

Technical Note

Project: Phase 3, Clarendon Road, Hornsey

Subject: Blocks D1 and D2 Verification Report

Date: July 2023

Project No.: 5196431

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Notice

This document and its contents have been prepared and are intended solely as information for St William Homes LLP and use in relation to the Block D1 and Block D2 soft landscaping areas in Phase 3 of the former Hornsey Gasworks at Mary Neuner Road, Hornsey, N22 6UG.

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Document history

Revision	Purpose description	Originated	Checked	Reviewed	Authorised	Date
P1	Draft for comment	JV	NK	AN	NK	05/07/2023
P2	Final	JV	NK	AN	NK	06/07/2023

1. Introduction

1.1. General

Atkins Limited (Atkins) was commissioned by St William Homes LLP (St William) to produce a Verification Report to assess soft landscaping cover systems installed in Phase 3 – Blocks D1 and D2 of the Clarendon Road, Hornsey development. The site is located to the west of Mary Neuner Road, Hornsey, N22 6UG. The Blocks D1 and D2 soft landscaping comprises a number of small rectangular and polygonal shaped areas around the residential blocks which total approximately 95 m².

A site location plan is presented as Figure 1 and a general arrangement plan illustrating the soft landscaped areas to be installed and detailed in this report (blue shading) within Blocks D1 and D2, as provided by St William, is presented in Appendix A.

1.2. Background and Objectives

Atkins produced a Remediation Strategy [1] and Remediation Method Statement [2] for development works within Phase 3. These documents set out remediation criteria for selected contaminants and qualitative descriptions of materials requiring removal or treatment prior to reuse.

Keltbray Ltd (Keltbray) produced the following verification reports detailing the earthworks and remediation completed within Phase 3 in support of the partial discharge of Condition 31: Land Contamination attached to planning permission HGY/2017/3117:

- Verification Report, Clarendon Road – Phase 3, Stage 1. May 2021 [3]
 - Verification of the Stage 1 earthworks and remediation to meet the requirements of the approved Atkins Remediation Strategy [1]. Works comprised the removal of contaminated Made Ground and London Clay in accordance with the criteria set out in Atkins' Remediation Method Statement [2].
- Verification Report, Clarendon Road – Phase 3, Stage 2. June 2023 [4]
 - Verification of the Stage 2 earthworks including reduced level excavations to support construction of the proposed Phase 3 basement. Works were undertaken in accordance with Atkins' Remediation Strategy [1] and Remediation Method Statement [2].

The remediation works undertaken by Keltbray excluded the placement of cover systems in areas of soft landscaping. The objective of this technical note is to demonstrate the compliance of the cover system being installed within Blocks D1 and D2 in June 2023 with the approved Remediation Strategy [1] to support the discharge of Condition 31.

1.3. Assumptions and Limitations

The report has been produced subject to the following assumptions and limitations:

- The Blocks D1 and D2 soft landscaping primarily comprised lawns, tree pits, raised planter beds and hedges located around each Block. Landscaped areas will be used by future residents as a communal open space and will be centrally managed and maintained to ensure cover systems are not degraded.
- Atkins did not oversee the placement of the cover system. Statements relating to the build-up of the cover system and sources of imported material are based on information provided by St William. The data have been assumed to be correct for the purposes of this assessment. Atkins does not accept liability for the validity of reports by or on behalf of third parties.
- The Blocks D1 and D2 landscaping was in progress when verification sampling was undertaken. Samples and photographs have been obtained from accessible areas of the site where subsoil and topsoil had been placed and are representative of completed soil profiles. Subsoil and topsoil continued to be placed following this sampling exercise, with materials confirmed as from the same sources and batches as those sampled. Planting had not been completed at the time of sampling.

2. Cover System Requirements

The approved Atkins Remediation Strategy [1] requires all areas of soft landscaping within Phase 3 to be completed with cover systems comprising a Human Health Separation Layer (HHSL) of not less than 600 mm in thickness, unless otherwise agreed with the Planning Authority.

In tree pits, the placement of a Marker Layer at the base and the sides linking to the surrounding Marker Layer is specified. The HHSL is required to include a capillary break layer (CBL) comprising a minimum of 100 mm thickness of Class 6C Starter Layer overlying the Marker Layer.

HHSL materials are required to meet the *residential without private gardens* generic assessment criteria (GAC) as detailed in Appendix A of Atkins' Remediation Method Statement [2]. The human health criteria and the revised import target criteria are presented in Appendix B.

The strategy specifies typical validation sampling at a minimum frequency of one sample per 250 m³ for HHSL materials, with a minimum of three samples per source.

3. Cover System Installation Details

The cover system within Blocks D1 and D2 is being installed by Elite Landscapes Ltd, who were appointed by St William and commenced work in June 2023. A summary of the final soil profile in soft landscaping areas is as follows:

Soft landscaping / planting areas build-up (top – down)

- 400 mm topsoil;
- 200 mm subsoil; and
- Geotextile filter membrane, placed above gravel/ shingle filter layer.

Shingle CBL comprising a minimum of 100 mm thickness of Class C Starter Layer with a maximum particle size of 75 mm was installed below the Marker Layer. Placement was specified as above Marker Layer in the Remediation Method Statement [2] but was amended to allow the full thickness of 600 mm topsoil and subsoil to be placed.

3.1. Imported Topsoil and Subsoil Details

Both topsoil and subsoil used in the Phase 3 soft landscaped areas were supplied by H Sivyer Transport Ltd. They consist of Lawn Topsoil, Tugrow Topsoil, rootzone 80/20 and Landscape Subsoil. The volumes in Table 3-1 are representative of the total amount of soils currently installed. St William will confirm the final volumes on completion.

Shingle forming the CBL was supplied by H Sivyer Transport Ltd. The shingle is quarried aggregate sourced from South East Angerston and as such has not been sampled as part of this verification Technical Note. Source information is presented in Appendix C.

A summary of the material imported to the site is presented in Table 3-1 and the chemical analysis certificates provided by the suppliers are included in Appendix C. Photographs showing the imported material are presented in Appendix D.

Table 3-1: Phase 3 – Blocks D1 and D2 import details

Material Type	Detailed Information	Supplier	Source Analysis Date	Approximate Volume (m ³)	Area used	Description based on supplier reports
Subsoil	Landscape Subsoil	H Sivyer Transport Ltd	13/02/2023	65.53	Subsoil surrounding Blocks D1 and D2	Strong brown, slightly moist, friable, gravelly, very slightly calcerous SAND.
Topsoil	Trugrow Topsoil and Lawn Topsoil		17/03/2023	36.00	Topsoil surrounding Blocks D1 and D2	Dark greyish brown, dry, friable, very slightly calcerous SANDY LOAM.
	Rootzone 80/20 Topsoil		18/05/2023	9.35	Topsoil used in Zone 1 & 2 around Blocks D1 and D2	
Shingle	Shingle		N/A	23.42	Used around Blocks D1 and D2 below the Marker Layer	Light brown coarse sub-angular to angular flint GRAVEL.

3.2. Source Certification Results

The chemical data provided by the material suppliers (one sample per type) were reviewed during the current assessment and are included in Appendix C. Chemical analytical data were screened against the chemical criteria for imported soils presented in Appendix B. Chemical concentrations recorded in samples from the topsoil and subsoil were all recorded below the relevant import criteria and therefore chemically compliant.

The shingle was not tested as it was not part of the verification requirements set out in the Remedation Method Statement [2] and Remediation Strategy [1]. This material has been placed below the Marker Layer and is from a quarried source it is not deemed to pose a risk to end users.

4. Verification of Cover System

4.1. Scope of Work

In order to confirm the compliance of the cover system installed within Blocks D1 and D2 with the design documents and associated verification criteria [2], the following scope of works was undertaken by Atkins:

- Logging of the soil profile;
- Collection of six representative soil samples for chemical analysis (three samples from imported topsoil and three samples from imported subsoil material to supplement the source data provided by the suppliers); and
- Laboratory chemical analysis as per the list of analytes included in the verification criteria.

At the time of sampling, topsoil and subsoil had already been placed in some areas of the site, whilst both soil types continued to be imported for use within remaining areas of soft landscaping, under the management of St William and the soft landscaping contractor. One hand pit was undertaken and a total of two soil samples were obtained from placed material in Blocks D1 and D2. Four soil samples were collected from marked bulk bags which showed where the soils would be placed. Sample locations are presented in Appendix A and photographs of the handpits and bulk bags are provided in Appendix D.

UKAS and MCERTS accredited laboratory testing (where applicable) was scheduled on all samples by Atkins for the suite detailed in Table 4-1. The geo-environmental laboratory analysis was undertaken by Chemtest and the chemical analysis certificates are presented in Appendix E.

Table 4-1: Soil chemical testing suite

Analyte
Inorganics: pH, fraction of organic carbon (FOC) and free cyanide
Asbestos screen
Metals: arsenic, cadmium, chromium III and VI, lead, mercury, nickel, selenium and zinc
Total Petroleum Hydrocarbon (TPH) Criteria Working Group (CWG)
Benzene, toluene, ethylbenzene, xylene (BTEX)
Polyaromatic hydrocarbons (PAHs) - 16 speciated
Total phenol
VOCs: 1,1-dichloroethane, 1,2-dichloroethane (1,2-DCA), cis-1,2-dichloroethene, trans-1,2-dichloroethene, 1,1,1-trichloroethane (1,1,1-TCA), 1,1,2-trichloroethane (1,1,2-TCA), 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane, trichloroethene (TCE), tetrachloroethene (PCE), trichloromethane (chloroform), carbon tetrachloride /tetrachloromethane

4.2. Field Observations

Verification samples D1-D2 Zone 2 HPT01 SS (SS: subsoil) and D1-D2 Zone 2 HPT01 TS (TS: topsoil) were obtained via hand pits from imported and placed subsoil and topsoil. Verification samples D1-D2 Zone 1 and 3 and D1-D2 Zone 4 and 5 were taken from bulk bags of imported subsoil and topsoil pending placement. Based on the plan provided by St William it is assumed that these samples are representative of each of the sources of TS and SS outlined in Table 3-1. A plan provided by the Client showing where each of the sourced material has been used is included as Figure 2.

Placed materials were broadly compliant with the depths detailed in Section 3 and Marker Layer was present at a minimum depth of 600 m bgl. However, the topsoil had not been fully placed and a further 100 mm was scheduled to be placed to bring the surface to finish levels. No visual or olfactory evidence of contamination were observed. CBL materials provided by H Sivyer Transport Ltd and sourced from South East Angerstein. Additionally it was noted that the shingle CBL layer was installed below the Marker Layer rather than above it, as detailed within the Remediation Method Statement [2]. This was to allow a full thickness of 600 mm of topsoil and subsoil to be placed and is not considered have any impact on potential risks to future users or the environment.

As all areas of soft landscaping had not been fully completed when the sampling took place. Confirmation of the cover system installation, including the placement of CBL, Marker Layer and subsoil and topsoil from the same source as existing imported soils will be provided by St William.

Photographs of the soil profiles and imported materials are presented in Appendix D.

4.3. Chemical Verification

Chemical analytical data from the six soil samples collected on 15 June 2023 were screened against the verification criteria for shallow soils (Appendix B). The results showed concentrations of all analytes were recorded below the relevant human health criteria approved in the Phase 3 remediation documentation and/or below the limit of detection. The full soil screening sheets are presented in Appendix F.

4.4. Sample Deviations

No analytes pertaining to any of the samples had deviated during the testing phase as confirmed by the laboratory report in Appendix B.

