Industrial Property Investment Fund (IPIF)

UNIT 10 SERVICE YARD INVESTIGATION, BARTON PARK INDUSTRIAL ESTATE

Geo Environmental Ground Investigation Report



70119985-GI-R00
APRIL 2024

CONFIDENTIAL

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CONTENTS

1 INTRODUCTION 1

1.1 AUTHORISATION 1
1.2 DEVELOPMENT PROPOSALS 1
1.3 AIMS AND OBJECTIVES 1
1.4 PREVIOUS REPORTING 1
1.5 SCOPE OF WORKS 1
1.6 REGULATORY CONTEXT 2
1.7 SOURCES OF INFORMATION 3
1.8 CONFIDENTIALITY AND LIMITATIONS 4

2 SUMMARY OF SITE INFORMATION 5

2.1 SITE DESCRIPTION 5
2.2 SITE HISTORY 5
2.3 GEOLOGY 6
2.4 HYDROLOGY AND HYDROGEOLOGY 6
2.5 UNEXPLODED ORDNANCE 6

3 PRELIMINARY CONCEPTUAL SITE MODEL 7

4 GROUND INVESTIGATION AND ASSESSMENT RATIONALE 10

4.1 RATIONALE FOR GROUND INVESTIGATION 10
4.2 WORKS UNDERTAKEN 10

5 GROUND CONDITIONS 11

5.1 ENCOUNTERED GROUND CONDITIONS 11
5.2 GROUNDWATER STRIKES DURING INVESTIGATION 13

5.3 VISUAL / OLFACTORY EVIDENCE OF CONTAMINATION 13
5.4 MONITORED GROUNDWATER ELEVATIONS 13
5.5 HYDROGEOLOGICAL MODEL 14
5.6 CALIFORNIA BEARING RATIO ASSESSMENT 15
6 CONTAMINANT RISK ASSESSMENT 16
6.1 HUMAN HEALTH RISK ASSESSMENT 16
6.2 GENERIC QUANTITATIVE RISK ASSESSMENT – HUMAN HEALTH 17
6.3 GENERIC QUANTITATIVE RISK ASSESSMENT – CONTROLLED WATERS 18
6.4 GROUND GAS RISK ASSESSMENT 21
7 GEOTECHNICAL ASSESSMENT 23
7.1 GENERAL 23
7.2 DERIVED PARAMETERS 24
8 ENGINEERING ASSESSMENT 33
8.1 PROPOSED DEVELOPMENT 33
8.2 SUMMARY OF GEOTECHNICAL CONSTRAINTS 33
8.3 PRELIMINARY GROUND BEARING RESISTANCE 34
8.4 EARTHWORKS 35
8.5 EXCAVATIONS AND DEWATERING 35
8.6 PAVEMENTS 35
9 REFINED CONCEPTUAL SITE MODEL 36
9.1 ON-SITE 36
9.2 OFF SITE 38
10 CONCLUSIONS 40
10.1 SITE SETTING 40
10.2 RISK ASSESSMENT 40
10.3 GROUND GAS AND VAPOUR RISK 41

10.4 CONTAMINATION SOURCE 42
10.5 CALIFORNIA BEARING RATIO ASSESSMENT 42
11 RECOMMENDATIONS 43

TABLES

Table 2-1 – Site Information 5
Table 3-1 – Preliminary Conceptual Site Model 8
Table 5-1 - Summary of Ground Conditions 11
Table 5-2 - Summary of Groundwater Monitoring Results 13
Table 5-3 – Summary of CBR Results (CBR %) 15
Table 6-1 - Summary of Soil Leachate Exceedances 19
Table 6-2 - Summary of Groundwater Exceedances 20
Table 6-3 - Summary of Ground Gas Readings and Gas Screening Values 21
Table 7-1 - Summary of results of geotechnical testing 23
Table 7-2 – Unit weight 25
Table 7-3 - Average NMC values 25
Table 7-4 - Summary of Plasticity Index values 26
Table 7-5 – Constant volume effective angle of shearing resistance 27
Table 7-6 - PSD analysis 29
Table 7-7 - Buried concrete classification 30
Table 7-8 – CBR testing undertaken 30
Table 7-9 - Derived geotechnical values 31
Table 8-1 - Summary of Geotechnical Constraints 33
Table 9-1 – Contaminant Linkages 36
Table 9-2 – Assessment of Off-Site Sources 38

FIGURES

Figure 7-1 - Moisture Content vs Depth 26

Figure 7-2 - Casagrande Chart 27

Figure 7-3 - SPT N_{60} Value vs Level 28

Figure 7-4 - Undrained Shear Strength vs Level 29

APPENDICES

APPENDIX A

FIGURES AND DRAWINGS

APPENDIX B

REPORT LIMITATIONS

APPENDIX C

ZETICA UXO RISK MAP

APPENDIX D

FACTUAL DATA

APPENDIX D.1

WINDOWLESS SAMPLE LOGS

APPENDIX D.2

TRIAL PIT LOGS

APPENDIX D.3

IN-SITU TESTING - CALIFORNIA BEARING RATIO

APPENDIX D.4

LABORATORY DATA - SOIL ANALYSIS

APPENDIX D.5

LABORATORY DATA - GROUNDWATER ANALYSIS

APPENDIX D.6

POST SITE MONITORING DATA

APPENDIX D.7

GROUND INVESTIGATION PHOTOGRAPHS

APPENDIX E

RISK ASSESSMENT

APPENDIX E.1

RISK ASSESSMENT METHODOLOGY

APPENDIX E.2

HUMAN HEALTH RISK ASSESSMENT SCREENING TABLES

APPENDIX E.3

CONTROLLED WATERS RISK ASSESSMENT SCREENING TABLES

1 INTRODUCTION

1.1 AUTHORISATION

WSP was instructed by Industrial Property Investment Fund (IPIF the 'Client') to undertake intrusive ground investigation and subsequent geoenvironmental assessment of the site and include road/pavement California Bearing Ratio (CBR) testing at Unit 10, Barton Park Industrial Estate, Chickenhall Lane, Eastleigh, SO50 6RR ('the Site').

The site location is shown on **Figure 1**, included in **Appendix A.**

1.2 DEVELOPMENT PROPOSALS

The Site is currently occupied by Xelabus and is a lease from the Client. JLL (Jones Lang LaSalle Ltd) manage the assets on behalf of the Client.

We understand that the current intention by the Client is to remove the existing building and resurface the Site to form a new service yard / hardstanding area that will support the adjacent Unit 6 building.

1.3 AIMS AND OBJECTIVES

The aim of the works is to obtain contaminated land and geotechnical ground investigation data to inform the proposed development of the new service yard.

The objectives to achieve the aim are as follows:

- Undertake intrusive ground investigation works to provide an outline of potential contaminated land liabilities and subsequent recommendations for any potential remediation required;
- Expose the existing foundations along the eastern elevation of the adjacent Unit 6 building and confirm allowable soil bearing capacity; and
- Provide factual CBR testing on the existing site subgrade soils.

1.4 PREVIOUS REPORTING

WSP have not been made of aware of any previous intrusive ground investigation works or report at the Site. Previous investigation works and reporting have been undertaken by WSP across the wider Barton Park Industrial Estate Site including;

- Unit 3 Barton Park Industrial Estate – Ground Contamination Liabilities Summary (April 2021);
- Unit 5 Barton Park Industrial Estate – Ground Contamination Liabilities Summary (April 2021); and,
- Barton Park Road Resurfacing – Trial Hole and CBR Testing (March 2024).

1.5 SCOPE OF WORKS

In order to meet the aims and objectives outlined in **Section 1.3,** the scope of works for the investigation comprised the following:

- Preparation of a site-specific Construction Phase Plan to include risk assessments and detailed method statements for the proposed work in accordance with the Construction Design and Management Regulations 2015;
- Site walkover to confirm site constraints and access requirements;
- Buried utility avoidance survey of proposed exploratory hole locations;
- Attendance of a qualified Unexploded Ordnance (UXO) engineer for the duration of all intrusive works;
- Full time supervision by WSP consultants for the duration of the works to undertake logging, soil sampling, in-situ PID testing and oversee installation of the groundwater monitoring wells;
- Coring of hardstanding concrete and asphalt surfacing in exploratory hole and hand pitting to a maximum depth of 1.50 m below ground level (bgl);
- Advancement of up to 6 windowless sample boreholes to maximum depths of 4 m below ground level (m bgl) for retrieval of soil samples for chemical laboratory analysis and completion of in-situ SPT testing. Final depths will be dependent on ground conditions encountered and depth of Made Ground;
- CBR testing in accordance with BS 1377 1990 (Part 9), at 6 locations;
- Trial pitting to expose the existing buried foundations beneath the column and window along adjacent Unit 6 east elevation;
- Provision of temporary barriers around the exploratory hole investigation areas;
- Surveying of exploratory hole locations to Ordnance Survey national grid co-ordinates and levelling to Ordnance Datum;
- Collection and submission of soil samples for solid and leachate chemical laboratory analysis;
- Groundwater level monitoring, ground gas testing, groundwater sampling and testing undertaken from each monitoring well location following the completion of the ground investigation works;
- Factual reporting of the CBR data; and,
- Provision of a geo-environmental ground investigation report for the site that includes: an assessment of potential constraints; a Generic Quantitative Risk Assessment (GQRA) for human health and controlled waters, and subsequent recommendations for mitigation / remediation of contaminated land risks (if assessed as being required) or further works.

1.6 REGULATORY CONTEXT

The assessment was undertaken in the legislative context of:

- Part 2A of The Environmental Act (1990); and,
- The National Planning Policy Framework (NPPF) 2021.

The following good practice and statutory guidance were considered, and the assessment was undertaken in general accordance with:

- Environment Agency Land Contamination Risk Management (LCRM) July 2023;

- British Standard 'Investigation of Potentially Contaminated Sites – Code of Practice', BS EN 10175:2011;
- Defra 'Environment Protection Act 1990: Part 2A Contaminated Land Strategy Guidance' PB13735 (2012);
- CIRIA 'Assessing Risks Posed by Hazardous Ground Gases to Buildings', C665 (2007);
- British Standard 'Code of Practice for Ground Investigations', BS 5930:2015;
- British Standard 'Methods of test for soils for civil engineering purposes';
  - BS1377-2: Clause 4.2-4.4 & 5.2-5.4: 1990 'Liquid & Plastic Limits';
  - BS 1377-9:1990 'In-situ tests';
- British Standard 'Geotechnical investigation and testing';
  - BS EN ISO 17892-1: 2014 'Determination of water content';
  - BS EN ISO 17892-4: 2016 'Determination of particle size distribution';
- British Standard 'Geotechnical investigation and testing – Identification and classification of soil – Part 1: Identification and description', BS EN ISO 14688-1 +A1:2020;
- British Standard 'Code of Practice for Foundations', BS 8004:2015 (+A1: 2020);
- British Standard 'Geotechnical Investigation and Testing-Field Testing- Part 3: Standard Penetration Testing', BS EN ISO 22476-3:2005+A1:2011;

Legislation and guidance on the assessment of contaminated sites acknowledges the need for a tiered risk-based approach. This assessment represents a Generic Quantitative Risk Assessment (GQRA) being a comparison of site contaminant levels against generic standards and compliance criteria including an assessment of risk using the source-pathway-receptor model.

1.7 SOURCES OF INFORMATION

The following sources of information were used in the production of this report:

- MAGIC Defra website (https://magic.defra.gov.uk/MagicMap.aspx), accessed on 02nd April 2024;
- National Library of Scotland Ordnance Survey mapping (https://maps.nls.uk/os/) accessed on 02nd April 2024;
- Google Maps (https://www.google.co.uk/maps), accessed on 02nd April 2024;
- British Geological Survey (BGS) Geological Map Sheet No. 315, Southampton, 1:50,000 Solid and Drift (1987);
- BGS 'GeoIndex (onshore)' online viewer (https://www.bgs.ac.uk/map-viewers/geoindex-onshore/), accessed on 02nd April 2024; and,
- Zetica UXO Risk Maps (https://zeticauxo.com/guidance/risk-maps/), accessed on 05th April 2024.

1.8 CONFIDENTIALITY AND LIMITATIONS

This report is addressed to and may be relied upon by the IPIF. The report may not be relied upon or transferred to any other parties without the express written authorisation of WSP. This report should be read in full. No responsibility will be accepted where this report is used, either in its entirety or in part by any other party.

Third party information used in the production of this report has been taken in good faith as being accurate. WSP cannot and will not accept any liability for errors and/or omissions in data provided by others and WSP cannot warrant the work of others.

General limitations of the assessment are included in **Appendix B**.

2 SUMMARY OF SITE INFORMATION

2.1 SITE DESCRIPTION

A Site Location Plan and Exploratory Hole Plan is presented in **Appendix A** (**Figures 1 and 2**) which details the existing site layout. Details of the Site are summarised in **Table 2-1** below as obtained from publicly available information.

Table 2-1 – Site Information

Details	Description
Name and Address	Unit 10, Barton Park Industrial Estate, Chickenhall Lane, Eastleigh, SO50 6RR.
Grid Reference	(NGR) 446059, 118941
Site Description	The Site comprises a large, elongated, single storey warehouse building (brick elevations and gable ends with prefabricated roof/top) and is located towards the centre of the Barton Park Industrial Estate. The Site also includes a narrow outer yard (concrete surface) and roadway (asphalt surface) located along its east and west elevations respectively. WSP have undertaken a site walkover to view the external Site (no access made internally). The warehouse and surround hardstanding are used as a maintenance workshop and bus depot with associated offices space and washdown facilities (east) for public transport buses (Xelabus). The Site also includes a narrow concrete surfaced strip which forms a small portion of the adjacent Bluestar bus depot to the east of the Xelabus facility.
Surrounding Land Use	Surrounding land use is predominantly mixed commercial / light industrial with the adjacent units of Barton Park Industrial Estate. There is some residential land use immediately to the north of the Site and some agricultural land use beyond Chickenhall Lane to the east.
Topography and Ground Cover	The topography of the Site is generally flat laying at approximately 15 m Above Ordnance Datum (AOD). External surfacing is made up entirely of hardstanding comprising concrete hardstanding in all areas except the roadway to the west of Unit 10 which is asphalt surfaced.
Potential Sources of Contamination	Surface staining and oily run-off was observed in a number of places across the Site including; the roadway to the west of Unit 10 which is used for vehicle storage overnight, the bus washdown facility to the east of Unit 10 and across the Bluestar Depot which is also used for overnight vehicle storage. A number of above ground storage tanks were also observed to be present on Site including a AST fuel tank within the north west corner of the Xelabus maintenance building (Unit 10) and to the east of the site adjacent to the maintenance building within the Bluestar depot. A fuel dispenser was also observed along the east elevation of Unit 10 adjacent to the washdown facility.

2.2 SITE HISTORY

Historically, the Site comprised a locomotive, carriage and wagon works from the 1890s until the Site was redeveloped into Barton Park Industrial Estate in the late 20th Century. Historical Ordnance

Survey maps provided by the National Library of Scotland appear to show that the former locomotive, carriage and wagon works buildings remain, but the railway infrastructure have been removed.

Surrounding land uses have historically included gas works, sidings, warehouses, rail depot, refuse destructor and allotments; all of which represent potential sources of contamination.

2.3 GEOLOGY

The BGS 'GeoIndex Onshore' online viewer and BGS Published Map (Sheet 315, Southampton) indicates the geology underlying the Site comprises superficial deposits of River Terrace Deposits of mainly loam and clay resting on River Terrace Gravels (River Terrace Deposits,1) described as Sand and gravel, locally with lenses of silt, clay or peat. Alluvium is also mapped a short distance to the east adjacent to the River Itchen and it is deemed likely that localised areas of alluvium may be present beneath the Site. The superficial deposits are shown to be underlain by bedrock of the Wittering Formation described as greyish brown laminated clay; wavy- to lenticular-bedded sand interbedded with clay in equal proportions; and fine- to medium-grained sparsely glauconitic sand. The Wittering Formation is expected to be underlain by the London Clay Formation, including various sand members which is in turn underlain by the Reading Formation with the White Chalk Subgroup present at depth.

It is also anticipated that Made Ground is likely to be present from beneath hardstanding across the majority of the Site due to the historical site use.

There are no BGS recorded borehole records available for the Site, therefore borehole records within 250 m of the Site have been reviewed. SU41NE173 (located 130 m north east of the Site), SU41NE174 (located 220 meters south east of the Site) and SU41NE325 (located 230 m south east of the Site) all encountered varying depths of topsoil and fill underlain by soft black Peat (*alluvium*) to depths of between 2.5 m to 4 m bgl, followed by loose fine to coarse flint gravel (*River Terrace Deposits*) to 5 m bgl in SU41NE325, with grey brown becoming dark grey sand with gravel (*Wittering Formation*) present in all 3 locations to termination at depths of between 4.75 m and 10 m bgl.

SU41NE1 (located 190 m north west of the Site), encountered superficial deposits of soft sandy clay (*River Terrace Deposits*) to 1.5 m below ground level (bgl) underlain by clayey gravel (*River Terrace Deposits*) to 2.7 m bgl, and bedrock of silty clay (*Wittering Formation*) to 6.0 m bgl, underlain by a water bearing sand which was only proven to 6.1 m bgl.

2.4 HYDROLOGY AND HYDROGEOLOGY

The nearest surface water is the River Itchen, located 185 m north east, at its closest point, designated as a Site of Special Scientific Interest (SSSI). The superficial deposits are classified as Secondary (Undifferentiated) Aquifers by the Environment Agency (EA). The bedrock is classified as Secondary (A) Aquifer. Groundwater vulnerability across the Site is classified as Medium. Groundwater flow direction is likely to be towards the east, in the direction of the River Itchen.

The Site is not located within a groundwater Source Protection Zone (SPZ) for public water.

Groundwater abstraction records were not available at the time of writing this document.

2.5 UNEXPLODED ORDNANCE

The online Zetica UXO Risk Map for the Site has been reviewed (Available in **Appendix C**). The map shows a **Moderate** bomb risk for the Site with Luftwaffe Targets in close proximity to the Site.

3 PRELIMINARY CONCEPTUAL SITE MODEL

The Preliminary Conceptual Site Model (CSM) is based upon the environmental conditions as described in the previous sections.

The assessment followed a risk-based approach; with the potential environmental risk assessed qualitatively using the 'source-pathway-receptor' contaminant linkage concept introduced in the guidance documents (principally the EA's LCRM guidance) on the practical implementation of the Environmental Protection Act 1990.

Environmental risk can be defined as the combination of the consequence of a harmful effect and the probability of its occurrence. The existence of a contaminant linkage is primarily dependant on site usage and environmental conditions.

The environmental risk assessment has been carried out by identifying and evaluating the significance of the following:

- Potential sources of contamination: these include actual or potentially contaminating materials and activities, located either on or in the vicinity of the Site;
- Potential receptors of contamination: these include future land users, activities or persons at the Site; and,
- Potential pathways for contamination migration: these are the routes or mechanisms by which contaminants may migrate from the source to the receptor.

The **Table 3.1** below provides a summary of the potential sources of contamination that may be present on the site as well as the likely nature of such sources.

Table 3-1 – Preliminary Conceptual Site Model

Potential Source	Receptor(s)	Pathway(s)	Comments
ON-SITE			
▪ Made Ground relating to historical industrial use and redevelopment ▪ Hydrocarbons relating to railway and more recent fuel storage	Human Health ▪ Future site users (continued commercial) ▪ Construction / Maintenance workers ▪ Third party neighbours	▪ Dermal contact ▪ Ingestion of impacted soil particles on-site, and windblown to adjacent properties ▪ Inhalation of dust, and windblown to adjacent properties ▪ Migration of ground gas and volatile vapours into buildings	The Site has been subject to historical and recent industrial usages and potential sources of contamination. Based on the site's location and information from the Client it is understood that the site is to remain as commercial/ industrial setting. Groundcover is made up entirely of hardstanding, therefore human exposure to potentially contaminated soils and groundwater via dermal contact and ingestion is considered to be **Low**. Organic contamination may be present which may have potential for ground gas and vapours to generate and accumulate. These have the potential to migrate into buildings and pose an explosion and/ or asphyxiation risk which is considered to be **Low to Moderate**. The risk to maintenance workers is considered to be **Moderate** due to their direct contact with and potential inhalation/ingestion of potentially contaminated soils. Owing to the potential risks associated with the migration of ground gases and vapours, the risk to human health of third-party neighbours (surrounding commercial units and residential to the north) is considered to be **Low to Moderate.**
	Controlled Waters ▪ Secondary (Undifferentiated) Aquifer ▪ Secondary A Aquifer ▪ River Itchen	▪ Vertical and lateral leaching from impacted soil ▪ Vertical and lateral migration via groundwater ▪ Infiltration into potable water pipework	The Site is underlain by River Terrace Deposits (silt and clay over sand and gravel), overlying bedrock of Wittering Formation (sand, silt and clay). There is likely to be hydrological connectivity between the Made Ground and underlying aquifers therefore the risk of vertical migration of contamination to the Secondary Aquifers is **Moderate**. In addition, any contaminants present within the Made Ground have the potential to leach via drains (present on Site) and surface

Potential Source	Receptor(s)	Pathway(s)	Comments
			water infiltration and migrate into potable water pipework (present on Site) or nearby surface water features (River Itchen). Therefore, risks to groundwater from identified on-site potentially contaminative sources are considered to be **Low to Moderate.**
	Current & Future Structures ▪ Below ground services (e.g. potable water supply pipes) ▪ Future building structures	▪ Direct contact with impacted soils and groundwater	There is a potential for the chemical attack of below ground concrete and permeation of hydrocarbons into plastic pipes. Given the site history and the unknown quantity and composition of Made Ground on the Site, the risk is considered **Low to Moderate.**
OFF-SITE			
Adjacent former and current works and general industrial uses	Human Health ▪ Construction workers and future maintenance workers	▪ Migration of ground gas ▪ Lateral migration of contaminants via impacted groundwater	Made Ground is likely to be present in areas adjacent to the Site, and there is the potential for the lateral migration of ground gas. Ground gas poses a risk of explosion or asphyxiation if it accumulates in enclosed spaces. Groundwater within the underlying Secondary A Aquifer is anticipated to flow north east, therefore the commercial and industrial uses to the west present a potential source of off-site contamination including the mainline railway. The overall risk to human health, controlled waters and future structures from off-Site sources is considered to be **Low to Moderate.**
	Controlled Waters ▪ Secondary (Undifferentiated) Aquifers ▪ Secondary A Aquifer ▪ River Itchen		
	Future Structures ▪ Below ground services (e.g. potable water supply pipes) ▪ Future building structures		

4 GROUND INVESTIGATION AND ASSESSMENT RATIONALE

4.1 RATIONALE FOR GROUND INVESTIGATION

The rationale for the ground investigation was scoped following review of the statutory service plans and utility survey for the Site. It also takes into consideration the current proposal for modifications to the east elevation of Unit 6 and the requirement for CBR testing of the subgrade soils across the Site.

Due to the current site tenant's active works, access was not afforded inside the existing Unit 10 building or within the site external wash down area along its east elevation. Exploratory hole locations were subsequently positioned in available external site locations across the Site.

In addition, due to the presence of a medium pressure gas main and following consultation with the service provider, it was not possible to undertake mechanical excavation activities, including window sampling, along the roadway to the west of Unit 10. Additional window sample locations were therefore included to the north west and south west in order to allow for interpolation of soil profile and geotechnical properties across the Site.

A utility survey drawing for the Site was provided by the client and has been included as part of the exploratory hole location plan (**Figure 2**).

4.2 WORKS UNDERTAKEN

Ground investigation works were undertaken between the 20th and 22nd February 2024. The works comprised:

- 8 No. concrete core locations to allow for follow on hand pitting or windowless sampler drilling with SPT (Standard Penetration Testing) testing;
- 4 No. boreholes to depths of between 2.00 m and 5.00 m bgl, with two locations WS04 and WS5A being abandoned at 2.00 m bgl due to SPT refusal in very dense gravel soil;
- 2 No. hand dug pits and one foundation pit to 1.50 m depth;
- 8 No. CBR tests;
- Collection of soil samples for subsequent geotechnical and environmental laboratory analysis;
- Photo-Ionisation Detector (PID) screening of collected samples;
- Installation of groundwater monitoring wells within 4 boreholes (WS04, WS05A, WS06A and WS07) and ground gas monitoring installations in 5 boreholes (WS02, WS03, WS04, WS05A and WS06A); and
- 2 visits of ground gas monitoring and 1 round of groundwater sampling for laboratory analysis (groundwater sampling from monitoring wells where groundwater was at sufficient levels for sample extraction).

The exploratory hole locations are shown on **Figure 2** in **Appendix A**. The exploratory hole logs are included in **Appendix D.1 and D.2**.

5 GROUND CONDITIONS

5.1 ENCOUNTERED GROUND CONDITIONS

A summary of ground conditions encountered during the investigation is presented in **Table 5-1**.

Table 5-1 - Summary of Ground Conditions

Stratum	Depth to base of strata (m bgl)*	Elevation of base of strata (m AOD)*	Thickness (m)*	Typical description / locality
Surfacing - Asphalt	0.07 and 0.10	14.73 to 14.91	0.07 and 0.10	Black Asphalt was present on the roadway to the west of Unit 10. (HP01/02, WS02 and WS03)
Surfacing – Concrete	0.13 to 0.33	14.35 to 14.79	0.12 to 0.25	Greyish brown concrete was encountered in all exploratory hole locations. Aggregate was typically fine to coarse flint aggregate. Concrete was generally reinforced with a 6 mm steel mesh in all locations except for HP01/02, WS02 and WS03.
Made Ground	0.73 to 1.50	13.29 to 13.97	0.48 to 1.28	Made Ground of varying composition was found across the Site. Typically comprising either: ▪ Black angular fine to coarse gravel of clinker; ▪ White or grey vey clayey gravel of chalk; ▪ Brown sandy, gravelly clay with gravel of brick, crushed concrete, clinker and flint.
Alluvium	1.40	13.21	0.20	A soft dark grey very silty Clay with an organic odour was encountered in WS06A only.
River Terrace Deposits – Loam and Clay	1.50 to 1.75	12.86 to 13.00	0.35 to 0.77	Greyish brown silty clay with occasional gravel of flint and calcareous fragments.
River Terrace Deposits - 1	2.85 to 2.90	11.76 to 11.80	1.10 to 1.40	Pale yellowish orange, orangish brown or light brown sandy slightly silty/clayey gravel of flint, occasional cobbles of flint in places.
Wittering Formation	(5.00)	(9.61 to 9.70)	(2.00 to 2.15)	Soft brown silty clay, becoming dark grey and very stiff with depth. Thinly laminated sandy silt and speckled greenish grey at depth.

*Brackets indicate maximum unproven depth, and thickness and the minimum elevation

5.1.1 SURFACING

5.1.1.1 Asphalt

Black asphalt was present overlying concrete in all exploratory hole locations to the west of Unit 10 (in TP01/02, WS02 and WS03). The asphalt included fine to coarse aggregate and was 60 to 70 mm thick. This was overlain by a further 30 mm thick layer of asphalt with fine and medium aggregate in locations WS02 and WS03.

5.1.1.2 Concrete

Concrete was present in all locations and typically described as a grey or greyish brown with aggregate of fine to coarse flint. There was 5 to 6 mm rounded steel reinforcement confirmed in all locations except for TP01/02, WS02 and WS03.

A black Damp Proof Membrane (DPM) was encountered at the base of the concrete in WS6 and WS6A and clear DPM at the base of concrete surfacing in WS04 and WS05.

Buried concrete was also encountered in WS06 at a depth of 0.30 m within the granular Made Ground.

5.1.2 MADE GROUND

Made Ground was encountered beneath hardstanding in all locations. The Made Ground deposits were found to be highly variable and comprised both cohesive and granular material.

5.1.2.1 Clinker

Black very sandy gravel of clinker was commonly found from beneath hardstanding across the Site, often including flint, brick fragments and crushed concrete.

5.1.2.2 Chalk Fill

Chalk fill was encountered from beneath other granular or cohesive Made Ground in TP01/02, WS02, WS03 and WS07. Typically comprising white or grey very clayey gravel of chalk with cobbles of chalk, frequently including gravel of brick fragments, flint, clinker and cobbles of brick.

5.1.2.3 Cohesive Made Ground

Cohesive Made Ground was encountered in TP01/02, WS02 and WS04, typically towards the base of Made Ground and comprising soft brown and orangish brown gravelly silty Clay with gravel of flint, clinker, chalk, crushed concrete and brick fragments.

5.1.3 SUPERFICIAL SOILS – ALLUVIUM

A thin layer of suspected Alluvium was encountered from the base of Made Ground in WS06A comprising soft dark grey very silty clay with occasional calcareous fragments and an organic odour.

5.1.4 SUPERFICIAL SOILS – RIVER TERRACE DEPOSITS

River Terrace Deposits were encountered in all locations where the base of Made Ground was proven i.e. WS04, WS05A, WS06A and WS07. The deposits included both cohesive and granular soils with the cohesive deposits overlying granular in all cases.

5.1.4.1 River Terrace Deposits – Loam and Clay

Cohesive River Terrace Deposits consistent with the Loam and Clay mapped as overlying River Terrace Deposits – 1 (sand and gravel) were encountered from the base of Made Ground where proven except for WS06A where they were overlain by a suspected Alluvium. These typically comprised soft greyish brown or brown silty clay with frequent calcareous fragments and occasional flint gravel.

5.1.4.2 River Terrace Deposits – 1

Granular River Terrace Deposits consistent with River Terrace Deposits – 1, as described by the BGS, were encountered below the cohesive soils. These typically comprised pale yellowish orange, orangish brown or light brown slightly silty/clayey sandy fine to coarse gravels of flint.

WS04 and WS05A were both terminated due to SPT refusal in the very dense gravels within the River Terrace Deposits.

5.1.5 BEDROCK DEPOSITS – WITTERING FORMATION

The Wittering Formation was encountered in both locations where the base of River Terrace Deposits was proven (WS06A and WS07). The Wittering Formation was found to consist of a soft brown and thinly laminated silty clay near the top of the unit becoming dark grey and very stiff with depth.

5.2 GROUNDWATER STRIKES DURING INVESTIGATION

The windowless sample driller did not confirm any clear groundwater strikes during the completion of any of the locations, which is likely to be result of slow ingress through the natural soils, along with the hole being cased on progression.

5.3 VISUAL / OLFACTORY EVIDENCE OF CONTAMINATION

The following visual / olfactory observations of contamination were made during the works:

- WS05 – 0.35 m bgl, Made Ground: A fragment of suspected asbestos containing material (ACM) was encountered in the hand dug pit. PID reading of 0.3 ppm.
- WS05A – 0.35 m bgl, Made Ground: PID reading of 0.1 ppm.
- WS06A – 0.40 m bgl, Made Ground: PID reading of 1.8 ppm.
- WS06A – 3.00 m bgl, Wittering Formation: PID reading of 0.4 ppm.

5.4 MONITORED GROUNDWATER ELEVATIONS

Two rounds of groundwater level monitoring was completed on 1 and 8 March 2024 the findings of which are presented in **Table 5.2** below.

Table 5-2 - Summary of Groundwater Monitoring Results

Location	Stratum (Response Zone)	Date	Depth to Water (m bgl)	Depth to Base (m bgl)
WS03	Made Ground	01/03/2024	Dry	1.50

Location	Stratum (Response Zone)	Date	Depth to Water (m bgl)	Depth to Base (m bgl)
	(0.50 to 1.50)	08/03/2024	Dry	1.50
WS04	Made Ground (0.30 to 1.00)	01/03/2024	Dry	1.00
		08/03/2024	Dry	1.00
	River Terrace Deposits (1.70 to 2.00)	01/03/2024	Dry	1.76
		08/03/2024	Dry	2.09
WS05A	Made Ground (0.30 to 1.00)	01/03/2024	*0.90**	1.00
		08/03/2024	*0.95**	1.00
	River Terrace Deposits (1.60 to 2.00)	01/03/2024	Dry	2.09
		08/03/2024	Dry	2.08
WS06A	Made Ground (0.30 to 1.00)	01/03/2024	Dry	1.00
		08/03/2024	Dry	1.00
	River Terrace Deposits/Wittering Formation (1.50 to 3.00)	01/03/2024	2.71	3.12
		08/03/2024	2.75	3.11
WS07	River Terrace Deposits/Wittering Formation (2.00 to 4.00)	01/03/2024	2.42	4.13
		08/03/2024	2.56	4.12

*Assumed to represent water collecting in cap at base of monitoring well installation and not representative of in-situ conditions.

It was not possible to access WS02 during either monitoring visit due to the presence of a broken-down vehicle preventing access to the location.

5.5 HYDROGEOLOGICAL MODEL

Based on the current and proposed ground conditions, infiltration to ground is unlikely due to the presence of hardstanding.

Groundwater was identified as being present within the granular portion of the River Terrace Deposits.

Minor elevated PID readings and horizontal laminations were observed near the surface of the Wittering Formation suggesting some hydraulic continuity with the overlying River Terrace Formation in the upper part of the formation. At depth however the Wittering Formation was encountered as a cohesive silty Clay and is expected to be present at sufficient thickness to present an effective aquitard restricting further vertical migration of contaminants.

Reduced groundwater levels in WS06A and WS07 of 11.90 and 12.28 m AOD respectively during the first visit and 11.86 and 12.14 m AOD respectively during the second visit support the assumption that groundwater is flowing in a generally easterly direction towards the River Itchen.

