other tests within this report are unaccredited.

Test	Analysis SOP	Method Description
Fluoride	JAS-487	Sulphuric acid extraction (1:10 ratio) and determination by ion selective electrode
Arsenic	JAS-510 / JAS-300	Aqua regia digest on hot block and determination by ICP-OES
Barium		
Beryllium		
Cadmium		
Chromium		
Cobalt		
Copper		
Lead		
Molybdenum		
Mercury		
Nickel		
Vanadium		
Zinc		
Selenium	JAS-510 / JAS-455	Aqua regia digest on hot block and determination by AFS

Analysis Notes

Analysis is carried out on the air-dried (<30°C) and ground sample.

The results as reported relate only to the item(s) submitted for testing.

The results are presented on a dry matter basis.

Indices are derived solely from the numerical value and test result without reference to measurement uncertainty.

Document Control

This test report shall not be reproduced, except in full, without the written approval of the laboratory.

We cannot offer interpretation or opinions for results.

Sampling information

BS ISO 18512:2007 (Soil quality – Guidance on long and short-term storage of soil samples) states that for pH the period of stability and therefore holding time for a wet or 'fresh' soil sample is one week from sampling. Other determinants in the fresh sample may be considered stable for up to a month. Once the sample has been dried the sample may then be considered stable for up to 3 years. No records are maintained by NRM on date sampled or date dried so all samples within this report are considered not to be meeting the requirements of this BS / ISO. Consequently, all pH results given are those of the as-received sample and may not reflect the pH value of the sample when taken.

Conformity Assessment

Where a result has been converted to an index or if it has been classified as a pass or fail to a certain specification anywhere in this report a rule has been applied to convert the analytical result to that index or a pass/fail . Statistically the rule is a simple acceptance rule which does not account for uncertainty and therefore has a zero guard band which nominally has a width w=0. This means there is a 50% probability that a result exactly equal to the specification limit will be outside the specification.

The uncertainty of measurement has been calculated for the tests in this report. This value can provide further information on the validity of conformity statements close to the specification limit and is available from the laboratory on request.

Customer-supplied information

The following information in this report has been supplied by the customer: customer details; client details; quotation number / analysis required; order number; sampling date (if present); sample identifications.

END OF REPORT

envirolab
Hattersley Science & Technology Park
Stockport Road, Hattersley, SK14 3QU

FINAL ANALYTICAL TEST REPORT
SUPPLEMENT TO TEST REPORT 26/00863/1

Amendments: Request for split report

Envirolab Job Number: 26/00863
Issue Number: 2-S6 **Date:** 03 February, 2026

Client:
S.E.D. Services Ltd
Landgate Farm
Landgate Lane
Bryn
Wigan
UK
WN4 0EJ

Project Manager: Claire Adamson/James Wright/Megan Baldwin
Project Name: Bryn Hall
Project Ref: N/A
Order No: N/A
Date Samples Received: 22/01/26
Date Instructions Received: 27/01/26
Date Analysis Completed: 03/02/26

Approved by:

[redacted]

Zipporah Bannister
Client Manager

Envirolab Job Number: 26/00863

Client Project Name: Bryn Hall

Client Project Ref: N/A

Lab Sample ID	26/00863/6							Units	Limit of Detection	Method ref
Client Sample No	Bryn Hall - BGB									
Client Sample ID	Sample F									
Depth to Top										
Depth To Bottom										
Date Sampled	21-Jan-26									
Sample Type	SOIL									
Sample Matrix Code	4AE									
% Stones >10mm$_A$	1.1							% w/w	0.1	A-T-044
pH$_D$[M#]	8.47							pH	0.01	A-T-031s
Arsenic$_D$[M#]	3							mg/kg	1	A-T-024s
Cadmium$_D$	<1.0							mg/kg	1	A-T-024s
Copper$_D$[M#]	12							mg/kg	1	A-T-024s
Chromium$_D$[M#]	9							mg/kg	1	A-T-024s
Lead$_D$[M#]	24							mg/kg	1	A-T-024s
Mercury$_D$	<0.17							mg/kg	0.17	A-T-024s
Nickel$_D$[M#]	8							mg/kg	1	A-T-024s
Selenium$_D$[M#]	<1							mg/kg	1	A-T-024s
Zinc$_D$[M#]	56							mg/kg	1	A-T-024s