5. Conclusions

Two verification samples were collected from in-situ topsoil and subsoil during the site visit on 15 June 2023. An additional four samples were taken from bulk bags prior to placement. Chemical analytical data from these samples, as well as two source samples, were screened against the verification criteria for shallow soils as presented in the approved Phase 3 Remediation Strategy [1].

No visual or olfactory indicators of potential contamination were observed during the hand pits, or in general site observations. The thickness of the cover system and presence of Marker Layer were broadly compliant with the Phase 3 Remediation Strategy [1] and the soil profiles set out in Section 3, pending completion of topsoil placement.

As all areas of soft landscaping had not been fully completed when the sampling took place, confirmation of the cover system installation, including the placement of CBL, Marker Layer and subsoil and topsoil from the same source as existing soils will be provided by St William.

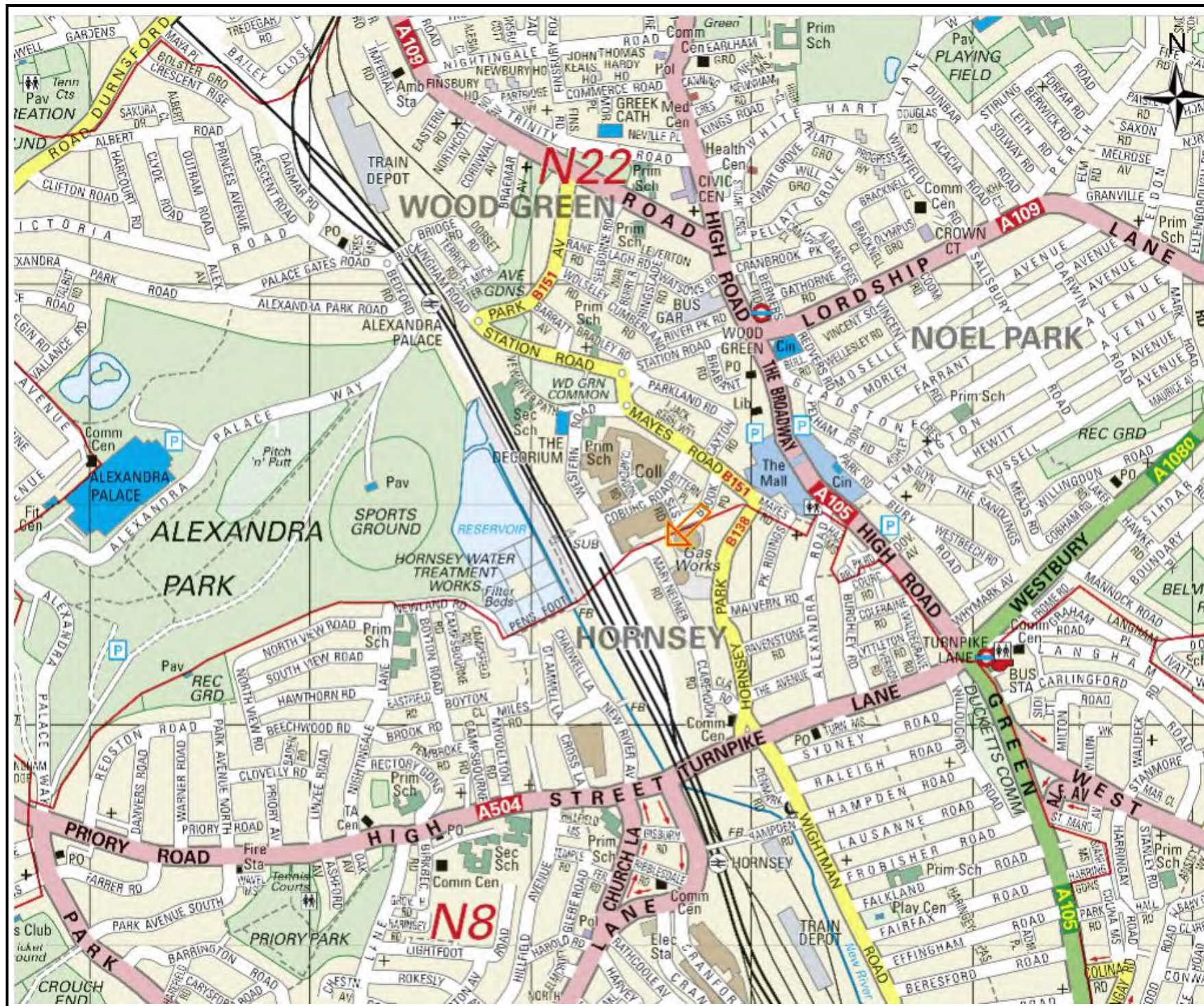
In summary, the verification works undertaken by Atkins confirm that the cover system to be installed within Blocks D1 and D2 meets the requirement of the approved Remediation Strategy [1] to mitigate potential risks to human health.

6. References

- [1] Atkins , “Phase 3, Clarendon Road, Hornsey, Remediation Strategy Rev 4.0,” May 2020.
- [2] Atkins Ltd, “Phase 3, Clarendon Road, Hornsey: Remediation Method Statement, Rev 4.0,” May 2020.
- [3] Keltbray Ltd, “Verification Report RE6067-VR-AH-November2020-03-Phase 3,” May 2021.
- [4] Keltbray, “Verification Report RE6089-VR-GG-Phase 3B,” 2023.

Appendices

Appendix A. General Arrangement



Legend

ATKINS

Member of the SNC-Lavalin Group

Client

St William

Designed for life

Project

Clarendon Road - Hornsey

Drawing Title

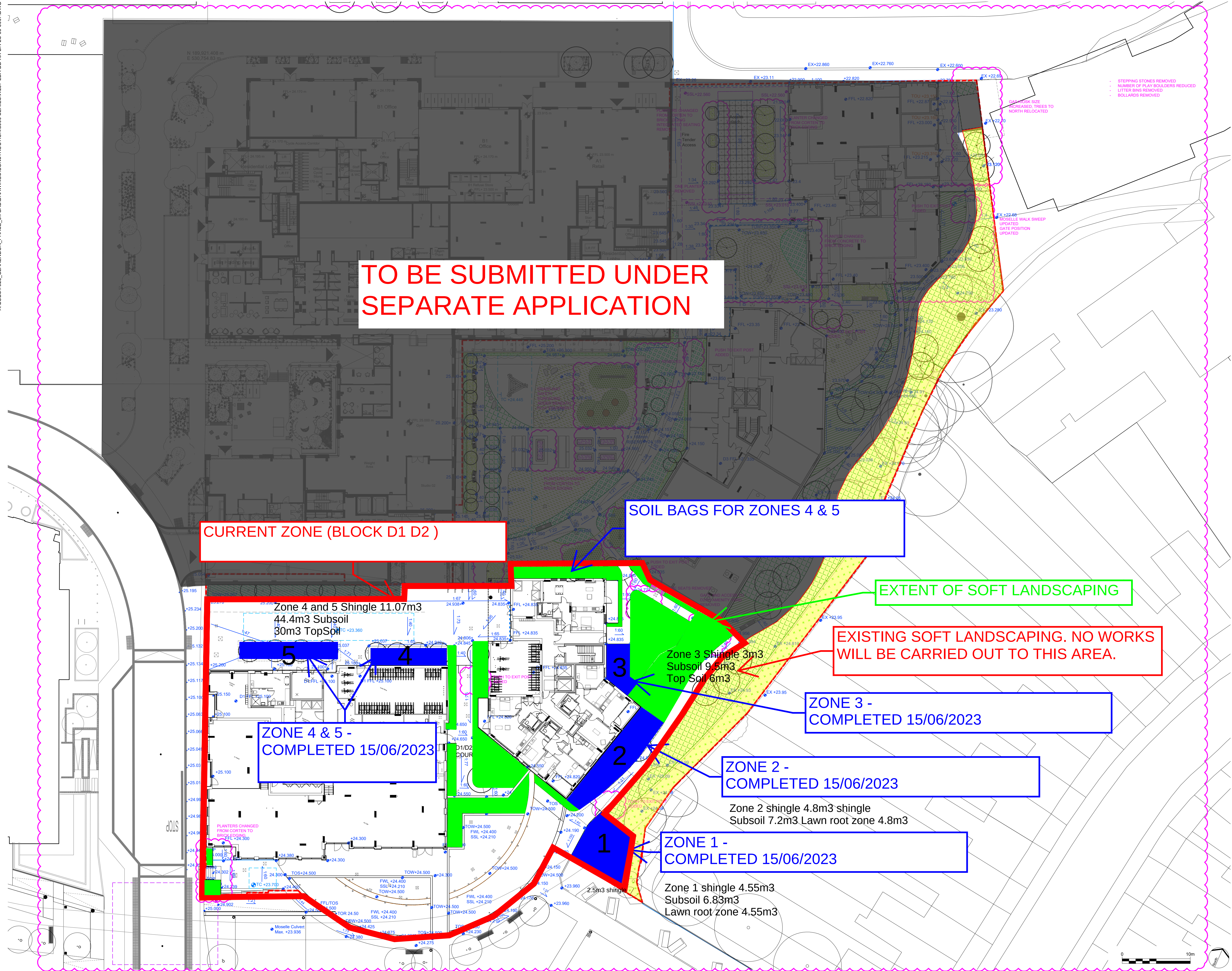
Figure 1: Site Location

Author

J. Johnston

Date & Revision

05/07/2023 Rev2



TO BE SUBMITTED UNDER SEPARATE APPLICATION

CURRENT ZONE (BLOCK D1 D2)

SOIL BAGS FOR ZONES 4 & 5

EXTENT OF SOFT LANDSCAPING

EXISTING SOFT LANDSCAPING. NO WORKS WILL BE CARRIED OUT TO THIS AREA.

ZONE 4 & 5 - COMPLETED 15/06/2023

ZONE 3 - COMPLETED 15/06/2023

ZONE 2 - COMPLETED 15/06/2023

ZONE 1 - COMPLETED 15/06/2023

- LEGEND
- RED LINE BOUNDARY
 - LEVELS
 - EXISTING LEVEL
 - FINISH FLOOR LEVEL (BY ARCHITECTS)
 - PROPOSED LEVEL
 - TOP OF WALL
 - TOP OF PLANTER
 - TOP OF RAILING
 - STRUCTURAL SLAB LEVEL (REFER ENGINEERS INFORMATION)
 - TOP OF CELL (ATTENUATION BY OTHERS)
 - ATTENUATION CELLS (BY OTHERS)
 - CONTOURS
 - SLOT DRAIN
 - TREE PIT DEPTH 1.2M BELOW FFL
 - LARGE SHRUB PLANTING 0.8M BELOW FFL
 - FOL FORMATION LEVEL

READ THIS FIRST

- Note for Contractors**
This drawing should be considered along with the risk information contained in the CDM Pre Construction Information. This information will include details of the SIGNIFICANT risks which LDA Design has identified which may arise from constructing their designs shown on this drawing. A Competent Contractor should be aware of the typical risks associated with doing this work.
- Note for Workers**
DO NOT START YOUR WORK unless you know the Risks and Controls relating to the work on this drawing (including SAFE SEQUENCES OF WORK AND EQUIPMENT).
- Do not issue copies of parts of this drawing without the above Note for Workers (unless you are sure that the Workers can undertake the work safely).