5.6 CALIFORNIA BEARING RATIO ASSESSMENT

CBR testing in accordance with method BS 1377 1990 part 9 was completed in WS02, WS03, WS04 and WS06A. Detailed test certificate results are shown in **Appendix D.3**

The CBR values are summarised in **Table 5.3** with respect to depth of test and subgrade soil description respectively.

Table 5-3 – Summary of CBR Results (CBR %)

Location	Depth (m)	Strata Description	CBR Result %
WS02	0.40	Dark greyish brown very sandy silty clayey angular to rounded fine to coarse GRAVEL of brick, chalk and flint.	3.7
	0.60		8.5
WS03	0.40	Greyish brown sandy slightly silty angular to subrounded fine to coarse GRAVEL of flint and slate with occasional chalk and clinker.	5.6
	0.60	White /grey very clayey angular to subrounded fine to coarse GRAVEL of chalk and occasional flint.	6.1
WS04	0.35	Black very sandy angular to subrounded fine to coarse GRAVEL of clinker, brick fragments and crushed concrete.	36
	0.60		14
WS06A	0.40	Black very sandy angular to subrounded fine to coarse GRAVEL of clinker and crushed concrete.	28
	0.80		6.4

6 CONTAMINANT RISK ASSESSMENT

6.1 HUMAN HEALTH RISK ASSESSMENT

6.1.1 RATIONALE

In the United Kingdom, the presence of contamination on a Site is generally only of concern if an actual or potentially unacceptable risk exists. Legislation and guidance on the assessment of contaminated sites, consistent with the European Union best practice, acknowledges the need for a tiered risk-based approach. This report represents a Generic Quantitative Risk Assessment (GQRA), being a comparison of site contaminant levels against highly conservative standards and compliance criteria including an assessment of the risk using the source-pathway-receptor model.

WSP has derived a set of Generic Assessment Criteria (GAC) for the CLEA generic land use scenarios using the CLEA Workbook v1.071 Excel modelling tool.

The CLEA workbook does not currently have capacity to derive criteria to assess risks from the inhalation of vapours derived from contaminants dissolved in groundwater. Therefore, a set of groundwater GACs has also been derived using the Johnson & Ettinger (J&E) approach.

Target concentrations within indoor air are based upon the Health Criteria Values (HCV) for each substance. They are a function of receptor inhalation rates and occupancy periods, as defined by the conceptual exposure model.

Target soil vapour concentrations above the water table have been calculated by dividing the target concentration by the steady-state attenuation factor coefficient between soil and indoor air. The attenuation factor has been calculated in accordance with the Johnson & Ettinger model, presented within the Environment Agency Science Report SC050021/SR3 (2009). The air-water partition coefficient (K_{aw}) has been used to predict the partitioning behaviour of each chemical between soil pore water and air. Where the calculated GAC exceeds the solubility limit for the chemical, no GAC has been proposed.

Further details on the assumptions and methodologies adopted by WSP are presented in **Appendix E.1**.

Where appropriate, exceedances of GACs are compared against published Category 4 Screening Levels (C4SLs). These are only applicable for eleven compounds, namely arsenic, benzene, benzo(a)pyrene, cadmium, chromium VI, lead, vinyl chloride, tetracholoroethene (PCE), trichloroethene, cis-1,2-dichlorothene and trans-1,2-dichloroethene. C4SL, are a set of generic screening criteria, which are more pragmatic, but represent a level of acceptable risk in the context of Part IIA of the 1990 Environmental Protection Act i.e. soil concentrations below a C4SL limit are considered to be ‘definitely not contaminated’ and pose at most a ‘low level of toxicological concern’.

In assessing the risks to human health receptors, consideration has to be given to the depth of contaminant impacts and likelihood of exposure. Various guidance documents provide differing advice on this, as summarised below.

Environment Agency Report SC050021/SGV Using Soil Guideline Values (2009):

- *“For the standard residential or allotment land use, the critical soil volume is the area of an individual garden, communal play area or working plot from the surface to a depth of between 0.5*

m and 1.0 m. This is the ground over which children are most likely to come into contact with soil or from which vegetable and fruit produce will be harvested."

Environment Agency Report SC050021/SR3 Updated Technical Background to the CLEA Model (2009):

- *"The generic CLEA model assumes that the source of outdoor air contamination is present as a continuous layer from the surface to a depth of 1.0 m. This is broadly consistent with the conceptual model for the other direct contact exposure pathways including soil ingestion and dermal contact"*

Environment Agency Report SC050021/SR4 CLEA Software (Version 1.05) Handbook (2009):

- *"The CLEA software assumes that the contaminant source is uniformly distributed from the soil surface to a depth of at least one metre in open ground."*
- *"The assumption in the development of SGVs is that soil contamination is uniformly distributed across the site from the surface to a depth of at least one metre. This is consistent with the conceptual model for the other direct contact exposure pathways including soil ingestion and dermal contact."*

WSP has given due consideration to the above references and has concluded as follows with regards to influencing depths:

- The SC050021/SR2 & SR3 references to 1.0 m influencing depth are predominately concerned with estimation of the vapour generation rates for volatile contaminants (for calculating screening criteria within the CLEA software), as opposed to an endorsement that depths up to a full metre would be contributing to direct contact, ingestion, and dust inhalation pathways. In terms of our assessments, WSP considers that for volatile contaminants, all depths have to be considered to have the potential to affect receptors; however, if these contaminants are present deeper than 1.0 m, then the risk assessment may require further refinement due to the CLEA assumptions.

The screening criteria for a commercial land use has been selected for the interpretation of the soil laboratory results under the understanding that the Site is to be leased again to commercial operations in the future.

Soil organic matter (SOM) content of the soil samples obtained from across the Site were variable, ranging from below the laboratory method detection limit (0.35 %) to 35% with an average of 7.48%. Subsequently, a SOM value of 1 % was utilised to generate conservative screening criteria.

The following assessment is based on the current proposals / intentions and any changes to the proposal would require a re-assessment of the data and the risks associated with any updated development plan.

6.2 GENERIC QUANTITATIVE RISK ASSESSMENT – HUMAN HEALTH

6.2.1 SOIL CONTAMINATION

A total of 14 soil samples were collected and analysed for a full suite of contaminants (**Appendix D.4**). The testing results were screened against GACs for a commercial end use (**Appendix E.2**).

The only exceedances of the GACs were for lead in WS02 at 0.4 to 0.5 m bgl (1,650 mg/kg) and WS04 at 0.3 to 0.4 m bgl (1,490 mg/kg) both in samples taken from granular Made Ground. These concentrations fell below the C4SL for lead of 2,300 mg/kg for commercial end use.

Whilst there were no further exceedances of the GACs for commercial land use some minor total petroleum hydrocarbon (TPH) elevated concentrations were recorded in WS04 at 0.3 to 0.4 m bgl (155 mg/kg) as well as WS06A at 0.4 m bgl (203 mg/kg) both in samples taken from granular Made Ground.

6.2.2 ASBESTOS

A total of 9 soil samples were submitted for an initial asbestos identification screen. Asbestos was positively identified in three of these samples and which were subsequently submitted for quantification. Loose fibres of asbestos were identified with a quantification of 0.0101% in WS04 at 0.3 to 0.4 m bgl, 1.13% at 0.25 to 0.35 m bgl in WS05 and <0.001% in WS05A at 0.35 to 0.5 m bgl. Chrysotile asbestos was detected in all three samples with amosite asbestos also being identified in WS04. There is considered to be no safe exposure limit for asbestos and would therefore pose a risk if encountered at the surface of the Site.

6.2.3 GROUNDWATER VAPOUR

Two groundwater samples were collected and tested for a full suite of contaminants (**Appendix D.5**).

The groundwater results have been compared against GAC to assess the risk from vapour derived from dissolved contaminants in groundwater (**Appendix E.2**). The GAC assumed a future commercial land use and a sand soil type.

No exceedances were recorded.

6.2.4 HUMAN HEALTH RISK EVALUATION

Asbestos containing materials were identified in samples taken from shallow granular Made Ground in three locations. Shallow granular Made Ground of a similar description (containing clinker, brick rubble and crushed concrete) is present across much of the Site, and given the nature of asbestos there is a potential for asbestos fibres to be released during the proposed construction works for the redevelopment of the Site. There is therefore considered to be a **Moderate** risk to construction / maintenance workers and 3rd party neighbours. Current / future site users and third-party neighbours are considered not to be at risk at the Site in its current condition or following the proposed redevelopment of the Site due to the presence of hardstanding across the entirety of the Site breaking the pathway.

6.3 GENERIC QUANTITATIVE RISK ASSESSMENT – CONTROLLED WATERS

6.3.1 RATIONALE

The generic controlled waters risk assessment was conducted in accordance with the principles of the EA ‘Remedial Targets Methodology: Hydrogeological Risk Assessment for Land Contamination’ 2006 and the ‘prevent and limit’ approach of the Water Framework Directive (2000/60/EC). Generic Controlled Waters risk assessments compare directly measured concentrations with standard assessment criteria.

Water Quality Standards (WQS) are selected based on both a hierarchy of relevance to England, and the receptor. In this case, the Controlled Waters receptors identified in the CSM were:

- The underlying Secondary A Aquifer (Wittering Formation);
- The underlying Secondary Undifferentiated Aquifer (River Terrace Deposits); and,
- Surface water in the nearby River Itchen located 185 m north east.

The following hierarchies of WQS are considered to be appropriate:

Aquifers

- UK Drinking Water Quality Standards (DWS) from The Water Supply (Water Quality) Regulations 2000 (amended 2004);
- World Health Organisation Guidelines for Drinking Water Quality, Fourth Edition, Volume 1, (2011); and,
- World Health Organisation Petroleum Products in Drinking Water (2008).

Surface Water

- Environmental Quality Standards (EQS) from The Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.

Further details on the assumptions and methodologies adopted by WSP are presented in **Appendix E.1**.

6.3.2 SOIL LEACHATE

Seven soil samples of Made Ground and River Terrace Deposits taken from WS02, WS04 and WS05A were submitted for leachate analysis (**Appendix D.4**) to assess potential risks to Controlled Water receptors from soils underlying the Site. When compared against the groundwater GACs, there are no exceedances.

There are however a number of exceedances when compared against the EQS screening criteria for surface waters, the full screening tables are included in **Appendix E.3. Table 6.1** presents a summary of the potential contaminants of concern that were encountered above the EQS screening criteria.

Table 6-1 - Summary of Soil Leachate Exceedances

Analyte	Min µg/l	Max µg/l	EQS µg/l	# EQS Exceeds/Samples Tested
Copper	5.09	5.28	1.00	2
Lead	0.454	1.46	1.20	1
Zinc	1.93	12.6	10.9	1
Naphthalene	<0.01	10	2.00	1

EQS exceedances for leachate metals concentrations were identified in both locations tested (WS02 and WS04) in samples taken from 0.2 to 1.50 m bgl in Made Ground soils. EQS exceedances for PAH concentrations were identified in one of five samples taken from two locations (WS04 and WS05A),

the exceedance was identified in WS04 at 1.40 to 1.70 m bgl in River Terrace Deposits. All exceedances were relatively minor being within one order of magnitude of the EQS screening criteria.

6.3.3 LEACHATE RISK EVALUATION

The EQS exceedances relate to copper, lead, zinc and naphthalene in Made Ground and cohesive River Terrace Deposits soils taken from across the Site. The majority of the exceedances are relatively minor and are likely indicative of the historical industrial use of the site. These soil leachate values are unlikely to represent a significant risk to the degradation of groundwater or surface water quality.

6.3.4 GROUNDWATER

One round of groundwater sampling was undertaken and groundwater samples were obtained from two of the six boreholes following the ground investigation works. WS02, WS03, WS04 and WS05A were dry during the monitoring visits. When compared against the groundwater drinking water quality standards, there are no exceedances.

There are however a few minor exceedances when compared against the EQS screening criteria for surface waters and the full screening tables are included in **Appendix E.3.** Potential contaminants of concern that were encountered above the EQS screening criteria are summarised in **Table 6.2**.

Table 6-2 - Summary of Groundwater Exceedances

Analyte	Min µg/l	Max µg/l	EQS µg/l	# EQS Exceeds
Copper	0.901	1.18	1.00	1
Nickel	1.33	14.3	4.00	1
Zinc	13.7	21.3	10.3	2

6.3.5 GROUNDWATER RISK EVALUATION

The groundwaters analysed contained minor exceedances of the EQS (2015) screening levels for metals. All exceedances were within one order of magnitude of the screening criteria.

6.3.6 CONTROLLED WATERS RISK EVALUATION

There were no exceedances of the DWS criteria in either soil leachate or groundwater samples underlying the Site. Based on the available information, the risk to controlled waters in groundwaters underlying the Site in both the Secondary (undifferentiated) River Terrace Deposits aquifer and the Secondary A Wittering Formation Aquifer is therefore considered to be **Negligible**.

Exceedances of the EQS criteria for metals relating to copper, lead, nickel and zinc were recorded in both soil leachate and groundwater underlying the Site. Exceedances of the EQS criteria for PAHs relating to naphthalene were also recorded in soil leachate samples taken from the Site. Based on the presence of hardstanding, infiltration of surface water is considered to be negligible.

Whilst groundwater underlying the Site is assumed to be flowing towards the River Itchen in the east, the exceedances of the EQS criteria are not considered to pose a risk to the river due to the presence

of hardstanding across the Site preventing infiltration of surface water. Given the distance to the river, the relatively minor nature of the exceedances, and the lack of infiltration across the Site the risk to the River Itchen is considered to be **Negligible**.

6.4 GROUND GAS RISK ASSESSMENT

6.4.1 GROUND GASES AND VAPOURS

Ground gas monitoring was undertaken on two occasions following the ground investigation works (**Appendix D.6**). The monitoring rounds were completed on the 1st and 8th March 2024, it was not possible to access WS02 during either monitoring visit due to the presence of a broken-down vehicle (bus) preventing access to the location.

Gas Screening Values (GSV) have been calculated based on the ground gas data collected in accordance with CIRIA C665 guidance. The GSV is calculated for each monitoring well as the maximum flow rate multiplied by the maximum methane or carbon dioxide concentration. Where flow rate and/or methane/carbon dioxide concentrations have been encountered below the limit of detection of the instrument, a value of 0.1l/hr and 0.1% v/v have been used to calculate GSV, respectively.

Table 6-3 - Summary of Ground Gas Readings and Gas Screening Values

Exploratory Hole	Response Zone Strata	Maximum Flow (l/hr)	Maximum CH_4 (% v/v)	Maximum CO_2 (% v/v)	Methane GSV	Carbon Dioxide GSV
WS03	Made Ground	<0.1	<0.1	0.40	0.0001	0.0004
WS04	Made Ground	<0.1	<0.1	0.90	0.0001	0.0009
	River Terrace Deposits	<0.1	<0.1	0.30	0.0001	0.0003
WS05A	Made Ground	<0.1	<0.1	2.20	0.0001	0.0022
	River Terrace Deposits	<0.1	<0.1	2.50	0.0001	0.0025
WS06A	Made Ground	<0.1	<0.1	1.80	0.0001	0.0018
	River Terrace Deposits/Wittering Formation	<0.1	<0.1	4.00	0.0001	0.0040
WS07	River Terrace Deposits/Wittering Formation	<0.1	<0.1	1.20	0.0001	0.0012

Falling atmospheric pressures were recorded during the second monitoring visit with steady pressures during the first.

H_2S did not rise above 0.1 ppm during either monitoring round. CO was only recorded at >0.1 ppm during the first monitoring round at WS06A with a reading of 16 ppm in the installation screened within the River Terrace Deposits/Wittering Formation.

Minor PID readings were recorded at four of the seven locations with values ranging between <0.1 ppm and 0.9 ppm.

Depleted oxygen concentrations were recorded at WS4 (both installations) WS5A (both installations) WS6A (both installations) and WS7, with values ranging between 4.50 and 18.40 % v/v.

Based on the monitoring data a maximum GSV of 0.0001 l/hr was calculated for methane and a maximum GSV of 0.0040 l/hr was calculated for carbon dioxide. These maximum calculated values are indicative of Characteristic Situation 1 (**Very Low Risk**).

The depleted oxygen concentrations pose a risk to below ground construction workers and maintenance workers and is considered to be **Moderate** and would need to be addressed through appropriate risk assessments and control measures.

7 GEOTECHNICAL ASSESSMENT

7.1 GENERAL

This section presents an interpretation of the ground conditions encountered based on available data. The geotechnical laboratory certificates are presented within **Error! Reference source not found.**.

The results of in-situ and laboratory geotechnical testing have been provided in **Table 7-1**.

Table 7-1 - Summary of results of geotechnical testing

Test result	Minimum value	Maximum value	Number of values	Remarks
Made Ground (cohesive)				
Moisture Content, MC (%)	26.9	26.9	1	Figure 7-1
Liquid Limit, LL (%)	36	36	1	Figure 7-2
Plastic Limit, PL (%)	19	19	1	
Plasticity Index, PI (%)	17	17	1	
pH	8.13	8.59	2	
Water Soluble Sulphate as SO_4 2:1 Extract (mg/l)	17.1	29.6	2	
Made Ground (granular)				
pH	8.21	9.87	5	
Water Soluble Sulphate as SO_4 2:1 Extract (mg/l)	10.9	117	5	
Alluvium				
Moisture Content, MC (%)	22.1	22.1	1	Figure 7-1
Liquid Limit, LL (%)	33	33	1	Figure 7-2
Plastic Limit, PL (%)	21	21	1	
Plasticity Index, PI (%)	12	12	1	

Test result	Minimum value	Maximum value	Number of values	Remarks
River Terrace Deposits (cohesive)				
SPT N Value	3	17	3	Figure 7-3
pH	7.87	8.19	2	
Water Soluble Sulphate as SO_4 2:1 Extract (mg/l)	4	59.8	2	
River Terrace Deposits (granular)				
SPT N Value	3	50	5	Figure 7-3
Wittering Formation				
Moisture Content, MC (%)	22	22.5	2	Figure 7-1
Liquid Limit, LL (%)	44	47	2	Figure 7-2
Plastic Limit, PL (%)	20	21	2	
Plasticity Index, PI (%)	23	27	2	
pH	-	8.25	1	
Water Soluble Sulphate as SO_4 2:1 Extract (mg/l)	-	57.3	1	
SPT N Value	4	22	6	Figure 7-3

7.2 DERIVED PARAMETERS

In the following sections geotechnical parameters have been derived for the geological units encountered using the geotechnical testing summarised in Table 7-1**.** Unless otherwise noted, representative parameters and likely parameter ranges are presented based on engineering judgement of the available project data in this report.

7.2.1 UNIT WEIGHT

The unit weight has been determined from soil descriptions and published data. The derived unit weight for each stratum is detailed in **Table 7-2**. All unit weights provided are for soils above the groundwater table and should soils be below the groundwater table values should be adjusted accordingly.

Table 7-2 – Unit weight

Stratum	Unit weight (kN/m^3)	Source
Made Ground (Cohesive)	15 – 19	BS 8004:2015+A1:2020
Made Ground (Granular)	16 – 22	
Alluvium	15 – 19	
River Terrace Deposits (Cohesive)	15 – 19	
River Terrace Deposits (Granular)	16 – 22	
Wittering Formation	15 – 19	

7.2.2 MOISTURE CONTENT

Test results for Natural Moisture Content (NMC) were reported on four samples in total. The average NMC for each stratum is presented in **Table 7-3** below.

Table 7-3 - Average NMC values

Stratum	AverageNatural Moisture Content, NMC (%)	Number of Samples
Made Ground (Cohesive)	27	1
Alluvium	22	1
Wittering Formation	22	2

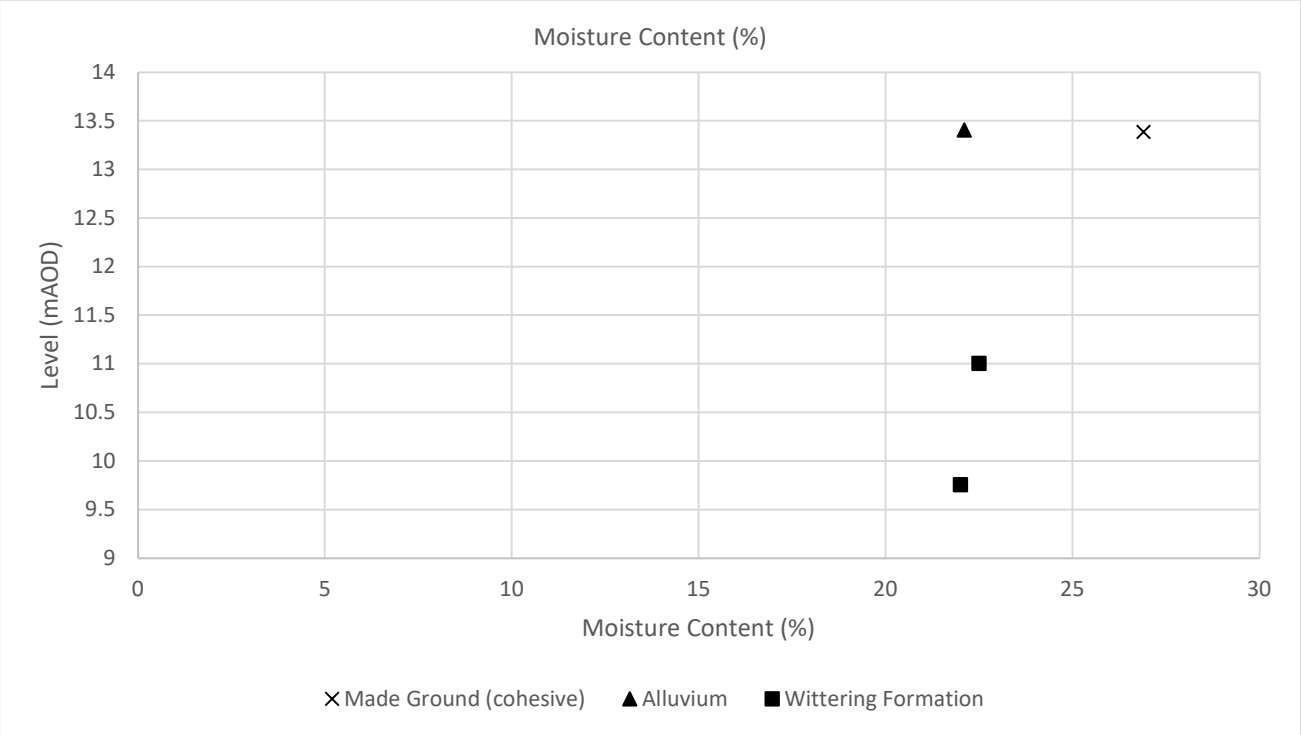
NMC versus level is presented as **Figure 7-1**.

The Made Ground recorded one moisture content value of 26.9% at 1.2 mBGL.

One sample of Alluvium recorded a NMC value of 22.1% at 1.2 mBGL.

Two samples of the Wittering Formation recorded NMC values of 22.5 and 22% at 3.7 and 4.85 mBGL, respectively.

Figure 7-1 - Moisture Content vs Depth



7.2.3 PLASTICITY

Atterberg limit tests were carried out on four samples in total; one test within the Made Ground and a further three tests on natural soils. A summary of this testing is presented in **Table 7-4** below and the results are plotted on **Figure 7-2**. The results indicate clays of predominantly intermediate plasticity.

Table 7-4 - Summary of Plasticity Index values

Stratum	Liquid Limit Range (%)	Plasticity Limit Range (%)	Plasticity Index Range (%)	Plasticity	% Passing 425 µm Range	Modified Plasticity Index Range (%)	Volume Change Potential
Made Ground (Cohesive)	36	19	17	Intermediate	90	15	Low
Alluvium	33	21	12	Low	90	11	Low
Wittering Formation	44 – 47	20 – 21	23 – 27	Intermediate	100	23 - 27	Medium

Using the plasticity indices obtained above, the characteristic constant volume (critical state) effective angle of shearing resistance for cohesive soils can be estimated from:

$$\varphi'_{cv,k} = (42° - 12.5log_{10}I_p)$$

Where:

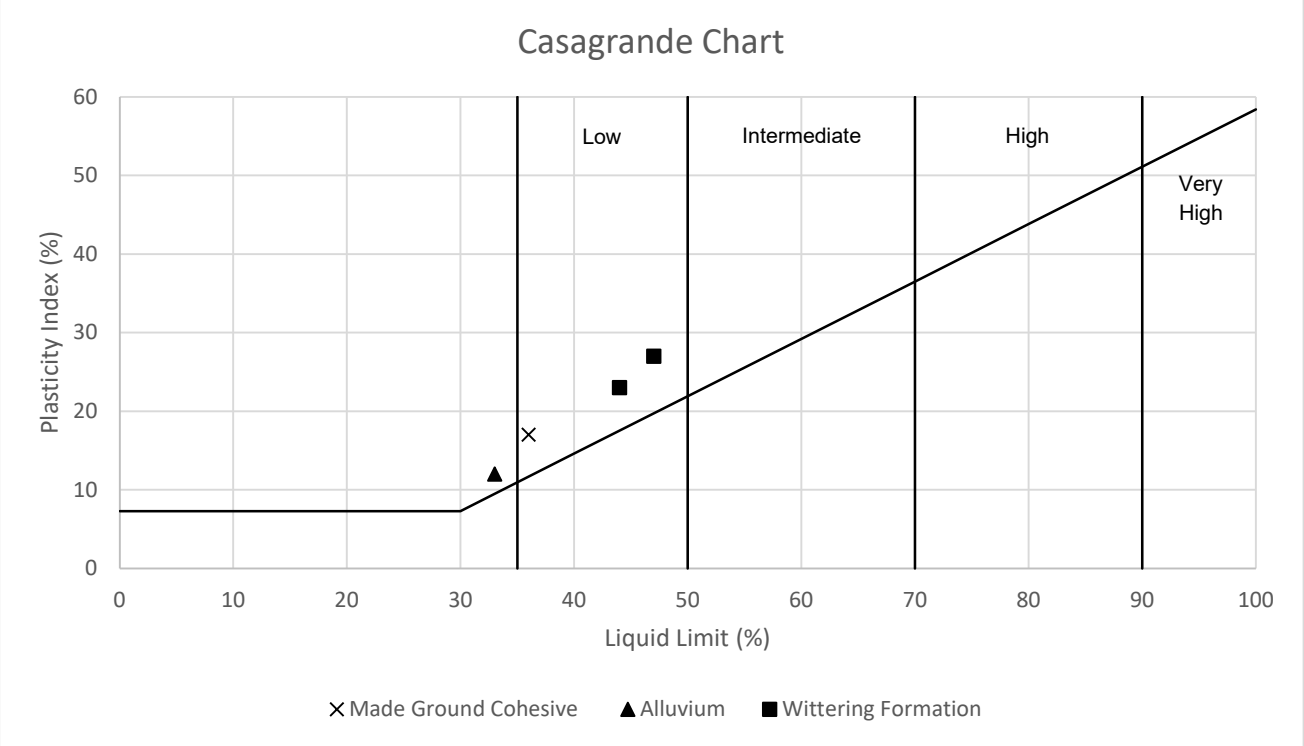
I_p = The soil's plasticity index (entered as a percentage).

The results of this analysis are present in **Table 7-5**.

Table 7-5 – Constant volume effective angle of shearing resistance

Stratum	Number of results	Constant volume effective angle of shearing resistance, $\varphi'_{cv,k}$ (°)	
		Min. value	Max. value
Made Ground (cohesive)	1	-	26.6
Alluvium	1	-	28.5
Wittering Formation	2	24.1	25

Figure 7-2 - Casagrande Chart



7.2.4 DENSITY

Five SPT tests were undertaken within granular River Terrace Deposits, recording N_{60} values between 26 and 57 with one outlier of 3 at 1.3 mBGL in WS07. These SPT N values correspond to medium dense to very dense deposits which are locally very loose.

7.2.5 UNDRAINED SHEAR STRENGTH

Undrained shear strength, c_u, has been determined for cohesive deposits by derivation from in-situ SPT results using the relationship established by Stroud (Stroud, 1975) and shown below:

$$c_u = f_1 \cdot N$$

Where:

c_u = undrained shear strength (kN/m^2)

f_1 = correction factor based on plasticity index

N = SPT N value

A factor of 4.5 has been used to determine undrained shear strength from SPT 'N' values.

Cohesive River Terrace Deposits were determined to have an undrained shear strength ranging from 13.5 to 76.5 kPa.

The Wittering Formation shows a linear increase of undrained shear strength with depth from 18 kPa at 3.0 mBGL to 99 kPa at 5.0 mBGL. This relationship can be described using the relationship 20+40z kPa. Where z=0 at 3.0mBGL.

Plots of SPT N_{60} vs level and undrained shear strength vs level are presented in **Figure 7-3** and **Figure 7-4**, respectively.

Figure 7-3 - SPT N_{60} Value vs Level

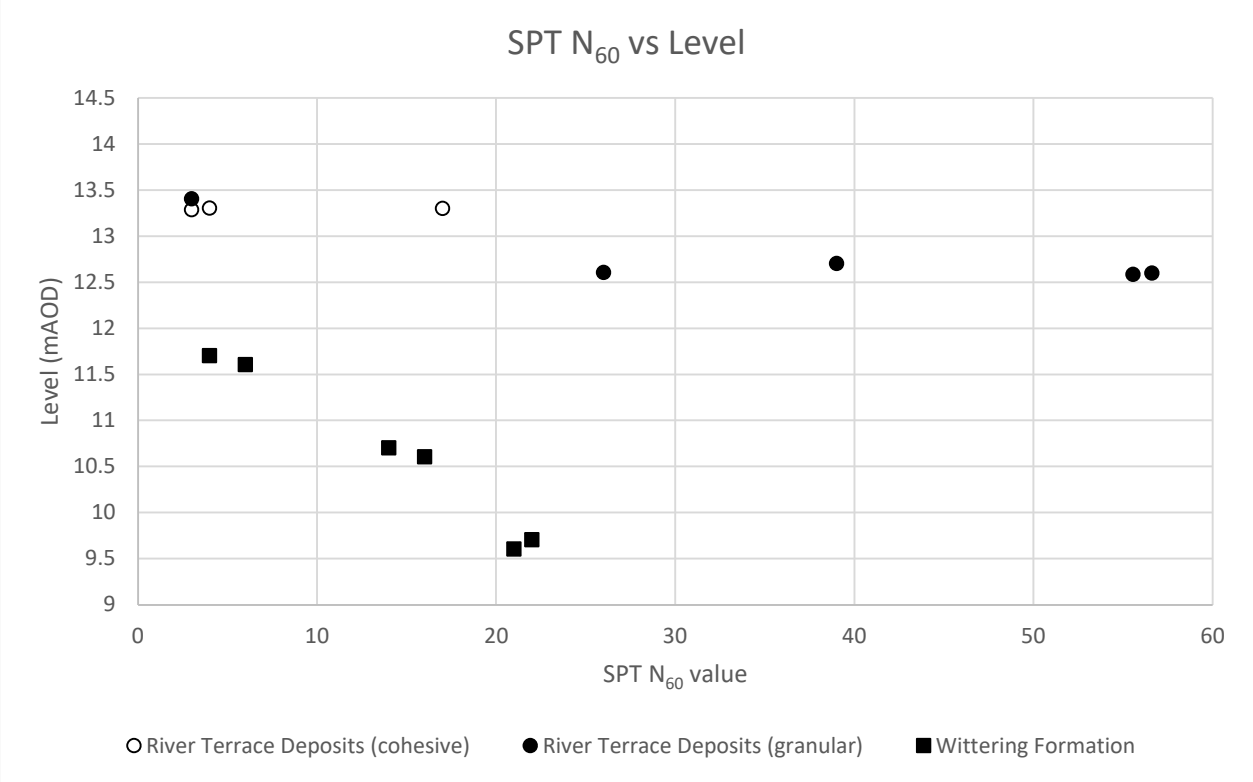
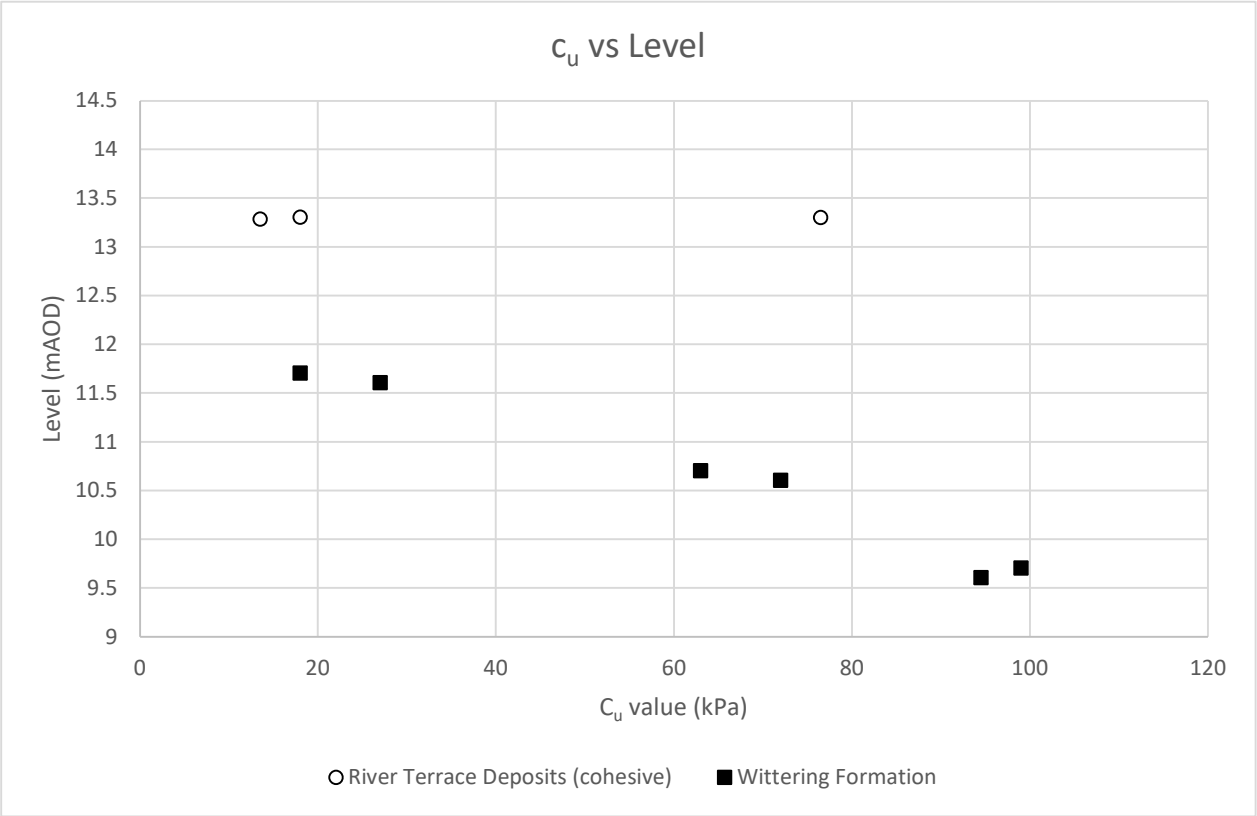


Figure 7-4 - Undrained Shear Strength vs Level



SPT N_{60} values have been standardised to account for overburden stress to give $(N_1)_{60}$ values. These values can be used to correlate angle of shear resistance using the relationship by Peck, Hanson and Thornburn (Peck., Hanson, & Thornburn). From this, the angle of internal shearing resistance for the granular River Terrace Deposits has been determined to range from 29 to 46°.