Envirolab Job Number: 26/00863

Client Project Name: Bryn Hall

Client Project Ref: N/A

Lab Sample ID	26/00863/6							Units	Limit of Detection	Method ref
Client Sample No	Bryn Hall - BGB									
Client Sample ID	Sample F									
Depth to Top										
Depth To Bottom										
Date Sampled	21-Jan-26									
Sample Type	SOIL									
Sample Matrix Code	4AE									
Asbestos in Soil (inc. matrix) ^										
Asbestos in soil$_{D}^{\#}$	NAD									A-T-045
Asbestos Matrix (visual)$_{D}$	-									A-T-045
Asbestos Matrix (microscope)$_{D}$	-									A-T-045
Asbestos ACM - Suitable for Water Absorption Test?$_{D}$	N/A									A-T-045

Envirolab Job Number: 26/00863

Client Project Name: Bryn Hall

Client Project Ref: N/A

Lab Sample ID	26/00863/6							Units	Limit of Detection	Method ref
Client Sample No	Bryn Hall - BGB									
Client Sample ID	Sample F									
Depth to Top										
Depth To Bottom										
Date Sampled	21-Jan-26									
Sample Type	SOIL									
Sample Matrix Code	4AE									
PAH-16MS										
Acenaphthene$_A^{M\#}$	<0.10							mg/kg	0.01	A-T-019s
Acenaphthylene$_A^{M\#}$	<0.10							mg/kg	0.01	A-T-019s
Anthracene$_A^{M\#}$	<0.20							mg/kg	0.02	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	<0.40							mg/kg	0.04	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	<0.40							mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	<0.50							mg/kg	0.05	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	<0.50							mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	<0.70							mg/kg	0.07	A-T-019s
Chrysene$_A^{M\#}$	<0.60							mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene$_A^{M\#}$	<0.40							mg/kg	0.04	A-T-019s
Fluoranthene$_A^{M\#}$	<0.80							mg/kg	0.08	A-T-019s
Fluorene$_A^{M\#}$	<0.10							mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	<0.30							mg/kg	0.03	A-T-019s
Naphthalene $_A^{M\#}$	<0.30							mg/kg	0.03	A-T-019s
Phenanthrene$_A^{M\#}$	<0.30							mg/kg	0.03	A-T-019s
Pyrene$_A^{M\#}$	<0.70							mg/kg	0.07	A-T-019s
Total PAH-16MS$_A^{M\#}$	<0.80							mg/kg	0.01	A-T-019s
TPH Banded 1										
>C6-C8$_A^{M\#}$	<5							mg/kg	5	A-T-007s
>C8-C10$_A^{M\#}$	<1							mg/kg	1	A-T-007s
>C10-C12$_A^{M\#}$	<1							mg/kg	1	A-T-007s
>C12-C16$_A^{M\#}$	11							mg/kg	2	A-T-007s
>C16-C21$_A^{M\#}$	49							mg/kg	2	A-T-007s
>C21-C40$_A^{M\#}$	563							mg/kg	5	A-T-007s
Total TPH Banded 1$_A^{M\#}$	623							mg/kg	5	A-T-007s

Report Notes

General
•This report shall not be reproduced, except in full, without written approval from Envirolab.
•The client Sample No, Client Sample ID, Depth to top, Depth to Bottom and Date Sampled are all provided by the client and can affect the validity of results.
•The results reported herein relate only to the material supplied to the laboratory.
•The residue of any samples contained within this report, and any received within the same delivery, will be disposed of **four weeks** after the initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of **six months** after the initial Asbestos testing is completed.
•Analytical results reflect the quality of the sample at the time of analysis only.
•Opinions and Interpretations expressed are outside our scope of accreditation.
•A deviating sample report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.
•If a sample is outside of the calibration range or affected by interferences then it may need diluting. This will result in the limit of detection (LOD) being raised.
•Subcontracted Analysis: Please see the appended report for any deviations, current LODs and accreditation status of the test.

Key

Superscript "#"	Accredited to ISO 17025
Superscript "M"	Accredited to MCertS
Superscript "U"	Individual result not accredited
None of the above symbols	Analysis unaccredited
Subscript "A"	Analysis performed on as-received Sample
Subscript "D"	Analysis performed on the dried sample, crushed to pass 2mm sieve.
Subscript "D" on Asbestos	Analysis performed on a dried aliquot of sample provided.
Subscript "^"	Analysis has dependant options against results. Details appear in the comments of your Sample receipt
IS	Insufficient Sample for analysis
US	Unsuitable Sample for analysis
NDP	No Determination Possible
NAD	No Asbestos Detected
Trace	Asbestos found not suitable for Gravimetric Quantification – not enough to accurately weigh.
N/A	Not applicable

Asbestos
Identification: Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis
"Trace Asbestos Identified" will be reported if there is not enough present to verify the type.