C16	VE Updates	AH	03/02/23
C15	Architectural layouts updated	AH	20/05/22
C14	Levels and slot drain updates	AH	14/03/22
C13	Slot drains added	AH	11/02/22
C12	General updates	AH	11/11/21
C11	Updated for LABC	AH	15/07/21
C10	Updated to S278 and D4, steps removed, levels updated	AH	23/06/21
C9	Central courtyard amended to suit Block E and VE	AH	26/05/21
C8	Mary Neuner courtyard, D1 and Block E building updated	AH	10/05/21
C7	Levels updated to Moselle and Brooke Road courtyard	AH	07/05/21
C6	Issued for Construction	AH	08/12/20
C5	Issued for Construction	AH	27/07/20
C4	Additional levels added, slab levels updated	AH	17/07/20
C3	Updates to levels for D4 basement and Energy Room	AH	04/06/20
C2	Updates for drainage and architecture amendments	AH	21/04/20
C1	Issued for Construction	AH	17/04/20
REV.	DESCRIPTION	ATP	DATE

LDA DESIGN

PROJECT TITLE
CLARENDON ROAD PHASE 3

Figure 2

DRAWING TITLE
Phase 3 Sitewide Levels Plan

ISSUED BY: London T: 020 7467 1470
DATE: SEP 19 DRAWN: AN
SCALE: A1 CHECKED: JT
STATUS: Construction APPROVED: AH

DWG. NO W257-LDA-DD-XX-DR-LS-90-3007

No dimensions are to be scaled from this drawing.
All dimensions are to be checked on site.
Area measurements for indicative purposes only.

© LDA Design Consulting Ltd. Quality Assured to BS EN ISO 9001 : 2015

Sources: Ordnance Survey

Appendix B. Assessment Criteria

Generic Assessment Criteria

The GACs for the identified contaminants of concern are provided in Table B-1 and Table B-2 for 0.0-1.0 m bgl and >1.0 m bgl, respectively.

Table B-1: GACS for Human Health – Soils from 0.0 to 1.0 m bgl (mg/kg unless stated otherwise)

Contaminant of Concern	Residential without Private Gardens
<i>General Inorganics</i>	
Asbestos	No detection
Free Cyanide	3.40E+01
<i>Heavy Metals/Metalloids</i>	
Arsenic	3.99E+01
Cadmium (lifetime exposure)	1.49E+02
Chromium III	1.67E+04
Chromium VI	2.05E+01
Lead	3.13E+02
Mercury	2.44E+02
Nickel	1.88E+02
Selenium	5.95E+02
Zinc	4.70E+04
<i>BTEX</i>	
Benzene	0.31E-01
Toluene	3.12E+02
Ethylbenzene	8.50E+01
Total Xylenes,	2.68E+01
<i>TPH Bands</i>	
TPH Aliphatic > C ₅ -C ₆	4.29E+01
TPH Aliphatic > C ₆ -C ₈	9.96E+01
TPH Aliphatic > C ₈ -C ₁₀	1.39E+01
TPH Aliphatic > C ₁₀ -C ₁₂	8.18E+01
TPH Aliphatic > C ₁₂ -C ₁₆	3.85E+02
TPH Aliphatic > C ₁₆ -C ₃₅	2.12E+05
TPH Aromatic > C ₅ -C ₇	0.31E-01
TPH Aromatic > C ₇ -C ₈	3.12E+02
TPH Aromatic > C ₈ -C ₁₀	2.27E+01
TPH Aromatic > C ₁₀ -C ₁₂	1.39E+02
TPH Aromatic > C ₁₂ -C ₁₆	7.03E+02
TPH Aromatic > C ₁₆ -C ₂₁	1.93E+03
TPH Aromatic > C ₂₁ -C ₃₅	1.93E+03
Acenaphthene	2.68E+03
Anthracene	3.43E+04
Benzo(a)pyrene	5.34E+00
Fluoranthene	4.88E+03
Fluorene	3.26E+03
Naphthalene	8.52E-01
Pyrene	3.65E+03
1,1-Dichloroethane	1.19E+00
1,2-Dichloroethane (1,2-DCA)	8.94E-03
cis-1,2-Dichloroethene	5.74E-02

Contaminant of Concern	Residential without Private Gardens
trans-1,2-Dichloroethene	9.66E-02
1,1,1-Trichloroethane (1,1,1-TCA)	3.20E+00
1,1,2-Trichloroethane (1,1,2-TCA)	4.30E-01
1,1,1,2-Tetrachloroethane	1.89E+00
1,1,2,2-Tetrachloroethane	4.74E+00
Trichloroethene (TCE)	1.59E-03
Tetrachloroethene (PCE)	6.78E-01
Trichloromethane (Chloroform)	4.72E-01
Carbon Tetrachloride / Tetrachloromethane	1.47E-01
Vinyl Chloride (VC)	3.00E-04
Phenol	5.70E+02
Notes All values in mg/kg, unless otherwise stated. No material containing visual/olfactory evidence of contamination is permitted. Material imported onto site produced under WRAP protocol should be sampled accordingly as per the source requirements. Material imported using DoWCoP should be assessed and adhere to the objective of DoWCoP alongside the site specific GAC criteria.	

Table B-2: GACS for Human Health – Soils > 1.0 m bgl (mg/kg unless stated otherwise)

Contaminant of Concern	Residential without Private Gardens
<i>General Inorganics</i>	
Asbestos	0.1% ^(a)
Free Cyanide	NO GAC
<i>Heavy Metals/Metalloids</i>	
Arsenic	NO GAC
Cadmium	NO GAC
Chromium III	NO GAC
Chromium VI	NO GAC
Lead	NO GAC
Mercury	NO GAC
Nickel	NO GAC
Selenium	NO GAC
Zinc	NO GAC
<i>BTEX</i>	
Benzene	2.51E+00
Toluene	3.15E+02
Ethylbenzene	8.56E+01
Xylenes	2.69E+01
<i>TPH Bands</i>	
TPH Aliphatic > C ₅ -C ₆	4.29E+01
TPH Aliphatic > C ₆ -C ₈	9.96E+01
TPH Aliphatic > C ₈ -C ₁₀	1.39E+01
TPH Aliphatic > C ₁₀ -C ₁₂	1.41E+02
TPH Aliphatic > C ₁₂ -C ₁₆	NO GAC

Contaminant of Concern	Residential without Private Gardens
TPH Aliphatic > C ₁₆ -C ₂₁	NO GAC
TPH Aliphatic > C ₂₁ -C ₃₅	NO GAC
TPH Aromatic > C ₅ -C ₇	2.51E+00
TPH Aromatic > C ₇ -C ₈	3.15E+02
TPH Aromatic > C ₈ -C ₁₀	2.28E+01
TPH Aromatic > C ₁₀ -C ₁₂	1.41E+02
TPH Aromatic > C ₁₂ -C ₁₆	NO GAC
TPH Aromatic > C ₁₆ -C ₂₁	NO GAC
TPH Aromatic > C ₂₁ -C ₃₅	NO GAC
<i>PAHs</i>	
Acenaphthene	NO GAC
Anthracene	NO GAC
Benzo(a)pyrene	NO GAC
Fluoranthene	NO GAC
Fluorene	NO GAC
Naphthalene	5.68E+00
Pyrene	NO GAC
<i>Other Organics</i>	
1,1-Dichloroethane	1.19E+00
1,2-Dichloroethane (1,2-DCA)	8.94E-03
cis-1,2-Dichloroethene	5.74E-02
trans-1,2-Dichloroethene	9.66E-02
1,1,1-Trichloroethane (1,1,1-TCA)	3.20E+00
1,1,2-Trichloroethane (1,1,2-TCA)	4.31E-01
1,1,1,2-Tetrachloroethane	1.89E+00
1,1,2,2-Tetrachloroethane	4.75E+00
Trichloroethene (TCE)	1.59E-03
Tetrachloroethene (PCE)	6.78E-01
Trichloromethane (Chloroform)	4.72E-01
Carbon Tetrachloride / Tetrachloromethane	1.47E-01
Vinyl Chloride (VC)	3.00E-04
Phenol	6.21E+02

Notes

All values in mg/kg, unless otherwise stated.

No material containing free-phase product is permitted.

Material imported onto site produced under WRAP protocol should be sampled accordingly as per the source requirements.

Material imported using DoWCoP should be assessed and adhere to the objective of DoWCoP alongside the site specific GAC criteria.

No GAC: modelled compound did not present an unacceptable risk to the applicable receptor along the modelled pathway.

(a): Asbestos criteria assumes the presence of the relevant thickness of Human Health Separation Layer is placed which meets the criteria presented in Table B-1, including areas of permanent hard standing/structures. In the event that this is not present, the criteria presented in Table B-1 will apply.

Appendix C. Source Certificates



TIM O'HARE ASSOCIATES
SOIL & LANDSCAPE CONSULTANCY

Mr Simon Sivyver
H. Sivyver Transport Ltd
160 Sydenham Road
London
SE26 5JZ

17th March 2023
Our Ref: TOHA/23/7819/2/SS
Your Ref: PO 181962

Dear Sirs

Topsoil Analysis: Trugrow Blends

We have completed the analysis of the soil sample recently submitted, referenced *Sample 2: 65/35 Blend* and have pleasure reporting our findings.

The purpose of the analysis was to determine the suitability of the sample for general landscape purposes. In addition, this sample has been assessed to determine its compliance with the requirements of the British Standard for Topsoil (*BS3882:2015 – Specification for Topsoil – Table 1, Multipurpose Topsoil*).

This report presents the results of analysis for the sample submitted to our office, and it should be considered 'indicative' of the topsoil source. The report and results should therefore not be used by third parties as a means of verification or validation testing or waste designation purposes, especially after the topsoil has left the H. Sivyver Transport Ltd site.

SAMPLE EXAMINATION

The sample was described as a brown (Munsell Colour 10YR 4/3), slightly moist, friable, slightly calcareous SANDY LOAM with a weakly developed, very fine to fine granular structure*. The sample was slightly stony and contained a high proportion of organic fines and occasional woody fragments. No unusual odours, deleterious materials, roots or rhizomes of pernicious weeds were observed.

* This appraisal of soil structure was made from examination of a disturbed sample(s). Structure is a key soil characteristic that may only be accurately assessed by examination in an in-situ state.

Tim O'Hare Associates LLP
Howbery Park Wallingford Oxfordshire OX10 8BA
T:01491 822653 E:info@toha.co.uk
www.toha.co.uk



Plate 1: Topsoil 2: 65/35 Blend Sample

ANALYTICAL SCHEDULE

The sample was submitted to a UKAS and MCERTS accredited laboratory for a range of physical and chemical tests to confirm the composition and fertility of the soil, and the concentration of selected potential contaminants. The following parameters were determined:

- detailed particle size analysis (% 5 sands, silt, clay);
- pH and electrical conductivity values;
- exchangeable sodium percentage;
- major plant nutrients (N, P, K, Mg);
- organic matter content;
- C:N ratio;
- heavy metals (As, B, Cd, Cr, Cu, Pb, Hg, Ni, Se, Zn);
- total cyanide and total (mono) phenols;
- speciated PAHs (US EPA16 suite);
- aromatic and aliphatic TPH (C5-C35 banding);
- benzene, toluene, ethylbenzene, xylene (BTEX).

The results are presented on the attached Certificate of Analysis and an interpretation of the results is given below.

RESULTS OF ANALYSIS

Particle Size Analysis and Stone Content

The sample fell into the *sandy loam* texture class. However, further detailed particle size analysis revealed the sample to have a high proportion of particles in the *very fine* (0.05-0.15mm) fraction. Topsoils such as this are prone to self-compaction when initially placed in a landscape environment, which can lead to limited drainage and poor aeration, particularly if the soil does not display a well-defined structure. To reduce the risk of self-compaction, we recommend placing this soil to a maximum depth of 300mm, which is in line with BS3882:2015, section A.3.

The stone content of the sample was low and, as such, stones should not restrict the use of the soil for general landscape purposes.

pH and Electrical Conductivity Values

The sample was strongly alkaline in reaction (pH 8.3). This pH value would be considered suitable for general landscape purposes providing species with a wide pH tolerance or those known to prefer alkaline soils are selected for planting, turfing and seeding.