7.2.6 PARTICLE SIZE DISTRIBUTION ANALYSIS

Two Particle Size Distribution (PSD) analyses were carried out on samples of River Terrace Deposits to confirm the soil description on the logs, collected at 2.25 and 2.30 mBGL in WS07 and WS06A, respectively. The results of the PSD analyses are summarised in **Table 7-6** below.

Table 7-6 - PSD analysis

Strata	Particle Type (% range)				Description
	Cobbles	Gravels	Sand	Silt & Clay	
River Terrace Deposits	0	68 - 72	18 – 21	7 – 15	Slightly clayey sandy to very sandy gravel.

7.2.7 BURIED CONCRETE

Buried concrete class has been determined using BRE suite testing. Classification has been undertaken assuming that the site is a brownfield location with mobile groundwater. The buried concrete classifications for the site have been determined based on BRE Special Digest 1:2005 (Table C2) (BRE Construction Division, 2005) and are detailed in **Table 7-7**.

Table 7-7 - Buried concrete classification

Stratum	2:1 water/soil extract (SO_4 mg/l) Max Value	pH Min Value	Design Sulphate Class	Aggressive Chemical Environment for Concrete Class
Made Ground (Granular)	117	8.21	DS-1	AC-1
Made Ground (Cohesive)	29.6	8.13	DS-1	AC-1
River Terrace Deposits (cohesive)	59.8	7.87	DS-1	AC-1
Wittering Formation	57.3	8.25	DS-1	AC-1

The Wittering Formation is known to be potentially pyritic and rare pyrite nodules were recorded within the laboratory description for a sample within WS06A at 4.85 mBGL when undertaking Attenberg limit testing. Therefore, due caution should be exercised when using the classifications provided in **Table 7-7** and the requirement for additional testing should be considered. This is especially important if the Wittering Formation will be exposed to air.

7.2.8 CALIFORNIA BEARING RATIO TESTING

Eight California Bearing Ratio (CBR) tests were undertaken in four locations using the plunger method detailed in BS 1377-9:1990 (British Standards Institution , 1990). All CBR testing was undertaken within granular Made Ground and the results are summarised in **Table 7-8**.

Table 7-8 – CBR testing undertaken

Location	Depth (mBGL) Level [mAOD]	Soil Description	Recorded moisture content (%)	CBR Result (%)
CBR02	0.4 [14.611]	Dark brown slightly clayey sandy GRAVEL.	24	3.7
CBR02	0.6 [14.411]	Dark brown slightly clayey sandy GRAVEL.	24	8.5
CBR03	0.4 [14.421]	Greyish brown sandy GRAVEL.	11	5.6
CBR03	0.6 [14.221]	Light brown slightly sandy clayey GRAVEL.	17	6.1
CBR04	0.35 [14.236]	Black gravelly CLINKER with concrete fragments.	13	36
CBR04	0.6 [13.986]	Black gravelly CLINKER with concrete fragments.	3.9	14

Location	Depth (mBGL) Level [mAOD]	Soil Description	Recorded moisture content (%)	CBR Result (%)
CBR06A	0.4 [14.205]	Black gravelly CLINKER.	15	28
CBR06A	0.8 [13.805]	Black gravelly CLINKER.	26	6.4

7.2.9 DERIVED PARAMETERS

Table 7-9 provides a summary of the derived geotechnical parameters measured during the ground investigation or derived as discussed in the report. These values are derived, and appropriate characteristic values should be confirmed at detailed design stage.

Table 7-9 - Derived geotechnical values

Property	Symbol	Unit	Made Ground		Alluvium	River Terrace Deposits		Wittering Formation
			Cohesive	Granular		Cohesive	Granular	
Unit Weight	γ	kN/m^3	15 – 19	16 – 22	15 – 19	15 – 19	16 – 22	15 – 19
Moisture Content	W	%	27	-	22	-	-	22
Plasticity Index*	Ip	%	17	-	12	-	-	23 – 27
Modified Plasticity Index	I'p	%	15	-	11	-	-	23 – 27
Volume change potential	-	-	Low	-	Low	-	-	Medium
SPT N_{60} Value	N60	blows	-	-	-	3 – 17	3 – 57	4 – 22
Undrained Shear Strength	c_u	kPa	-	-	-	13.5 – 76.5	-	18 – 99 20+40z
Effective Cohesion	c'	kPa	0	0	0	0	0	0
Effective angle of shearing	φ'	°	-	-	-	-	28 – 46	-

resistance (peak)								
Effective angle of shearing resistance (cv)	$\varphi'_{cv,k}$	°	2	-	28	-	-	24 – 25
CBR values			-	3.7 – 36	-	-	-	-
Design Sulphate Class	-	-	DS-1	DS-1	DS-1	DS-1	DS-1	DS-1
ACEC Class	-	-	AC-1	AC-1	AC-1	AC-1	AC-1	AC-1
Notes: *Ip and I'p are not necessarily representative of the material mass; just the cohesive fractions within the deposit.								

8 ENGINEERING ASSESSMENT

8.1 PROPOSED DEVELOPMENT

The following geotechnical appraisal is based on the preliminary structural information for the development which we understand to compromise removal of the existing building on site and the use of the site as a yard area for an adjacent unit.

This report is intended to meet the requirements of a Ground Investigation Report undertaken in accordance with BS EN 1997-2:2007. It is recommended that a Geotechnical Design Report is prepared following completion of structural layout, loads and serviceability criteria.

8.2 SUMMARY OF GEOTECHNICAL CONSTRAINTS

A summary of the geotechnical constraints identified during this preliminary geotechnical review of the site and is provided in **Table 8-1.**

Table 8-1 - Summary of Geotechnical Constraints

Geotechnical Constraints	Comments
Groundwater	Groundwater monitoring recorded groundwater levels between 2.42 to 2.75 mBGL within the River Terrace Deposits. Some perched groundwater was also noted within granular Made Ground in WS05A at 0.9 – 0.95 mBGL. At detail design groundwater should be considered and this should include the risk of groundwater inflows into excavations. Sump pumping of excavations during construction works may be necessary.
Soft / compressible ground	Soft and potentially compressible deposits of Alluvium, cohesive River Terrace Deposits and the Wittering Formation were encountered during the ground investigation. Loose deposits of granular River Terrace Deposits were also encountered locally in WS07. As a result, loose, soft and compressible ground (and therefore excessive or differential settlement) are considered key risks for new foundations Existing foundations are assumed to be founded in the granular River Terrace Deposits
Shrinkable soils	The Wittering Formation has a medium volume change; therefore, the potential for volume change within the clay soils should be considered during detailed design. As year-round groundwater monitoring has not been undertaken consideration should also be given to the potential for fluctuating groundwater levels and its influence on shrinkable soils.
Excavation Stability	The presence of granular Made Ground and granular superficial deposits, including loose gravels within the River Terrace Deposits, and shallow groundwater may lead to excavation instability. The use of shoring/ trench support is likely to be required. Alternatively,

Geotechnical Constraints	Comments
	benching of excavations could be utilised where there is adequate space available.
Aggressive Ground Conditions	Assessment of the BRE data indicates a low potential for sulphate to be present at the site with a DS-1 AC-1 classification allocated to all formations on site. Caution should be used when using this classification as rare pyrite nodules were recorded within the laboratory description for a sample within WS06A at 4.85 mBGL when undertaking Atteberg limit testing. If it is likely that the Wittering Formation will be exposed to air, for example in a deep excavation for a basement or similar, it is recommended that further testing is undertaken to further assess the potential for aggressive ground conditions on site.
Obstructions	Below ground obstructions such as existing foundations are likely to be present on site, especially in the proximity of the existing building which is due to be removed. These have the potential to impact excavations and/or appear as hard spots.
Services	Below ground services such as electricity, gas or water supplies are considered to pose a risk to any future intrusive works or construction works at the site.
UXO Threat	Unexploded ordnance are considered a risk during any further ground investigation works or construction works.

8.3 PRELIMINARY GROUND BEARING RESISTANCE

Based on **Figure 3** in **Appendix A** and the GI information, it is assumed that the existing foundations are founded on the granular River Terrace Deposits. i.e all Alluvial and other cohesive deposits material have been removed.

The trial pitting exercise undertaken was not conclusive in exposing the foundation base and extends and therefore the following were assumed.

- Based on **Figure 3** it is estimated that the building columns are founded on pad foundations about 1m^2 by 0.5m thick and that building walls are sitting on a strip ground beam that is less wide than the column supports. This is based on the dimensions provided in Figure 3.
- The pads are about 1.5m below ground level.
- The pads are founded on the River Terrace Deposits with an angle of shearing resistance 33degrees.

The derived the ground bearing resistance based on the above for a 1.0m^2 by 0.5m thick foundation is estimated to be 1253kN/m^2 in Design Combination 1 (un-factored ground parameters) and 620kN/m^2 in Design Combination 2 (factored ground parameters) in accordance with Eurocode 7.

The final foundation solutions are not part of the scope of this report.

8.4 EARTHWORKS

Two samples of River Terrace Deposits were taken from representative trial pits to inform on the reusability of the material. These samples classified as a Class 1A/B materials (in accordance with the Specification for Highway Works 600).

Materials should be placed and adequately compacted in accordance with an Earthworks Specification, reducing the potential for differential settlement. It is anticipated that an end-product specification be considered.

8.5 EXCAVATIONS AND DEWATERING

Excavations should be feasible using conventional earth moving plant in the Made Ground and natural soils (i.e. back-hoe or tracked type excavators) where existing foundations are not present.

Where existing foundations or services are to be removed the resultant void should be backfilled with a suitably compacted granular fill to minimise surface settlement.

Excavations should not be left unsupported for extended periods of time and, if there are health and safety implications associated with instability (i.e. if persons are to enter the excavations), ground support should be used, or excavations benched in slopes appropriately designed by a temporary works designer.

Whilst no groundwater strikes were encountered during the intrusive investigation, groundwater monitoring recorded groundwater levels between 2.42 to 2.75 mBGL within the River Terrace Deposits and some perched groundwater was encountered in WS05A in Made Ground deposits.

Groundwater flows into excavations could be rapid, especially during periods of inclement weather, but pumping from sumps is likely to be suitable to manage inflows.

8.6 PAVEMENTS

Under the assumption that localised soft spots of cohesive material with an undrained shear strength of less than 50kPa will be removed from site, a CBR of 5% for granular Made Ground should be considered for preliminary design purposes.

9 REFINED CONCEPTUAL SITE MODEL

9.1 ON-SITE

Following the findings of the GQRA, the preliminary Conceptual Site Model (CSM) has been revised. A revised list of contaminant linkages is presented in **Table 9-1** and is based upon an evaluation of the potential sources, future receptors and the environmental setting of the Site.

Table 9-1 – Contaminant Linkages

Potential Contaminant Linkage (CL)	Source	Pathway	Receptor	Comments
CL 1	Asbestos in soils	Inhalation of airborne fibres.	Construction / maintenance workers; and, Third party neighbours.	Asbestos containing material was identified in three samples tested from the Made Ground. The presence of asbestos within other areas of the Site cannot be discounted. Given the presence of hardstanding across the entirety of the Site in it's current state and assuming that the proposed development also incorporates hardstanding across the entire Site it is considered that no risk is posed to current and future site users. Construction works involving the disturbance of the Made Ground below the hardstanding will pose a **Moderate** risk to construction workers and 3rd party neighbours. This risk will require management through appropriate risk assessment and control measures.
CL 2	Contaminants in soils	Dermal contact Ingestion of impacted soil particles on Site and windblown to adjacent properties	Current Site users; Future Site users; Construction / maintenance workers; and, Third party neighbours.	Due to the presence of hardstanding across the entirety of the current and assumed proposed development the risk to current and future site users and third party neighbours is considered to be **Negligible.** Should the Made Ground or shallow natural soils beneath the Site be disturbed during the construction phase or due to any future maintenance activities the

Potential Contaminant Linkage (CL)	Source	Pathway	Receptor	Comments
		Inhalation of dust and windblown particles.		risk posed to future site users, 3rd party neighbours or maintenance/construction workers is considered to be **Moderate/Low**.
CL3	Leachable contaminants in soils and dissolved contaminants in groundwater	Vertical and lateral leaching from impacted soils and migration within groundwater	Future construction / maintenance workers Secondary (undifferentiated) Aquifer – River Terrace Deposits Secondary A Aquifer – Wittering Formation River Itchen (185m north east)	There were no exceedances of the DWS for either dissolved contaminants in groundwater or leachable contaminants in soils. The risk posed to human health and to the underlying Secondary aquifers is therefore considered to be **Negligible**. Exceedances of the EQS for surface waters were recorded for leachable metals and naphthalene in soils and dissolved metals in groundwater. Given the presence of hardstanding preventing infiltration across the Site the risk posed to surface waters in the River Itchen is considered to be **Negligible**.
CL4	Contaminants in soils	Direct contact with impacted soils	Future below ground services (e.g. potable water supply pipes). Future building services.	Whilst an assessment of the BRE data has indicated a low potential for sulphate to be present across the Site the presence of rare pyrite nodules were recorded within the Wittering Formation. There is therefore a potential for the chemical attack of below ground concrete should deep excavations exposing the Wittering Formation to air be undertaken. Elevated TPH concentrations have also been recorded in Made Ground soils beneath the Site. There is therefore a potential for the permeation of hydrocarbons into plastic pipes. Should potable pipes be considered as part of the proposed development it is recommended that this risk should be properly assessed. The risk posed to below ground services and concrete is considered to be **Low / Moderate**.

Potential Contaminant Linkage (CL)	Source	Pathway	Receptor	Comments
CL5	Made Ground, Alluvium and hydrocarbons.	Migration of ground gas and volatile vapours.	Current/future site users Construction/maintenance workers Third party neighbours Future building services	The Site has been classified as being Characteristic Situation 1 (**Very Low Risk**) with respect to ground gasses. This indicates that ground gas protection measures are not required to mitigate the risk. Although the number of visits and monitoring period duration are not compliant with the typical/idealised frequency and monitoring periods recommended in CIRIA C665, ground gas was not identified as a significant potential risk on site and two monitoring rounds are considered to be sufficient to provide a baseline site characterisation. The depleted oxygen concentrations, readings of carbon monoxide and elevated PID concentrations recorded during the intrusive investigation indicate that there is a ground gas and vapour risk posed to below ground construction and maintenance workers. There is therefore considered to be **Moderate** risk at the Site which would need to be addressed through appropriate risk assessments and control measures.

9.2 OFF SITE

Based on the findings of the ground investigation and subsequent GQRA, a potential risk from off-site sources has been identified details of which have been summarised in **Table 9.2**.

Table 9-2 – Assessment of Off-Site Sources

Contaminant Linkage (CL)	Source	Pathway	Receptor	Comments

CL6	Historical and current industrial / commercial land use surrounding the Site.	Vertical and lateral migration within groundwater	Groundwater underlying the Site: Secondary (undifferentiated) Aquifer – River Terrace Deposits; Secondary A Aquifer – Wittering Formation.	Given the site history and known industrial rail infrastructure and associated works it is believed that there is a potential for migration of contamination within the groundwater from off site sources. Given this, the risk to Controlled Waters from off-site sources is considered to be **Moderate**.

10 CONCLUSIONS

10.1 SITE SETTING

The Site presently comprises a large, elongated, warehouse building located towards the centre of the Barton Park Industrial Estate. The warehouse building is presently occupied by Xelabus and used as a maintenance facility. The Site also includes an asphalt surfaced roadway to the west of the warehouse which is used by Xelabus for the storage of vehicles and a concrete surfaced yard to the east of the warehouse used by Xelabus as a vehicle washdown facility. The Site also includes a narrow concrete surfaced strip of the adjacent Bluestar bus depot to the east which is used by Bluestar for vehicle storage. AST fuel tanks were observed during the Site works to be present on-Site within the Xelabus maintenance facility and off-Site to the east external to Bluestar's maintenance building. A fuel pump was observed external to the east elevation of the warehouse building alongside the washdown facility. Two 3-stage brick interceptors were also noted at the east of the site just inside the adjacent Bluestar bus maintenance yard.

Surrounding land use is predominantly commercial and light industrial with some residential to the north, agricultural beyond the industrial estate to the East and a railyard beyond the industrial estate to the west. The River Itchen is located to the east of the Site, 185 m north east at it's closest point.

The Site historically comprised a large locomotive works from the late 19th century having been redeveloped into an industrial estate in the late 20th century with many of the former buildings appearing to have been retained. Surrounding land uses have historically included gas works, sidings, warehouses, rail depot, refuse destructor and allotments.

The findings from the ground investigation confirmed the presence of Made Ground from beneath hardstanding across the Site. Made Ground ranged in depth to base between 0.73 and 1.50 m bgl and was found to be varied in composition with both cohesive and granular Made Ground being present across the Site. Beneath the Made Ground natural superficial River Terrace Deposits were confirmed across the Site There was a single occurrence of a thin (200mm) soft Alluvial soil immediately above the River Terrace Deposits in WS06A only. The bedrock Wittering Formation was confirmed across the site beneath the River Terrace deposits in WS06A and WS07.

In all the exploratory holes, there was no olfactory evidence of contamination observed.

10.2 RISK ASSESSMENT

A Generic Quantitative Risk Assessment (GQRA) was undertaken considering the proposed commercial development and potential future receptors.

10.2.1 HUMAN HEALTH

The findings of the assessment indicate the presence asbestos within the Made Ground. The source of the asbestos is most likely to be the result of historical industrial works and redevelopment at the Site.

There is a potential for asbestos fibres within the shallow Made Ground to be released during the proposed construction works for the redevelopment of the Site. The risk to construction workers and 3rd party neighbours is therefor considered to be a **Moderate** during the construction phase of the

proposed development. Similarly, should any future maintenance activities involve disturbance of the Made Ground or shallow natural soils beneath the Site the risk posed to future site users, 3rd party neighbours or maintenance/construction workers is considered to be **Moderate**. The risk posed by construction works or any future maintenance works involving the disturbance of hardstanding risk will require management through appropriate risk assessment and control measures. Guidance presented in CIRIA 733 "Asbestos in soil and Made Ground: a guide to understanding and managing risks" should be consulted when managing risks arising from asbestos. Works should be undertaken with due regard to the Control of Asbestos Regulations (CAR) 2012.

Assuming that the proposed development also incorporates hardstanding across the entire Site the risk to future site users is considered to be **Low**.

No groundwater samples exceeded the commercial vapour GAC indicating a **Very Low** risk to future Site users and third-party neighbours from groundwater derived vapours.

The risk to construction / maintenance workers during construction phases of the resurfacing from direct contact with contaminants in shallow groundwater is considered to be **Moderate/Low** and requires management through appropriate risk assessment and control measures.

Other visual evidence of contamination encountered on Site in the form of anthropogenic debris such as concrete and brick. The risks to construction workers during groundworks should be managed through the appropriate use of PPE and RPE. Good construction practices (i.e., dust suppression, wheel washing etc) should be utilised to manage the risks including those to third party neighbours during construction activities.

10.2.2 CONTROLLED WATERS

There were no exceedances of the DWS criteria in groundwater or soil leachate samples underlying the Site, the risk posed to controlled waters in both the Secondary (undifferentiated) River Terrace Deposits aquifer and the Secondary A Wittering Formation Aquifer is therefore considered to be **Negligible**.

Exceedances of the EQS criteria for metals relating to Copper, Lead, Nickel and Zinc were recorded in both soil leachate and groundwater underlying the Site. Exceedances of the EQS criteria for PAHs relating to Naphthalene were also recorded in soil leachate samples taken from the Site. Whilst groundwater underlying the Site is assumed to be flowing towards the River Itchen in the east, the exceedances of the EQS criteria are not considered to pose a risk to the river due to the presence of hardstanding across the Site preventing infiltration of surface water. Given the distance to the river, the relatively minor nature of the exceedances, and the lack of infiltration across the Site the risk to the River Itchen is considered to be **Negligible**.

10.3 GROUND GAS AND VAPOUR RISK

The ground gas characterisation of the Site is CS1 (**Very Low Risk**). Off site migration of gasses and vapours is considered to present a very low risk given the negligible flow rates observed. In future should the land use change other than proposed new ground slab (service yard) then further gas monitoring and assessment will be required in line with good working practises with CIRIA C665 and BS8484:2015+A1:2019.

The monitoring strategy was designed to provide an initial indication of whether ground gas may represent a potential risk to the future end-users. Although the number of visits and monitoring period

duration are not compliant with the typical/idealised frequency and monitoring periods recommended in CIRIA C665, ground gas was not identified as a significant potential risk on site and two monitoring rounds are considered to be sufficient to provide a baseline site characterisation.

10.4 CONTAMINATION SOURCE

The presence asbestos within the Made Ground is most likely to be the result of historical industrial works and redevelopment at the Site.

Hydrocarbon contaminants were identified within Made Ground soils on Site above limits of detection; however, concentrations were below the GAC screening criteria for human health. Elevated PID readings were recorded predominantly within the Made Ground and are also considered likely to be associated with the historical industrial usage of the Site.

Evidence obtained during the site walkover and publicly available aerial images of the past decade suggest that there have been some potentially contaminative Site activities including storage of vehicles, refuelling and vehicle maintenance. The ground investigation did not find evidence of widespread gross contamination within the shallow soils that could be attributed to the recent leaseholder's activities, however there is potential for previously unidentified isolated hotspots to present at the Site.

Based on the Site being within an urban area of historically industrial usage it is likely that the general groundwater quality of the area is poor. Based on the current leaseholder's observed usage of the Site it is considered unlikely for their activities to have significantly contributed to the minor metals contamination identified within the groundwater.

10.5 CALIFORNIA BEARING RATIO ASSESSMENT

California Bearing Ratio tests were carried out in accordance with accordance with method BS 1377 1990 part 9. The testing has shown a variable CBR value ranging between 3.7% and 36% on the variable granular Made Ground.

11 RECOMMENDATIONS

WSP have not been provided with any proposed redevelopment site plans however it is understood the proposed reuse of the Site may include the demolition of the existing site building, (and potential removal of all or part of the existing foundations), and removal of the surface cover and replace with that of a new hardstanding (service yard) to support HGV's including upgraded surface water drainage.

Maintaining the presence of hardstanding across the entirety of the Site following re-development is recommended as the hardstanding will provide an adequate contaminant pathway break to prevent ingestion; and dermal contact pathways of contaminants present. Implementation of an impermeable layer across the Site will also limit the leaching of any contaminants within the subsurface soils.

Although not identified during the ground investigation, due to the nature of the Made Ground and historical activities, if gross hydrocarbon contamination (free product) is identified during future construction / maintenance works, this should be removed and adequately disposed off-Site as it could represent a source of contamination that could impact the groundwater. It is also recommended that a watching brief should be undertaken by a competent contaminated land practitioner during the redevelopment as it was not possible to access all areas of the Site, particularly internally to the buildings, and the potential for gross contamination to be present within these areas could not be properly assessed. This includes for any oily water (or free phase product) that may be encountered in any planned deeper excavations associated with the development.

The risk posed by construction works or any future maintenance works as a result of planned ground disturbance, including grubbing out and formation of the new levels will require management through appropriate risk assessment and control measures with regards to asbestos. Guidance presented in CIRIA 733 "Asbestos in soil and Made Ground: a guide to understanding and managing risks" should be consulted when managing risks arising from asbestos. Works should be undertaken with due regard to the Control of Asbestos Regulations (CAR) 2012 and incorporated within a detailed Asbestos Management Plan.

It should be noted that contaminants such as asbestos can be present in soil in discrete pockets and any sampling frequency cannot guarantee the absence of contaminants of this nature in areas between sample locations. The Client should ensure that suitable precautions, controls and monitoring are in place during excavation activities and suspicious materials should be managed through procedures defined by the Client, and in accordance with the Control of Asbestos Regulations 2012, to ensure the health and safety of all workers and future site users, and to protect the environment from contamination.

The risk to construction / maintenance workers and third-party neighbours during construction require management through appropriate risk assessment and control measures. Suitable health and safety protocols should be in place during all construction and maintenance work to prevent adverse health effects from Made Ground soils, in accordance with the Health and Safety at Work Act 1974. This should also be communicated in the project health and safety file.

To control any planned reuse / recycle of material on site during proposed redevelopment activities, they should be managed appropriately e.g. under a prepared Material Management Plan (MMP) in line with the Definition of Waste Industry Code of Practice (DoW CoP), Contaminated Land: Applications in Real Environments (CL:AIRE) or under the WRAP (Waste and Resource Action

Programme) Quality Protocol. Any need for the disposal of material offsite will require appropriate pre classification before removal to a licenced facility.

Depleted oxygen concentrations as low as 4.50 % v/v as well as elevated carbon monoxide were recorded during the shallow ground gas monitoring. These present a risk to below ground construction workers and would need to be addressed through appropriate risk assessments and control measures.

Due to the historical nature of the Site and contamination found within the ground, it is likely a remediation strategy will be required to manage the risk during the proposed redevelopment by the Local Authorities.

Should the proposed plans change or be altered, an update of the assessments undertaken within this report are likely to be required.

Appendix A

FIGURES AND DRAWINGS

Confidential



DO NOT SCALE

Information Classification:

INTERNAL

Information that is only intended for internal distribution among WSP employees, independent consultants, contractors, sub-contractors, clients and authorised third parties.

Legend :

Unit 10

Title : Figure 1 Site Location Plan
Author : ArcGIS Web AppBuilder
Scale : 1:4,514
Layout : WSP A4 Landscape
Current Time : 25/03/2024 17:27

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BOREHOLE CO-ORDINATE DETAILS			
ID	EASTING (m)	NORTHING (m)	ELEVATION (m)
WS02	446047.046	118947.961	15.011
WS03	446050.571	118926.785	14.821
WS04	446070.317	118983.241	14.592
WS05	446074.149	118948.718	14.576
WS05A	446075.027	118944.550	14.600
WS06	446076.225	118928.642	14.582
WS06A	446077.068	118930.254	14.605
WS07	445976.292	118989.919	14.704
HP01/2	446035.856	118972.526	14.901

N

NOTES;

In all cases please call the BT Dial before you dig service to mark their own plant before any site works commence 0800 917 3660

Always consult utility plans

1. *Drainage information provided has been determined without man entry into the chambers. Whilst every effort has been made to correctly identify the duty/pipes/chamber detail, it is recommended that this information should be checked in areas that are critical to the drainage design/construction.*
2. *All sewer runs are presumed to be straight line connections between chambers unless proven otherwise by the use of a sonde or CCTV survey.*
3. *All desktop information should be treated as historical as the buried assets present might have changed since the drawing/record was last updated.*
4. *All pipes are plastic. Unable to trace.*
5. *All services to sub-station at time of survey.*
6. *GPR returned poor results due to heavily reinforced concrete.*
7. *Large amount of parked vehicles surrounding building. Limited access.*
8. *The drainage around the bus wash was silted. We would recommend that a CCTV & jetting survey be undertaken if further clarity on the drainage detail is required.*

UTILITY LINETYPES

Air Line	AIR	Electric Low Voltage	LV
British Telecom	BT	Electric High Voltage	HV
		Electric - Unknown Voltage	E
CCTV / Cable Television	CTV	Fibre Optic	FO
Communication Cable	COM	Fuel Line	FL
Drainage - Combined Water	Comb	Gas Line	GAS
Drainage - Foul Water	Foul	Gengie Line	GL
Drainage - Storm Water	Storm	GPR Line	GPR
Drainage - Unknown Water	Unknown	Heating Pipes	HTG
Drainage - Trade Effluent Water	Effluent	Oilfeed Fills	OF
Drainage - Combined Water - Assumed TFR	Comb	Oil Pipe	OIL
Drainage - Foul Water - Assumed TFR	Foul	Rising Main	RM
Drainage - Storm Water - Assumed TFR	Storm	Telecom	TEL
Drainage - Unknown Water - Assumed TFR	Unknown	Traffic Light Signals	TL
Drainage - Trade Effluent Water - Assumed TFR	Effluent	Trench Scar	TS
Drainage - Approximate Pipe Size/Extents		Unknown	UKN
Earth Cable	ETH	Vapour Recovery	VR
Empty Duct	ED	Vent Line	VT
Electric & Comms	ELEC	Water	WTR

UTILITY SURVEY INFORMATION

Contracted Survey Area		Assumed Route	AR
Depth to Top of Service (m)	0.40d	Assumed Connection	ACP
End of Trace	EOT	Sonde Clipped	S/C
Head of Run	HoR	No Visible Access	NVA
Weak Signal	WS	No Visible Exit	NVE
Taken From Records	TFR	No Visible Pipes	NVP
Off Survey Area	OSA	No Visible Services	NVS
Back Drop	BD	No Depth Indicated	NDI
Silt Level	SL	Base Level	BL
Above Ground	AG	High Level	HL
Unable to Locate	UTL	Top of Pipe / Top of Valve	T.o.P / T.o.V
Unable to Survey	UTS	Landing Level	LL
Unable to Raise (cover)	UTR	Rubble Level	RL
Unable to Trace	UTT	Approximate Location	
Unable to Survey		GPR Anomaly	
Chamber Extents		Multiple Services Route	

LEGEND

Buildings	Overhead Cable	IC	Inspection chamber	Bo	Bollard
Wall	Concrete edge	PInv	Pipe invert	IB	Illuminated bollard
Kerb line	Tarmac edge	Gy	Gully	Bin	Rubbish bin
Line marking	Grass verge	Bg	Back gully	Vp	Vent pipe
Drop kerb	Canopy/Overhang	Dp	Down pipe	Grl	Ground light
Centre line	Verge	Pipe	Pipe above ground	Lbox	Letter box
Top of bank	Bottom of bank	MH	Manhole	Stmp	Tree Stump
1 / 100.000	Station and Name	WL	Water level	Sty	Stile
	Station Level	Fl	Flood light	IFL	Internal floor level
	Tree / Bush / Sapling	Lp	Lamp post	THL	Threshold level
	Area of Undergrowth	Tp	Telegraph post	Sp	Sign post
	Woodland	Ep	Electricity post	TH	Trialhole
R:	Ridge Level	Tl	Traffic light	BH	Borehole
E:	Eaves Level	Bus	Bus stop	ELC	Electric
F:	Flat Roof Level	Sv	Stop valve	BT	British Telecom
	Gate	St	Stop tap	CBox	Control box
Fence types:		Er	Earth rod	TT	Tactile
IW	Interwoven	Wm	Water meter	BP	Brick paved
IR	Iron Railings	Gas	Gas valve	CPS	Concrete paving slabs
WM	Wire Mesh	Av	Air valve	CVR	Cover
PR	Post & Rail	ICU	Unidentified inspection	RWall	Retaining wall
PW	Post & Wire	Wo	Wash out	TWL	Top of Wall Level
CL	Chain Link	Re	Rodding eye	TCL	Tree canopy level
WP	Wooden Panels	BB	Belisha beacon	G	Girth
CB	Close Boarded	CTV	Cable tv	MG	Multi girth
SP	Steel Palisade	Mkr	Marker post	IC	Inspection chamber
	Exploratory hole with monitoring wells	GMkr	Gas marker post	CL	Cover level
	Hand Excavated Trial Pit	So	Soffit	IL	Invert level
		Fh	Fire hydrant	UTL	Unable to locate
					Exploratory hole