Assigned Matrix Codes

1	SAND	6	CLAY/LOAM	A	Contains Stones
2	LOAM	7	OTHER	B	Contains Construction Rubble
3	CLAY	8	Asbestos Bulk (Only Asbestos ID accredited)	C	Contains visible hydrocarbons
4	LOAM/SAND	9	Incinerator Ash (some Metals accredited)	D	Contains glass / metal
5	SAND/CLAY			E	Contains roots / twigs
Note: 7,8,9 matrices are not covered by our ISO 17025 or MCertS accreditation, unless stated above.					

Soil Chemical Analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH by method A-T-007:
For waters, free and visible oils are excluded from the sample used for analysis, so the reported result represents the dissolved phase only.
Results "with Clean up" indicates samples cleaned up with Silica during extraction.

EPH CWG (method A-T-055) from TPH CWG:
EPH CWG results have humics mathematically subtracted through instrument calculation.
Where these humic substances have been identified in any IDs from "TPH CWG with clean up" please note that the concentration is **NOT** included in the quantified results but present in the ID for information.

Electrical Conductivity of water by method A-T-037:
Results greater than 12900µS/cm @ 25^0C / 11550µS/cm @ 20^0C fall outside the calibration range and as such are unaccredited.

Please contact your client manager if you require any further information.

Envirolab Deviating Samples Report

Hattersley Science & Technology Park, Stockport Road, Hattersley, SK14 3QU
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: S.E.D. Services Ltd, Landgate Farm, Landgate Lane, Bryn, Wigan, UK, WN4 0EJ

Project: Bryn Hall

Clients Project No: N/A

Project No: 26/00863

Date Received: 27/01/2026 (am)

Cool Box Temperatures (°C): 8.1

NO DEVIATIONS IDENTIFIED with respect to sampling dates or containers received.

Note: If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3 (for water samples 5 ± 3°C), ISO 18400-105:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	26/00863/6
Client Sample No	Bryn Hall - BGB
Client Sample ID/Depth	Sample F
Date Sampled	21/01/26
A-T-007s	02/02/2026
A-T-019s	03/02/2026
A-T-024s	02/02/2026
A-T-031s	02/02/2026
A-T-044	30/01/2026
A-T-045	28/01/2026

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

Merebrook
Warrington
WA2 0XP

t: 01689 889980

[redacted]

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: info-i2analytical@normecgroup.com

Analytical Report Number : 26-029458

Project / Site name:	Echo Street	**Samples received on:**	03/06/2026
Your job number:	20376	**Samples instructed on/ Analysis started on:**	03/06/2026
Your order number:	26-1 FDO-LABS	**Analysis completed by:**	11/06/2026
Report Issue Number:	1	**Report issued on:**	11/06/2026
Samples Analysed:	3 soil samples		

[redacted]

Signed:

Rachel Chappell
Key Account Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting
air	- once the analysis is complete

Excel copies of reports are only valid when accompanied by this PDF certificate.

Retention period for records and reports is minimum 6 years from the date of issue of the final report.
Some records may be kept for longer according to other legal/best practice requirements.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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Analytical Report Number: 26-029458
Project / Site name: Echo Street
Your Order No: 26-1 FDO-LABS

Lab Sample Number				938209	938210	938211
Sample Reference				MTS-W1	MTS-W2	MTS-W3
Sample Number				None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				02/06/2026	02/06/2026	02/06/2026
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status			
Mass of stone >10mm	%	0.1	NONE	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	13	15	14
Total mass of sample received	kg	0.1	NONE	0.7	0.7	0.7
Asbestos						
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	WEM	WEM	WEM
Analysis completed	N/A	N/A	N/A	10/06/2026	10/06/2026	10/06/2026
General Inorganics						
pH (L099)	pH Units	N/A	MCERTS	7.9	8.1	8.2
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	20	210	470
Water Soluble SO_4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.00998	0.104	0.234
Water Soluble SO_4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	9.98	104	234
Organic Matter (automated)	%	0.1	MCERTS	4.6	5	5.8
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	2.6	2.9	3.4
Total Phenols						
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Speciated PAHs						
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.07
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.06
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.1	0.11	0.6
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.16
Fluoranthene	mg/kg	0.05	MCERTS	0.25	0.41	1.6
Pyrene	mg/kg	0.05	MCERTS	0.21	0.36	1.5
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.13	0.18	0.51
Chrysene	mg/kg	0.05	MCERTS	0.12	0.21	0.58
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.14	0.28	0.68
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.08	0.11	0.26
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.1	0.19	0.48
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.07	0.13	0.3
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.07	0.15	0.34
Total PAH						
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	1.28	2.14	7.1

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Project / Site name: Echo Street
Your Order No: 26-1 FDO-LABS