The electrical conductivity (salinity) value (water extract) was moderate, which indicates that soluble salts were not present at levels that would be harmful to plants.

The electrical conductivity value by CaSO₄ extract (BS3882 requirement) fell below the maximum specified value (3300 µS/cm) given in BS3882:2015 – Table 1.

Organic Matter and Fertility Status

The sample was well supplied with organic matter and all major plant nutrients. The sample contained a level of extractable potassium (1549 mg/l) that exceeded the maximum permissible value given in BS3882:2015 – Table 1 (1500 mg/l).

The C:N ratio of the sample was acceptable for general landscape purposes.

Potential Contaminants

With reference to BS3882:2015 - Table 1: Notes 3 and 4, there is a recommendation to confirm levels of potential contaminants in relation to the topsoil's proposed end use. This includes human health, environmental protection and metals considered toxic to plants. In the absence of site-specific assessment criteria, the concentrations that affect human health have been compared with the *residential with homegrown produce* land use in the Suitable For Use Levels (S4ULs) presented in *The LQM/CIEH S4ULs for Human Health Risk Assessment* (2015) and the DEFRA SP1010: *Development of Category 4 Screening Levels (C4SLs) for Assessment of Land Affected by Contamination – Policy Companion Document* (2014).

Of the potential contaminants determined, none was found at levels that exceed their guideline values.

Phytotoxic Contaminants

Of the phytotoxic (toxic to plants) contaminants determined (copper, nickel, zinc), none was found at levels that exceeded the maximum permissible levels specified in BS3882:2015 – Table 1.

CONCLUSION

The purpose of the analysis was to determine the suitability of the topsoil sample for general landscape purposes. The analysis has also been undertaken to determine the sample's compliance with the requirements of the British Standard for Topsoil (BS3882:2015 – Specification for Topsoil – Table 1, Multipurpose Topsoil).

From the soil examination and subsequent laboratory analysis, the sample was described as an alkaline, non-saline, non-calcareous, slightly stony, fine sandy loam with a weak structure. The sample was well supplied with organic matter and all major plant nutrients. Of the potential contaminants determined, none exceeded their guideline values.

Based on our findings, the topsoil represented by this sample would be considered suitable for general landscape purposes (trees, shrubs and amenity grass), provided:

- the topsoil is placed to a maximum depth of 300mm;
- the soil's physical condition is satisfactory and compaction is avoided.

The topsoil was largely compliant with the requirements of the British Standard for Topsoil (BS3882:2015 – Specification for Topsoil – Table 1, Multipurpose Topsoil), with the exception of the high elevated potassium level. This is considered a minor non-compliance when reviewed in the context of all the other results and given the intended use of the topsoil.

Soil Handling Recommendations

It is important to maintain the physical condition of the soil and avoid structural damage during all phases of soil handling (e.g. stockpiling, resspreading, cultivating, planting, seeding or turfing). As a consequence, soil handling operations should be carried out when soil is reasonably dry and non-plastic (friable) in consistency.

It is important to ensure that the soil is not unnecessarily compacted by trampling or trafficking by site machinery, and soil handling should be stopped during and after heavy rainfall and not continued until the soil is friable in consistency. If the soil is structurally damaged and compacted at any stage during the course of soiling or landscaping works, it should be cultivated appropriately to relieve the compaction and to restore the soil's structure prior to any planting, turfing or seeding.

Further details on soil handling are provided in Annex A of BS3882:2015.

We hope this report meets with your approval and provides the necessary information. Please do not hesitate to contact the undersigned if we can be of further assistance.

Yours faithfully



Zoe Duffin
MBiol
Graduate Soil Scientist



Aaron Cross
BSc MSc
Soil Scientist

For and on behalf of Tim O'Hare Associates LLP



TIM O'HARE ASSOCIATES
SOIL & LANDSCAPE CONSULTANCY

Client:	H Sivyer Transport Ltd
Project:	Trugrow Blends
Job:	Topsoil Analysis - BS3882:2015
Date:	23/02/23
Job Ref No:	TOHA/23/7819/2/SS

Sample Reference		Accreditation	
Clay (<0.002mm)	%	UKAS	
Silt (0.002-0.05mm)	%	UKAS	
Very Fine Sand (0.05-0.15mm)	%	UKAS	
Fine Sand (0.15-0.25mm)	%	UKAS	
Medium Sand (0.25-0.50mm)	%	UKAS	
Coarse Sand (0.50-1.0mm)	%	UKAS	
Very Coarse Sand (1.0-2.0mm)	%	UKAS	
Total Sand (0.05-2.0mm)	%	UKAS	
Texture Class (UK Classification)	~	UKAS	
Stones (2-20mm)	% DW	GLP	
Stones (20-50mm)	% DW	GLP	
Stones (>50mm)	% DW	GLP	

pH Value (1:2.5 water extract)	units	UKAS	
Electrical Conductivity (1:2.5 water extract)	uS/cm	UKAS	
Electrical Conductivity (1:2 CaSO ₄ extract)	uS/cm	UKAS	
Exchangeable Sodium Percentage	%	UKAS	
Organic Matter (LOI)	%	UKAS	
Total Nitrogen (Dumas)	%	UKAS	
C : N Ratio	ratio	UKAS	
Extractable Phosphorus	mg/l	UKAS	
Extractable Potassium	mg/l	UKAS	
Extractable Magnesium	mg/l	UKAS	

Total Arsenic (As)	mg/kg	MCERTS	
Total Cadmium (Cd)	mg/kg	MCERTS	
Total Chromium (Cr)	mg/kg	MCERTS	
Hexavalent Chromium (Cr VI)	mg/kg	MCERTS	
Total Copper (Cu)	mg/kg	MCERTS	
Total Lead (Pb)	mg/kg	MCERTS	
Total Mercury (Hg)	mg/kg	MCERTS	
Total Nickel (Ni)	mg/kg	MCERTS	
Total Selenium (Se)	mg/kg	MCERTS	
Total Zinc (Zn)	mg/kg	MCERTS	
Water Soluble Boron (B)	mg/kg	MCERTS	
Total Cyanide (CN)	mg/kg	MCERTS	
Total (mono) Phenols	mg/kg	MCERTS	

Naphthalene	mg/kg	MCERTS	
Acenaphthylene	mg/kg	MCERTS	
Acenaphthene	mg/kg	MCERTS	
Fluorene	mg/kg	MCERTS	
Phenanthrene	mg/kg	MCERTS	
Anthracene	mg/kg	MCERTS	
Fluoranthene	mg/kg	MCERTS	
Pyrene	mg/kg	MCERTS	
Benzo(a)anthracene	mg/kg	MCERTS	
Chrysene	mg/kg	MCERTS	
Benzo(b)fluoranthene	mg/kg	MCERTS	
Benzo(k)fluoranthene	mg/kg	MCERTS	
Benzo(a)pyrene	mg/kg	MCERTS	
Indeno(1,2,3-cd)pyrene	mg/kg	MCERTS	
Dibenzo(a,h)anthracene	mg/kg	MCERTS	
Benzo(g,h,i)perylene	mg/kg	MCERTS	
Total PAHs (sum USEPA16)	mg/kg	MCERTS	

Aliphatic TPH >C5 - C6	mg/kg	MCERTS	
Aliphatic TPH >C6 - C8	mg/kg	MCERTS	
Aliphatic TPH >C8 - C10	mg/kg	MCERTS	
Aliphatic TPH >C10 - C12	mg/kg	MCERTS	
Aliphatic TPH >C12 - C16	mg/kg	MCERTS	
Aliphatic TPH >C16 - C21	mg/kg	MCERTS	
Aliphatic TPH >C21 - C35	mg/kg	MCERTS	
Aliphatic TPH (C5 - C35)	mg/kg	MCERTS	
Aromatic TPH >C5 - C7	mg/kg	MCERTS	
Aromatic TPH >C7 - C8	mg/kg	MCERTS	
Aromatic TPH >C8 - C10	mg/kg	MCERTS	
Aromatic TPH >C10 - C12	mg/kg	MCERTS	
Aromatic TPH >C12 - C16	mg/kg	MCERTS	
Aromatic TPH >C16 - C21	mg/kg	MCERTS	
Aromatic TPH >C21 - C35	mg/kg	MCERTS	
Aromatic TPH (C5 - C35)	mg/kg	MCERTS	

Benzene	mg/kg	MCERTS	
Toluene	mg/kg	MCERTS	
Ethylbenzene	mg/kg	MCERTS	
p & m-xylene	mg/kg	MCERTS	
o-xylene	mg/kg	MCERTS	
MTBE (Methyl Tertiary Butyl Ether)	mg/kg	MCERTS	

SL = SANDY LOAM

Visual Examination

The sample was described as a brown (Munsell Colour 10YR 4/3), slightly moist, friable, slightly calcareous SANDY LOAM with a weakly developed, very fine to fine granular structure. The sample was slightly stony and contained a high proportion of organic fines and occasional woody fragments. No unusual odours, deleterious materials, roots or rhizomes of pernicious weeds were observed.

Results of analysis should be read in conjunction with the report they were issued with.

The contents of this certificate shall not be reproduced without the express written permission of Tim O'Hare Associates LLP.

Sample 2: 65/35 Blend

14
11
49
9
7
4
6
75
SL
4
0
0

8.3
1467
3138
4.8
10.0
0.33
17
40
1549
200

9
0.3
22
< 1.8
29
77
< 0.3
15
< 1.0
98
3.5
< 1.0
< 1.0

< 0.05
0.23
0.07
0.2
3
0.53
4.5
3.9
2.6
2.2
2.6
1.4
2
0.98
< 0.05
1.1
25.2

< 0.001
< 0.001
< 0.001
< 1.0
< 2.0
< 8.0
< 8.0
< 10
< 0.001
< 0.001
< 0.001
< 1.0
2.5
< 10
12
19

< 0.005
< 0.005
< 0.005
< 0.005
< 0.005
< 0.005

Zoe Duffin
MBiol
Graduate Soil Scientist



TIM O'HARE ASSOCIATES
SOIL & LANDSCAPE CONSULTANCY

Mr Simon Sivyier
H. Sivyier Transport Ltd
160 Sydenham Road
London
SE26 5JZ

13th February 2023
Our Ref: TOHA/23/7830/SS
Your Ref: PO 182031

Dear Sirs

Soil Analysis Report: Landscape Subsoil

We have completed the analysis of the sample recently submitted, referenced *Landscape Subsoil*, and have pleasure reporting our findings.

The purpose of the analysis was to determine the suitability of the subsoil sample for use in general landscape applications (trees, shrubs, amenity grass). In addition, this sample has been assessed to determine its compliance with the requirements of the British Standard for Subsoil (*BS8601:2013 – Specification for subsoil and requirements for use – Table 1, Multipurpose Subsoil*), including analysis of potential contaminants.

This report presents the results of analysis for the sample submitted to our office, and it should be considered 'indicative' of the soil source. The report and results should therefore not be used by third parties as a means of verification or validation testing or waste designation purposes, especially after the soil has left the H Sivyier Transport Ltd site.

SAMPLE EXAMINATION

The sample was described as a yellowish brown (Munsell Colour 10YR 5/6), moist, friable, non-calcareous SAND with a single grain structure. The sample was moderately stony, comprising stones up to 35mm in size, and no unusual odours, deleterious materials, roots or rhizomes of pernicious weeds were observed.