REV	DATE	BY	DESCRIPTION	CHK	APP
P01	14/02/2024	HS	FOR INFORMATION		

DRAWING STATUS:

wsp

3rd Floor, Kings Orchard, 1 Queen St, Bristol, BS2 0HQ, UK
T+ 44 (0) 1179 306 200
wsp.com

CLIENT:
INDUSTRAIL PROPERTY DEVELOPMENT FUND

CONTRACTOR:
-

SITE/PROJECT:
BARTON PARK CHICKENHALL LANE
EASTLEIGH, SO50 6RR

TITLE:
EXPLORATORY HOLE LOCATION PLAN

SCALE @ A1:	CHECKED:	APPROVED:	
1:500	PJ		
PROJECT NO:	DESIGNED:	DRAWN:	DATE:
70119985	DC	HS	March 2024

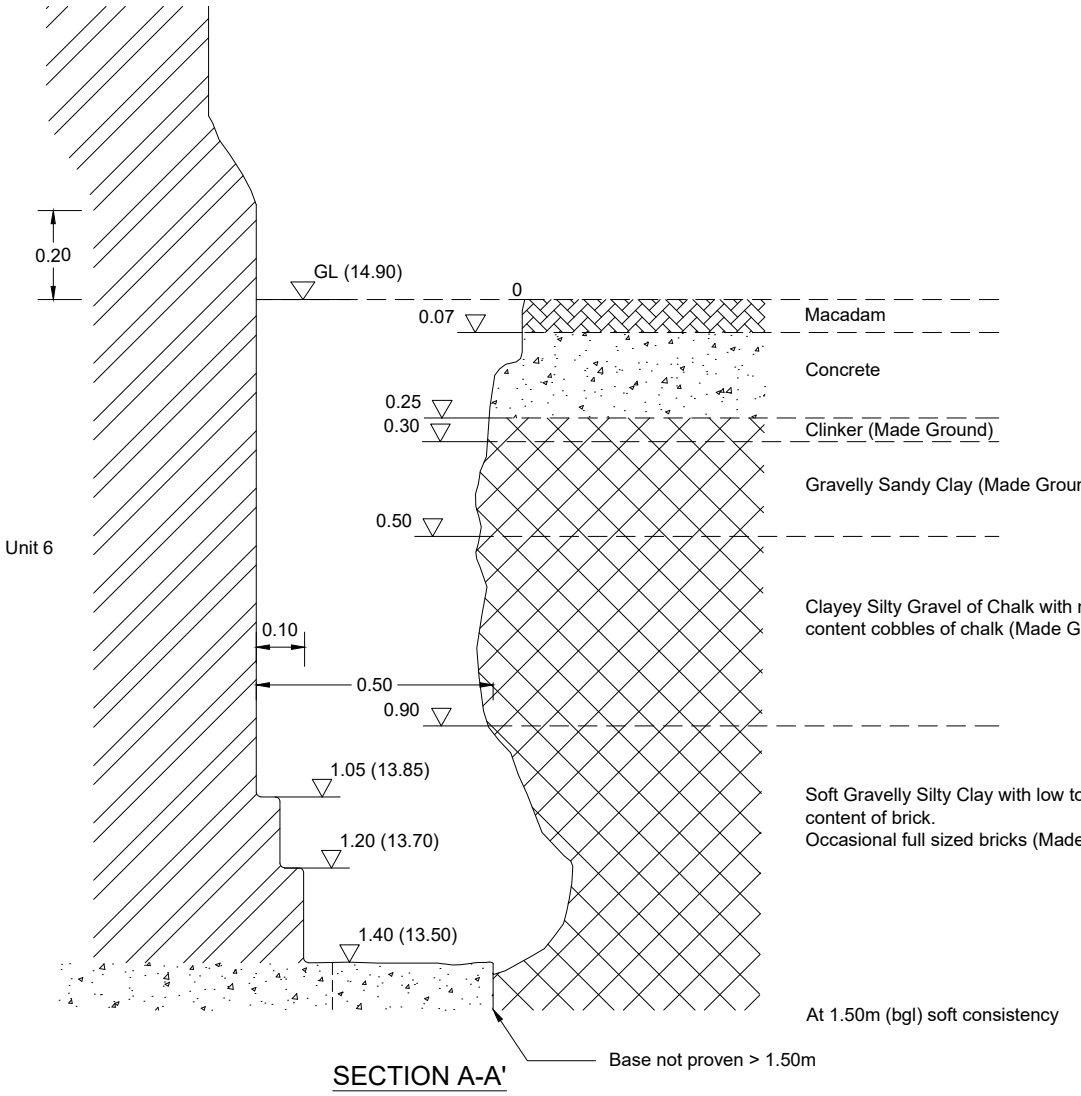
DRAWING No: FIGURE 2 REV: P01

Ⓒ WSP UK Ltd

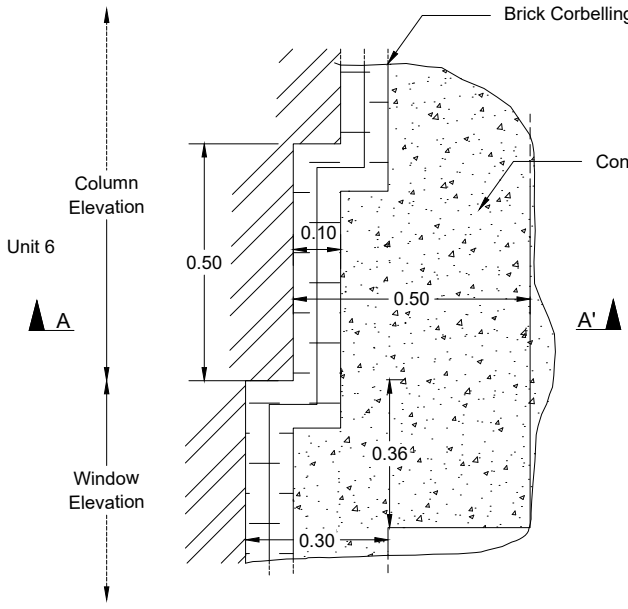
Whilst every effort has been taken in the preparation of this drawing, the original land marks/apparatus configuration may have been altered since the survey/drawing was produced. The user shall make further enquiries and investigations to satisfy himself as to the accuracy of this drawing and position of the apparatus. The exact positions of the apparatus should be verified by the use of suitable detection devices and safe digging practices in accordance with HSG47, further advice on the location of apparatus should be recommended by the owner. No representation is made by Greenhatch Group, its agents or servants as to the accuracy, completeness, and sufficiency or otherwise of this drawing and the position of the apparatus.

All apparatus shall be treated as live unless proved otherwise by the owner. It is the users responsibility to ensure that the information on the location of apparatus is provided to all persons (either direct labour or contractors) working in proximity to the apparatus.

File name:\\UK\WSPGROUP.COM\CENTRAL DATA\PROJECTS\70119XXX\70119985 - UNIT 10, BARTON PARK, SERVICE YARD INVESTIGATION\03 WIP\RECE\DEV\UTILITY SURVEY\EXPLORATORY BOREHOLE LOCATION PLAN_V2.DWG, printed on 06 March 2024 09:56:43, by Somasheklara, Harshitha



SECTION A-A'



PLAN

Notes:

1. This drawing is to be read in conjunction with all other WSP (UK) Ltd drawings, and any other relevant information.
2. No dimensions are to be scaled from this drawing, but must be taken from site and/or the details.
3. Unless noted otherwise all dimensions are in metres and all levels are in metres from the site datum mAOD in brackets.
4. Depth shown are in metres below ground level (mbgl).
5. The electronic information from this drawing can not be guaranteed as dimensionally drawn exact. Figured dimensions must be used for setting out and detailing. WSP (UK) LTD logos and company information must be removed from copies ifinformation is re-used.
6. The Contractor is responsible for the design of all temporary works, and is also responsible for the safe maintenance and stability of the existing buildings / structures at all times.

TITLE:

Unit 10, Barton Park - TP01/2

FIGURE No:

03

File name \\UK.WSPGROUP.COM\CENTRAL DATA\PROJECTS\70119XXX\70119985 - UNIT 10, BARTON PARK, SERVICE YARD INVESTIGATION\03 WIP\RECEIVED\UTILITY SURVEY\TRIAL PIT\DELIVERABLES\TRIAL PIT SECTION AND PLAN.DWG, printed on 05 March 2024 13:36:03, by Somashekara, Harshitha

Appendix B

REPORT LIMITATIONS

CONFIDENTIAL

Revised: 24/05/2016

REPORT LIMITATIONS - GROUND RISK AND REMEDIATION

GENERAL

1. WSP UK Limited has prepared this report solely for the use of the Client and those parties with whom a warranty agreement has been executed, or with whom an assignment has been agreed and outlined in the body of the report.

2. Unless explicitly agreed otherwise, in writing, this report has been prepared under WSP UK Limited standard Terms and Conditions as included within our proposal to the Client.

3. Project specific appointment documents may be agreed at our discretion and a charge may be levied for both the time to review and finalise appointments documents and also for associated changes to the appointment terms. WSP UK Limited reserves the right to amend the fee should any changes to the appointment terms create an increase risk to WSP UK Limited.

4. The report needs to be considered in the light of the WSP UK Limited proposal and associated limitations of scope. The report needs to be read in full and isolated sections cannot be used without full reference to other elements of the report and any previous works referenced within the report.

PHASE 1 GEO ENVIRONMENTAL AND PRELIMINARY RISK ASSESSMENTS

Coverage: *This section covers reports with the following titles or combination of titles: phase 1; desk top study; geo environmental assessment; development appraisal; preliminary environmental risk assessment; constraints report; due diligence report; geotechnical development review; environmental statement; environmental chapter; project scope summary report (PSSR), program environmental impact report (PEIR), geotechnical development risk register; and, baseline environmental assessment.*

5. The works undertaken to prepare this report comprised a study of available and easily documented information from a variety of sources (including the Client), together with (where appropriate) a brief walk over inspection of the Site and correspondence with relevant authorities and other interested parties. Due to the short timescales associated with these projects responses may not have been received from all parties. WSP UK Limited cannot be held responsible for any disclosures that are provided post production of our report and will not automatically update our report.

6. The opinions given in this report have been dictated by the finite data on which they are based and are relevant only for the purpose for which the report was commissioned. The information reviewed should not be considered exhaustive and has been accepted in good faith as providing true and representative data pertaining to site conditions. Should additional information become available which may affect the opinions expressed in this report, WSP UK Limited reserves the right to review such information and, if warranted, to modify the opinions accordingly.

7. It should be noted that any risks identified in this report are perceived risks based on the information reviewed. Actual risks can only be assessed following intrusive investigations of the site.

8. WSP UK Limited does not warrant work / data undertaken / provided by others.

REPORT LIMITATIONS - GROUND RISK AND REMEDIATION

INTRUSIVE INVESTIGATION REPORTS

Coverage: *The following report titles (or combination) may cover this category of work: geo environmental site investigation; geotechnical assessment; GIR (Ground Investigation reports); preliminary environmental and geotechnical risk assessment; and, geotechnical risk register.*

9. The investigation has been undertaken to provide information concerning either:

- **i.** The type and degree of contamination present at the site in order to allow a generic quantitative risk assessment to be undertaken; or
- **ii.** Information on the soil properties present at the site to allow for geotechnical development constraints to be considered.

10. The scope of the investigation was selected on the basis of the specific development and land use scenario proposed by the Client and may be inappropriate to another form of development or scheme. If the development layout was not known at the time of the investigation the report findings may need revisiting once the development layout is confirmed.

11. For contamination purposes, the objectives of the investigation are limited to establishing the risks associated with potential contamination sources with the potential to cause harm to human health, building materials, the environment (including adjacent land), or controlled waters.

12. For geotechnical investigations the purpose is to broadly consider potential development constraints associated with the physical property of the soils underlying the site within the context of the proposed future or continued use of the site, as stated within the report.

13. The amount of exploratory work, soil property testing and chemical testing undertaken has necessarily been restricted by various factors which may include accessibility, the presence of services; existing buildings; current site usage or short timescales. The exploratory holes completed assess only a small percentage of the area in relation to the overall size of the Site, and as such can only provide a general indication of conditions.

14. The number of sampling points and the methods of sampling and testing do not preclude the possible existence of contamination where concentrations may be significantly higher than those actually encountered or ground conditions that vary from those identified. In addition, there may be exceptional ground conditions elsewhere on the site which have not been disclosed by this investigation and which have therefore not been taken into account in this report.

15. The inspection, testing and monitoring records relate specifically to the investigation points and the timeframe that the works were undertaken. They will also be limited by the techniques employed. As part of this assessment, WSP UK Limited has used reasonable skill and care to extrapolate conditions between these points based upon assumptions to develop our interpretation and conclusions. The assumption made in forming our conclusions is that the ground and groundwater conditions (both chemically and physically) are the same as have been encountered during the works undertaken at the specific points of investigation. Conditions can change between investigation points and these interpretations should be considered indicative.

16. The risk assessment and opinions provided are based on currently available guidance relating to acceptable contamination concentrations; no liability can be accepted for the retrospective

effects of any future changes or amendments to these values. Specific assumptions associated with the WSP UK Limited risk assessment process have been outlined within the body or associated appendix of the report.

17. Additional investigations may be required in order to satisfy relevant planning conditions or to resolve any engineering and environmental issues.

18. Where soil contamination concentrations recorded as part of this investigation are used for commentary on potential waste classification of soils for disposal purposes, these should be classed as indicative only. Due consideration should be given to the variability of contaminant concentrations taken from targeted samples versus bulk excavated soils and the potential variability of contaminant concentrations between sampling locations. Where major waste disposal operations are considered, targeted waste classification investigations should be designed.

19. The results of the asbestos testing are factually reported and interpretation given as to how this relates to the previous use of the site, the types of ground encountered and site conceptualisation. This does not however constitute a formal asbestos assessment. These results should be treated cautiously and should not be relied upon to provide detailed and representative information on the delineation, type and extent of bulk ACMs and / or trace loose asbestos fibres within the soil matrix at the site.

20. If costs have been included in relation to additional site works, and / or site remediation works these must be considered as indicative only and must be confirmed by a qualified quantity surveyor.

EUROCODE 7: GEOTECHNICAL DESIGN

21. On 1st April 2010, BS EN 1997-1:2004 (Eurocode 7: Geotechnical Design – Part 1) became the mandatory baseline standard for geotechnical ground investigations.

22. In terms of geotechnical design for foundations, slopes, retaining walls and earthworks, EC7 sets guidance on design procedures including specific guidance on the numbers and spacings of boreholes for geotechnical design, there are limits to methods of ground investigation and the quality of data obtained and there are also prescriptive methods of assessing soil strengths and methods of design. Unless otherwise explicitly stated, the work has not been undertaken in accordance with EC7. A standard geotechnical interpretative report will not meet the requirements of the Geotechnical Design Report (GDR) under Eurocode 7. The GDR can only be prepared following confirmation of all structural loads and serviceability requirements. The report is likely to represent a Ground Investigation Report (GIR) under the Eurocode 7 guidance.

DETAILED QUANTITATIVE RISK ASSESSMENTS AND REMEDIAL STRATEGY REPORTS

23. These reports build upon previous report versions and associated notes. The scope of the investigation, further testing and monitoring and associated risk assessments were selected on the basis of the specific development and land use scenario proposed by the Client and may not be appropriate to another form of development or scheme layout. The risk assessment and opinions provided are based on currently available approaches in the generation of Site Specific Assessment Criteria relating to contamination concentrations and are not considered to represent a risk in a specific land use scenario to a specific receptor. No liability can be

accepted for the retrospective effects of any future changes or amendments to these values, associated models or associated guidance.

24. The outputs of the Detailed Quantitative Risk Assessments are based upon WSP UK Limited manipulation of standard risk assessment models. These are our interpretation of the risk assessment criteria.

25. Prior to adoption on site they will need discussing and agreeing with the Regulatory Authorities prior to adoption on site. The regulatory discussion and engagement process may result in an alternative interpretation being determined and agreed. The process and timescales associated with the Regulatory Authority engagement are not within the control of WSP UK Limited. All costs and programmes presented as a result of this process should be validated by a quantity surveyor and should be presumed to be indicative.

GEOTECHNICAL DESIGN REPORT (GDR)

26. The GDR can only be prepared following confirmation of all structural loads and serviceability requirements. All the relevant information needs to be provided to allow for a GDR to be produced.

MONITORING (INCLUDING REMEDIATION MONITORING REPORTS)

27. These reports are factual in nature and comprise monitoring, normally groundwater and ground gas and data provided by contractors as part of an earthworks or remedial works.

28. The data is presented and will be compared with assessment criteria.

Appendix C

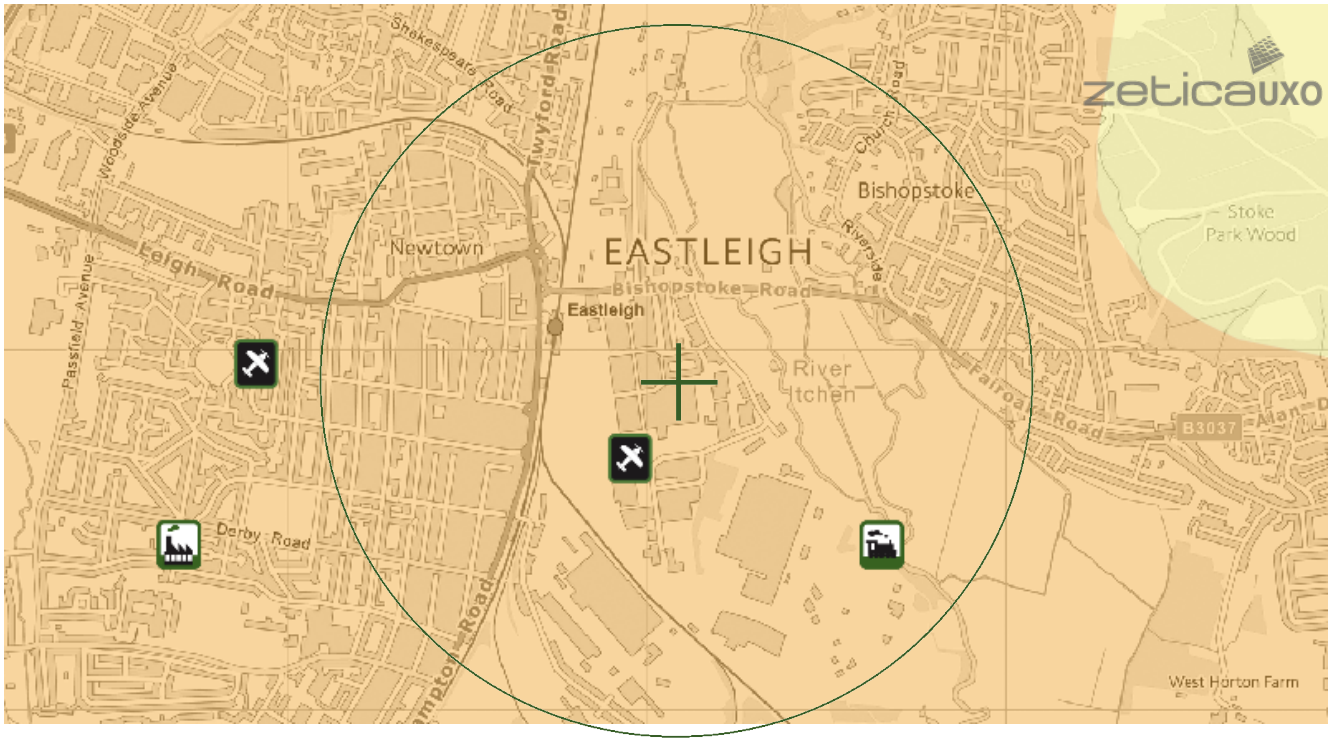
ZETICA UXO RISK MAP

CONFIDENTIAL

UNEXPLODED BOMB RISK MAP

SITE LOCATION

Map Centre: 446054,118963



This map principally indicates a hazard from Unexploded Bombs (UXB) due to WWII bombardment. Other sources of Unexploded Ordnance (UXO) may be present. It should be noted that this map does not represent UXO risk and should not be reported as such when reproduced.

LEGEND

- **High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
- **Moderate:** Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.
- **Low:** Areas indicated as having 15 bombs per 1000acre or less.

Miltary | **Industry** | **UXO find** | **Other**
Transport | **Docks** | **Luftwaffe targets**
Utilities | **Bombing decoy** | **Airfields**

How to use your Unexploded Bomb (UXB) risk map?

This map indicates the potential for UXBs to be present because of World War Two (WWII) bombing. It can be incorporated into a technical report, such as a Phase 1 Desk Study, or similar document as an indication of the potential for UXO encounter on a Site. Other sources of UXO may also be indicated, although note that these are not comprehensive and more detailed research is required to confirm their presence.

What if my Site is in a moderate or high density area?

We typically recommend that a detailed UXO desk study and risk assessment is undertaken for sites in an area with a moderate or high bombing density.
Additionally, if your site is in close proximity to a strategic target, military establishment, airfield or bombing decoy, then additional detailed research is recommended.

If my site is in a low risk area, do I need to do anything?

If both the map and other research confirm that there is a low potential for UXO to be present on your site, then, subject to your own comfort and risk tolerance, works can proceed with no special precautions.

If you are unsure whether other sources of UXO may be present, you can request one of our pre-desk study assessments (PDSA) by emailing a site boundary and location to uxo@zetica.com.

You should never plan site work or undertake a risk assessment using these maps alone. More detail is required, to include an assessment of the likelihood of a source of UXO hazard from other military activity not reflected on these maps.

If I have any questions, who do I contact?

tel: +44 (0) 1993 886682 **email:** uxo@zetica.com **web:** www.zeticauxo.com

The information in this UXB risk map is derived from a range of sources and should be used with the accompanying notes on our website.

Zetica cannot guarantee the accuracy or completeness of the information or data used and cannot accept any liability for any use of the maps. These maps can be used as part of a technical report or similar publication, subject to acknowledgement. The copyright remains with Zetica Ltd.

Appendix D

FACTUAL DATA

Confidential

Appendix D.1

WINDOWLESS SAMPLE LOGS

Confidential

WSP Telephone: Email:	**WINDOW SAMPLE LOG**	Hole No. **WS02**
	Project: Unit 10 Service Yard Investigation	Sheet: 1 of 1
Job No: 70119985-001	Client: Industrial Property Investment Fund	Date: Start: **21-02-24** End: **21-02-24**

Contractor/Driller	Method/Plant Used	Logged By	Co-Ordinates ()	Ground Level (m)
CC Ground Investigations Ltd	Hand Tools	Matthew Jones	E: 446047.05 N: 118947.96	15.011

SAMPLES & TESTS							STRATA					
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (m)	Depth (Thick-ness)	Description	Legend	Geology	Dia. Install / Backfill mm
							14.98	0.03	Black MACADAM. Aggregate of angular to subangular fine to medium gravel. (TARMAC)		TARMAC	
							14.91	0.10			TARMAC	
							14.79	0.22			CONC	
									Black MACADAM. Aggregate of angular to subangular fine to coarse gravel. (TARMAC)			
0.35-0.50	ES		0.0					(0.41)	Greyish brown CONCRETE. Aggregate of subangular to subrounded fine to coarse flint gravel. (CONCRETE)		GMG	
							14.38	0.63	Dark greyish brown very sandy silty clayey angular to rounded fine to coarse GRAVEL of brick, chalk and flint. (MADE GROUND GRANULAR)			
0.63-1.50	ES											
0.65-0.80	ES		0.0					(0.37)	White and greyish brown sandy very silty very clayey angular to subrounded fine to coarse GRAVEL of chalk with brick. Low / medium cobble content. Cobbles of red brick. (MADE GROUND GRANULAR)		GMG	
							14.01	1.00				
							13.91	1.10	Black angular fine to coarse GRAVEL of clinker. (MADE GROUND GRANULAR)		GMG	
								(0.27)	Brown and grey very gravelly sandy CLAY. Gravel is angular to rounded fine to coarse of chalk and flint. (MADE GROUND COHESIVE)		CMG	
							13.64	1.37				
							13.51	1.50	White and grey sandy very clayey subrounded to subangular fine to coarse GRAVEL of chalk. (MADE GROUND GRANULAR)		GMG	
									Reached scheduled depth			

Hole Diameter			Run Information				Water Strikes					
Depth	Diameter (mm)	Remarks	Top (m)	Base (m)	Diam (mm)	Rec'v (m)	Date	Time	Strike	Minutes	Standing	Casing
1.50	300											

General Remarks

300 mm concrete core. Hand dug pit terminated at 1.50 m depth in Made Ground.
No Groundwater encountered.

Scale 1:31.25

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

20 WSP WINDOW SAMPLE LOG BARTON PARK RESURFACING V8.GPJ WSPETEMPLATE8.00.GDT 10/4/24

WSP

Telephone:
Email:

WINDOW SAMPLE LOG

Hole No. **WS03**

Project: Unit 10 Service Yard Investigation

Sheet: 1 of 1

Job No: 70119985-001

Client: Industrial Property Investment Fund

Date: Start: **21-02-24** End: **21-02-24**

Contractor/Driller	Method/Plant Used	Logged By	Co-Ordinates ()	Ground Level (m)
CC Ground Investigations Ltd	Hand Tools	Matthew Jones	E: 446050.57 N: 118926.79	14.821

SAMPLES & TESTS							STRATA						
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (m)	Depth (Thick-ness)	Description	Legend	Geology	Dia.	Install / Backfill (mm)
							14.79	0.03	Black MACADAM. Aggregate of angular fine and medium gravel. (TARMAC)		TARMAC		
							14.73	0.09			TARMAC		
							14.68	0.14	Black MACADAM. Aggregate of angular to subangular fine to coarse gravel. (TARMAC)		CONC		
							14.49	0.33			CONC		
0.35-0.50	ES		0.0					(0.25)	Greyish brown CONCRETE. Aggregate of angular fine flint. (CONCRETE)		GMG		
							14.24	0.58	Grey Concrete. Aggregate of angular to subrounded fine to coarse flint with numerous cobbles of orange brick. (CONCRETE)				
0.60-0.75	ES		0.0					(0.34)	Greyish brown sandy slightly silty angular to subrounded fine to coarse GRAVEL of flint and slate with occasional chalk and clinker. (MADE GROUND GRANULAR)		GMG		
							13.90	0.92					
							13.72	1.10	White /grey very clayey angular to subrounded fine to coarse GRAVEL of chalk and occasional flint. (MADE GROUND GRANULAR)		GMG		
								(0.40)	Brown sandy very clayey angular to subrounded fine to coarse GRAVEL of chalk and flint. (MADE GROUND GRANULAR)		GMG		
							13.32	1.50	White very clayey angular to subangular fine to coarse GRAVEL of chalk and occasional flint. (MADE GROUND GRANULAR)				
									Reached scheduled depth				

Hole Diameter			Run Information				Water Strikes					
Depth	Diameter (mm)	Remarks	Top (m)	Base (m)	Diam (mm)	Rec'v (m)	Date	Time	Strike	Minutes	Standing	Casing
1.50	300											

General Remarks

300 mm concrete core. Hand dug pit terminated at 1.50 m in Made Ground. No Groundwater encountered.

Scale 1:31.25

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

20 WSP WINDOW SAMPLE LOG BARTON PARK RESURFACING V8.GPJ WSPETEMPLATE8.00.GDT 10/4/24

WSP Telephone: Email:	**WINDOW SAMPLE LOG**	Hole No. **WS04**
	Project: Unit 10 Service Yard Investigation	Sheet: 1 of 1
Job No: 70119985-001	Client: Industrial Property Investment Fund	Date: Start: **20-02-24** End: **21-02-24**

Contractor/Driller	Method/Plant Used	Logged By	Co-Ordinates ()	Ground Level (m)
CC Ground Investigations Ltd	Dando Terrier, Hand Tools	Matthew Jones	E: 446077.27 N: 118929.25	14.586

SAMPLES & TESTS							STRATA					
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (m)	Depth (Thick-ness)	Description	Legend	Geology	Dia. Install / Backfill mm
							14.41	0.18	Grey Reinforced CONCRETE. Aggregate of subangular to subrounded fine to coarse flint. 5mm steel reinforcement mesh (approximately 230 mm spacing) at 0.095 m depth. (CONCRETE)		CONC	
0.18-1.30	ES						14.35	0.24			CONC	
0.30-0.40	ES		0.0						Weak greyish brown CONCRETE. Aggregate of subrounded to angular fine to coarse flint. (CONCRETE) *0.18 Clear DPM at base of concrete*			
0.60-0.80	ES		0.0					(0.69)	Black very sandy angular to subrounded fine to coarse GRAVEL of clinker, brick fragments and crushed concrete. (MADE GROUND GRANULAR)		GMG	
							13.66	0.93				
1.00-1.20	ES		0.0					(0.37)	Soft orangish brown slightly gravelly silty CLAY. Gravel is angular to subrounded fine of flint, ash and occasional brick fragments. (MADE GROUND COHESIVE)		CMG	
1.20-1.30	D						13.29	1.30				
1.30 1.40-1.70	(S) ES	0,0,0 1,1,1 N=3						(0.40)	Greyish brown silty CLAY with frequent calcareous fragments and occasional subangular to subrounded medium flint gravel. (RIVER TERRACE DEPOSITS)		RT	
1.70-2.00	B						12.89	1.70				
								(0.30)	Orangish brown sandy slightly silty slightly clayey angular to subrounded fine to coarse GRAVEL of flint. (RIVER TERRACE DEPOSITS)		RT	
2.00	(S)	7,12,11 14,17,8 N=50/ 270mm					12.59	2.00	**Refusal**			

Hole Diameter			Run Information				Water Strikes					
Depth	Diameter (mm)	Remarks	Top (m)	Base (m)	Diam (mm)	Rec'v (m)	Date	Time	Strike	Minutes	Standing	Casing
1.30	300											
2.00	101											

General Remarks

300 mm concrete core. Hand excavated to 1.50 m bgl. Borehole terminated at 2.00 m depth due to SPT refusal (N=50). Maximum casing depth 2.00 m.

Scale 1:31.25

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

20 WSP WINDOW SAMPLE LOG BARTON PARK RESURFACING V8.GPJ WSPETEMPLATE8.00.GDT 10/4/24

WSP

Telephone:
Email:

WINDOW SAMPLE LOG

Hole No. **WS05**

Project: Unit 10 Service Yard Investigation

Sheet: 1 of 1

Job No: 70119985-001

Client: Industrial Property Investment Fund

Date: Start: **20-02-24** End: **20-02-24**

Contractor/Driller	Method/Plant Used	Logged By	Co-Ordinates ()	Ground Level (m)
CC Ground Investigations Ltd	Hand Tools	Matthew Jones	E: 446074.15 N: 118948.72	14.576

SAMPLES & TESTS							STRATA					
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (m)	Depth (Thick-ness)	Description	Legend	Geology	Dia. Install / Backfill mm
							14.44	0.14	Grey Reinforced CONCRETE. 65% aggregate of fine to coarse flint gravel. 6mm steel reinforcement mesh at 0.032 m and 0.068 m depth. (CONCRETE)		CONC	
0.25-0.35	ES		0.3				14.23	0.35	Dark grey gravelly silty fine to coarse SAND with medium cobble content and occasional concrete fragments. Cobbles are angular to subrounded of slag and red brick fragments. Gravel is subangular to subrounded fine to coarse of and flint, red brick fragments and clinker. (MADE GROUND GRANULAR) *0.14 Clear DPM at base of concrete* *1 coarse gravel sized fragment suspected ACM* **suspected asbestos encountered**		GMG	

Hole Diameter			Run Information				Water Strikes					
Depth	Diameter (mm)	Remarks	Top (m)	Base (m)	Diam (mm)	Rec'v (m)	Date	Time	Strike	Minutes	Standing	Casing
0.35	300											

General Remarks

300 mm concrete core. Borehole terminated at 0.35 m due to suspected ACM fragment.

Scale 1:31.25

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

20 WSP WINDOW SAMPLE LOG BARTON PARK RESURFACING V8.GPJ WSPETEMPLATE8.00.GDT 10/4/24

WSP Telephone: Email:	**WINDOW SAMPLE LOG**	Hole No. **WS05A**
	Project: Unit 10 Service Yard Investigation	Sheet: 1 of 1
Job No: 70119985-001	Client: Industrial Property Investment Fund	Date: Start: **21-02-24** End: **21-02-24**

Contractor/Driller	Method/Plant Used	Logged By	Co-Ordinates ()	Ground Level (m)
CC Ground Investigations Ltd	Dando Terrier, Hand Tools	Matthew Jones	E: 446075.03 N: 118944.55	14.600

SAMPLES & TESTS							STRATA					
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (m)	Depth (Thick-ness)	Description	Legend	Geology	Dia. Install / Backfill mm
							14.47	0.13	Grey Reinforced CONCRETE. Aggregate of angular to subrounded fine to coarse flint gravel. 5 mm steel reinforcement mesh (250 mm spacing) at 0.07 m and 0.25 m depth. (CONCRETE)		CONC	
0.35-0.50	B		0.1						Black very sandy angular to subrounded fine to coarse GRAVEL of clinker and brick fragments with occasional cobbles of brick and slag. (MADE GROUND GRANULAR)			
0.35-0.50	ES							(1.07)			GMG	
1.20-1.30	ES		0.0				13.40	1.20				
1.30-1.45	D (C)	0,0,2 3,6,6 N=17						(0.40)	Soft greyish brown silty CLAY with occasional gravel of angular to subrounded medium flint and calcareous fragments. (RIVER TERRACE DEPOSITS)		RT	
							13.00	1.60				
								(0.40)	Light brown sandy slightly silty slightly clayey angular to subrounded fine to coarse GRAVEL of flint. (RIVER TERRACE DEPOSITS)		RT	
2.00	(C)	11,14,13 15,14,8 N=50/ 265mm					12.60	2.00	**Refusal**			

Hole Diameter			Run Information				Water Strikes					
Depth	Diameter (mm)	Remarks	Top (m)	Base (m)	Diam (mm)	Rec'v (m)	Date	Time	Strike	Minutes	Standing	Casing
1.30	300											
2.00	101											

General Remarks

300 mm concrete core. Hand excavated to 1.50 m bgl. Borehole terminated at 2.00 m depth due to CPT refusal (N=50). Maximum casing depth 2.00 m.