Lab Sample Number				938209	938210	938211
Sample Reference				MTS-W1	MTS-W2	MTS-W3
Sample Number				None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				02/06/2026	02/06/2026	02/06/2026
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status			
Heavy Metals / Metalloids						
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	9.5	8.4	9.4
Barium (aqua regia extractable)	mg/kg	1	MCERTS	68	58	85
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.3	0.3	0.3
Chromium (hexavalent)	mg/kg	1.8	MCERTS	U/S *U/S g	U/S *U/S g	U/S *U/S g
Chromium (III)	mg/kg	1	NONE	U/S *U/S g	U/S *U/S g	U/S *U/S g
Chromium (hexavalent) by IC	mg/kg	1.8	NONE	< 1.80	< 1.80	< 1.80
Chromium (III) by IC	mg/kg	1	NONE	14	16	20
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	14	16	20
Copper (aqua regia extractable)	mg/kg	1	MCERTS	37	30	36
Lead (aqua regia extractable)	mg/kg	1	MCERTS	56	48	65
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	11	11	17
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	18	18	22
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	99	120	130
Petroleum Hydrocarbons						
TPHCWG - Aliphatic >EC5 - EC6 HS_1D_AL	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 HS_1D_AL	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 HS_1D_AL	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 EH_CU_1D_AL	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 EH_CU_1D_AL	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 EH_CU_1D_AL	mg/kg	8	MCERTS	26	37	19
TPHCWG - Aliphatic >EC35 - EC40 EH_CU_1D_AL	mg/kg	10	NONE	< 10	< 10	< 10
TPHCWG - Aliphatic >EC5 - EC35 EH_CU+HS_1D_AL	mg/kg	10	NONE	26	37	19
TPHCWG - Aliphatic >EC5 - EC40 EH_CU+HS_1D_AL	mg/kg	10	NONE	26	37	19
TPHCWG - Aromatic >EC5 - EC7 HS_1D_AR	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 HS_1D_AR	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_1D_AR	mg/kg	0.02	MCERTS	< 0.020	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 EH_CU_1D_AR	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 EH_CU_1D_AR	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0
TPHCWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	< 10	< 10	< 10
TPHCWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	< 10	19	24
TPHCWG - Aromatic >EC35 - EC40 EH_CU_1D_AR	mg/kg	10	NONE	< 10	< 10	< 10
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_1D_AR	mg/kg	10	NONE	< 10	19	24
TPHCWG - Aromatic >EC5 - EC40 EH_CU+HS_1D_AR	mg/kg	10	NONE	< 10	19	24
TPH Total >EC5 - EC40 EH_CU+HS_1D_TOTAL	mg/kg	10	NONE	26	56	43

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Analytical Report Number: 26-029458
Project / Site name: Echo Street
Your Order No: 26-1 FDO-LABS

Lab Sample Number				938209	938210	938211
Sample Reference				MTS-W1	MTS-W2	MTS-W3
Sample Number				None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				02/06/2026	02/06/2026	02/06/2026
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status			
VOCs						
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
938209	MTS-W1	None Supplied	None Supplied	Brown loam and sand with gravel and vegetation
938210	MTS-W2	None Supplied	None Supplied	Brown loam and sand with gravel and vegetation
938211	MTS-W3	None Supplied	None Supplied	Brown loam and sand with gravel and vegetation

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Analytical Report Number : 26-029458
Project / Site name: Echo Street

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)
Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content (Wet Weight)	Moisture content (% wet weight), determined gravimetrically (up to 30°C)	In-house-procedure based on BS EN 12880:2000	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Hexavalent chromium in soil by Ion Chromatography	Determination of hexavalent chromium in alkaline soil extract by use of ion chromatography with spectrophotometric detection	In-house method	L130B	W	NONE
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID in soil	Determination of total petroleum hydrocarbons in soil by GC-FID with carbon banding aliphatic and aromatic	In-house method	L076B	D	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil (Summed Bands)	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic (Summed Bands).	Calculation	L076B/L088-PL	D/W	NONE
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080-PL/L130B	W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080-PL	W	MCERTS
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS

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Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)
Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Total petroleum hydrocarbons with carbon banding by HS-GC/MS in soil	Determination of total petroleum hydrocarbons in soil by HS-GC/MS with carbon banding aliphatic and aromatic	In-house method	L088-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099-PL	D	MCERTS
Soil Descriptions	Textural classification	In-house method	L019B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Quality control parameter failure associated with individual result applies to calculated sum of individuals.
The result for sum should be interpreted with caution

*U/S g- Unsuitable for analysis due to high colour intensity.

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