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Plate 1: Landscape Subsoil Sample

ANALYTICAL SCHEDULE

The sample was submitted to a UKAS and MCERTS accredited laboratory for a range of physical and chemical tests to confirm the composition, drainage rate and fertility of the rootzone, and the concentration of selected potential contaminants. The following parameters were determined:

- detailed particle size analysis (5 sands, silt, clay);
- stone content (2-20mm, 20-75mm, >75mm);
- saturated hydraulic conductivity;
- pH and electrical conductivity values;
- calcium carbonate;
- exchangeable sodium percentage;
- organic matter content;
- heavy metals (As, B, Cd, Cr, Cu, Pb, Hg, Ni, Se, Zn);
- total cyanide and total (mono) phenols;
- speciated PAHs (US EPA16 suite);
- aromatic and aliphatic TPH (C5-C35 banding);
- benzene, toluene, ethylbenzene, xylene (BTEX);
- asbestos screen.

The results are presented on the attached Certificate of Analysis and an interpretation of the results is given below.

RESULTS OF ANALYSIS

Particle Size Analysis and Saturated Hydraulic Conductivity

The sample fell into the *sand* texture class. Further detailed particle size analysis revealed the sample to have a narrow particle size distribution and a predominance of *medium sand* (0.25-0.50mm), and a lower proportion of *coarse sand* (0.50-1.0mm). This is acceptable for subsoil in general landscape applications as porosity levels are maintained in a compacted state and the risk of particle interpacking is minimised. However, such soils can possess poor water retention capacities and as a consequence they often have a greater risk of drought, particularly during prolonged dry periods.

The subsoil represented by this sample would be described as 'very free-draining', which is confirmed by the high saturated hydraulic conductivity result (726 mm/hr).

The particle size distribution falls outside of the range indicated in *BS8601:2013 – Figure 1*, on account of the high sand content.

Stone Content

The stone content of the sample was moderate and, as such, stones are unlikely to constitute a limitation for use as subsoil for general landscape purposes.

pH and Electrical Conductivity Values

The sample was slightly acid in reaction (pH 6.1), with a pH value that would be considered ideal for subsoil in general landscape purposes.

The electrical conductivity (salinity) value (water extract) was low, which indicates that soluble salts were not present at levels that would be harmful to plants.

The electrical conductivity value by CaSO₄ extract (*BS8601* requirement) fell below the maximum specified value (2800 µS/cm) given in *BS8601:2013 – Table 1*.

Organic Matter and Fertility Status

The organic matter content was low (<0.5%) and compliant with *BS8601:2013 – Table 1*.

Potential Contaminants

With reference to *BS8601:2013 – Section 4.2: Note 2*, there is a recommendation to confirm levels of potential contaminants in relation to the subsoil's proposed end use. This includes human health, environmental protection and metals considered toxic to plants. In the absence of site-specific assessment criteria, the concentrations of selected potential contaminants that affect human health have been assessed for the concentrations that affect human health have been assessed for *residential* end-use against the Suitable For Use Levels (S4ULs) presented in the LQM/CIEH S4ULs for Human Health Risk Assessment (2015) and the DEFRA SP1010: Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination – Policy Companion Document (2014).

Of the potential contaminants determined, none was found at levels that exceeded their guideline values.

Phytotoxic Contaminants

Of the phytotoxic (toxic to plants) contaminants determined (copper, nickel, zinc), none was found at levels that exceeded the maximum permissible levels specified in *BS8601:2013 – Table 1*.

CONCLUSION

The purpose of the analysis was to determine the suitability of the sample for use as a subsoil in general landscape applications (trees, shrubs, amenity grass). In addition, this sample has been assessed to determine its compliance with the requirements of the British Standard for Subsoil (*BS8601:2013 – Specification for subsoil and requirements for use – Table 1, Multipurpose Subsoil*), including analysis of potential contaminants.

From the soil examination and subsequent laboratory analysis, the sample was described as a slightly acidic, non-saline, non-calcareous sand, with a single grain structure and moderate stone content. The sample displayed a high saturated hydraulic conductivity rate (permeability). The organic matter content was low and consistent with subsoil. Of the potential contaminants determined, none exceeded their respective SGV or GAC values.

To conclude, based on our findings, the subsoil represented by this sample would be considered suitable for landscape applications where a free-draining subsoil is required or where there will be a low drought risk.

The sample was largely compliant with the requirements of the British Standard for Subsoil (*BS8601:2013 – Specification for subsoil and requirements for use – Table 1, Multipurpose Subsoil*) with the exception of the high sand content. On this occasion, this non-compliance is considered minor provided the landscape application proposed for this subsoil requires a free-draining subsoil.

Soil Handling Recommendations

Reference should be made to Section 6.0 of *BS8601:2013* with regard to the handling and management of the subsoil:

"Soils generally lose strength and become less resistant to damage as they become wetter; therefore, it is essential that they are stripped, handled and trafficked only in the appropriate conditions of weather and soil moisture, and with suitable machinery. If sustained heavy rainfall (e.g. >10 mm in 24 h) occurs during soil stripping operations, work should be suspended and not restarted until the ground has had at least one dry day or until a suitable moisture content has been reached. A soil can be considered to have a suitable moisture content for stripping and handling if the whole thickness of the subsoil layer being stripped and/or handled is at a moisture content below the plastic limit as determined in accordance with BS 1377-2:1990 (incorporating Amendment No. 1).

Machinery should be selected and routed to minimise soil compaction."

Further guidance is provided in Clauses 6.1–6.5.

We hope this report meets with your approval and provides the necessary information. Please do not hesitate to contact the undersigned if we can be of further assistance.

Yours faithfully



Zoe Duffin
MBiol
Graduate Soil Scientist



Aaron Cross
BSc MSc
Soil Scientist

For & on behalf of Tim O'Hare Associates LLP



Client:	H Siwyer Ltd
Project:	Landscape Subsoil
Job:	Subsoil Analysis BS8601:2013
Date:	13/02/2023
Job Ref No:	TOHA/23/7830/SS

Sample Reference		
		Accreditation
Clay (<0.002mm)	%	UKAS
Silt (0.002-0.05mm)	%	UKAS
Very Fine Sand (0.05-0.15mm)	%	UKAS
Fine Sand (0.15-0.25mm)	%	UKAS
Medium Sand (0.25-0.50mm)	%	UKAS
Coarse Sand (0.50-1.0mm)	%	UKAS
Very Coarse Sand (1.0-2.0mm)	%	UKAS
Total Sand (0.05-2mm)	%	UKAS
Texture Class (UK Classification)	--	UKAS
Stones (2-20mm)	% DW	GLP
Stones (20-75mm)	% DW	GLP
Stones (>75mm)	% DW	GLP

Landscape
Subsoil

3
1
3
9
44
32
8
96
S
23
13
0

Saturated Hydraulic Conductivity	mm/hr	A2LA
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726

pH Value (1:2.5 water extract)	units	UKAS
Calcium Carbonate	%	UKAS
Electrical Conductivity (1:2.5 water extract)	uS/cm	UKAS
Electrical Conductivity (1:2 CaSO ₄ extract)	uS/cm	UKAS
Organic Matter (LOI)	%	UKAS
Exchangeable Sodium Percentage	%	UKAS

6.1
< 1.0
113
2082
<0.5
7.0

Total Arsenic (As)	mg/kg	MCERTS
Total Cadmium (Cd)	mg/kg	MCERTS
Total Chromium (Cr)	mg/kg	MCERTS
Hexavalent Chromium (Cr VI)	mg/kg	MCERTS
Total Copper (Cu)	mg/kg	MCERTS
Total Lead (Pb)	mg/kg	MCERTS
Total Mercury (Hg)	mg/kg	MCERTS
Total Nickel (Ni)	mg/kg	MCERTS
Total Selenium (Se)	mg/kg	MCERTS
Total Zinc (Zn)	mg/kg	MCERTS
Water Soluble Boron (B)	mg/kg	MCERTS
Total Cyanide (CN)	mg/kg	MCERTS
Total (mono) Phenols	mg/kg	MCERTS

7
< 0.2
9
< 1.8
10
5
< 0.3
9
< 1.0
12
< 0.2
< 1.0
< 1.0

Naphthalene	mg/kg	MCERTS
Acenaphthylene	mg/kg	MCERTS
Acenaphthene	mg/kg	MCERTS
Fluorene	mg/kg	MCERTS
Phenanthrene	mg/kg	MCERTS
Anthracene	mg/kg	MCERTS
Fluoranthene	mg/kg	MCERTS
Pyrene	mg/kg	MCERTS
Benzo(a)anthracene	mg/kg	MCERTS
Chrysene	mg/kg	MCERTS
Benzo(b)fluoranthene	mg/kg	MCERTS
Benzo(k)fluoranthene	mg/kg	MCERTS
Benzo(a)pyrene	mg/kg	MCERTS
Indeno(1,2,3-cd)pyrene	mg/kg	MCERTS
Dibenzo(a,h)anthracene	mg/kg	MCERTS
Benzo(g,h,i)perylene	mg/kg	MCERTS
Total PAHs (sum USEPA16)	mg/kg	MCERTS

< 0.05
< 0.05
< 0.05
< 0.05
< 0.05
< 0.05
< 0.05
< 0.05
< 0.05
< 0.05
< 0.05
< 0.05
< 0.05
< 0.05
< 0.05
< 0.05
< 0.80

Aliphatic TPH >C5 - C6	mg/kg	MCERTS
Aliphatic TPH >C6 - C8	mg/kg	MCERTS
Aliphatic TPH >C8 - C10	mg/kg	MCERTS
Aliphatic TPH >C10 - C12	mg/kg	MCERTS
Aliphatic TPH >C12 - C16	mg/kg	MCERTS
Aliphatic TPH >C16 - C21	mg/kg	MCERTS
Aliphatic TPH >C21 - C35	mg/kg	MCERTS
Aliphatic TPH (C5 - C35)	mg/kg	MCERTS
Aromatic TPH >C5 - C7	mg/kg	MCERTS
Aromatic TPH >C7 - C8	mg/kg	MCERTS
Aromatic TPH >C8 - C10	mg/kg	MCERTS
Aromatic TPH >C10 - C12	mg/kg	MCERTS
Aromatic TPH >C12 - C16	mg/kg	MCERTS
Aromatic TPH >C16 - C21	mg/kg	MCERTS
Aromatic TPH >C21 - C35	mg/kg	MCERTS
Aromatic TPH (C5 - C35)	mg/kg	MCERTS

< 0.001
< 0.001
< 0.001
< 1.0
< 2.0
< 8.0
< 8.0
< 10
< 0.001
< 0.001
< 0.001
< 1.0
< 2.0
< 10
< 10
< 10

Benzene	mg/kg	MCERTS
Toluene	mg/kg	MCERTS
Ethylbenzene	mg/kg	MCERTS
m-xylene	mg/kg	MCERTS
p-xylene	mg/kg	MCERTS
o-xylene	mg/kg	MCERTS

< 0.005
< 0.005
< 0.005
< 0.005
< 0.005
< 0.005

Asbestos Screen	D/ND	ISO 17025
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Not Detected

S = SAND

The sample was described as a yellowish brown (Munsell Colour 10YR 5/6), moist, friable, non-calcareous SAND with a single grain structure. The sample was moderately stony, comprising stones up to 35mm in size, and no unusual odours, deleterious materials, roots or rhizomes of pernicious weeds were observed.

Results of analysis should be read in conjunction with the report they were issued with

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Zoe Duffin
MBiol
Graduate Soil Scientist



TIM O'HARE ASSOCIATES
SOIL & LANDSCAPE CONSULTANCY

Mr Simon Sivyier
H. Sivyier Transport Ltd
160 Sydenham Road
London
SE26 5JZ

18th May 2023
Our Ref: TOHA/23/7946/3/SS
Your Ref: PO 182841

Dear Sirs

Soil Analysis Report: Rootzone 80/20

We have completed the analysis of the soil sample recently submitted, referenced *Rootzone 80/20*, and have pleasure reporting our findings.