Scale 1:31.25

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

WSP Telephone: Email:	**WINDOW SAMPLE LOG**	Hole No. **WS06**
	Project: Unit 10 Service Yard Investigation	Sheet: 1 of 1
Job No: 70119985-001	Client: Industrial Property Investment Fund	Date: Start: **20-02-24** End: **20-02-24**

Contractor/Driller	Method/Plant Used	Logged By	Co-Ordinates ()	Ground Level (m)
CC Ground Investigations Ltd	Hand Tools	Matthew Jones	E: 446076.23 N: 118928.64	14.582

SAMPLES & TESTS							STRATA					
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (m)	Depth (Thick-ness)	Description	Legend	Geology	Dia. Install / Backfill mm
							14.43	0.15	Grey Reinforced CONCRETE. Aggregate of subangular to subrounded fine to coarse flint gravel. 6 mm steel reinforcement mesh (approximately 280 mm spacing) at 0.11 m depth. (CONCRETE)		CONC	
							14.28	0.30	Black very sandy angular to subrounded fine to coarse GRAVEL of clinker, brick fragments and concrete with occasional cobbles of red brick. (MADE GROUND GRANULAR) *0.15 Black DPM at base of concrete.* **Abandoned due to concrete obstruction**		GMG	

Hole Diameter			Run Information				Water Strikes					
Depth	Diameter (mm)	Remarks	Top (m)	Base (m)	Diam (mm)	Rec'v (m)	Date	Time	Strike	Minutes	Standing	Casing
0.30	300											

General Remarks

300 mm concrete core. Hand pit terminated at 0.30 m due to concrete obstruction at base within Made Ground. No groundwater encountered.

Scale 1:31.25

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

20 WSP WINDOW SAMPLE LOG BARTON PARK RESURFACING V8.GPJ WSPETEMPLATE8.00.GDT 10/4/24

WSP Telephone: Email:	**WINDOW SAMPLE LOG**	Hole No. **WS06A**
	Project Unit 10 Service Yard Investigation	Sheet 1 of 2
Job No 70119985-001	Client Industrial Property Investment Fund	Date Start: **20-02-24** End: **20-02-24**

Contractor/Driller	Method/Plant Used	Logged By	Co-Ordinates ()	Ground Level (m)
CC Ground Investigations Ltd	Dando Terrier, Hand Tools	Matthew Jones	E: 446077.07 N: 118930.25	14.605

SAMPLES & TESTS							STRATA					
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (m)	Depth (Thick-ness)	Description	Legend	Geology	Dia. Install / Backfill mm
							14.51	0.10	Grey Reinforced CONCRETE. Aggregate of subangular to subrounded fine to coarse flint. 5 mm steel reinforcement mesh (approximately 180 mm spacing) at 0.04 m depth. (CONCRETE)		CONC	
							14.41	0.20	Weak grey CONCRETE. Aggregate of angular to subrounded fine to coarse flint. (CONCRETE) *0.10 Black DPM at base of concrete*		CONC	
0.35-0.40 0.35-0.40	B ES		1.8					(1.00)	Black very sandy angular to subrounded fine to coarse GRAVEL of clinker and crushed concrete. (MADE GROUND GRANULAR)		GMG	
1.20-1.35 1.30	D (S)	0,0,0 1,1,2 N=4					13.41	1.20	Soft dark grey and black very silty CLAY with occasional calcareous fragments. Organic odour. (Possible ALLUVIUM)		ALV	
1.40-1.60	D						13.21	1.40	Soft greyish brown silty CLAY with occasional calcareous fragments. (RIVER TERRACE DEPOSITS)		RT	
2.00 2.30-2.80	(S) B	7,8,8 7,6,5 N=26					12.86	(0.35) 1.75	Pale greyish brown sandy slightly silty slightly clayey angular to subrounded fine to coarse GRAVEL of flint. Becoming increasingly sandy with depth. (RIVER TERRACE DEPOSITS)		RT	
3.00-3.30 3.85-4.00 4.00	ES (S) D (S)	0,1,1 1,2,2 N=6 2,2,3 4,4,5 N=16	0.4				11.76	(1.10) 2.85	Firm dark grey silty CLAY, thinly laminated. (WITTERING FORMATION) *3.80 Becoming stiff* *4.30 Becoming very stiff*		WTT	
4.85-5.00	D						9.61	(2.15) 5.00				

Hole Diameter			Run Information				Reached scheduled depth Water Strikes					
Depth	Diameter (mm)	Remarks	Top (m)	Base (m)	Diam (mm)	Rec'v (m)	Date	Time	Strike	Minutes	Standing	Casing
1.30 4.00 5.00	300 101 87											

General Remarks

300 mm concrete core. Hand excavated to 1.50 m bgl. Borehole terminated at 5.00 m on reaching scheduled depth. Maximum casing depth 3.00 m.

Scale 1:31.25

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

20 WSP WINDOW SAMPLE LOG BARTON PARK RESURFACING V8.GPJ WSPETEMPLATE8.00.GDT 10/4/24

WSP

Telephone:
Email:

WINDOW SAMPLE LOG

Hole No. **WS06A**

Project: Unit 10 Service Yard Investigation

Sheet: 2 of 2

Job No: 70119985-001

Client: Industrial Property Investment Fund

Date: Start: **20-02-24** End: **20-02-24**

Contractor/Driller	Method/Plant Used	Logged By	Co-Ordinates ()	Ground Level (m)
CC Ground Investigations Ltd	Dando Terrier, Hand Tools	Matthew Jones	E: 446077.07 N: 118930.25	14.605

SAMPLES & TESTS						Water	STRATA					
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)		Elev. (m)	Depth (Thick-ness)	Description	Legend	Geology	Dia. Install / Backfill mm
5.00	(S)	2,4,4 5,6,6 N=21										

Hole Diameter			Run Information				Water Strikes					
Depth	Diameter (mm)	Remarks	Top (m)	Base (m)	Diam (mm)	Rec'v (m)	Date	Time	Strike	Minutes	Standing	Casing

General Remarks

300 mm concrete core. Hand excavated to 1.50 m bgl. Borehole terminated at 5.00 m on reaching scheduled depth. Maximum casing depth 3.00 m.

Scale 1:31.25

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

20 WSP WINDOW SAMPLE LOG BARTON PARK RESURFACING V8.GPJ WSPETEMPLATE8.00.GDT 10/4/24

WINDOW SAMPLE LOG

WSP Telephone: Email:	Project: Unit 10 Service Yard Investigation	Hole No. **WS07** Sheet: 1 of 2
Job No: 70119985-001	Client: Industrial Property Investment Fund	Date Start: **22-02-24** End: **29-02-24**
Contractor/Driller: CC Ground Investigations Ltd	Method/Plant Used: Dando Terrier, Hand Tools	Logged By: Matthew Jones
Co-Ordinates (): E: 445976.29 N: 118989.92	Ground Level (m): 14.704	

SAMPLES & TESTS							STRATA					
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (m)	Depth (Thick-ness)	Description	Legend	Geology	Dia. Install / Backfill (mm)
							14.45	(0.25) 0.25	Reinforced CONCRETE. Grey Reinforced CONCRETE. Aggregate of angular to rounded fine to coarse flint. 7 mm steel reinforcement mesh (approximately 230mm spacing) at 0.13 m to 0.24 m depth. (CONCRETE)		CONC	
							14.09	(0.36) 0.61	Black sandy angular to subrounded fine to coarse GRAVEL of flint, clinker and occasional chalk. (MADE GROUND GRANULAR)		GMG	
							13.97	0.73	White / grey and black sandy very clayey angular to subangular fine to coarse GRAVEL of chalk and clinker with frequent cobbles of chalk. (MADE GROUND GRANULAR)		GMG	
								(0.77)	Brown silty CLAY with occasional gravel of subangular to rounded fine and medium flint. (RIVER TERRACE DEPOSITS)		RT	
1.30		0,0,1 1,1,0 N=3					13.20	1.50				
							12.95	(0.25) 1.75	Orangish brown slightly sandy very clayey angular to subrounded fine to coarse GRAVEL of flint and occasional calcareous fragments. (RIVER TERRACE DEPOSITS)		RT	
2.00		11,10,11 9,10,9 N=39							Pale yellowish orange sandy slightly silty angular to rounded fine to coarse GRAVEL of flint with occasional cobbles of flint. (RIVER TERRACE DEPOSITS)			
2.25-2.75	B							(1.15)			RT	
							11.80	2.90	*2.75 becoming loose and increasingly sandy*			
							11.70	3.00	Soft brown silty CLAY, thinly laminated. (WITTERING FORMATION)		WTT	
3.00		0,1,1 1,1,1 N=4							Firm dark grey silty CLAY. Speckled greenish grey. (WITTERING FORMATION)			
									3.40 becoming stiff			
3.70-3.85	D								*3.70 becoming very stiff*			
								(2.00)			WTT	
4.00		1,1,3 4,3,4 N=14										
4.50-4.65	D											
							9.70	5.00				

Hole Diameter			Run Information				Reached scheduled depth Water Strikes					
Depth	Diameter (mm)	Remarks	Top (m)	Base (m)	Diam (mm)	Rec'v (m)	Date	Time	Strike	Minutes	Standing	Casing
1.30	300											
4.00	101											
5.00	87											

General Remarks

300 mm concrete core. Hand excavated to 1.50 m bgl. Borehole terminated at 5.00 m on reaching scheduled depth. Maximum casing depth 3.00 m.

Scale 1:31.25

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

20 WSP WINDOW SAMPLE LOG BARTON PARK RESURFACING V8.GPJ WSPETEMPLATE8.00.GDT 10/4/24

WSP

Telephone:
Email:

WINDOW SAMPLE LOG

Hole No. **WS07**

Project: Unit 10 Service Yard Investigation

Sheet: 2 of 2

Job No: 70119985-001

Client: Industrial Property Investment Fund

Date: Start: **22-02-24** End: **29-02-24**

Contractor/Driller	Method/Plant Used	Logged By	Co-Ordinates ()	Ground Level (m)
CC Ground Investigations Ltd	Dando Terrier, Hand Tools	Matthew Jones	E: 445976.29 N: 118989.92	14.704

SAMPLES & TESTS						Water	STRATA					
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)		Elev. (m)	Depth (Thick-ness)	Description	Legend	Geology	Dia. Install / Backfill mm
5.00		2,4,5 6,5,6 N=22										

Hole Diameter			Run Information				Water Strikes					
Depth	Diameter (mm)	Remarks	Top (m)	Base (m)	Diam (mm)	Rec'v (m)	Date	Time	Strike	Minutes	Standing	Casing

General Remarks

300 mm concrete core. Hand excavated to 1.50 m bgl. Borehole terminated at 5.00 m on reaching scheduled depth. Maximum casing depth 3.00 m.

Scale 1:31.25

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

20 WSP WINDOW SAMPLE LOG BARTON PARK RESURFACING V8.GPJ WSPETEMPLATE8.00.GDT 10/4/24

Appendix D.2

TRIAL PIT LOGS

CONFIDENTIAL

WSP UK LTD
Grosvenor House, Grosvenor Square,
Southampton. SO15 2BE
Telephone: 023 8010 1700
Fax:

TRIAL PIT LOG

Hole No. **HP01/2**

Project: Unit 10 Service Yard Investigation

Sheet: 1 of 1

Job No: 70119985-001

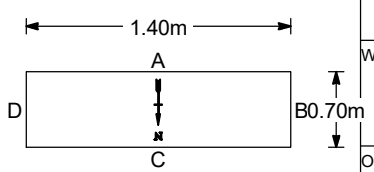
Client: Industrial Property Investment Fund

Date: Start: 22-02-24 End: 22-02-24

Contractor / Driller	Method/Plant Used	Logged By	Co-Ordinates ()	Ground Level (m)
CC Ground Investigations Ltd	Hand Tools	Matthew Jones	E 446035.692 N 118973.754	14.901

SAMPLES & TESTS						STRATA				
Depth	Type	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (m)	Depth (Thick-ness)	Description	Legend	Geology	Install / Backfill
						14.84	0.07	ASPHALT. Black MACADAM. Aggregate of angular fine to coarse gravel. (TARMAC)		TARMAC	
						14.65	(0.19) 0.25	CONCRETE. Grey Concrete. Aggregate of angular to subrounded fine to coarse flint. (CONCRETE)		CONC	
0.25-0.30	ES					14.60	0.30	Black/dark grey angular fine to coarse GRAVEL of clinker. (MADE GROUND GRANULAR)		GMG	
0.40-0.50	ES					14.40	(0.20) 0.50	Orangish brown gravelly sandy CLAY. Gravel is angular to subrounded fine to coarse of flint, clinker and crushed concrete. (MADE GROUND COHESIVE)		CMG	
						14.00	(0.40) 0.90	White very clayey subangular to subrounded fine to coarse GRAVEL of chalk with frequent cobbles of chalk. (MADE GROUND GRANULAR)		GMG	
						13.40	(0.60) 1.50	Soft brown gravelly silty CLAY with low to medium cobble content. Cobbles are sub angular of brick. Occasional full sized brick. Gravel is angular to subrounded fine to coarse of flint and brick. (MADE GROUND COHESIVE)		CMG	

DRAFT



Length: 1.40m

Width: 0.70m

Orientation: 0 degrees from north

Shoring/Support: None

Stability: Good

Water Strikes

Date	Time	Strike	Minutes	Standing	Remarks

General Remarks

Hand excavation terminated at 1.50 m. Unable to advance further with hand excavation tool.
See accompanying sketch.

Scale 1:12.5

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

20 WSP TP LOG STANDARD BARTON PARK RESURFACING V8.GPJ WSPETEMPLATE8.00.GDT 28/2/24

Appendix D.3

IN-SITU TESTING - CALIFORNIA BEARING RATIO

CONFIDENTIAL

CC GROUND INVESTIGATIONS LIMITED

IN-SITU CALIFORNIA BEARING RATIO

BS1377 - 9 : 1990

CLIENT: WSP UK LTD

SITE: Barton Park

Location : CBR02

Test No. 1

Depth (m): 0.40m

Date: 21/02/2024

Load Ring SN	15447	Soil Description	Dark Brown Slightly Clayey Sandy GRAVEL
Load Ring Factor	0.0091861		
Surcharge Mass (kg)	10.0	Rings Used	4, 2, 2, 1, 1
Test Rate	1mm/min	Particles >20mm present under test area?	☑
Groundwater? (m)	None	Tub/bulk sample taken	☑

Tested By SF

Test Data

Penetration (mm)	Gauge Reading (div)
0.00	0
0.25	15
0.50	21
0.75	28
1.00	33
1.25	38
1.50	41
1.75	44
2.00	48
2.25	51
2.50	53
2.75	55
3.00	57
3.25	60
3.50	62
3.75	63
4.00	65
4.25	67
4.50	68
4.75	70
5.00	72
5.25	74
5.50	76
5.75	79
6.00	83
6.25	85
6.50	88
6.75	90
7.00	92
7.25	94
7.50	96

REMARKS:

CONTRACT

C8220

CC GROUND INVESTIGATIONS LIMITED

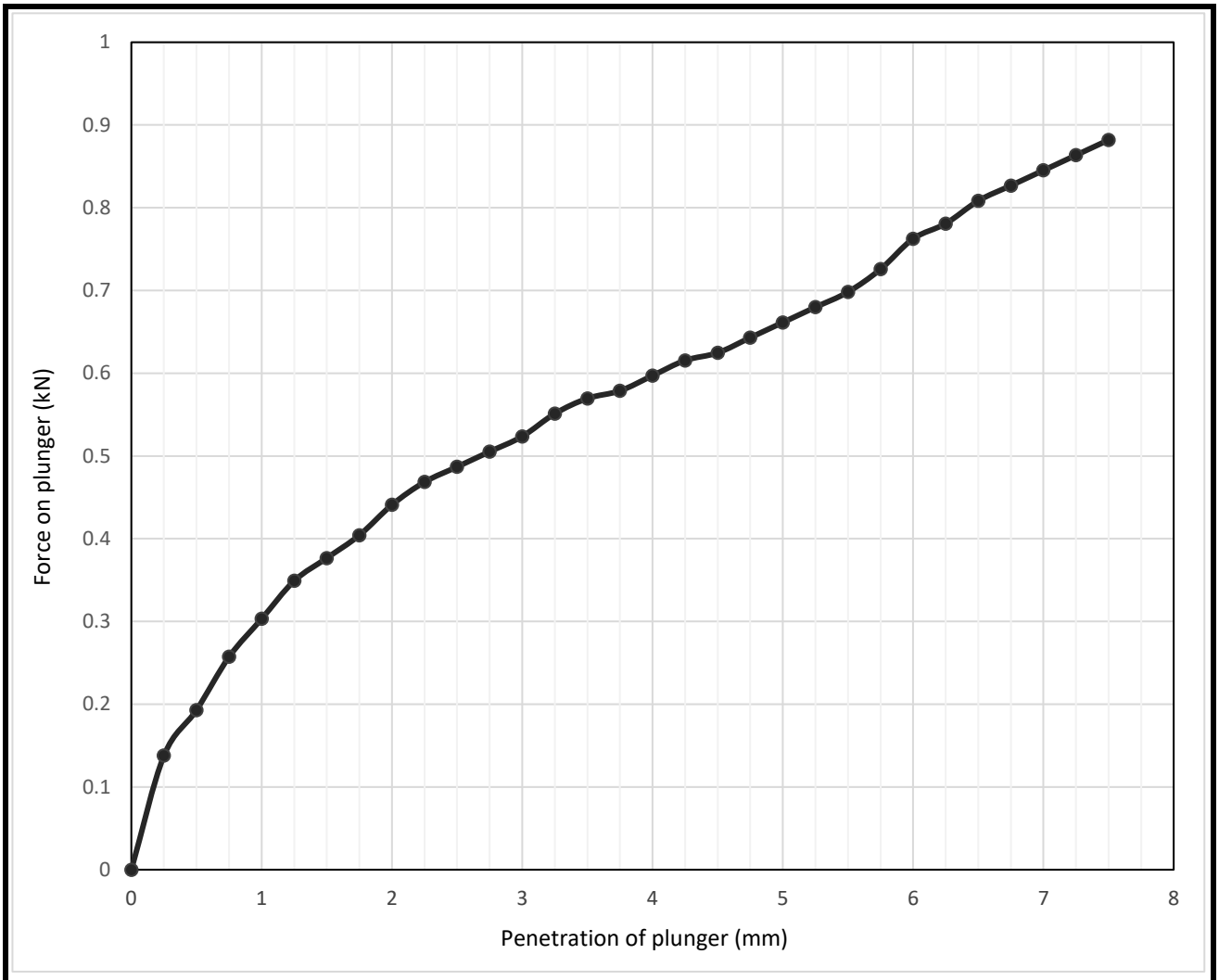
IN-SITU CALIFORNIA BEARING RATIO

BS1377 - 9 : 1990

CLIENT WSP UK LTD

SITE Barton Park

Location	CBR02
Test No.	1
Depth (m)	0.40m
Date	21/02/2024



Soil Description: Dark Brown Slightly Clayey Sandy GRAVEL

Moisture Content (%): 24%

Surcharge (kg): 10.0

Results

Plunger Penetration (mm)	Force on plunger (kN)	CBR Values (%)	CBR Test Value (%)
2.5	0.5	3.7	3.7
5.0	0.7	3.3	

REMARKS: The higher % value corresponding to 2.5 & 5.0mm penetration taken as CBR.

Particles >20mm present beneath test area.

CONTRACT

C8220

v01

CC GROUND INVESTIGATIONS LIMITED

IN-SITU CALIFORNIA BEARING RATIO

BS1377 - 9 : 1990

CLIENT: WSP UK LTD

SITE: Barton Park

Location : CBR02

Test No. 1

Depth (m): 0.60m

Date: 21/02/2024

Load Ring SN	15447	Soil Description	Dark Brown Slightly Clayey Sandy GRAVEL
Load Ring Factor	0.0091861		
Surcharge Mass (kg)	10.0	Rings Used	4, 2, 2, 1, 1
Test Rate	1mm/min	Particles >20mm present under test area?	☑
Groundwater? (m)	None	Tub/bulk sample taken	☑

Tested By SF

Test Data

Penetration (mm)	Gauge Reading (div)
0.00	0
0.25	22
0.50	40
0.75	48
1.00	57
1.25	64
1.50	73
1.75	87
2.00	96
2.25	105
2.50	116
2.75	119
3.00	130
3.25	138
3.50	147
3.75	152
4.00	159
4.25	166
4.50	171
4.75	180
5.00	184
5.25	185
5.50	192
5.75	199
6.00	208
6.25	214
6.50	218
6.75	224
7.00	230
7.25	236
7.50	241

REMARKS:

CONTRACT

C8220

CC GROUND INVESTIGATIONS LIMITED

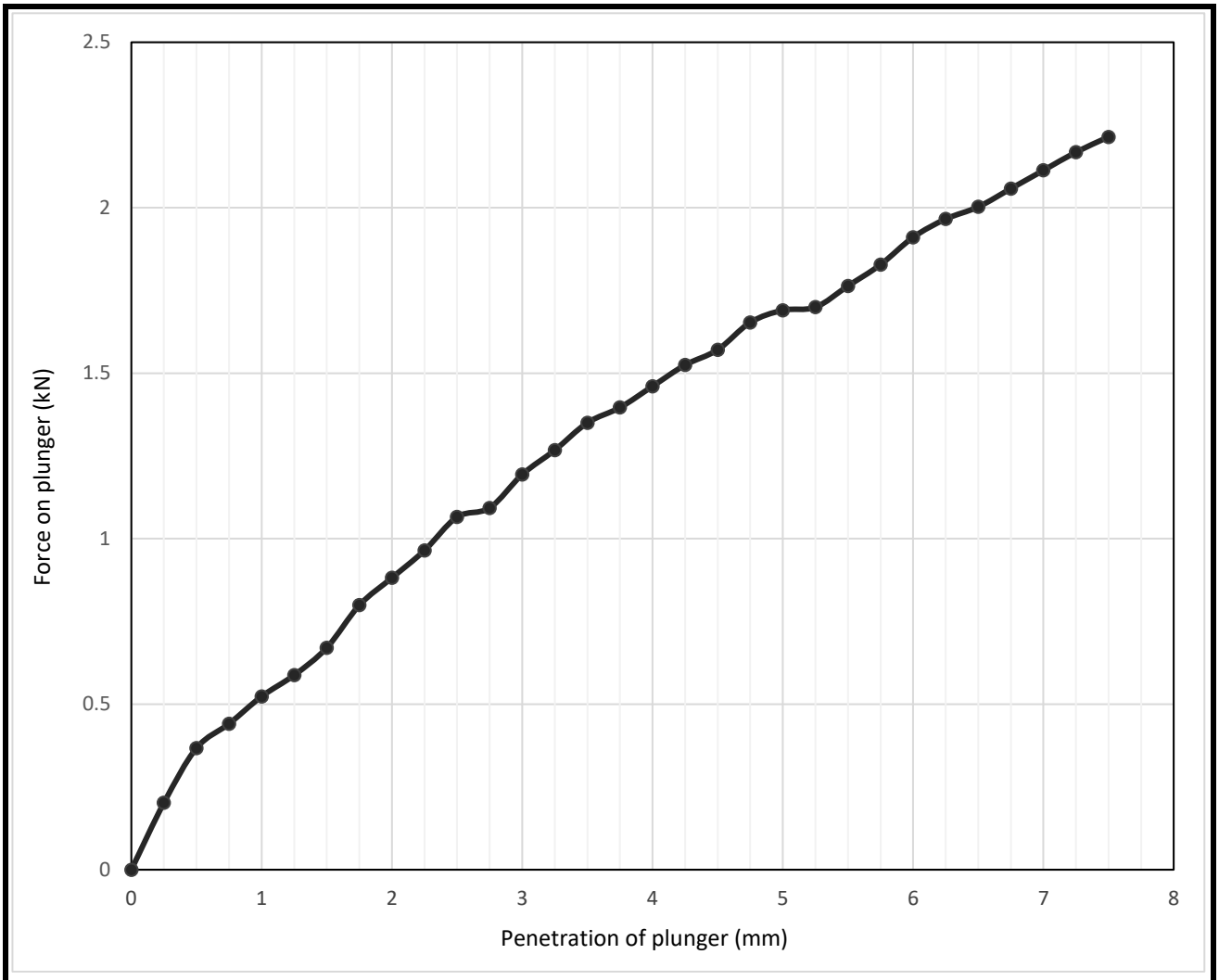
IN-SITU CALIFORNIA BEARING RATIO

BS1377 - 9 : 1990

CLIENT WSP UK LTD

SITE Barton Park

Location	CBR02
Test No.	1
Depth (m)	0.60m
Date	21/02/2024



Soil Description: Dark Brown Slightly Clayey Sandy GRAVEL

Moisture Content (%): 24%

Surcharge (kg): 10.0

Results

Plunger Penetration (mm)	Force on plunger (kN)	CBR Values (%)	CBR Test Value (%)
2.5	1.1	8.1	8.5
5.0	1.7	8.5	

REMARKS: The higher % value corresponding to 2.5 & 5.0mm penetration taken as CBR.

Particles >20mm present beneath test area.

CONTRACT

C8220

v01

CC GROUND INVESTIGATIONS LIMITED

IN-SITU CALIFORNIA BEARING RATIO

BS1377 - 9 : 1990

CLIENT: WSP UK LTD

SITE: Barton Park

Location : CBR03

Test No. 1

Depth (m): 0.40m

Date: 21/02/2024

Load Ring SN	15447	Soil Description	Greyish Brown Sandy GRAVEL		
Load Ring Factor	0.0091861				
Surcharge Mass (kg)	10.0	Rings Used	4, 2, 2, 1, 1		
Test Rate	1mm/min	Particles >20mm present under test area?	☑	Tested By	SF
Groundwater? (m) None		Tub/bulk sample taken	☑		

Test Data

Penetration (mm)	Gauge Reading (div)
0.00	0
0.25	26
0.50	37
0.75	45
1.00	53
1.25	58
1.50	59
1.75	66
2.00	71
2.25	75
2.50	81
2.75	85
3.00	90
3.25	91
3.50	93
3.75	95
4.00	101
4.25	104
4.50	105
4.75	108
5.00	111
5.25	114
5.50	115
5.75	116
6.00	117
6.25	118
6.50	119
6.75	120
7.00	124
7.25	126
7.50	130

REMARKS:

CONTRACT

C8220

CC GROUND INVESTIGATIONS LIMITED

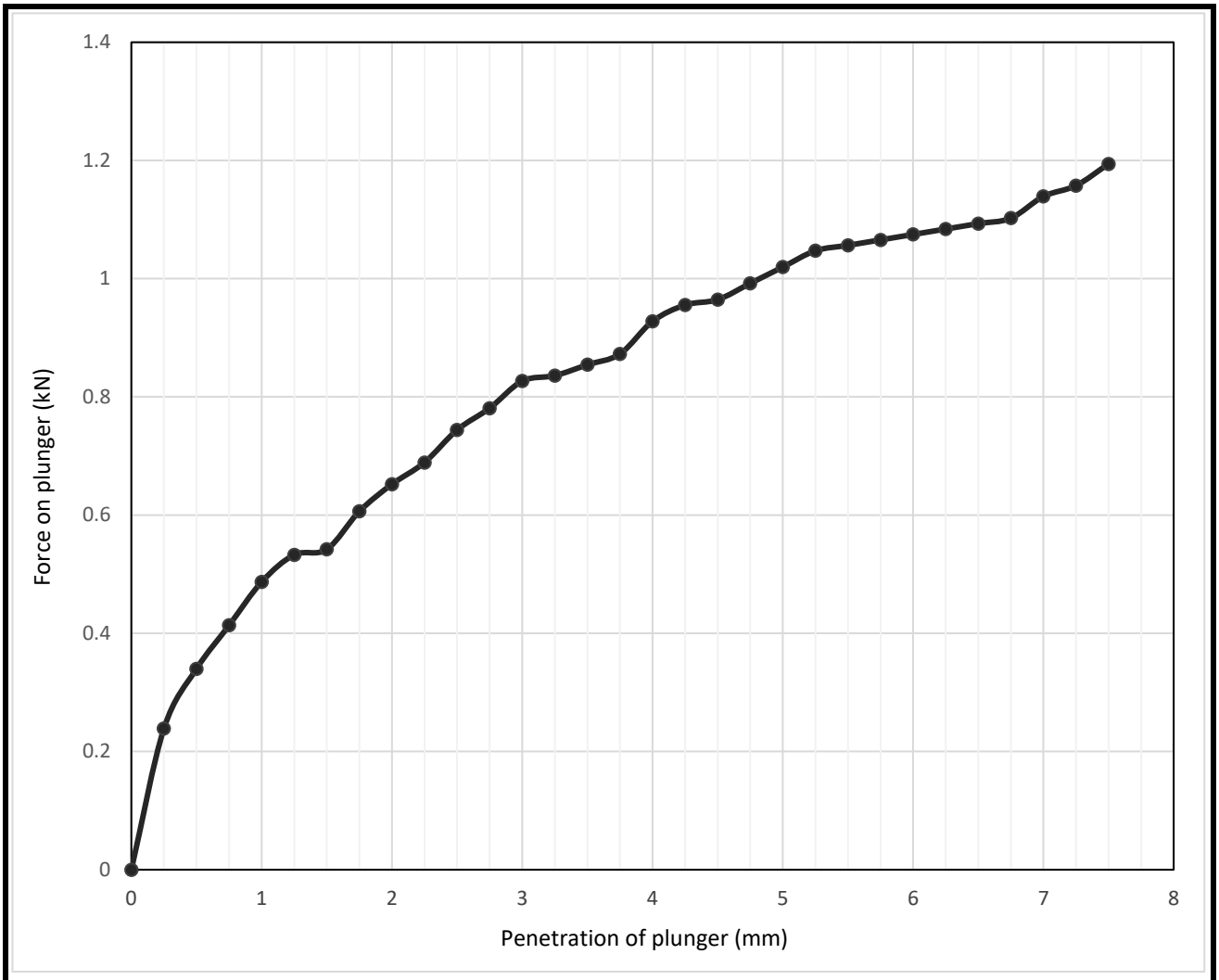
IN-SITU CALIFORNIA BEARING RATIO

BS1377 - 9 : 1990

CLIENT WSP UK LTD

SITE Barton Park

Location	CBR03
Test No.	1
Depth (m)	0.40m
Date	21/02/2024



Soil Description	Greyish Brown Sandy GRAVEL
Moisture Content (%)	11%
Surcharge (kg)	10.0

Results

Plunger Penetration (mm)	Force on plunger (kN)	CBR Values (%)	CBR Test Value (%)
2.5	0.7	5.6	5.6
5.0	1.0	5.1	

REMARKS: The higher % value corresponding to 2.5 & 5.0mm penetration taken as CBR.

Particles >20mm present beneath test area.

CONTRACT

C8220

CC GROUND INVESTIGATIONS LIMITED

IN-SITU CALIFORNIA BEARING RATIO

BS1377 - 9 : 1990

CLIENT: WSP UK LTD

SITE: Barton Park

Location : CBR03

Test No. 1

Depth (m): 0.60m

Date: 21/02/2024

Load Ring SN	15447	Soil Description	Light Brown Slightly Sandy Clayey GRAVEL
Load Ring Factor	0.0091861		
Surcharge Mass (kg)	10.0	Rings Used	4, 2, 2, 1, 1
Test Rate	1mm/min	Particles >20mm present under test area?	☑
Groundwater? (m)	None	Tub/bulk sample taken	☑

Tested By SF

Test Data

Penetration (mm)	Gauge Reading (div)
0.00	0
0.25	5
0.50	15
0.75	26
1.00	35
1.25	45
1.50	56
1.75	69
2.00	75
2.25	82
2.50	87
2.75	90
3.00	98
3.25	103
3.50	106
3.75	112
4.00	115
4.25	118
4.50	120
4.75	121
5.00	126
5.25	127
5.50	131
5.75	133
6.00	134
6.25	135
6.50	137
6.75	139
7.00	142
7.25	144
7.50	145

REMARKS:

CONTRACT

C8220

CC GROUND INVESTIGATIONS LIMITED

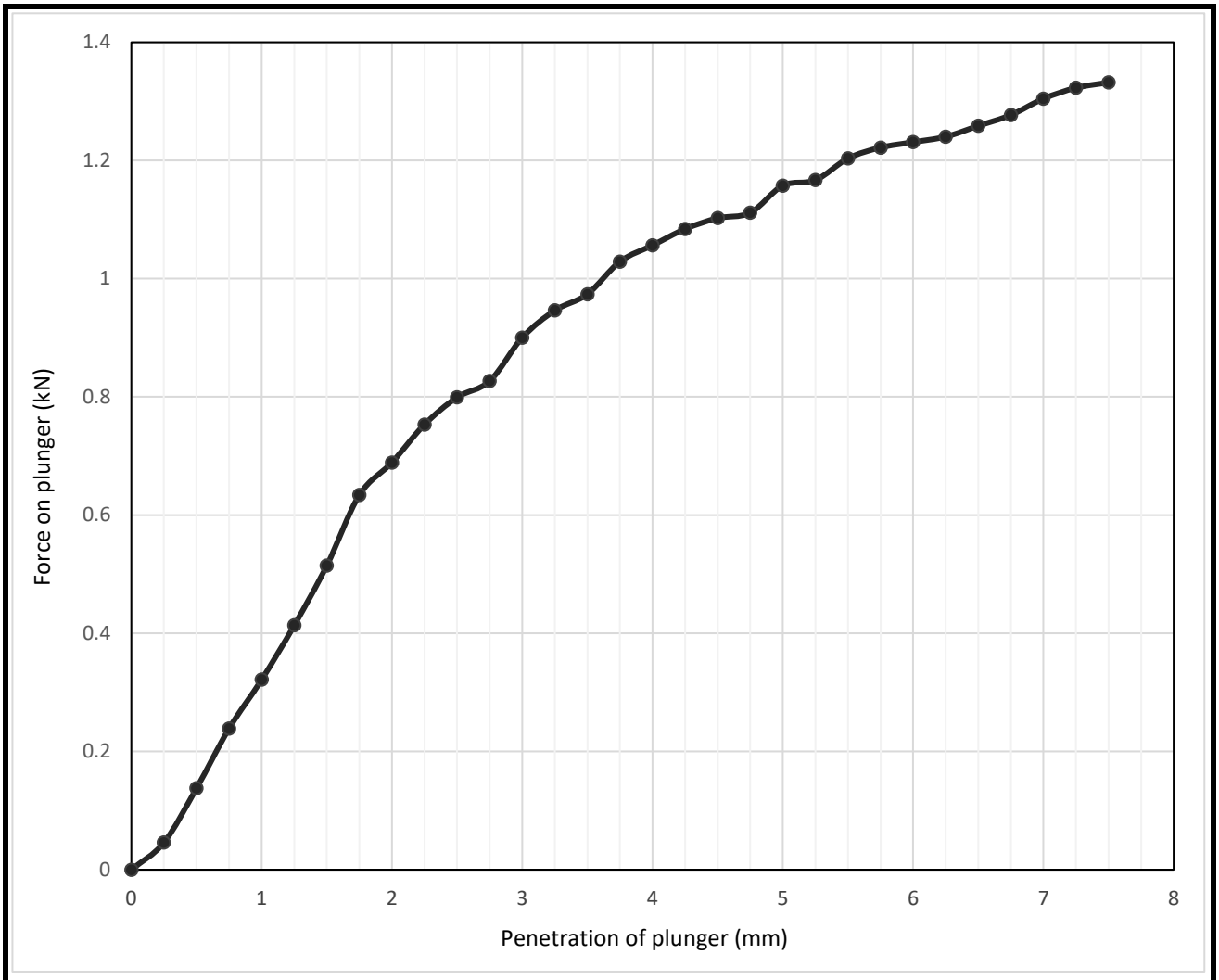
IN-SITU CALIFORNIA BEARING RATIO

BS1377 - 9 : 1990

CLIENT WSP UK LTD

SITE Barton Park

Location	CBR03
Test No.	1
Depth (m)	0.60m
Date	21/02/2024



Soil Description	Light Brown Slightly Sandy Clayey GRAVEL
Moisture Content (%)	17%
Surcharge (kg)	10.0

Results

Plunger Penetration (mm)	Force on plunger (kN)	CBR Values (%)	CBR Test Value (%)
2.5	0.8	6.1	6.1
5.0	1.2	5.8	

REMARKS: The higher % value corresponding to 2.5 & 5.0mm penetration taken as CBR.

Particles >20mm present beneath test area.

CONTRACT

C8220

CC GROUND INVESTIGATIONS LIMITED

IN-SITU CALIFORNIA BEARING RATIO

BS1377 - 9 : 1990

CLIENT: WSP UK LTD

SITE: Barton Park

Location : CBR04

Test No. 1

Depth (m): 0.35m

Date: 20/02/2024

Load Ring SN	15447	Soil Description	Black Gravelly CLINKER with Concrete Fragments
Load Ring Factor	0.0091861		
Surcharge Mass (kg)	10.0	Rings Used	4, 2, 2, 1, 1
Test Rate	1mm/min	Particles >20mm present under test area?	☑ Tested By SF
Groundwater? (m) None		Tub/bulk sample taken	☑

Test Data

Penetration (mm)	Gauge Reading (div)
0.00	0
0.25	54
0.50	102
0.75	146
1.00	185
1.25	230
1.50	272
1.75	319
2.00	364
2.25	402
2.50	451
2.75	496
3.00	540
3.25	573
3.50	611
3.75	646
4.00	678
4.25	708
4.50	740
4.75	758
5.00	780
5.25	0
5.50	0
5.75	0
6.00	0
6.25	0
6.50	0
6.75	0
7.00	0
7.25	0
7.50	0

REMARKS: Test Stopped. Vehicle lifted off stands.

CONTRACT

C8220

CC GROUND INVESTIGATIONS LIMITED

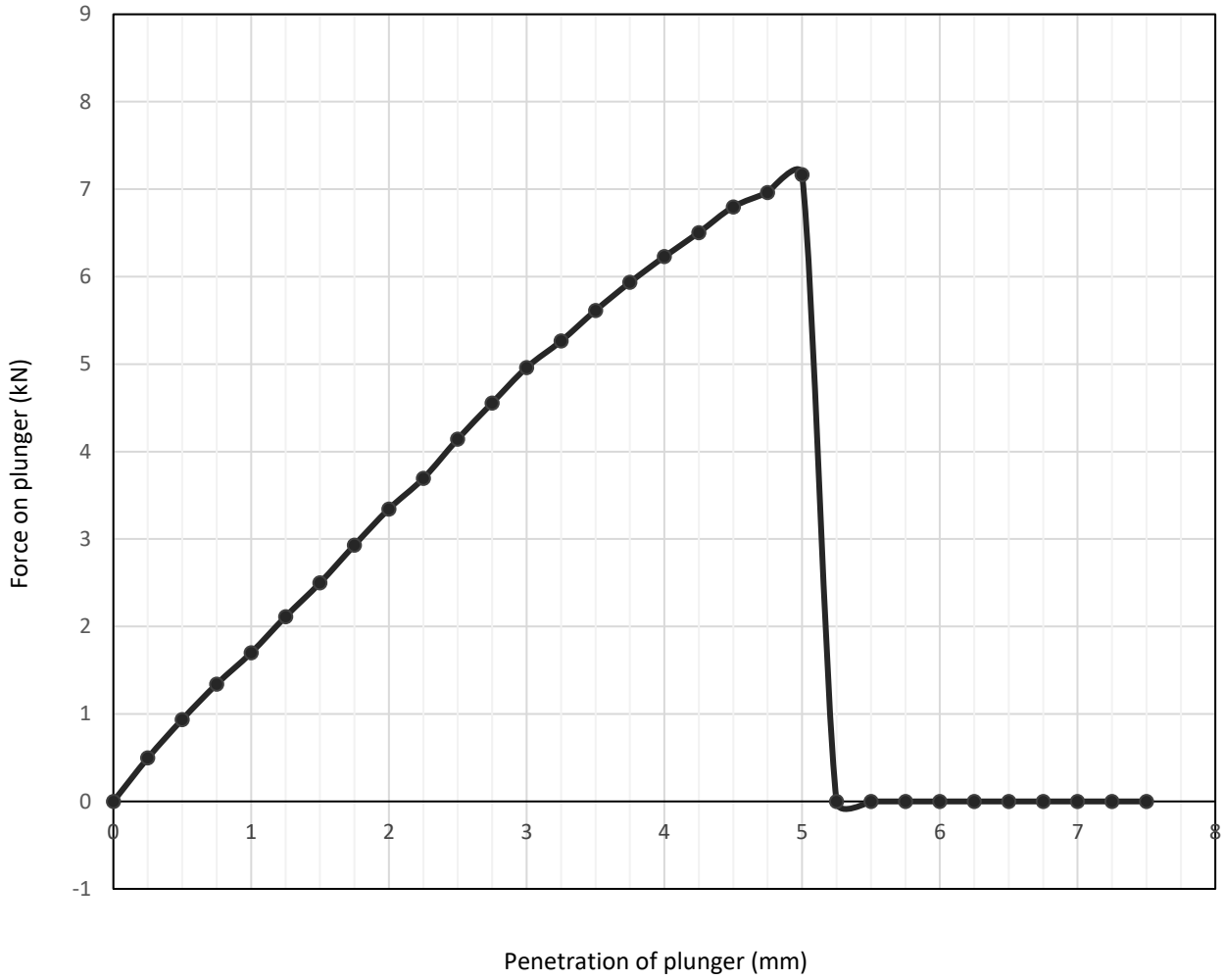
IN-SITU CALIFORNIA BEARING RATIO

BS1377 - 9 : 1990

CLIENT WSP UK LTD

SITE Barton Park

Location	CBR04
Test No.	1
Depth (m)	0.35m
Date	20/02/2024



Soil Description: Black Gravelly CLINKER with Concrete Fragments

Moisture Content (%): 13%

Surcharge (kg): 10.0

Results

Plunger Penetration (mm)	Force on plunger (kN)	CBR Values (%)	CBR Test Value (%)
2.5	4.1	31	36
5.0	7.2	36	

REMARKS: The higher % value corresponding to 2.5 & 5.0mm penetration taken as CBR.

Particles >20mm present beneath test area. Test Stopped. Vehicle lifted off stands.

CONTRACT

C8220

v01

CC GROUND INVESTIGATIONS LIMITED

IN-SITU CALIFORNIA BEARING RATIO

BS1377 - 9 : 1990

CLIENT: WSP UK LTD

SITE: Barton Park

Location : CBR04

Test No. 1

Depth (m): 0.60m

Date: 20/02/2024

Load Ring SN	15447	Soil Description	Black Gravelly CLINKER with Concrete Fragments		
Load Ring Factor	0.0091861				
Surcharge Mass (kg)	10.0	Rings Used	4, 2, 2, 1, 1		
Test Rate	1mm/min	Particles >20mm present under test area?	☑	Tested By	SF
Groundwater? (m) None		Tub/bulk sample taken	☑		

Test Data

Penetration (mm)	Gauge Reading (div)
0.00	0
0.25	25
0.50	41
0.75	53
1.00	70
1.25	85
1.50	100
1.75	119
2.00	134
2.25	149
2.50	166
2.75	183
3.00	196
3.25	213
3.50	222
3.75	237
4.00	252
4.25	264
4.50	277
4.75	294
5.00	306
5.25	320
5.50	334
5.75	336
6.00	342
6.25	354
6.50	356
6.75	357
7.00	366
7.25	367
7.50	368

REMARKS:

CONTRACT

C8220

CC GROUND INVESTIGATIONS LIMITED

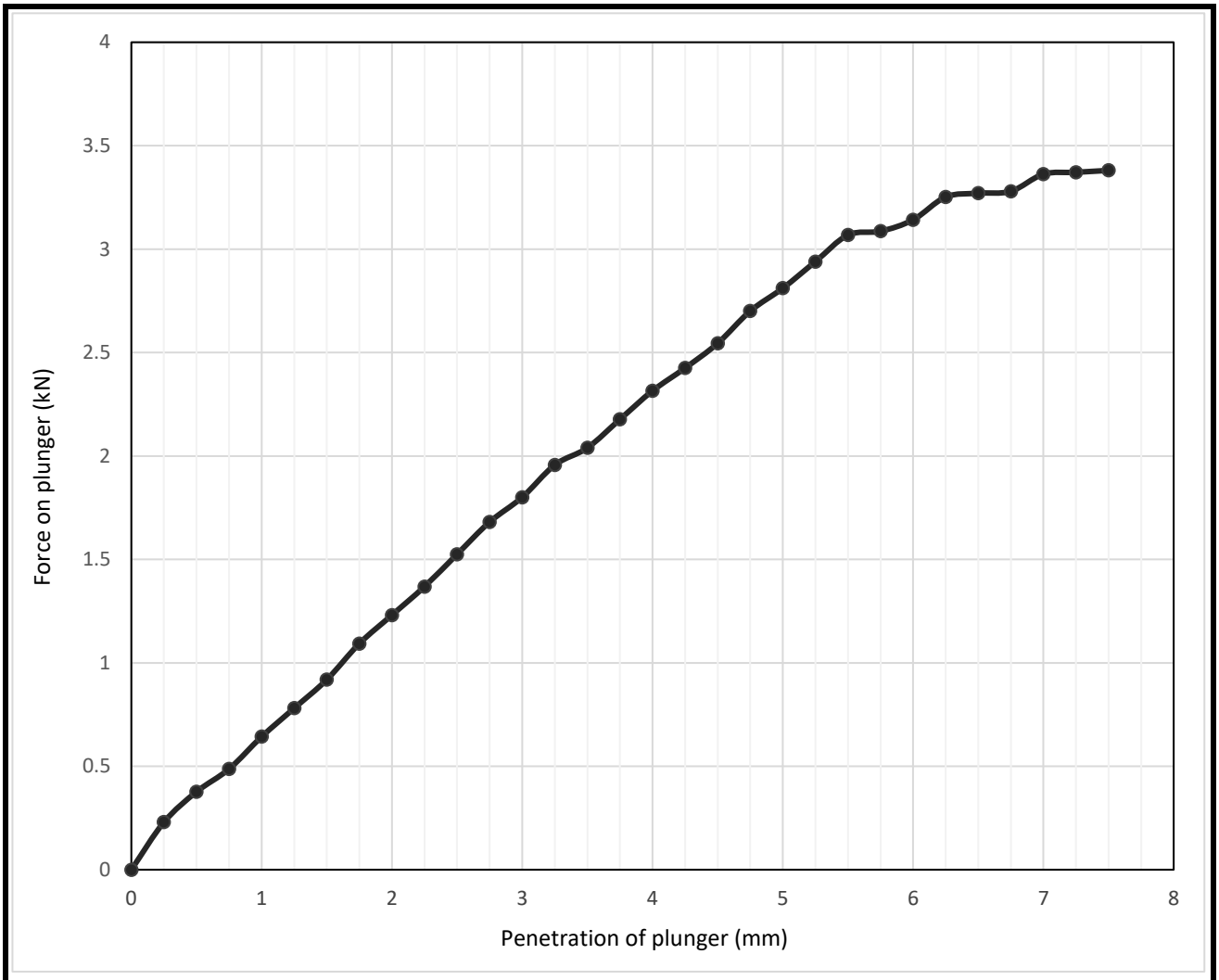
IN-SITU CALIFORNIA BEARING RATIO

BS1377 - 9 : 1990

CLIENT WSP UK LTD

SITE Barton Park

Location	CBR04
Test No.	1
Depth (m)	0.60m
Date	20/02/2024



Soil Description	Black Gravelly CLINKER with Concrete Fragments
Moisture Content (%)	3.9%
Surcharge (kg)	10.0

Results

Plunger Penetration (mm)	Force on plunger (kN)	CBR Values (%)	CBR Test Value (%)
2.5	1.5	12	14
5.0	2.8	14	

REMARKS: The higher % value corresponding to 2.5 & 5.0mm penetration taken as CBR.

Particles >20mm present beneath test area.

CONTRACT

C8220

v01

CC GROUND INVESTIGATIONS LIMITED

IN-SITU CALIFORNIA BEARING RATIO

BS1377 - 9 : 1990

CLIENT: WSP UK LTD

SITE: Barton Park

Location : CBR06A

Test No. 1

Depth (m): 0.40m

Date: 20/02/2024

Load Ring SN	15447	Soil Description	Black Gravelly CLINKER		
Load Ring Factor	0.0091861				
Surcharge Mass (kg)	10.0	Rings Used	4, 2, 2, 1, 1		
Test Rate	1mm/min	Particles >20mm present under test area?	☐	Tested By	SF
Groundwater? (m) None		Tub/bulk sample taken	☑		

Test Data

Penetration (mm)	Gauge Reading (div)
0.00	0
0.25	58
0.50	94
0.75	138
1.00	170
1.25	212
1.50	251
1.75	293
2.00	330
2.25	354
2.50	389
2.75	418
3.00	444
3.25	469
3.50	493
3.75	520
4.00	540
4.25	557
4.50	577
4.75	598
5.00	618
5.25	632
5.50	0
5.75	0
6.00	0
6.25	0
6.50	0
6.75	0
7.00	0
7.25	0
7.50	0

REMARKS: Test Stopped. Vehicle lifting off stands.

CONTRACT

C8220

CC GROUND INVESTIGATIONS LIMITED

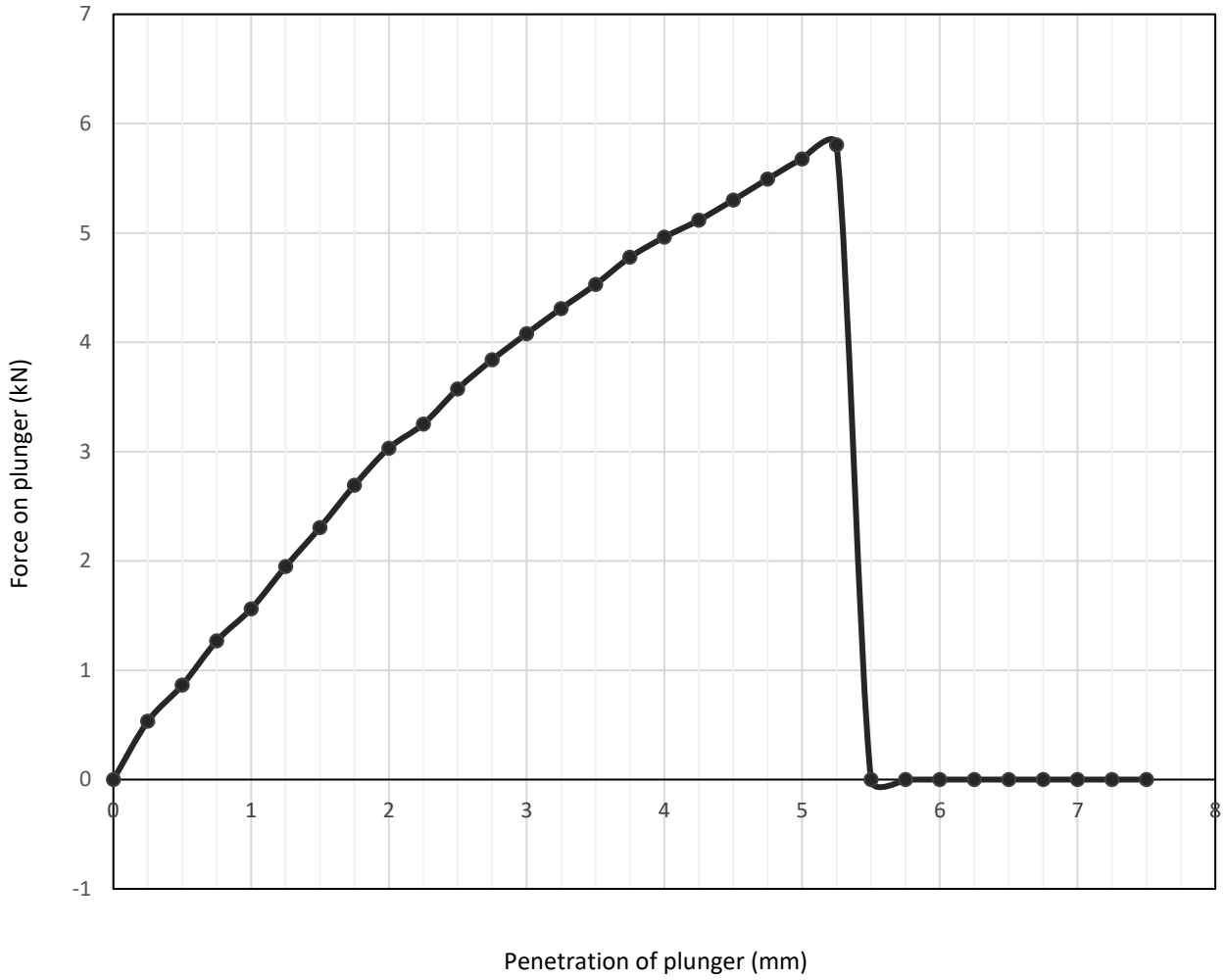
IN-SITU CALIFORNIA BEARING RATIO

BS1377 - 9 : 1990

CLIENT WSP UK LTD

SITE Barton Park

Location	CBR06A
Test No.	1
Depth (m)	0.40m
Date	20/02/2024



Soil Description	Black Gravelly CLINKER
Moisture Content (%)	15%
Surcharge (kg)	10.0

Results

Plunger Penetration (mm)	Force on plunger (kN)	CBR Values (%)	CBR Test Value (%)
2.5	3.6	27	28
5.0	5.7	28	

REMARKS: The higher % value corresponding to 2.5 & 5.0mm penetration taken as CBR.

Test Stopped. Vehicle lifting off stands.

CONTRACT

C8220

v01

CC GROUND INVESTIGATIONS LIMITED

IN-SITU CALIFORNIA BEARING RATIO

BS1377 - 9 : 1990

CLIENT: WSP UK LTD

SITE: Barton Park

Location : CBR06A

Test No. 1

Depth (m): 0.80m

Date: 20/02/2024

Load Ring SN	15447	Soil Description	Black Gravelly CLINKER		
Load Ring Factor	0.0091861				
Surcharge Mass (kg)	10.0	Rings Used	4, 2, 2, 1, 1		
Test Rate	1mm/min	Particles >20mm present under test area?	☐	Tested By	SF
Groundwater? (m) None		Tub/bulk sample taken	☑		

Test Data

Penetration (mm)	Gauge Reading (div)
0.00	0
0.25	22
0.50	30
0.75	39
1.00	47
1.25	54
1.50	61
1.75	69
2.00	77
2.25	83
2.50	89
2.75	90
3.00	99
3.25	104
3.50	110
3.75	113
4.00	116
4.25	126
4.50	131
4.75	135
5.00	139
5.25	144
5.50	146
5.75	150
6.00	152
6.25	157
6.50	161
6.75	164
7.00	167
7.25	169
7.50	174

REMARKS:

CONTRACT

C8220

CC GROUND INVESTIGATIONS LIMITED

IN-SITU CALIFORNIA BEARING RATIO

BS1377 - 9 : 1990

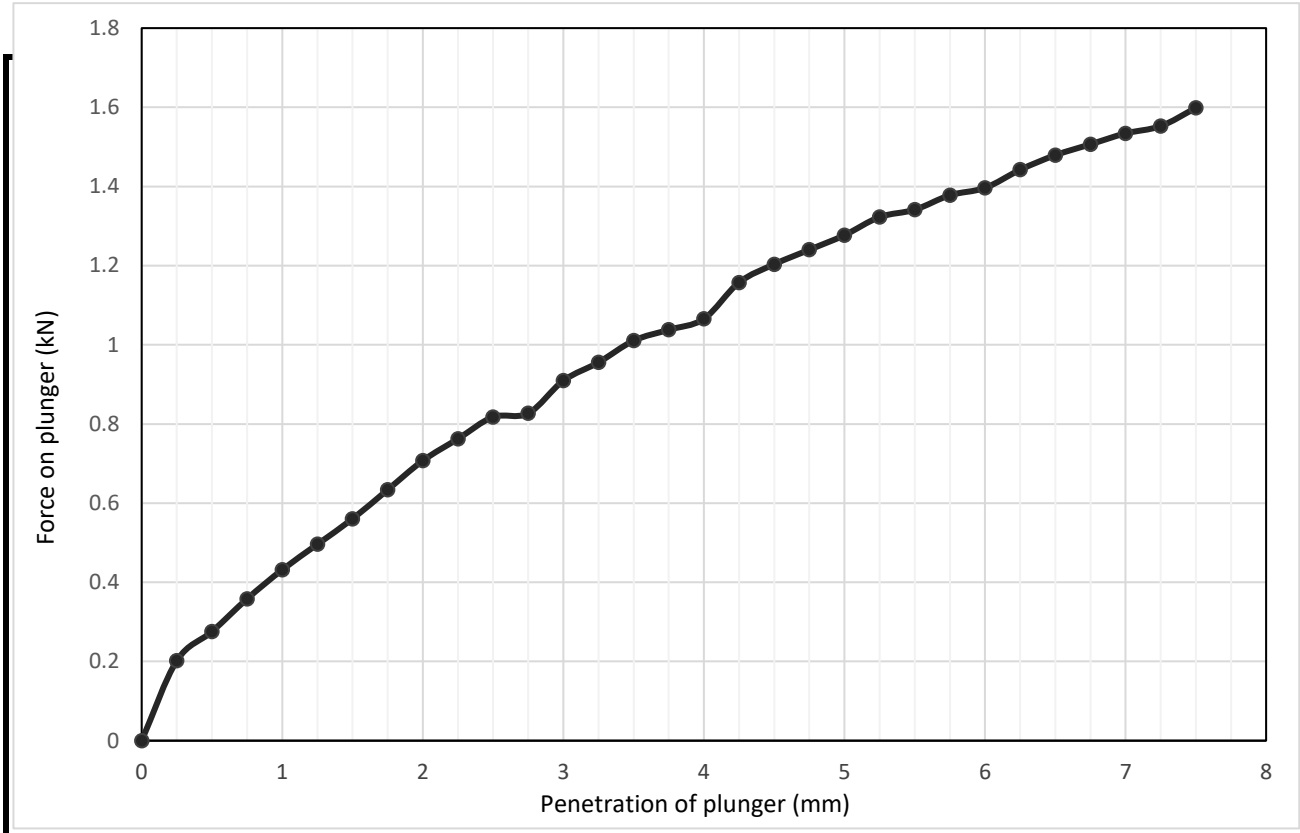
CLIENT WSP UK LTD

SITE Barton Park

Location CBR06A

Test No. 1

Depth (m) 0.80m



Soil Description Black Gravelly CLINKER

Moisture Content (%) 26%

Surcharge (kg) 10.0

Results

Plunger Penetration (mm)	Force on plunger (kN)	CBR Values (%)	CBR Test Value (%)
2.5	0.8	6.2	6.4
5.0	1.3	6.4	

REMARKS: The higher % value corresponding to 2.5 & 5.0mm penetration taken as CBR.

CONTRACT

C8220

v01

Appendix D.4

LABORATORY DATA - SOIL ANALYSIS

Confidential

Units 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528777
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

WSP UK Limited
8 First Street
Manchester
Lancashire
M15 4RP

Attention: Matthew Jones

CERTIFICATE OF ANALYSIS

Date of report Generation:	11 March 2024
Customer:	WSP UK Limited
Sample Delivery Group (SDG):	240228-29
Your Reference:	70119985
Location:	Unit 10, Barton Park
Report No:	722728
Order Number:	70119985-002

This report has been revised and directly supersedes 722617 in its entirety.

We received 18 samples on Saturday February 24, 2024 and 14 of these samples were scheduled for analysis which was completed on Monday March 11, 2024. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Sonia McWhan
Operations Manager

1291

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
29422370	HP01/2	ES	0.25 - 0.30	22/02/2024
29422416	HP01/2	ES	0.40 - 0.50	22/02/2024
29422421	WS02	ES	0.35 - 0.50	21/02/2024
29422427	WS02	ES	0.63 - 1.50	21/02/2024
29422433	WS02	ES	0.65 - 0.80	21/02/2024
29422438	WS03	ES	0.35 - 0.50	21/02/2024
29422443	WS03	ES	0.60 - 0.75	21/02/2024
29422448	WS04	ES	0.18 - 1.30	21/02/2024
29422454	WS04	ES	0.30 - 0.40	20/02/2024
29422376	WS04	ES	0.60 - 0.80	20/02/2024
29422381	WS04	ES	1.00 - 1.20	20/02/2024
29422386	WS04	ES	1.40 - 1.70	21/02/2024
29422391	WS05	ES	0.25 - 0.35	20/02/2024
29422367	WS07	A	4.60	
29422396	WS05A	ES	0.35 - 0.50	21/02/2024
29422401	WS05A	ES	1.20 - 1.30	21/02/2024
29422406	WS06A	ES	0.35 - 0.40	20/02/2024
29422411	WS06A	ES	3.00 - 3.30	20/02/2024

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG: 240228-29 **Report Number:** 722728 **Superseded Report:** 722617
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

Results Legend
X Test
N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water
Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)	29422416	29422421	29422427	29422438	29422443	29422448	29422454	29422381
			Customer Sample Reference	HP01/2	WS02	WS02	WS03	WS03	WS04	WS04	WS04
			AGS Reference	ES	ES	ES	ES	ES	ES	ES	ES
			Depth (m)	0.40 - 0.50	0.35 - 0.50	0.63 - 1.50	0.35 - 0.50	0.60 - 0.75	0.18 - 1.30	0.30 - 0.40	1.00 - 1.20
			Container	1kg TUB with Handle (ALE210)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE210)	250g Amber Jar (ALE215)	60g VOC (ALE215)	1kg TUB with Handle (ALE210)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE210)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE210)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE210)	250g Amber Jar (ALE210)	60g VOC (ALE215)
			Sample Type	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
ANC at pH4 and ANC at pH 6	All	NDPs: 0 Tests: 2									X					X						
Anions by Kone (soil)	All	NDPs: 0 Tests: 10		X		X						X						X			X	
Anions by Kone (w)	All	NDPs: 0 Tests: 2					X							X								
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 9	X			X			X				X			X			X			
Asbestos Quantification - Full	All	NDPs: 0 Tests: 3															X					
Boron Water Soluble	All	NDPs: 0 Tests: 10		X		X						X						X			X	
CEN Readings	All	NDPs: 0 Tests: 7					X							X			X			X		
Coronene	All	NDPs: 0 Tests: 2						X							X							
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 2					X							X								
Dissolved Organic/Inorganic Carbon	All	NDPs: 0 Tests: 2					X							X								
EPH and CWG (Filtered) by FID	All	NDPs: 0 Tests: 5															X			X		
EPH by GCxGC-FID	All	NDPs: 0 Tests: 2						X							X							
EPH CWG GC (S)	All	NDPs: 0 Tests: 10		X		X						X						X			X	
Fluoride	All	NDPs: 0 Tests: 2					X							X								
GRO by GC-FID (S)	All	NDPs: 0 Tests: 10			X			X					X						X			X	

29422411	WS06A	ES	3.00 - 3.30	60g VOC (ALE215)	S																	X
				250g Amber Jar (ALE210)	S		X				X								X			
29422406	WS06A	ES	0.35 - 0.40	60g VOC (ALE215)	S																	X
				250g Amber Jar (ALE210)	S		X				X								X			
				1kg TUB with Handle (ALE260)	S				X													
29422401	WS05A	ES	1.20 - 1.30	60g VOC (ALE215)	S																	X
				250g Amber Jar (ALE210)	S		X				X								X			
				1kg TUB with Handle (ALE260)	S							X				X						
29422396	WS05A	ES	0.35 - 0.50	60g VOC (ALE215)	S																	X
				250g Amber Jar (ALE210)	S		X				X								X			
				1kg TUB with Handle (ALE260)	S				X	X		X				X						
29422391	WS05	ES	0.25 - 0.35	1kg TUB with Handle (ALE260)	S				X	X												
29422386	WS04	ES	1.40 - 1.70	60g VOC (ALE215)	S																	X
				250g Amber Jar (ALE210)	S		X				X								X			
				1kg TUB with Handle (ALE260)	S							X				X						

CERTIFICATE OF ANALYSIS

SDG: 240228-29 **Report Number:** 722728 **Superseded Report:** 722617
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

Results Legend
X Test
N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water
Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)	29422416	29422421	29422427	29422438	29422443	29422448	29422454	29422381
			Customer Sample Reference	HP01/2	WS02	WS02	WS03	WS03	WS04	WS04	WS04
			AGS Reference	ES	ES	ES	ES	ES	ES	ES	ES
			Depth (m)	0.40 - 0.50	0.35 - 0.50	0.63 - 1.50	0.35 - 0.50	0.60 - 0.75	0.18 - 1.30	0.30 - 0.40	1.00 - 1.20
			Container	1kg TUB with Handle (ALE230)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE230)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE230)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE230)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE230)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE230)	250g Amber Jar (ALE210)	60g VOC (ALE215)
			Sample Type	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
GRO by GC-FID (W)	All	NDPs: 0 Tests: 5														X			X			
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 10		X		X					X						X			X		
Loss on Ignition in soils	All	NDPs: 0 Tests: 2					X						X									
Mercury Dissolved	All	NDPs: 0 Tests: 2				X							X									
Metals in solid samples by OES	All	NDPs: 0 Tests: 10		X		X					X						X			X		
PAH 16 & 17 Calc	All	NDPs: 0 Tests: 2					X						X									
PAH by GCMS	All	NDPs: 0 Tests: 12		X		X		X			X		X				X			X		
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 5														X			X			
PCBs by GCMS	All	NDPs: 0 Tests: 2					X						X									
pH	All	NDPs: 0 Tests: 12		X		X		X			X		X				X			X		
pH Value of Filtered Water	All	NDPs: 0 Tests: 7				X							X			X			X			
Phenols by HPLC (S)	All	NDPs: 0 Tests: 6																				
Phenols by HPLC (W)	All	NDPs: 0 Tests: 2				X							X									
Sample description	All	NDPs: 0 Tests: 12		X		X		X			X		X				X			X		
Semi Volatile Organic Compounds	All	NDPs: 0 Tests: 3																				