The purpose of the analysis was to determine the suitability of the material for use as a lawn rootzone.

This report presents the results of analysis for the sample submitted to our office, and it should be considered 'indicative' of the soil source. The report and results should therefore not be used by third parties as a means of verification or validation testing or waste designation purposes, especially after the soil has left the H Sivyier Transport Ltd site.

SAMPLE EXAMINATION

The sample was described as a dark yellowish brown (Munsell Colour 10YR 4/4), slightly moist, friable, non-calcareous SAND with a single grain structure. The sample was virtually stone free and contained a moderate proportion of organic fines. No unusual odours, deleterious materials, roots or rhizomes of pernicious weeds were observed.

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www.toha.co.uk



Plate 1: Rootzone 80/20 sample

ANALYTICAL SCHEDULE

The sample was submitted to a UKAS and MCERTS accredited laboratory for a range of physical and chemical tests to confirm the composition and fertility of the soil, and the concentration of selected potential contaminants. The following parameters were determined:

- detailed particle size analysis (5 sands, silt, clay);
- stone content (2-20mm, 20-50mm, >50mm);
- bulk density;
- saturated hydraulic conductivity;
- pH and electrical conductivity values;
- exchangeable sodium percentage;
- major plant nutrients (N, P, K, Mg);
- organic matter content;
- C:N ratio;
- heavy metals (As, B, Cd, Cr, Cr VI, Cu, Pb, Hg, Ni, Se, Zn);
- total cyanide and total (mono) phenols;
- aromatic and aliphatic TPH (C5-C35 banding);
- speciated PAHs (US EPA16 suite);
- benzene, toluene, ethylbenzene, xylene (BTEX).

The results are presented on the attached Certificate of Analysis and an interpretation of the results is given below.

RESULTS OF ANALYSIS

Particle Size Analysis and Stone Content

The sample fell into the *sand* texture class. Further detailed particle size analysis found the sample to have a narrow particle size distribution with a predominance of *medium sand* (0.25-0.50mm) and a smaller proportion of *coarse sand* (0.50-1.0mm). This is acceptable for rootzone to be used in high-use grass areas as sufficient porosity levels are maintained in a compacted state and the risk of particle interpacking and surface smearing is minimised.

High sand content soils typically have good aeration, drainage and compaction-resistance properties, but can possess reduced water and nutrient retention capacities. As such, it will be important that the lawn be suitably

maintained (seasonal fertiliser applications, irrigation, decompaction etc.) as part of an ongoing maintenance regime.

The sample was stone-free and as such, stones should not restrict the use of the soil as a rootzone.

Bulk Density and Saturated Hydraulic Conductivity

The sample displayed a saturated bulk density of 1.79 Mg/m³. The suitability of the bulk density result should be confirmed by the project engineer for the recipient site.

The saturated hydraulic conductivity rate (351 mm/hr) recorded under a degree of consolidation was high and would be considered 'fast-draining'.

pH and Electrical Conductivity Values

The sample was strongly alkaline in reaction (pH 8.4). This pH value would be considered suitable for lawn establishment providing grass cultivars are tolerant of alkaline soil conditions.

The electrical conductivity (salinity) values (water and CaSO₄ extracts) were low, which indicates that soluble salts were not present at levels that would be harmful to plants.

Organic Matter and Fertility Status

The sample was adequately to well supplied with organic matter and all major plant nutrients. The organic matter content was higher than would be considered suitable for a rootzone.

The C:N ratio of the sample was acceptable for landscape applications.

Potential Contaminants

In the absence of site-specific criteria, the concentrations that affect human health have been assessed for *residential with homegrown produce* end-use against the Suitable For Use Levels (S4ULs) presented in the LQM/CIEH S4ULs for Human Health Risk Assessment (2015) and the DEFRA SP1010: Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination – Policy Companion Document (2014).

Of the potential contaminants determined, none was found at levels that exceed their guideline values.

Phytotoxic Contaminants

Of the phytotoxic (toxic to plants) contaminants determined (copper, nickel, zinc), none was found at levels that exceeded their guideline values.

CONCLUSION

The purpose of the analysis was to determine the suitability of the sample for use as a lawn rootzone.

From the soil examination and laboratory analysis, the sample was described as a strongly alkaline, non-saline, non-calcareous, stone-free sand. The sample contained sufficient reserves of organic matter and all major plant nutrients. Of the potential contaminants determined, none exceeded their respective guideline values.

To conclude, based on our findings, the topsoil represented by this sample may be considered suitable for use as a lawn rootzone provided the physical condition of the topsoil is satisfactory.

The total sand content of the soil and its grading is likely to result in a growing medium which is prone to droughty conditions without supplementary irrigation. The organic matter content of the topsoil (6.1%) should aid in mitigating these risks and help improve the water and nutrient retention of the topsoil, however provision for automatic irrigation should be made, particularly in the drier months.

The organic matter content of the sample was on the high side and, as such, there is a risk of variable settlement across lawn areas as the organic matter decomposes and the topsoil volume reduces, which may be undesirable in such areas.

A suitable maintenance regime should be implemented to support the establishment and continued growth of the grass sward (e.g. decompaction, aeration, fertiliser applications, etc.).

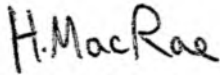
Soil Handling Recommendations

It is important to maintain the physical condition of the soil and avoid compaction during all phases of soil handling (e.g. stockpiling, resspreading, cultivating, seeding or turfing). As a consequence, soil handling operations should be carried out when soil and the underlying ground is sufficiently dry and stable.

It is important to ensure that the soil is not unnecessarily compacted by trampling or trafficking by site machinery, and soil handling should be stopped during and after heavy rainfall and not continued until the ground has dried out. If the soil is compacted at any stage during the course of soiling or landscaping works, it should be decompacted appropriately.

We hope this report meets with your approval and provides the necessary information. Please do not hesitate to contact the undersigned if we can be of further assistance.

Yours faithfully



Harriet MacRae
BSc MSc
Graduate Soil Scientist



Matthew Heins
BSc (Hons) MSc
Senior Soil Scientist

For & on behalf of Tim O'Hare Associates LLP



Benzene	mg/kg	MCERTS
Toluene	mg/kg	MCERTS
Ethylbenzene	mg/kg	MCERTS
p & m-xylene	mg/kg	MCERTS
o-xylene	mg/kg	MCERTS
MTBE (Methyl Tertiary Butyl Ether)	mg/kg	MCERTS

The contents of this certificate shall not be reproduced without the express written permission of Tim O'Hare Associates LLP.

< 0.005
< 0.005
< 0.005
< 0.005
< 0.005
< 0.005

Harriet MacRae
BSc MSc
Graduate Soil Scientist



TIM O'HARE ASSOCIATES
SOIL & LANDSCAPE CONSULTANCY

Mr Simon Sivyer
H. Sivyer Transport Ltd
160 Sydenham Road
London
SE26 5JZ

18th May 2023
Our Ref: TOHA/23/7946/4/SS
Your Ref: PO 182841

Dear Sirs

Soil Analysis Report: Lawn Topsoil

We have completed the analysis of the soil sample recently submitted, referenced *Lawn Topsoil*, and have pleasure reporting our findings.

The purpose of the analysis was to determine the suitability of the sample specifically for use as a lawn topsoil.

This report presents the results of analysis for the sample submitted to our office, and it should be considered 'indicative' of the soil source. The report and results should therefore not be used by third parties as a means of verification or validation testing or waste designation purposes, especially after the soil has left the H Sivyer Transport Ltd site.

SAMPLE EXAMINATION

The sample was described as a dark yellowish brown (Munsell Colour 10YR 4/6), slightly moist, friable, non-calcareous SAND with a single grain structure. The sample was virtually stone free and contained a low proportion of organic fines. No unusual odours, deleterious materials, roots or rhizomes of pernicious weeds were observed.

Tim O'Hare Associates LLP
Howbery Park Wallingford Oxfordshire OX10 8BA
T:01491 822653 E:info@toha.co.uk
www.toha.co.uk



Plate 1: Lawn Topsoil sample

ANALYTICAL SCHEDULE

The sample was submitted to a UKAS and MCERTS accredited laboratory for a range of physical and chemical tests to confirm the composition and fertility of the soil, and the concentration of selected potential contaminants. The following parameters were determined:

- detailed particle size analysis (5 sands, silt, clay);
- stone content (2-20mm, 20-50mm, >50mm);
- saturated hydraulic conductivity;
- pH and electrical conductivity values;
- exchangeable sodium percentage;
- major plant nutrients (N, P, K, Mg);
- organic matter content;
- C:N ratio;
- heavy metals (As, B, Cd, Cr, Cr VI, Cu, Pb, Hg, Ni, Se, Zn);
- total cyanide and total (mono) phenols;
- aromatic and aliphatic TPH (C5-C35 banding);
- speciated PAHs (US EPA16 suite);
- benzene, toluene, ethylbenzene, xylene (BTEX).

The results are presented on the attached Certificate of Analysis and an interpretation of the results is given below.

RESULTS OF ANALYSIS

Particle Size Analysis and Stone Content

The sample fell into the *sand* texture class. Further detailed particle sized distribution found the sample to have a narrow particle size distribution with a predominance of *medium sand* (0.25-0.50mm) and a smaller proportion of *coarse sand* (0.50-1.0mm). This is acceptable for high-use grass areas as sufficient porosity levels are maintained in a compacted state and the risk of particle interpacking and surface smearing is minimised.

High sand content soils typically have good aeration, drainage and compaction-resistance properties, but can possess reduced water and nutrient retention capacities. As such, it will be important that the lawn be suitably maintained (seasonal fertiliser applications, irrigation, decompaction etc.) as part of an ongoing maintenance regime.

The sample was virtually stone-free and as such, stones will not restrict the use of the soil.

Saturated Hydraulic Conductivity

The saturated hydraulic conductivity rate (253 mm/hr) recorded under a degree of consolidation was high and it would be considered 'fast-draining'.

pH and Electrical Conductivity Values

The sample was strongly alkaline in reaction (pH 8.3). This pH value would be considered suitable for lawn establishment providing grass cultivars are tolerant of alkaline soil conditions.

The electrical conductivity (salinity) values (water and CaSO₄ extract) were moderate, which indicates that soluble salts were not present at levels that would be harmful to grass.

Organic Matter and Fertility Status

The sample was adequately to well supplied with organic matter and all major plant nutrients.

The C:N ratio of the sample was acceptable for landscape applications.

Potential Contaminants

In the absence of site-specific assessment criteria, the concentrations that affect human health have been compared with the *residential with homegrown produce* land use in the Suitable For Use Levels (S4ULs) presented in *The LQM/CIEH S4ULs for Human Health Risk Assessment* (2015) and the DEFRA SP1010: *Development of Category 4 Screening Levels (C4SLs) for Assessment of Land Affected by Contamination – Policy Companion Document* (2014).

Of the potential contaminants determined, none was found at levels that exceed their guideline values.

Phytotoxic Contaminants

Of the phytotoxic (toxic to plants) contaminants determined (copper, nickel, zinc), none was found at levels that exceeded their guideline values.

CONCLUSION

The purpose of the analysis was to determine the suitability of the sample for use as a topsoil for amenity grass / lawn areas.

From the sample examination and laboratory analysis, the substrate was described as a strongly alkaline, non-saline, non-calcareous, stone-free sand. The sample contained sufficient reserves of organic matter and all major plant nutrients. Of the potential contaminants determined, none exceeded their respective guideline values.