29422411	WS06A	ES	3.00 - 3.30	60g VOC (ALE215)	S																	
				250g Amber Jar (ALE210)	S		X			X		X			X		X		X		
29422406	WS06A	ES	0.35 - 0.40	60g VOC (ALE215)	S																	
				250g Amber Jar (ALE210)	S		X			X		X			X		X		X		
				1kg TUB with Handle (ALE260)	S																	
29422401	WS05A	ES	1.20 - 1.30	60g VOC (ALE215)	S																	
				250g Amber Jar (ALE210)	S		X			X		X			X		X		X		
				1kg TUB with Handle (ALE260)	S	X							X			X					
29422396	WS05A	ES	0.35 - 0.50	60g VOC (ALE215)	S																	
				250g Amber Jar (ALE210)	S		X			X		X			X		X		X		X
				1kg TUB with Handle (ALE260)	S	X							X			X					
29422391	WS05	ES	0.25 - 0.35	1kg TUB with Handle (ALE260)	S																	
29422386	WS04	ES	1.40 - 1.70	60g VOC (ALE215)	S																	
				250g Amber Jar (ALE210)	S		X			X		X			X		X		X		X
				1kg TUB with Handle (ALE260)	S	X							X			X					

CERTIFICATE OF ANALYSIS

SDG: 240228-29 **Report Number:** 722728 **Superseded Report:** 722617
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water
Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)	29422416	29422421	29422427	29422438	29422443	29422448	29422454	29422381
			Customer Sample Reference	HP01/2	WS02	WS02	WS03	WS03	WS04	WS04	WS04
			AGS Reference	ES	ES	ES	ES	ES	ES	ES	ES
			Depth (m)	0.40 - 0.50	0.35 - 0.50	0.63 - 1.50	0.35 - 0.50	0.60 - 0.75	0.18 - 1.30	0.30 - 0.40	1.00 - 1.20
			Container	1kg TUB with Handle (ALE230)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE230)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE230)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE230)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE230)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE230)	250g Amber Jar (ALE210)	60g VOC (ALE215)
			Sample Type	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 3																		X		
Total Organic Carbon	All	NDPs: 0 Tests: 7				X						X									X	
TPH CWG Filtered (W)	All	NDPs: 0 Tests: 5														X				X		
TPH CWG GC (S)	All	NDPs: 0 Tests: 10		X			X					X					X				X	
VOC MS (S)	All	NDPs: 0 Tests: 12			X			X			X			X			X			X		X
VOC MS (W)	All	NDPs: 0 Tests: 5														X				X		

29422411	WS06A	ES	3.00 - 3.30	60g VOC (ALE215)	S										X		
				250g Amber Jar (ALE210)	S				X				X				
29422406	WS06A	ES	0.35 - 0.40	60g VOC (ALE215)	S										X		
				250g Amber Jar (ALE210)	S								X				
				1kg TUB with Handle (ALE260)	S												
29422401	WS05A	ES	1.20 - 1.30	60g VOC (ALE215)	S										X		
				250g Amber Jar (ALE210)	S				X				X				
				1kg TUB with Handle (ALE260)	S						X						X
29422396	WS05A	ES	0.35 - 0.50	60g VOC (ALE215)	S										X		
				250g Amber Jar (ALE210)	S				X				X				
				1kg TUB with Handle (ALE260)	S		X				X						X
29422391	WS05	ES	0.25 - 0.35	1kg TUB with Handle (ALE260)	S												
29422386	WS04	ES	1.40 - 1.70	60g VOC (ALE215)	S										X		
				250g Amber Jar (ALE210)	S				X				X				
				1kg TUB with Handle (ALE260)	S		X				X						X

CERTIFICATE OF ANALYSIS

SDG: 240228-29 **Report Number:** 722728 **Superseded Report:** 722617
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
29422416	HP01/2	0.40 - 0.50	Light Brown	Silty Clay Loam	Stones	None
29422421	WS02	0.35 - 0.50	Dark Brown	Sandy Clay Loam	Stones	N/A
29422427	WS02	0.63 - 1.50	Dark Brown	Sandy Clay	Stones	N/A
29422443	WS03	0.60 - 0.75	Cream	Chalk	N/A	None
29422381	WS04	1.00 - 1.20	Dark Brown	Silty Clay Loam	Stones	None
29422386	WS04	1.40 - 1.70	Dark Brown	Silty Clay	None	None
29422448	WS04	0.18 - 1.30	Dark Brown	Sandy Clay Loam	Stones	None
29422454	WS04	0.30 - 0.40	Black	Sand	Stones	N/A
29422396	WS05A	0.35 - 0.50	Dark Brown	Sand	Stones	None
29422401	WS05A	1.20 - 1.30	Dark Brown	Silty Clay Loam	Stones	None
29422406	WS06A	0.35 - 0.40	Black	Sand	Stones	N/A
29422411	WS06A	3.00 - 3.30	Dark Brown	Silty Clay	None	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	HP01/2	WS02	WS02	WS03	WS04	WS04
			Depth (m)	0.40 - 0.50	0.35 - 0.50	0.63 - 1.50	0.60 - 0.75	0.18 - 1.30	0.30 - 0.40
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	22/02/2024	21/02/2024	21/02/2024	21/02/2024	21/02/2024	20/02/2024
			Sampled Time	.	.	.	.	.	.
			Date Received	24/02/2024	24/02/2024	24/02/2024	24/02/2024	24/02/2024	24/02/2024
			SDG Ref	240228-29	240228-29	240228-29	240228-29	240228-29	240228-29
			Lab Sample No.(s)	29422416	29422421	29422427	29422443	29422448	29422454
			AGS Reference	ES	ES	ES	ES	ES	ES
Moisture Content Ratio (% of as received sample)	%	PM024		18	23	23	23	27	15
Loss on ignition	<0.7 % TM018					4.85 M		10 M	
Organic Carbon, Total	<0.2 % TM132					1.65 M		9.55 M	
Soil Organic Matter (SOM)	<0.35 % TM132					2.84 #			
pH	1 pH Units TM133			8.59 M	9.09 M	8.85 M	9.87 #	8.76 M	8.75 M
Chromium, Hexavalent	<0.6 mg/kg TM151			<0.6 M	0.983 M		<0.6 #		<0.6 M
PCB congener 28	<0.003 mg/kg TM168					<0.003 M		<0.003 M	
PCB congener 52	<0.003 mg/kg TM168					<0.003 M		<0.003 M	
PCB congener 101	<0.003 mg/kg TM168					<0.003 M		<0.003 M	
PCB congener 118	<0.003 mg/kg TM168					<0.003 M		<0.003 M	
PCB congener 138	<0.003 mg/kg TM168					<0.003 M		<0.003 M	
PCB congener 153	<0.003 mg/kg TM168					<0.003 M		<0.003 M	
PCB congener 180	<0.003 mg/kg TM168					<0.003 M		<0.003 M	
Sum of detected PCB 7 Congeners	<0.021 mg/kg TM168					<0.021		<0.021	
Arsenic	<0.6 mg/kg TM181			5.37 M	11.5 M		1.92 #		33.9 M
Barium	<0.6 mg/kg TM181			83.9 #	577 #		15 #		686 #
Beryllium	<0.01 mg/kg TM181			0.782 M	0.822 M		0.13 #		1.21 M
Cadmium	<0.02 mg/kg TM181			0.386 M	1.5 M		0.389 #		1.15 M
Chromium	<0.9 mg/kg TM181			18.9 M	8.85 M		<0.9 #		<0.9 M
Copper	<1.4 mg/kg TM181			16.4 M	215 M		5.5 #		220 M
Lead	<0.7 mg/kg TM181			41.6 M	1650 M		8.33 #		1490 M
Mercury	<0.1 mg/kg TM181			<0.1 M	1.59 M		37.5 #		0.579 M
Nickel	<0.2 mg/kg TM181			21.1 M	22.1 M		6.27 #		45 M
Selenium	<1 mg/kg TM181			<1 #	<1 #		1.06 #		<1 #
Vanadium	<0.2 mg/kg TM181			35.8 #	28.4 #		4.81 #		32.1 #
Zinc	<1.9 mg/kg TM181			82.1 M	849 M		32.1 #		370 M
ANC @ pH 4	<0.03 mol/kg TM182					1.29		0.0855	
ANC @ pH 6	<0.03 mol/kg TM182					0.0605		0.0311	
Boron, water soluble	<1 mg/kg TM222			<1 M	<1 M		<1 #		<1 M
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l TM243			0.0171 M	0.0202 M		0.0109 #		0.0529 M
Asbestos Quantification - Gravimetric - %	<0.001 % TM304								0.0101 #
Asbestos Quantification - PCOM Evaluation - %	<0.001 % TM304								<0.001 #

CERTIFICATE OF ANALYSIS

SDG: 240228-29 **Report Number:** 722728 **Superseded Report:** 722617
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

Results Legend		Customer Sample Ref.	HP01/2	WS02	WS02	WS03	WS04	WS04
#	ISO17025 accredited.	Depth (m)	0.40 - 0.50	0.35 - 0.50	0.63 - 1.50	0.60 - 0.75	0.18 - 1.30	0.30 - 0.40
M	mCERTS accredited.	Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
aq	Aqueous / settled sample.	Date Sampled	22/02/2024	21/02/2024	21/02/2024	21/02/2024	21/02/2024	20/02/2024
diss.filt	Dissolved / filtered sample.	Sampled Time	.	.	.	.	.	.
tot.unfilt	Total / unfiltered sample.	Date Received	24/02/2024	24/02/2024	24/02/2024	24/02/2024	24/02/2024	24/02/2024
*	Subcontracted - refer to subcontractor report for accreditation status.	SDG Ref	240228-29	240228-29	240228-29	240228-29	240228-29	240228-29
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery	Lab Sample No.(s)	29422416	29422421	29422427	29422443	29422448	29422454
(F)	Trigger breach confirmed	AGS Reference	ES	ES	ES	ES	ES	ES
1-4+§@	Sample deviation (see appendix)							

Component	LOD/Units	Method						
Additional Asbestos Components (Using TM048)		TM304						None #
Analysts Comments		TM304						0
Asbestos Quantification - Total - %	<0.001 %	TM304						0.0101 #
PAH Total 17 (inc Coronene) Moisture Corrected	<10 mg/kg	TM410			191		<10	
Coronene	<0.2 mg/kg	TM410			<0.2		<0.2	
EPH Surrogate % recovery**	%	TM415			96.3		87.5	
Mineral Oil >C10-C40 (EH_2D_AL)	<5 mg/kg	TM415			<5		<5	

CERTIFICATE OF ANALYSIS

SDG: 240228-29 **Report Number:** 722728 **Superseded Report:** 722617
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

Results Legend
ISO17025 accredited.
M mCERTS accredited.
aq Aqueous / settled sample.
diss.filt Dissolved / filtered sample.
tot.unfilt Total / unfiltered sample.
* Subcontracted - refer to subcontractor report for accreditation status.
** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F) Trigger breach confirmed
1-4+§@ Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	WS04	WS04	WS05	WS05A	WS05A	WS06A
			Depth (m)	1.00 - 1.20	1.40 - 1.70	0.25 - 0.35	0.35 - 0.50	1.20 - 1.30	0.35 - 0.40
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	20/02/2024	21/02/2024	20/02/2024	21/02/2024	21/02/2024	20/02/2024
			Sampled Time	.	.	.	.	.	.
			Date Received	24/02/2024	24/02/2024	24/02/2024	24/02/2024	24/02/2024	24/02/2024
			SDG Ref	240228-29	240228-29	240228-29	240228-29	240228-29	240228-29
			Lab Sample No.(s)	29422381	29422386	29422391	29422396	29422401	29422406
			AGS Reference	ES	ES	ES	ES	ES	ES
Moisture Content Ratio (% of as received sample)	%	PM024		17	22		15	21	19
Phenol	mg/kg	TM062 (S)		<0.01 M	<0.01 M		<0.01 M	<0.01 M	<0.01 M
Cresols	mg/kg	TM062 (S)		<0.01 M	<0.01 M		<0.01 M	<0.01 M	<0.01 M
Xylenols	mg/kg	TM062 (S)		<0.015 M	<0.015 M		<0.015 M	<0.015 M	<0.015 M
Phenols, Total Detected monohydric	mg/kg	TM062 (S)		<0.035 M	<0.035 M		<0.035 M	<0.035 M	<0.035 M
Soil Organic Matter (SOM)	%	TM132		1.98 #	1.46 #		35 #	3.22 #	
pH	pH Units	TM133		8.13 M	8.19 M		8.41 M	7.87 M	8.21 M
Chromium, Hexavalent	mg/kg	TM151		<0.6 M	<0.6 M		<0.6 M	<0.6 M	<0.6 M
Arsenic	mg/kg	TM181		9.33 M	9.18 M		48.2 M	8.93 M	27.3 M
Barium	mg/kg	TM181		85.2 #	82.4 #		262 #	215 #	342 #
Beryllium	mg/kg	TM181		0.808 M	0.833 M		0.79 M	0.738 M	2.02 M
Cadmium	mg/kg	TM181		0.779 M	0.567 M		2.05 M	0.749 M	0.723 M
Chromium	mg/kg	TM181		21 M	21.1 M		<9 M	18.2 M	<0.9 M
Copper	mg/kg	TM181		17.4 M	13.8 M		145 M	25.8 M	129 M
Lead	mg/kg	TM181		19 M	17.5 M		580 M	46.1 M	859 M
Mercury	mg/kg	TM181		<0.1 M	<0.1 M		<1 M	<0.1 M	0.544 M
Nickel	mg/kg	TM181		27.1 M	25.7 M		57 M	26.1 M	62.8 M
Selenium	mg/kg	TM181		<1 #	<1 #		<10 #	1.23 #	<1 #
Vanadium	mg/kg	TM181		39.6 #	40.7 #		33.3 #	33.7 #	42.5 #
Zinc	mg/kg	TM181		64.6 M	56.8 M		91.9 M	68.8 M	124 M
Boron, water soluble	mg/kg	TM222		<1 M	<1 M		1.48 M	1.19 M	1.44 M
Water Soluble Sulphate as SO4 2:1 Extract	g/l	TM243		0.0296 M	<0.004 M		0.101 M	0.0598 M	0.117 M
Asbestos Quantification - Gravimetric - %	%	TM304				1.13 #	<0.001 #		
Asbestos Quantification - PCOM Evaluation - %	%	TM304				<0.001 #	<0.001 #		
Additional Asbestos Components (Using TM048)		TM304				None #	None #		
Analysts Comments		TM304				0	N/A		
Asbestos Quantification - Total - %	%	TM304				1.13 #	<0.001 #		

CERTIFICATE OF ANALYSIS

SDG: 240228-29 **Report Number:** 722728 **Superseded Report:** 722617
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref. WS06A Depth (m) 3.00 - 3.30 Sample Type Soil/Solid (S) Date Sampled 20/02/2024 Sampled Time - Date Received 24/02/2024 SDG Ref 240228-29 Lab Sample No.(s) 29422411 AGS Reference ES
Moisture Content Ratio (% of as received sample)	%	PM024	19
Phenol	<0.01 mg/kg	TM062 (S)	<0.01 M
Cresols	<0.01 mg/kg	TM062 (S)	<0.01 M
Xylenols	<0.015 mg/kg	TM062 (S)	<0.015 M
Phenols, Total Detected monohydric	<0.035 mg/kg	TM062 (S)	<0.035 M
Soil Organic Matter (SOM)	<0.35 %	TM132	<0.35 #
pH	1 pH Units	TM133	8.25 M
Chromium, Hexavalent	<0.6 mg/kg	TM151	<0.6 M
Arsenic	<0.6 mg/kg	TM181	1.7 M
Barium	<0.6 mg/kg	TM181	35.6 #
Beryllium	<0.01 mg/kg	TM181	0.745 M
Cadmium	<0.02 mg/kg	TM181	0.302 M
Chromium	<0.9 mg/kg	TM181	25.9 M
Copper	<1.4 mg/kg	TM181	11 M
Lead	<0.7 mg/kg	TM181	10.7 M
Mercury	<0.1 mg/kg	TM181	<0.1 M
Nickel	<0.2 mg/kg	TM181	15.9 M
Selenium	<1 mg/kg	TM181	<1 #
Vanadium	<0.2 mg/kg	TM181	41.7 #
Zinc	<1.9 mg/kg	TM181	50.8 M
Boron, water soluble	<1 mg/kg	TM222	1.38 M
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243	0.0573 M

CERTIFICATE OF ANALYSIS

SDG: 240228-29 **Report Number:** 722728 **Superseded Report:** 722617
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	HP01/2	WS02	WS03	WS04	WS04	WS04
			Depth (m)	0.40 - 0.50	0.35 - 0.50	0.60 - 0.75	0.30 - 0.40	1.00 - 1.20	1.40 - 1.70
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	22/02/2024	21/02/2024	21/02/2024	20/02/2024	20/02/2024	21/02/2024
			Sampled Time	.	.	.	.	.	.
			Date Received	24/02/2024	24/02/2024	24/02/2024	24/02/2024	24/02/2024	24/02/2024
			SDG Ref	240228-29	240228-29	240228-29	240228-29	240228-29	240228-29
			Lab Sample No.(s)	29422416	29422421	29422443	29422454	29422381	29422386
			AGS Reference	ES	ES	ES	ES	ES	ES
Naphthalene-d8 % recovery**	%	TM218		83.5	84.8	88.8	84.5	85.7	84.2
Acenaphthene-d10 % recovery**	%	TM218		80.4	80	85.3	80.6	81.2	80.2
Phenanthrene-d10 % recovery**	%	TM218		80.4	78.1	85.3	81.3	79.9	80.1
Chrysene-d12 % recovery**	%	TM218		74.4	76.7	77.3	70.3	74.2	75.6
Perylene-d12 % recovery**	%	TM218		81.5	84.5	84.6	76.5	80.9	82.8
Naphthalene	<0.009 mg/kg	TM218		0.0198 M	0.0185 M	<0.009 #	0.116 @ M	<0.009 @ M	<0.009 M
Acenaphthylene	<0.012 mg/kg	TM218		<0.012 M	<0.012 M	<0.012 #	0.068 @ M	<0.012 @ M	<0.012 M
Acenaphthene	<0.008 mg/kg	TM218		0.0128 M	0.0161 M	<0.008 #	0.114 @ M	<0.008 @ M	<0.008 M
Fluorene	<0.01 mg/kg	TM218		<0.01 M	0.0132 M	<0.01 #	0.104 @ M	<0.01 @ M	<0.01 M
Phenanthrene	<0.015 mg/kg	TM218		0.0923 M	0.3 M	<0.015 #	1.82 @ M	<0.015 @ M	<0.015 M
Anthracene	<0.016 mg/kg	TM218		<0.016 M	0.0709 M	<0.016 #	0.378 @ M	<0.016 @ M	<0.016 M
Fluoranthene	<0.017 mg/kg	TM218		0.118 M	0.628 M	<0.017 #	3.24 @ M	<0.017 @ M	<0.017 M
Pyrene	<0.015 mg/kg	TM218		0.101 M	0.591 M	<0.015 #	3.28 @ M	<0.015 @ M	<0.015 M
Benz(a)anthracene	<0.014 mg/kg	TM218		0.0451 M	0.321 M	<0.014 #	1.61 @ M	<0.014 @ M	<0.014 M
Chrysene	<0.01 mg/kg	TM218		0.0518 M	0.315 M	<0.01 #	1.67 @ M	<0.01 @ M	<0.01 M
Benzo(b)fluoranthene	<0.015 mg/kg	TM218		0.0454 M	0.417 M	<0.015 #	2.35 @ M	<0.015 @ M	<0.015 M
Benzo(k)fluoranthene	<0.014 mg/kg	TM218		<0.014 M	0.161 M	<0.014 #	0.76 @ M	<0.014 @ M	<0.014 M
Benzo(a)pyrene	<0.015 mg/kg	TM218		0.0299 M	0.329 M	<0.015 #	1.77 @ M	<0.015 @ M	<0.015 M
Indeno(1,2,3-cd)pyrene	<0.018 mg/kg	TM218		0.0247 M	0.209 M	<0.018 #	1.08 @ M	<0.018 @ M	<0.018 M
Dibenzo(a,h)anthracene	<0.023 mg/kg	TM218		<0.023 M	0.0329 M	<0.023 #	0.18 @ M	<0.023 @ M	<0.023 M
Benzo(g,h,i)perylene	<0.024 mg/kg	TM218		<0.024 M	0.237 M	<0.024 #	1.33 @ M	<0.024 @ M	<0.024 M
PAH, Total Detected USEPA 16	<0.118 mg/kg	TM218		0.541	3.66	<0.118	19.9	<0.118	<0.118

PAH by GCMS

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	WS05A	WS05A	WS06A	WS06A		
			Depth (m)	0.35 - 0.50	1.20 - 1.30	0.35 - 0.40	3.00 - 3.30		
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)		
			Date Sampled	21/02/2024	21/02/2024	20/02/2024	20/02/2024		
			Sampled Time	-	-	-	-		
			Date Received	24/02/2024	24/02/2024	24/02/2024	24/02/2024		
			SDG Ref	240228-29	240228-29	240228-29	240228-29		
			Lab Sample No.(s)	29422396	29422401	29422406	29422411		
			AGS Reference	ES	ES	ES	ES		
Naphthalene-d8 % recovery**	%	TM218		84.4 M	83.1	89.5 M	86.1		
Acenaphthene-d10 % recovery**	%	TM218		80.6 M	79.5	85.8 M	81.1		
Phenanthrene-d10 % recovery**	%	TM218		76.9 M	78.8	83.2 M	80.2		
Chrysene-d12 % recovery**	%	TM218		72.4 M	75.7	82.4 M	80.8		
Perylene-d12 % recovery**	%	TM218		67.4 M	81.3	79.4 M	87.1		
Naphthalene	<0.009 mg/kg	TM218		0.113 @ M	<0.009 M	0.102 @ M	<0.009 @ M		
Acenaphthylene	<0.012 mg/kg	TM218		0.0274 @ M	<0.012 M	0.385 @ M	<0.012 @ M		
Acenaphthene	<0.008 mg/kg	TM218		0.114 @ M	<0.008 M	0.0383 @ M	<0.008 @ M		
Fluorene	<0.01 mg/kg	TM218		0.108 @ M	<0.01 M	0.0856 @ M	<0.01 @ M		
Phenanthrene	<0.015 mg/kg	TM218		1.49 @ M	<0.015 M	2.21 @ M	<0.015 @ M		
Anthracene	<0.016 mg/kg	TM218		0.314 @ M	<0.016 M	0.499 @ M	<0.016 @ M		
Fluoranthene	<0.017 mg/kg	TM218		1.96 @ M	0.0272 M	6.89 @ M	<0.017 @ M		
Pyrene	<0.015 mg/kg	TM218		1.77 @ M	0.0361 M	6 @ M	<0.015 @ M		
Benz(a)anthracene	<0.014 mg/kg	TM218		1.37 @ M	<0.014 M	4.14 @ M	<0.014 @ M		
Chrysene	<0.01 mg/kg	TM218		1.31 @ M	0.0167 M	4.01 @ M	<0.01 @ M		
Benzo(b)fluoranthene	<0.015 mg/kg	TM218		2.03 @ M	0.0244 M	5.62 @ M	<0.015 @ M		
Benzo(k)fluoranthene	<0.014 mg/kg	TM218		0.679 @ M	<0.014 M	2.08 @ M	<0.014 @ M		
Benzo(a)pyrene	<0.015 mg/kg	TM218		1.57 @ M	<0.015 M	4.15 @ M	<0.015 @ M		
Indeno(1,2,3-cd)pyrene	<0.018 mg/kg	TM218		1.08 @ M	<0.018 M	2.67 @ M	<0.018 @ M		
Dibenzo(a,h)anthracene	<0.023 mg/kg	TM218		0.167 @ M	<0.023 M	0.341 @ M	<0.023 @ M		
Benzo(g,h,i)perylene	<0.024 mg/kg	TM218		1.14 @ M	<0.024 M	2.82 @ M	<0.024 @ M		
PAH, Total Detected USEPA 16	<0.118 mg/kg	TM218		15.2 M	<0.118	42 M	<0.118		

Semi Volatile Organic Compounds

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	WS04	WS04	WS05A			
			Depth (m)	1.00 - 1.20	1.40 - 1.70	0.35 - 0.50			
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
			Date Sampled	20/02/2024	21/02/2024	21/02/2024			
			Sampled Time	.	.	.			
			Date Received	24/02/2024	24/02/2024	24/02/2024			
			SDG Ref	240228-29	240228-29	240228-29			
			Lab Sample No.(s)	29422381	29422386	29422396			
			AGS Reference	ES	ES	ES			
Phenol	<0.1 mg/kg	TM157		<0.1	<0.1	<0.1			
Pentachlorophenol	<0.1 mg/kg	TM157		<0.1	<0.1	<0.1			
n-Nitroso-n-dipropylamine	<0.1 mg/kg	TM157		<0.1	<0.1	<0.1			
Nitrobenzene	<0.1 mg/kg	TM157		<0.1	<0.1	<0.1			
Isophorone	<0.1 mg/kg	TM157		<0.1	<0.1	<0.1			
Hexachloroethane	<0.1 mg/kg	TM157		<0.1	<0.1	<0.1			
Hexachlorocyclopentadiene	<0.1 mg/kg	TM157		<0.1	<0.1	<0.1			
Hexachlorobutadiene	<0.1 mg/kg	TM157		<0.1	<0.1	<0.1			
Hexachlorobenzene	<0.1 mg/kg	TM157		<0.1	<0.1	<0.1			
n-Dioctyl phthalate	<0.1 mg/kg	TM157		<0.1	<0.1	<0.1			
Dimethyl phthalate	<0.1 mg/kg	TM157		<0.1	<0.1	<0.1			
Diethyl phthalate	<0.1 mg/kg	TM157		<0.1	<0.1	<0.1			
n-Dibutyl phthalate	<0.1 mg/kg	TM157		<0.1	<0.1	<0.1			
Dibenzofuran	<0.1 mg/kg	TM157		<0.1	<0.1	0.136			
Carbazole	<0.1 mg/kg	TM157		<0.1	<0.1	0.152			
Butylbenzyl phthalate	<0.1 mg/kg	TM157		<0.1	<0.1	<0.1			
bis(2-Ethylhexyl) phthalate	<0.1 mg/kg	TM157		<0.1	<0.1	<0.1			
bis(2-Chloroethoxy)methane	<0.1 mg/kg	TM157		<0.1	<0.1	<0.1			
bis(2-Chloroethyl)ether	<0.1 mg/kg	TM157		<0.1	<0.1	<0.1			
Azobenzene	<0.1 mg/kg	TM157		<0.1	<0.1	<0.1			
4-Nitrophenol	<0.1 mg/kg	TM157		<0.1	<0.1	<0.1			
4-Nitroaniline	<0.1 mg/kg	TM157		<0.1	<0.1	<0.1			
4-Methylphenol	<0.1 mg/kg	TM157		<0.1	<0.1	<0.1			
4-Chlorophenylphenylether	<0.1 mg/kg	TM157		<0.1	<0.1	<0.1			
4-Chloroaniline	<0.1 mg/kg	TM157		<0.1	<0.1	<0.1			
4-Chloro-3-methylphenol	<0.1 mg/kg	TM157		<0.1	<0.1	<0.1			
4-Bromophenylphenylether	<0.1 mg/kg	TM157		<0.1	<0.1	<0.1			
3-Nitroaniline	<0.1 mg/kg	TM157		<0.1	<0.1	<0.1			
2-Nitrophenol	<0.1 mg/kg	TM157		<0.1	<0.1	<0.1			
2-Nitroaniline	<0.1 mg/kg	TM157		<0.1	<0.1	<0.1			
2-Methylphenol	<0.1 mg/kg	TM157		<0.1	<0.1	<0.1			
1,2,4-Trichlorobenzene	<0.1 mg/kg	TM157		<0.1	<0.1	<0.1			

Semi Volatile Organic Compounds

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	WS04	WS04	WS05A			
			Depth (m)	1.00 - 1.20	1.40 - 1.70	0.35 - 0.50			
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
			Date Sampled	20/02/2024	21/02/2024	21/02/2024			
			Sampled Time	.	.	.			
			Date Received	24/02/2024	24/02/2024	24/02/2024			
			SDG Ref	240228-29	240228-29	240228-29			
			Lab Sample No.(s)	29422381	29422386	29422396			
			AGS Reference	ES	ES	ES			
2-Chlorophenol	<0.1 mg/kg	TM157		<0.1	<0.1	<0.1			
2,6-Dinitrotoluene	<0.1 mg/kg	TM157		<0.1	<0.1	<0.1			
2,4-Dinitrotoluene	<0.1 mg/kg	TM157		<0.1	<0.1	<0.1			
2,4-Dimethylphenol	<0.1 mg/kg	TM157		<0.1	<0.1	<0.1			
2,4-Dichlorophenol	<0.1 mg/kg	TM157		<0.1	<0.1	<0.1			
2,4,6-Trichlorophenol	<0.1 mg/kg	TM157		<0.1	<0.1	<0.1			
2,4,5-Trichlorophenol	<0.1 mg/kg	TM157		<0.1	<0.1	<0.1			
1,4-Dichlorobenzene	<0.1 mg/kg	TM157		<0.1	<0.1	<0.1			
1,3-Dichlorobenzene	<0.1 mg/kg	TM157		<0.1	<0.1	<0.1			
1,2-Dichlorobenzene	<0.1 mg/kg	TM157		<0.1	<0.1	<0.1			
2-Chloronaphthalene	<0.1 mg/kg	TM157		<0.1	<0.1	<0.1			
2-Methylnaphthalene	<0.1 mg/kg	TM157		<0.1	<0.1	0.204			
Acenaphthylene	<0.1 mg/kg	TM157		<0.1	<0.1	<0.1			
Acenaphthene	<0.1 mg/kg	TM157		<0.1	<0.1	<0.1			
Anthracene	<0.1 mg/kg	TM157		<0.1	<0.1	0.236			
Benzo(a)anthracene	<0.1 mg/kg	TM157		<0.1	<0.1	1.01			
Benzo(b)fluoranthene	<0.1 mg/kg	TM157		<0.1	<0.1	1.01			
Benzo(k)fluoranthene	<0.1 mg/kg	TM157		<0.1	<0.1	0.965			
Benzo(a)pyrene	<0.1 mg/kg	TM157		<0.1	<0.1	1.32			
Benzo(g,h,i)perylene	<0.1 mg/kg	TM157		<0.1	<0.1	0.808			
Chrysene	<0.1 mg/kg	TM157		<0.1	<0.1	1.25			
Fluoranthene	<0.1 mg/kg	TM157		<0.1	<0.1	1.5			
Fluorene	<0.1 mg/kg	TM157		<0.1	<0.1	<0.1			
Indeno(1,2,3-cd)pyrene	<0.1 mg/kg	TM157		<0.1	<0.1	0.952			
Phenanthrene	<0.1 mg/kg	TM157		<0.1	<0.1	1.41			
Pyrene	<0.1 mg/kg	TM157		<0.1	<0.1	1.58			
Naphthalene	<0.1 mg/kg	TM157		<0.1	<0.1	0.142			
Dibenzo(a,h)anthracene	<0.1 mg/kg	TM157		<0.1	<0.1	<0.1			
Bis(2-chloroisopropyl) ether	<0.1 mg/kg	TM157		<0.1	<0.1	<0.1			