To conclude, based on our findings, the topsoil represented by this sample would be considered suitable for use as a lawn topsoil in amenity grass areas provided the physical condition of the topsoil is satisfactory.

The total sand content of the soil and its grading may result in a growing medium which is prone to droughty conditions without supplementary irrigation. The organic matter content of the topsoil (7.0%) should aid in

mitigating these risks and help improve the water and nutrient retention of the topsoil, however provision for automatic irrigation should be made, particularly in the drier months.

The organic matter content of the sample was on higher than would be typically desirable and, as such, there is a risk of variable settlement across amenity grass / lawn areas as the organic matter decomposes and the topsoil volume reduces, which may be undesirable in lawn areas.

A suitable maintenance regime should be implemented to support the establishment and continued growth of the grass sward (e.g. decompaction, aeration, fertiliser applications, etc.).

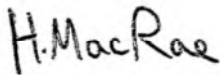
Soil Handling Recommendations

It is important to maintain the physical condition of the soil and avoid compaction during all phases of soil handling (e.g. stockpiling, respreading, cultivating, seeding or turfing). As a consequence, soil handling operations should be carried out when soil and the underlying ground is sufficiently dry and stable.

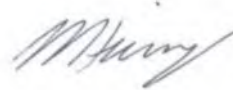
It is important to ensure that the soil is not unnecessarily compacted by trampling or trafficking by site machinery, and soil handling should be stopped during and after heavy rainfall and not continued until the ground has dried out. If the soil is compacted at any stage during the course of soiling or landscaping works, it should be decompacted appropriately.

We hope this report meets with your approval and provides the necessary information. Please do not hesitate to contact the undersigned if we can be of further assistance.

Yours faithfully



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Senior Soil Scientist

For & on behalf of Tim O'Hare Associates LLP



Benzene	mg/kg	MCERTS
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o-xylene	mg/kg	MCERTS
MTBE (Methyl Tertiary Butyl Ether)	ma/ka	MCERTS

< 0.005
< 0.005
< 0.005
< 0.005
< 0.005
< 0.005

Harriet MacRae
BSc MSc
Graduate Soil Scientist

CEMEX

GRADATION ANALYSIS TEST REPORT
for Product: 03333/ 10/20 SINGLE SIZE GRAVEL
Supplier/ source: South East - Angerstein

Material type: Drystone aggregate Test method: Wash grading to BS EN 932-1: 1997

SAMPLE INFORMATION

Sampled/ tested

Fri 16 December 2022/ 22-12-22
 at 0000 hrs

Sample number GDAT_12932_01BD

Location	-	Chainage/layer	-
Ticket/truck number	-	Weather conditions	-
Sampling notes	-	Aggregate type	-
Remarks 1	-	Remarks 2	-

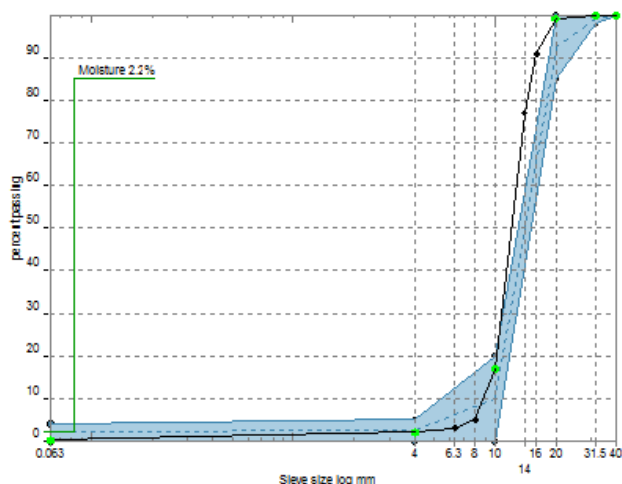
SAMPLE ANALYSIS

Sieve size	Percent passing	Specification limits	Complies ?
40mm	100	100 - 100	yes
31.5mm	100	98 - 100	yes
20mm	99	85 - 100	yes
16mm	91	-	-
14mm	77	-	-
10mm	17	0 - 20	yes
8mm	5	-	-
6.3mm	3	-	-
4mm	2	0 - 5	yes
63µm	0.2	0.0 - 4.0	yes
Moisture content %	2.2	not specified	-
Uniformity coefficient	1	0 - 10	yes
Flakiness index	no result	<=35	-
Chloride content %	no result	<=0.030	-

Parameters are evaluated to the accuracy of spec. limits

REMARKS

Compliance status ok
 Category A of A-C includes secondary parameters



Signed _____

Date ____/____/2023

Appendix D. Photographs

  PHOTOGRAPHS		
Client Name: St William Homes LLP	Site Location: Clarendon Road, Hornsey – Phase 3 Blocks D1 & D2	Project No. 5192204

Photo No.	Date:	
1	15/06/23	
Description: Installation of Marker Layer in Zone 2 with overlying sub soil.		Shot on OnePlus Greater London, England 2023.06.15 10:06 Powered by Triple Camera

Photo No.	Date:	
2	15/06/23	
Description: Placed subsoil and top soil in Zone 2		Shot on OnePlus Greater London, England 2023.06.15 10:06 Powered by Triple Camera

Photo No. 3	Date: 15/06/23	
Description: D1-D2 HPT01 including showing topsoil overlying subsoil. Marker Layer observed but not visible in photo.		

Photo No. 4	Date: 15/06/23	
Description: D1-D2 Top Soil for Zone 1 and 3.		

Photo No. 5	Date: 15/06/23	
Description: D1-D2 Sub soil for Zone 1 and 3.		

Photo No. 6	Date: 15/06/23	
Description: D1-D2 Top soil for Zone 4 and 5.		

Photo No. 7	Date: 15/06/23	
Description: D1-D2 Sub soil for Zone 4 and 5.		

Photo No.	Date:	
8	15/06/23	
Description: D1-D2 Sub soil for Zone 1 installed Marker Layer, sub-soil and top soil. (Photo from contractor)		

Photo No.	Date:	
9	15/06/23	
Description:		
D1-D2 Sub soil for Zone 1 hand pit. installed Marker Layer, sub-soil and top soil, pending an additional 200 mm top soil to be placed by the contractor. (Photo from contractor)		

Photo No. 10	Date: 16/06/23	
Description: D1-D2 Sub soil for Zone 3 hand pit. installed Marker Layer, sub-soil and top soil. (Photo from contractor)		

Photo No. 11	Date: 16/06/23	
Description: D1-D2 Zone 3 installed Marker Layer, sub-soil and top soil. (Photo from contractor)		

Appendix E. Laboratory Certificates

Final Report

Report No.: 23-20686-1

Initial Date of Issue: 28-Jun-2023

Re-Issue Details:

Client Atkins Ltd

Client Address: Epsom Gateway
2 Ashley Road
Epsom
Surrey
KT18 5AL

Contact(s): Anna Nash
James Voysey

Project 5202188 Claredon Road Hornsey

Quotation No.: Q23-31691

Date Received: 18-Jun-2023

Order No.: 5202188

Date Instructed: 22-Jun-2023

No. of Samples: 6

Turnaround (Wkdays): 5

Results Due: 28-Jun-2023

Date Approved: 28-Jun-2023

Approved By:



Details: Stuart Henderson, Technical
Manager

Results - Soil

Project: 5202188 Claredon Road Hornsey

Client: Atkins Ltd	Chemtest Job No.:					23-20686	23-20686	23-20686	23-20686	23-20686	23-20686
Quotation No.: Q23-31691	Chemtest Sample ID.:					1659881	1659882	1659883	1659884	1659885	1659886
	Client Sample ID.:					ES1	ES2	ES3	ES4	ES5	ES6
	Sample Location:					HTP01	HTP01	Zone 1&3	Zone 1&3	Zone 4&5	Zone 4&5
	Sample Type:					SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):					0.15	0.45				
	Date Sampled:					15-Jun-2023	15-Jun-2023	15-Jun-2023	15-Jun-2023	15-Jun-2023	15-Jun-2023
	Asbestos Lab:					NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB
Determinand	Accred.	SOP	Units	LOD							
ACM Type	U	2192		N/A	-	-	-	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	5.6	1.3	4.8	2.7	7.8	6.6	
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown	Brown	Brown	
Other Material	N	2040		N/A	Stones	Stones	Stones and Wood	Stones	Stones	Stones	
Soil Texture	N	2040		N/A	Sand	Sand	Sand	Sand	Sand	Sand	
Cyanide (Free)	U	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	0.50	< 0.50	
Arsenic	U	2455	mg/kg	0.5	7.8	12	8.6	9.1	6.4	8.2	
Cadmium	U	2455	mg/kg	0.10	< 0.10	0.10	< 0.10	< 0.10	0.11	< 0.10	
Chromium	U	2455	mg/kg	0.5	14	17	15	15	18	12	
Mercury	U	2455	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.15	< 0.05	
Nickel	U	2455	mg/kg	0.50	9.8	15	11	13	8.6	11	
Lead	U	2455	mg/kg	0.50	7.7	6.1	10	5.1	62	5.3	
Selenium	U	2455	mg/kg	0.25	< 0.25	0.34	< 0.25	0.26	0.34	< 0.25	
Zinc	U	2455	mg/kg	0.50	24	22	31	19	74	15	
Chromium (Trivalent)	N	2490	mg/kg	1.0	14	17	15	15	18	12	
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	
Aliphatic VPH >C5-C6	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
Aliphatic VPH >C6-C7	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
Aliphatic VPH >C7-C8	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
Aliphatic VPH >C6-C8 (Sum)	N	2780	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Total Aliphatic VPH >C5-C10	U	2780	mg/kg	0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	
Aliphatic EPH >C10-C12	U	2690	mg/kg	2.00	< 2.0	5.2	5.7	4.9	5.8	3.2	
Aliphatic VPH >C8-C10	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
Aliphatic EPH >C12-C16	U	2690	mg/kg	1.00	3.5	7.2	8.1	5.7	8.1	2.3	
Aliphatic EPH >C16-C21	U	2690	mg/kg	2.00	2.6	4.0	7.0	2.8	11	< 2.0	
Aliphatic EPH >C21-C35	U	2690	mg/kg	3.00	< 3.0	< 3.0	16	< 3.0	33	< 3.0	
Aliphatic EPH >C35-C40	N	2690	mg/kg	10.00	< 10	< 10	< 10	< 10	< 10	< 10	
Total Aliphatic EPH >C10-C35	U	2690	mg/kg	5.00	11	19	37	15	58	6.7	
Total Aliphatic EPH >C10-C40	N	2690	mg/kg	10.00	11	19	37	15	58	< 10	
Aromatic VPH >C5-C7	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
Aromatic VPH >C7-C8	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
Aromatic VPH >C8-C10	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
Total Aromatic VPH >C5-C10	U	2780	mg/kg	0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	
Aromatic EPH >C10-C12	U	2690	mg/kg	1.00	< 1.0	< 1.0	1.3	< 1.0	2.3	< 1.0	
Aromatic EPH >C12-C16	U	2690	mg/kg	1.00	< 1.0	< 1.0	< 1.0	< 1.0	2.1	< 1.0	

Results - Soil

Project: 5202188 Claredon Road Hornsey

Client: Atkins Ltd	Chemtest Job No.:				23-20686	23-20686	23-20686	23-20686	23-20686	23-20686
Quotation No.: Q23-31691	Chemtest Sample ID.:				1659881	1659882	1659883	1659884	1659885	1659886
	Client Sample ID.:				ES1	ES2	ES3	ES4	ES5	ES6
	Sample Location:				HTP01	HTP01	Zone 1&3	Zone 1&3	Zone 4&5	Zone 4&5
	Sample Type:				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):				0.15	0.45				
	Date Sampled:				15-Jun-2023	15-Jun-2023	15-Jun-2023	15-Jun-2023	15-Jun-2023	15-Jun-2023
	Asbestos Lab:				NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB
Determinand	Accred.	SOP	Units	LOD						
Aromatic EPH >C16-C21	U	2690	mg/kg	2.00	6.8	< 2.0	5.1	< 2.0	17	< 2.0
Aromatic EPH >C21-C35	U	2690	mg/kg	2.00	< 2.0	5.5	94	5.3	210	< 2.0
Aromatic EPH >C35-C40	N	2690	mg/kg	1.00	< 1.0	34	7.2	< 1.0	24	< 1.0
Total Aromatic EPH >C10-C35	U	2690	mg/kg	5.00	8.5	6.6	100	5.9	240	< 5.0
Total Aromatic EPH >C10-C40	N	2690	mg/kg	10.00	< 10	41	110	< 10	260	< 10
Total VPH >C5-C10	U	2780	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Total EPH >C10-C35	U	2690	mg/kg	10.00	19	26	140	20	290	< 10
Total EPH >C10-C40	N	2690	mg/kg	10.00	19	60	140	20	320	< 10
Naphthalene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.63	< 0.10
Acenaphthylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.58	< 0.10
Acenaphthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.46	< 0.10
Fluorene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.33	< 0.10
Phenanthrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.73	< 0.10
Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.53	< 0.10
Fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	2.3	< 0.10
Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	1.5	< 0.10
Benzo[a]anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.74	< 0.10
Chrysene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.97	< 0.10
Benzo[b]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.86	< 0.10
Benzo[k]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.66	< 0.10
Benzo[a]pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	1.1	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.58	< 0.10
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.42	< 0.10
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.56	< 0.10
Total Of 16 PAH's	U	2700	mg/kg	2.0	< 2.0	< 2.0	< 2.0	< 2.0	13	< 2.0
Dichlorodifluoromethane	U	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Chloromethane	U	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Vinyl Chloride	U	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Bromomethane	U	2760	mg/kg	0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Chloroethane	U	2760	mg/kg	0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020
Trichlorofluoromethane	U	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,1-Dichloroethene	U	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Trans 1,2-Dichloroethene	U	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,1-Dichloroethane	U	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
cis 1,2-Dichloroethene	U	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Bromochloromethane	U	2760	mg/kg	0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Trichloromethane	U	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,1,1-Trichloroethane	U	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010

Results - Soil

Project: 5202188 Claredon Road Hornsey

Client: Atkins Ltd	Chemtest Job No.:					23-20686	23-20686	23-20686	23-20686	23-20686	23-20686
Quotation No.: Q23-31691	Chemtest Sample ID.:					1659881	1659882	1659883	1659884	1659885	1659886
	Client Sample ID.:					ES1	ES2	ES3	ES4	ES5	ES6
	Sample Location:					HTP01	HTP01	Zone 1&3	Zone 1&3	Zone 4&5	Zone 4&5
	Sample Type:					SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):					0.15	0.45				
	Date Sampled:					15-Jun-2023	15-Jun-2023	15-Jun-2023	15-Jun-2023	15-Jun-2023	15-Jun-2023
	Asbestos Lab:					NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB
Determinand	Accred.	SOP	Units	LOD							
Tetrachloromethane	U	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,1-Dichloropropene	U	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Benzene	U	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,2-Dichloroethane	U	2760	mg/kg	0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020
Trichloroethene	N	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,2-Dichloropropane	U	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Dibromomethane	U	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Bromodichloromethane	U	2760	mg/kg	0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
cis-1,3-Dichloropropene	N	2760	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Toluene	U	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Trans-1,3-Dichloropropene	N	2760	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
1,1,2-Trichloroethane	U	2760	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Tetrachloroethene	U	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,3-Dichloropropane	U	2760	mg/kg	0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020
Dibromochloromethane	U	2760	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
1,2-Dibromoethane	U	2760	mg/kg	0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Chlorobenzene	U	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,1,1,2-Tetrachloroethane	U	2760	mg/kg	0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020
Ethylbenzene	U	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
m & p-Xylene	U	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
o-Xylene	U	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Styrene	U	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Tribromomethane	U	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Isopropylbenzene	U	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Bromobenzene	U	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,2,3-Trichloropropane	N	2760	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
N-Propylbenzene	U	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
2-Chlorotoluene	U	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,3,5-Trimethylbenzene	U	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
4-Chlorotoluene	U	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Tert-Butylbenzene	U	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,2,4-Trimethylbenzene	U	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Sec-Butylbenzene	U	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,3-Dichlorobenzene	U	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
4-Isopropyltoluene	N	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,4-Dichlorobenzene	U	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
N-Butylbenzene	U	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,2-Dichlorobenzene	U	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010

Results - Soil

Project: 5202188 Claredon Road Hornsey

Client: Atkins Ltd	Chemtest Job No.:					23-20686	23-20686	23-20686	23-20686	23-20686	23-20686
Quotation No.: Q23-31691	Chemtest Sample ID.:					1659881	1659882	1659883	1659884	1659885	1659886
	Client Sample ID.:					ES1	ES2	ES3	ES4	ES5	ES6
	Sample Location:					HTP01	HTP01	Zone 1&3	Zone 1&3	Zone 4&5	Zone 4&5
	Sample Type:					SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):					0.15	0.45				
	Date Sampled:					15-Jun-2023	15-Jun-2023	15-Jun-2023	15-Jun-2023	15-Jun-2023	15-Jun-2023
	Asbestos Lab:					NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB
Determinand	Accred.	SOP	Units	LOD							
1,2-Dibromo-3-Chloropropane	U	2760	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
1,2,4-Trichlorobenzene	U	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Hexachlorobutadiene	U	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,2,3-Trichlorobenzene	U	2760	mg/kg	0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020
Methyl Tert-Butyl Ether	U	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Naphthalene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.21		< 0.10
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.23		< 0.10
Anthracene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.48		< 0.10
Pyrene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.50		< 0.10
Benzo[a]anthracene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.30		< 0.10
Chrysene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.20		< 0.10
Benzo[b]fluoranthene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.35		< 0.10
Benzo[k]fluoranthene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.10		< 0.10
Benzo[a]pyrene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.31		< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.23		< 0.10
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.21		< 0.10
Total Of 16 PAH's	N	2800	mg/kg	2.0	< 2.0	< 2.0	< 2.0	< 2.0	3.1		< 2.0
Total Phenols	U	2920	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Test Methods

SOP	Title	Parameters included	Method summary
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2455	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2690	EPH A/A Split	Aliphatics: >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35– C40 Aromatics: >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C40	Acetone/Heptane extraction / GCxGC FID detection
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Diben[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2780	VPH A/A Split	Aliphatics: >C5–C6, >C6–C7,>C7–C8,>C8-C10 Aromatics: >C5–C7,>C7-C8,>C8–C10	Water extraction / Headspace GCxGC FID detection
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene*; Chrysene*; Diben[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

Report Information

Key

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

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

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

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

All Asbestos testing is performed at the indicated laboratory

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

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

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

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

Charges may apply to extended sample storage

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

customerservices@chemtest.com

Appendix F. Screened Chemical Analytical Data

Assessment Criteria :		Residential Without Plant Uptake - 1% SOM Sand																		
Use MRL Values?																				
		Unit of Detection	Generic Assessment Criteria	Number of Samples	Minimum Value	Maximum Value	Number of Exceedances	Location		Zone 2	Zone 2	Zone 1&3	Zone 1&3	Zone 4&5	Zone 4&5	Trugrow Blends	Landscape Subsoil	Rootzone 80 / 20	Lawn Topsoil	
								Strata		Sample ID	ES1	ES2	ES3	ES4	ES5	ES6				
										Depth	0.15m	0.45m								
										Date	15-Jun-2023	15-Jun-2023	15-Jun-2023	15-Jun-2023	15-Jun-2023	15-Jun-2023	23/02/2023	13/02/2023	18/05/2023	18/05/2023
											Topsoil	Sub Soil	Topsoil	Sub Soil	Topsoil	Sub Soil	Topsoil	Subsoil	Topsoil	
Isopropylbenzene	mg/kg	0.0010	No SSV	6	<0.001	<0.001	0			<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	Topsoil	Subsoil	Topsoil		
Bromobenzene	mg/kg	0.0010	0.46	6	<0.001	<0.001	0			<0.001	<0.001	<0.001	<0.001	<0.001	<0.001					
1,2,3-Trichloropropane	mg/kg	0.050	No SSV	6	<0.05	<0.05	0			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05					
N-Propylbenzene	mg/kg	0.0010	No SSV	6	<0.001	<0.001	0			<0.001	<0.001	<0.001	<0.001	<0.001	<0.001					
2-Chlorotoluene	mg/kg	0.0010	No SSV	6	<0.001	<0.001	0			<0.001	<0.001	<0.001	<0.001	<0.001	<0.001					
1,3,5-Trimethylbenzene	mg/kg	0.0010	No SSV	6	<0.001	<0.001	0			<0.001	<0.001	<0.001	<0.001	<0.001	<0.001					
4-Chlorotoluene	mg/kg	0.0010	No SSV	6	<0.001	<0.001	0			<0.001	<0.001	<0.001	<0.001	<0.001	<0.001					
Tert-Butylbenzene	mg/kg	0.0010	No SSV	6	<0.001	<0.001	0			<0.001	<0.001	<0.001	<0.001	<0.001	<0.001					
1,2,4-Trimethylbenzene	mg/kg	0.0010	2.02	6	<0.001	<0.001	0			<0.001	<0.001	<0.001	<0.001	<0.001	<0.001					
Sec-Butylbenzene	mg/kg	0.0010	No SSV	6	<0.001	<0.001	0			<0.001	<0.001	<0.001	<0.001	<0.001	<0.001					
1,3-Dichlorobenzene	mg/kg	0.0010	No SSV	6	<0.001	<0.001	0			<0.001	<0.001	<0.001	<0.001	<0.001	<0.001					
4-Isopropyltoluene	mg/kg	0.0010	No SSV	6	<0.001	<0.001	0			<0.001	<0.001	<0.001	<0.001	<0.001	<0.001					
1,4-Dichlorobenzene	mg/kg	0.0010	No SSV	6	<0.001	<0.001	0			<0.001	<0.001	<0.001	<0.001	<0.001	<0.001					
N-Butylbenzene	mg/kg	0.0010	No SSV	6	<0.001	<0.001	0			<0.001	<0.001	<0.001	<0.001	<0.001	<0.001					
1,2-Dichlorobenzene	mg/kg	0.0010	No SSV	6	<0.001	<0.001	0			<0.001	<0.001	<0.001	<0.001	<0.001	<0.001					
1,2-Dibromo-3-Chloropropane	mg/kg	0.050	No SSV	6	<0.05	<0.05	0			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05					
1,2,4-Trichlorobenzene	mg/kg	0.0010	No SSV	6	<0.001	<0.001	0			<0.001	<0.001	<0.001	<0.001	<0.001	<0.001					
Hexachlorobutadiene	mg/kg	0.0010	No SSV	6	<0.001	<0.001	0			<0.001	<0.001	<0.001	<0.001	<0.001	<0.001					
1,2,3-Trichlorobenzene	mg/kg	0.0020	No SSV	6	<0.002	<0.002	0			<0.002	<0.002	<0.002	<0.002	<0.002	<0.002					
Methyl Tert-Butyl Ether	mg/kg	0.0010	33.3	8	<0.001	<0.005	0			<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005			
Total Phenols	mg/kg	0.10	No SSV	8	<0.1	<1	0			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<1			

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