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	HP01/2	WS02	WS03	WS04	WS04	WS04
			Depth (m)	0.40 - 0.50	0.35 - 0.50	0.60 - 0.75	0.30 - 0.40	1.00 - 1.20	1.40 - 1.70
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	22/02/2024	21/02/2024	21/02/2024	20/02/2024	20/02/2024	21/02/2024
			Sampled Time	.	.	.	.	.	.
			Date Received	24/02/2024	24/02/2024	24/02/2024	24/02/2024	24/02/2024	24/02/2024
			SDG Ref	240228-29	240228-29	240228-29	240228-29	240228-29	240228-29
			Lab Sample No.(s)	29422416	29422421	29422443	29422454	29422381	29422386
			AGS Reference	ES	ES	ES	ES	ES	ES
GRO Surrogate % recovery**	%	TM089		96	108	100	54.1 4	96.8	101
Aliphatics >C5-C6 (HS_1D_AL)	<0.01 mg/kg	TM089		<0.01	<0.01	<0.01	<0.01 4	<0.01	<0.01
Aliphatics >C6-C8 (HS_1D_AL)	<0.01 mg/kg	TM089		<0.01	<0.01	<0.01	<0.01 4	<0.01	<0.01
Aliphatics >C8-C10 (HS_1D_AL)	<0.01 mg/kg	TM089		<0.01	<0.01	<0.01	<0.01 4	<0.01	<0.01
Aliphatics >C10-C12 (EH_2D_AL_#1)	<1 mg/kg	TM414		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Aliphatics >C12-C16 (EH_2D_AL_#1)	<1 mg/kg	TM414		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Aliphatics >C16-C21 (EH_2D_AL_#1)	<1 mg/kg	TM414		<1 #	<1 #	<1 #	7.26 #	<1 #	<1 #
Aliphatics >C16-C35 (EH_2D_AL_#1)	<1 mg/kg	TM414		<1	2.55	<1	15.6	<1	<1
Aliphatics >C21-C35 (EH_2D_AL_#1)	<1 mg/kg	TM414		<1 #	2.38 #	<1 #	8.32 #	<1 #	<1 #
Aliphatics >C35-C44 (EH_2D_AL_#1)	<1 mg/kg	TM414		<1	<1	<1	<1	<1	<1
Total Aliphatics >C10-C44 (EH_2D_AR_#1)	<5 mg/kg	TM414		<5	<5	<5	16.7	<5	<5
Total Aliphatics & Aromatics >C10-C44 (EH_2D_Total_#1)	<10 mg/kg	TM414		15.3	59.3	<10	155	<10	<10
Aromatics >EC5-EC7 (HS_1D_AR)	<0.01 mg/kg	TM089		<0.01	<0.01	<0.01	<0.01 4	<0.01	<0.01
Aromatics >EC7-EC8 (HS_1D_AR)	<0.01 mg/kg	TM089		<0.01	<0.01	<0.01	<0.01 4	<0.01	<0.01
Aromatics >EC8-EC10 (HS_1D_AR)	<0.01 mg/kg	TM089		<0.01	<0.01	<0.01	<0.01 4	<0.01	<0.01
Aromatics > EC10-EC12 (EH_2D_AR_#1)	<1 mg/kg	TM414		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Aromatics > EC12-EC16 (EH_2D_AR_#1)	<1 mg/kg	TM414		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Aromatics > EC16-EC21 (EH_2D_AR_#1)	<1 mg/kg	TM414		2.37 #	4.69 #	<1 #	12.6 #	<1 #	<1 #
Aromatics > EC16-EC35 (EH_2D_AR_#1)	<1 mg/kg	TM414		12.2	50.8	<1	113	1.17	1.76
Aromatics > EC21-EC35 (EH_2D_AR_#1)	<1 mg/kg	TM414		9.82 #	46.1 #	<1 #	100 #	<1 #	1.76 #
Aromatics >EC35-EC44 (EH_2D_AR_#1)	<1 mg/kg	TM414		1.3	5.46	<1	24.2	<1	<1
Aromatics > EC40-EC44 (EH_2D_AR_#1)	<1 mg/kg	TM414		<1	<1	<1	4.07	<1	<1
Total Aromatics > EC10-EC44 (EH_2D_AR_#1)	<5 mg/kg	TM414		14.1	56.2	<5	138	<5	<5
Total Aliphatics & Aromatics >C5-C44 (EH_2D_Total_#1+HS_1D_Total)	<10 mg/kg	TM414		14.1	56.2	<10	155	<10	<10
Total Aliphatics >C5-C10 (HS_1D_AL_TOTAL)	<0.05 mg/kg	TM089		<0.05	<0.05	<0.05	<0.05 4	<0.05	<0.05
Total Aromatics >EC5-EC10 (HS_1D_AR_TOTAL)	<0.05 mg/kg	TM089		<0.05	<0.05	<0.05	<0.05 4	<0.05	<0.05
GRO >C5-C10 (HS_1D_TOTAL)	<0.02 mg/kg	TM089		<0.02	<0.02	<0.02	<0.02 4	<0.02	<0.02

TPH CWG (S)

Results Legend
- # ISO17025 accredited.
- M *m*CERTS accredited.
- aq Aqueous / settled sample.
- diss.filt Dissolved / filtered sample.
- tot.unfilt Total / unfiltered sample.
- * Subcontracted - refer to subcontractor report for accreditation status.
- ** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
- (F) Trigger breach confirmed
- 1-4+§@ Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	WS05A	WS05A	WS06A	WS06A		
			Depth (m)	0.35 - 0.50	1.20 - 1.30	0.35 - 0.40	3.00 - 3.30		
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)		
			Date Sampled	21/02/2024	21/02/2024	20/02/2024	20/02/2024		
			Sampled Time	-	-	-	-		
			Date Received	24/02/2024	24/02/2024	24/02/2024	24/02/2024		
			SDG Ref	240228-29	240228-29	240228-29	240228-29		
			Lab Sample No.(s)	29422396	29422401	29422406	29422411		
			AGS Reference	ES	ES	ES	ES		
GRO Surrogate % recovery**	%	TM089		61 4	130	56.2 4	103		
Aliphatics >C5-C6 (HS_1D_AL)	<0.01 mg/kg	TM089		<0.01 4	<0.01	<0.01 4	<0.01		
Aliphatics >C6-C8 (HS_1D_AL)	<0.01 mg/kg	TM089		<0.01 4	<0.01	<0.01 4	0.0381		
Aliphatics >C8-C10 (HS_1D_AL)	<0.01 mg/kg	TM089		<0.01 4	<0.01	<0.01 4	0.0886		
Aliphatics >C10-C12 (EH_2D_AL_#1)	<1 mg/kg	TM414		<1 #	<1 #	<1 #	<1 #		
Aliphatics >C12-C16 (EH_2D_AL_#1)	<1 mg/kg	TM414		<1 #	<1 #	<1 #	<1 #		
Aliphatics >C16-C21 (EH_2D_AL_#1)	<1 mg/kg	TM414		4.32 #	<1 #	1.3 #	<1 #		
Aliphatics >C16-C35 (EH_2D_AL_#1)	<1 mg/kg	TM414		22.9	<1	10.1	<1		
Aliphatics >C21-C35 (EH_2D_AL_#1)	<1 mg/kg	TM414		18.6 #	<1 #	8.79 #	<1 #		
Aliphatics >C35-C44 (EH_2D_AL_#1)	<1 mg/kg	TM414		5	<1	<1	<1		
Total Aliphatics >C10-C44 (EH_2D_AR_#1)	<5 mg/kg	TM414		28	<5	11	<5		
Total Aliphatics & Aromatics >C10-C44 (EH_2D_Total_#1)	<10 mg/kg	TM414		71.2	<10	203	<10		
Aromatics >EC5-EC7 (HS_1D_AR)	<0.01 mg/kg	TM089		<0.01 4	<0.01	<0.01 4	<0.01		
Aromatics >EC7-EC8 (HS_1D_AR)	<0.01 mg/kg	TM089		<0.01 4	<0.01	<0.01 4	<0.01		
Aromatics >EC8-EC10 (HS_1D_AR)	<0.01 mg/kg	TM089		<0.01 4	<0.01	<0.01 4	0.059		
Aromatics > EC10-EC12 (EH_2D_AR_#1)	<1 mg/kg	TM414		<1 #	<1 #	<1 #	<1 #		
Aromatics > EC12-EC16 (EH_2D_AR_#1)	<1 mg/kg	TM414		<1 #	<1 #	<1 #	<1 #		
Aromatics > EC16-EC21 (EH_2D_AR_#1)	<1 mg/kg	TM414		5.33 #	<1 #	28.4 #	<1 #		
Aromatics > EC16-EC35 (EH_2D_AR_#1)	<1 mg/kg	TM414		39.8	<1	169	1.15		
Aromatics > EC21-EC35 (EH_2D_AR_#1)	<1 mg/kg	TM414		34.5 #	<1 #	140 #	<1 #		
Aromatics >EC35-EC44 (EH_2D_AR_#1)	<1 mg/kg	TM414		3.16	<1	23.4	<1		
Aromatics > EC40-EC44 (EH_2D_AR_#1)	<1 mg/kg	TM414		<1	<1	3.16	<1		
Total Aromatics > EC10-EC44 (EH_2D_AR_#1)	<5 mg/kg	TM414		43.2	<5	192	<5		
Total Aliphatics & Aromatics >C5-C44 (EH_2D_Total_#1+HS_1D_Total)	<10 mg/kg	TM414		71.2	<10	203	<10		
Total Aliphatics >C5-C10 (HS_1D_AL_TOTAL)	<0.05 mg/kg	TM089		<0.05 4	<0.05	<0.05 4	0.127		
Total Aromatics >EC5-EC10 (HS_1D_AR_TOTAL)	<0.05 mg/kg	TM089		<0.05 4	<0.05	<0.05 4	0.059		
GRO >C5-C10 (HS_1D_TOTAL)	<0.02 mg/kg	TM089		<0.02 4	<0.02	<0.02 4	0.186		

CERTIFICATE OF ANALYSIS

SDG: 240228-29 **Report Number:** 722728 **Superseded Report:** 722617
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	HP01/2	WS02	WS02	WS03	WS04	WS04
			Depth (m)	0.40 - 0.50	0.35 - 0.50	0.63 - 1.50	0.60 - 0.75	0.18 - 1.30	0.30 - 0.40
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	22/02/2024	21/02/2024	21/02/2024	21/02/2024	21/02/2024	20/02/2024
			Sampled Time	.	.	.	.	.	.
			Date Received	24/02/2024	24/02/2024	24/02/2024	24/02/2024	24/02/2024	24/02/2024
			SDG Ref	240228-29	240228-29	240228-29	240228-29	240228-29	240228-29
			Lab Sample No.(s)	29422416	29422421	29422427	29422443	29422448	29422454
			AGS Reference	ES	ES	ES	ES	ES	ES
Dibromofluoromethane**	%	TM116			120		116		
Toluene-d8**	%	TM116			103		103		
4-Bromofluorobenzene**	%	TM116			101		100		
Methyl Tertiary Butyl Ether	<0.0005 mg/kg	TM116	<0.005 M	<0.005 M	<0.005 M	<0.005 #	<0.005 M	<0.01 M
Benzene	<0.001 mg/kg	TM116	<0.01 M	<0.01 M	<0.01 M	<0.01 #	<0.01 M	<0.02 M
Toluene	<0.001 mg/kg	TM116	<0.01 M	<0.01 M	<0.01 M	<0.01 #	<0.01 M	<0.02 M
Ethylbenzene	<0.001 mg/kg	TM116	<0.01 M	<0.01 M	<0.01 M	<0.01 #	<0.01 M	<0.02 M
p/m-Xylene	<0.002 mg/kg	TM116	<0.02 #	<0.02 #	<0.02 #	<0.02 #	<0.02 #	<0.04 #
o-Xylene	<0.002 mg/kg	TM116	<0.02 M	<0.02 M	<0.02 M	<0.02 #	<0.02 M	<0.04 M
Tert-amyl methyl ether	<0.001 mg/kg	TM116	<0.01 #	<0.01 #		<0.01 #		<0.02 #
Sum of BTEX	<0.007 mg/kg	TM116	<0.07	<0.07	<0.07	<0.07	<0.07	<0.14

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	WS04	WS04	WS05A	WS05A	WS06A	WS06A
			Depth (m)	1.00 - 1.20	1.40 - 1.70	0.35 - 0.50	1.20 - 1.30	0.35 - 0.40	3.00 - 3.30
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	20/02/2024	21/02/2024	21/02/2024	21/02/2024	20/02/2024	20/02/2024
			Sampled Time	-	-	-	-	-	-
			Date Received	24/02/2024	24/02/2024	24/02/2024	24/02/2024	24/02/2024	24/02/2024
			SDG Ref	240228-29	240228-29	240228-29	240228-29	240228-29	240228-29
			Lab Sample No.(s)	29422381	29422386	29422396	29422401	29422406	29422411
			AGS Reference	ES	ES	ES	ES	ES	ES
Dibromofluoromethane**	%	TM116		112	115	115			
Toluene-d8**	%	TM116		103	103	101			
4-Bromofluorobenzene**	%	TM116		101	102	75.3			
Dichlorodifluoromethane	mg/kg	TM116		<0.005 #	<0.005 #	<0.005 #			
Chloromethane	mg/kg	TM116		<0.02 #	<0.02 #	<0.02 #			
Vinyl Chloride	mg/kg	TM116		<0.005 @ M	<0.005 @ M	<0.005 @ M			
Bromomethane	mg/kg	TM116		<0.01 M	<0.01 M	<0.01 M			
Chloroethane	mg/kg	TM116		<0.01 M	<0.01 M	<0.01 M			
Trichlorofluorormethane	mg/kg	TM116		<0.005 M	<0.005 M	<0.005 M			
1,1-Dichloroethene	mg/kg	TM116		<0.005 #	<0.005 #	<0.005 #			
Carbon Disulphide	mg/kg	TM116		<0.01 M	<0.01 M	<0.01 M			
Dichloromethane	mg/kg	TM116		<0.05 #	<0.05 #	0.0975 #			
Methyl Tertiary Butyl Ether	mg/kg	TM116		<0.005 M	<0.005 M	<0.005 M	<0.005 M	<0.005 M	<0.005 M
trans-1,2-Dichloroethene	mg/kg	TM116		<0.01 M	<0.01 M	<0.01 M			
1,1-Dichloroethane	mg/kg	TM116		<0.005 M	<0.005 M	<0.005 M			
cis-1,2-Dichloroethene	mg/kg	TM116		<0.005 M	<0.005 M	<0.005 M			
2,2-Dichloropropane	mg/kg	TM116		<0.01	<0.01	<0.01			
Bromochloromethane	mg/kg	TM116		<0.02 M	<0.02 M	<0.02 M			
Chloroform	mg/kg	TM116		<0.03 M	<0.03 M	<0.03 M			
1,1,1-Trichloroethane	mg/kg	TM116		<0.005 M	<0.005 M	<0.005 M			
1,1-Dichloropropene	mg/kg	TM116		<0.005 M	<0.005 M	<0.005 M			
Carbontetrachloride	mg/kg	TM116		<0.005 M	<0.005 M	<0.005 M			
1,2-Dichloroethane	mg/kg	TM116		<0.01 M	<0.01 M	<0.01 M			
Benzene	mg/kg	TM116		<0.01 M	<0.01 M	<0.01 M	<0.01 M	<0.01 M	<0.01 M
Trichloroethene	mg/kg	TM116		<0.01 #	<0.01 #	<0.01 #			
1,2-Dichloropropane	mg/kg	TM116		<0.005 M	<0.005 M	<0.005 M			
Dibromomethane	mg/kg	TM116		<0.01 M	<0.01 M	<0.01 M			
Bromodichloromethane	mg/kg	TM116		<0.02 M	<0.02 M	<0.02 M			
cis-1,3-Dichloropropene	mg/kg	TM116		<0.005 M	<0.005 M	<0.005 M			
Toluene	mg/kg	TM116		<0.01 M	<0.01 M	<0.01 M	<0.01 M	<0.01 M	<0.01 M
trans-1,3-Dichloropropene	mg/kg	TM116		<0.01	<0.01	<0.01			
1,1,2-Trichloroethane	mg/kg	TM116		<0.01 M	<0.01 M	<0.01 M			

VOC MS (S)

Results Legend
- # ISO17025 accredited.
- M *m*CERTS accredited.
- aq Aqueous / settled sample.
- diss.filt Dissolved / filtered sample.
- tot.unfilt Total / unfiltered sample.
- * Subcontracted - refer to subcontractor report for accreditation status.
- ** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
- (F) Trigger breach confirmed
- 1-4+§@ Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	WS04	WS04	WS05A	WS05A	WS06A	WS06A
			Depth (m)	1.00 - 1.20	1.40 - 1.70	0.35 - 0.50	1.20 - 1.30	0.35 - 0.40	3.00 - 3.30
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	20/02/2024	21/02/2024	21/02/2024	21/02/2024	20/02/2024	20/02/2024
			Sampled Time	.	.	.	.	.	.
			Date Received	24/02/2024	24/02/2024	24/02/2024	24/02/2024	24/02/2024	24/02/2024
			SDG Ref	240228-29	240228-29	240228-29	240228-29	240228-29	240228-29
			Lab Sample No.(s)	29422381	29422386	29422396	29422401	29422406	29422411
			AGS Reference	ES	ES	ES	ES	ES	ES
1,3-Dichloropropane	<0.001 mg/kg	TM116		<0.01 M	<0.01 M	<0.01 M			
Tetrachloroethene	<0.002 mg/kg	TM116		<0.02 M	<0.02 M	<0.02 M			
Dibromochloromethane	<0.002 mg/kg	TM116		<0.02 M	<0.02 M	<0.02 M			
1,2-Dibromoethane	<0.001 mg/kg	TM116		<0.01 M	<0.01 M	<0.01 M			
Chlorobenzene	<0.002 mg/kg	TM116		<0.02 M	<0.02 M	<0.02 M			
1,1,1,2-Tetrachloroethane	<0.001 mg/kg	TM116		<0.01 M	<0.01 M	<0.01 M			
Ethylbenzene	<0.001 mg/kg	TM116		<0.01 M	<0.01 M	<0.01 M	<0.01 M	<0.01 M	<0.01 M
p/m-Xylene	<0.002 mg/kg	TM116		<0.02 #	<0.02 #	<0.02 #	<0.02 #	<0.02 #	<0.02 #
o-Xylene	<0.002 mg/kg	TM116		<0.02 M	<0.02 M	<0.02 M	<0.02 M	<0.02 M	<0.02 M
Styrene	<0.002 mg/kg	TM116		<0.02 @ #	<0.02 @ #	<0.02 @ #			
Bromoform	<0.002 mg/kg	TM116		<0.059 M	<0.064 M	<0.073 M			
Isopropylbenzene	<0.002 mg/kg	TM116		<0.02 #	<0.02 #	<0.02 #			
1,1,2,2-Tetrachloroethane	<0.002 mg/kg	TM116		<0.02 #	<0.02 #	<0.02 #			
1,2,3-Trichloropropane	<0.002 mg/kg	TM116		<0.02 M	<0.02 M	<0.02 M			
Bromobenzene	<0.002 mg/kg	TM116		<0.02 M	<0.02 M	<0.02 M			
Propylbenzene	<0.002 mg/kg	TM116		<0.02 M	<0.02 M	<0.02 M			
2-Chlorotoluene	<0.003 mg/kg	TM116		<0.03 M	<0.03 M	<0.03 M			
1,3,5-Trimethylbenzene	<0.002 mg/kg	TM116		<0.02 M	<0.02 M	<0.02 M			
4-Chlorotoluene	<0.003 mg/kg	TM116		<0.03 M	<0.03 M	<0.03 M			
tert-Butylbenzene	<0.002 mg/kg	TM116		<0.02 #	<0.02 #	<0.02 #			
1,2,4-Trimethylbenzene	<0.003 mg/kg	TM116		<0.03 #	<0.03 #	<0.03 #			
sec-Butylbenzene	<0.001 mg/kg	TM116		<0.01	<0.01	<0.01			
4-Isopropyltoluene	<0.002 mg/kg	TM116		<0.02	<0.02	<0.02			
1,3-Dichlorobenzene	<0.005 mg/kg	TM116		<0.05 M	<0.05 M	<0.05 M			
1,4-Dichlorobenzene	<0.005 mg/kg	TM116		<0.05 M	<0.05 M	<0.05 M			
n-Butylbenzene	<0.003 mg/kg	TM116		<0.03	<0.03	<0.03			
1,2-Dichlorobenzene	<0.005 mg/kg	TM116		<0.05 M	<0.05 M	<0.05 M			
1,2-Dibromo-3-chloropropane	<0.002 mg/kg	TM116		<0.02 M	<0.02 M	<0.02 M			
Tert-amyl methyl ether	<0.001 mg/kg	TM116		<0.01 #	<0.01 #	<0.01 #	<0.01 #	<0.01 #	<0.01 #
1,2,4-Trichlorobenzene	<0.007 mg/kg	TM116		<0.07	<0.07	<0.07			
Hexachlorobutadiene	<0.004 mg/kg	TM116		<0.04	<0.04	<0.04			
Naphthalene	<0.008 mg/kg	TM116		<0.08 M	<0.08 M	<0.08 M			

CERTIFICATE OF ANALYSIS

SDG: 240228-29 **Report Number:** 722728 **Superseded Report:** 722617
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

VOC MS (S)

Results Legend
- # ISO17025 accredited.
- M *m*CERTS accredited.
- aq Aqueous / settled sample.
- diss.filt Dissolved / filtered sample.
- tot.unfilt Total / unfiltered sample.
- * Subcontracted - refer to subcontractor report for accreditation status.
- ** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
- (F) Trigger breach confirmed
- 1-4+§@ Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	WS04	WS04	WS05A	WS05A	WS06A	WS06A
			Depth (m)	1.00 - 1.20	1.40 - 1.70	0.35 - 0.50	1.20 - 1.30	0.35 - 0.40	3.00 - 3.30
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	20/02/2024	21/02/2024	21/02/2024	21/02/2024	20/02/2024	20/02/2024
			Sampled Time	.	.	.	.	.	.
			Date Received	24/02/2024	24/02/2024	24/02/2024	24/02/2024	24/02/2024	24/02/2024
			SDG Ref	240228-29	240228-29	240228-29	240228-29	240228-29	240228-29
			Lab Sample No.(s)	29422381	29422386	29422396	29422401	29422406	29422411
			AGS Reference	ES	ES	ES	ES	ES	ES
1,2,3-Trichlorobenzene	<0.01 mg/kg	TM116		<0.1 #	<0.1 #	<0.1 #			
1,3,5-Trichlorobenzene	<0.007 mg/kg	TM116		<0.07	<0.07	<0.07			
Sum of BTEX	<0.007 mg/kg	TM116		<0.07	<0.07	<0.07	<0.07	<0.07	<0.07

CERTIFICATE OF ANALYSIS

SDG: 240228-29 **Report Number:** 722728 **Superseded Report:** 722617
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

Asbestos Identification - Solid Samples

Results Legend
ISO17025 accredited.
M *m*CERTS accredited.
***** Subcontracted test.
(F) Trigger breach confirmed
1-5&♦§@ Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Asbestos Actinolite	Asbestos Anthophyllite	Asbestos Tremolite	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	HP01/2ES 0.40 - 0.50 SOLID 22/02/2024 00:00:00 24/02/2024 05:00:00 240228-29 29422416 TM048	28/02/2024	Renata Bozhkov	N/A	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	WS02ES 0.35 - 0.50 SOLID 21/02/2024 00:00:00 24/02/2024 05:00:00 240228-29 29422421 TM048	29/02/2024	Agnieszka Chelmowska	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	WS02ES 0.63 - 1.50 SOLID 21/02/2024 00:00:00 24/02/2024 05:00:00 240228-29 29422427 TM048	28/02/2024	Renata Bozhkov	N/A	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	WS03ES 0.35 - 0.50 SOLID 21/02/2024 00:00:00 24/02/2024 05:00:00 240228-29 29422438 TM048	28/02/2024	Agnieszka Chelmowska	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	WS04ES 0.18 - 1.30 SOLID 21/02/2024 00:00:00 24/02/2024 05:00:00 240228-29 29422448 TM048	28/02/2024	Agnieszka Chelmowska	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	WS04ES 0.30 - 0.40 SOLID 20/02/2024 00:00:00 24/02/2024 05:00:00 240228-29 29422454 TM048	28/02/2024	Renata Bozhkov	Fibre bundles in soil.	Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	WS05ES 0.25 - 0.35 SOLID 20/02/2024 00:00:00 24/02/2024 05:00:00 240228-29 29422391 TM048	04/03/24	Ashia Jackson	Loose fibres in soil	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	WS05AES 0.35 - 0.50 SOLID 21/02/2024 00:00:00 24/02/2024 05:00:00 240228-29 29422396 TM048	28/02/2024	Agnieszka Chelmowska	Loose fibres in soil	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Detected (#)	Not Detected (#)	Not Detected

CERTIFICATE OF ANALYSIS

SDG: 240228-29 **Report Number:** 722728 **Superseded Report:** 722617
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Asbestos Actinolite	Asbestos Anthophyllite	Asbestos Tremolite	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS06AES 0.35 - 0.40 SOLID 20/02/2024 00:00:00 24/02/2024 05:00:00 240228-29 29422406 TM048	01/03/2024	Agnieszka Chelmowska	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

CERTIFICATE OF ANALYSIS

SDG: 240228-29 **Report Number:** 722728 **Superseded Report:** 722617
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

Asbestos Quantification - Full

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
*	Subcontracted test.
(F)	Trigger breach confirmed
1-5&♦$@	Sample deviation (see appendix)

		Additional Asbestos Components	Analysts Comments	Asbestos Quantification - Gravimetric - %	Asbestos Quantification - PCOM	Asbestos Quantification - Total - %
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	WS04ES 0.30 - 0.40 SOLID 20/02/2024 00:00:00 24/02/2024 05:00:00 240228-29 29422454 TM304	None (#)	-	0.0101 (#)	<0.001 (#)	0.0101 (#)
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	WS05ES 0.25 - 0.35 SOLID 20/02/2024 00:00:00 24/02/2024 05:00:00 240228-29 29422391 TM304	None (#)	-	1.1283 (#)	<0.001 (#)	1.1283 (#)
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	WS05AES 0.35 - 0.50 SOLID 21/02/2024 00:00:00 24/02/2024 05:00:00 240228-29 29422396 TM304	None (#)	N/A	<0.001 (#)	<0.001 (#)	<0.001 (#)

CERTIFICATE OF ANALYSIS

SDG: 240228-29 **Report Number:** 722728 **Superseded Report:** 722617
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

CEN 2:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/1

Client Reference		**Site Location**	Unit 10, Barton Park
Mass Sample taken (kg)	0.222	**Natural Moisture Content (%)**	26.1
Mass of dry sample (kg)	0.175	**Dry Matter Content (%)**	79.3
Particle Size <4mm	>95%		

Case	
SDG	240228-29
Lab Sample Number(s)	29422381
Sampled Date	20-Feb-2024
Customer Sample Ref.	WS04 ESZ
Depth (m)	1.00 - 1.20

Eluate Analysis	**Concⁿ in 2:1 eluate (mg/l)**		**2:1 concⁿ leached (mg/kg)**	
	Result	**Limit of Detection**	**Result**	**Limit of Detection**
PAH Spec MS - Aqueous (W)				
Naphthalene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Acenaphthene by GCMS	<0.000005	<0.000005	<0.00001	<0.00001
Acenaphthylene by GCMS	<0.000005	<0.000005	<0.00001	<0.00001
Fluoranthene by GCMS	<0.000005	<0.000005	<0.00001	<0.00001
Anthracene by GCMS	<0.000005	<0.000005	<0.00001	<0.00001
Phenanthrene by GCMS	<0.000005	<0.000005	<0.00001	<0.00001
Fluorene by GCMS	<0.000005	<0.000005	<0.00001	<0.00001
Chrysene by GCMS	<0.000005	<0.000005	<0.00001	<0.00001
Pyrene by GCMS	<0.000005	<0.000005	<0.00001	<0.00001
Benz(a)anthracene by GCMS	<0.000005	<0.000005	<0.00001	<0.00001
Benzo(b)fluoranthene by GCMS	<0.000005	<0.000005	<0.00001	<0.00001
Benzo(k)fluoranthene by GCMS	<0.000005	<0.000005	<0.00001	<0.00001
Benzo(a)pyrene by GCMS	<0.000002	<0.000002	<0.000004	<0.000004
Dibenzo(ah)anthracene by GCMS	<0.000005	<0.000005	<0.00001	<0.00001
Benzo(ghi)perylene by GCMS	<0.000005	<0.000005	<0.00001	<0.00001
Indeno(123cd)pyrene by GCMS	<0.000005	<0.000005	<0.00001	<0.00001
PAH 16 EPA Total by GCMS	<0.000082	<0.000082	<0.000164	<0.000164
SVOC MS (W) - Aqueous				
1,2,4-Trichlorobenzene	<0.001	<0.001	<0.002	<0.002
1,2-Dichlorobenzene	<0.001	<0.001	<0.002	<0.002
1,3-Dichlorobenzene	<0.001	<0.001	<0.002	<0.002
1,4-Dichlorobenzene	<0.001	<0.001	<0.002	<0.002
2,4,5-Trichlorophenol	<0.004	<0.004	<0.008	<0.008
2,4,6-Trichlorophenol	<0.004	<0.004	<0.008	<0.008
2,4-Dichlorophenol	<0.004	<0.004	<0.008	<0.008
2,4-Dimethylphenol	<0.004	<0.004	<0.008	<0.008
2,4-Dinitrotoluene	<0.004	<0.004	<0.008	<0.008
2,6-Dinitrotoluene	<0.004	<0.004	<0.008	<0.008
2-Chloronaphthalene	<0.004	<0.004	<0.008	<0.008
2-Chlorophenol	<0.004	<0.004	<0.008	<0.008
2-Methylnaphthalene	<0.004	<0.004	<0.008	<0.008
2-Methylphenol	<0.004	<0.004	<0.008	<0.008
2-Nitroaniline	<0.004	<0.004	<0.008	<0.008
2-Nitrophenol	<0.004	<0.004	<0.008	<0.008
3-Nitroaniline	<0.004	<0.004	<0.008	<0.008
4-Bromophenylphenylether	<0.004	<0.004	<0.008	<0.008

Leach Test Information

Date Prepared	29-Feb-2024
pH (pH Units)	8.31
Conductivity (µS/cm)	424
Volume Leachant (Litres)	0.303
Volume of Eluate VE1 (Litres)	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Leachates prepared in accordance with BS EN 12457 will be carried out at room temperature (20±5°C)
Stated limits are for guidance only and ALS Laboratories (UK) Limited cannot be held responsible for any discrepancies with current legislation

11/03/2024 16:07:28

CERTIFICATE OF ANALYSIS

SDG: 240228-29 | Report Number: 722728 | Superseded Report: 722617
Client Ref.: 70119985 | Location: Unit 10, Barton Park

CEN 2:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/1

Client Reference		**Site Location**	Unit 10, Barton Park
Mass Sample taken (kg)	0.222	**Natural Moisture Content (%)**	26.1
Mass of dry sample (kg)	0.175	**Dry Matter Content (%)**	79.3
Particle Size <4mm	>95%		

Case	
SDG	240228-29
Lab Sample Number(s)	29422381
Sampled Date	20-Feb-2024
Customer Sample Ref.	WS04 ESZ
Depth (m)	1.00 - 1.20

Eluate Analysis	**Concⁿ in 2:1 eluate (mg/l)**		**2:1 concⁿ leached (mg/kg)**	
	Result	**Limit of Detection**	**Result**	**Limit of Detection**
SVOC MS (W) - Aqueous				
4-Chloro-3-methylphenol	<0.004	<0.004	<0.008	<0.008
4-Chloroaniline	<0.004	<0.004	<0.008	<0.008
4-Chlorophenylphenylether	<0.004	<0.004	<0.008	<0.008
4-Methylphenol	<0.004	<0.004	<0.008	<0.008
4-Nitroaniline	<0.004	<0.004	<0.008	<0.008
4-Nitrophenol	<0.004	<0.004	<0.008	<0.008
Azobenzene	<0.004	<0.004	<0.008	<0.008
Acenaphthylene	<0.004	<0.004	<0.008	<0.008
Acenaphthene	<0.004	<0.004	<0.008	<0.008
Anthracene	<0.004	<0.004	<0.008	<0.008
Bis(2-chloroethyl)ether	<0.004	<0.004	<0.008	<0.008
Bis(2-chloroethoxy)methane	<0.004	<0.004	<0.008	<0.008
Bis(2-ethylhexyl) phthalate	<0.008	<0.008	<0.016	<0.016
Butylbenzyl phthalate	<0.004	<0.004	<0.008	<0.008
Benzo(a)anthracene	<0.004	<0.004	<0.008	<0.008
Benzo(b)fluoranthene	<0.004	<0.004	<0.008	<0.008
Benzo(k)fluoranthene	<0.004	<0.004	<0.008	<0.008
Benzo(a)pyrene	<0.004	<0.004	<0.008	<0.008
Benzo(ghi)perylene	<0.004	<0.004	<0.008	<0.008
Carbazole	<0.004	<0.004	<0.008	<0.008
Chrysene	<0.004	<0.004	<0.008	<0.008
Dibenzofuran	<0.004	<0.004	<0.008	<0.008
Di-n-butyl phthalate	<0.004	<0.004	<0.008	<0.008
Diethyl phthalate	<0.004	<0.004	<0.008	<0.008
Dibenzo(a,h)anthracene	<0.004	<0.004	<0.008	<0.008
Dimethyl phthalate	<0.004	<0.004	<0.008	<0.008
Di-n-Octyl phthalate	<0.02	<0.02	<0.04	<0.04
Fluoranthene	<0.004	<0.004	<0.008	<0.008
Fluorene	<0.004	<0.004	<0.008	<0.008
Hexachlorobenzene	<0.004	<0.004	<0.008	<0.008
Hexachlorobutadiene	<0.001	<0.001	<0.002	<0.002
Pentachlorophenol	<0.004	<0.004	<0.008	<0.008
Phenol	<0.004	<0.004	<0.008	<0.008
N-nitrosodi-n-propylamine	<0.004	<0.004	<0.008	<0.008
Hexachloroethane	<0.004	<0.004	<0.008	<0.008

Leach Test Information

Date Prepared	29-Feb-2024
pH (pH Units)	8.31
Conductivity (µS/cm)	424
Volume Leachant (Litres)	0.303
Volume of Eluate VE1 (Litres)	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Leachates prepared in accordance with BS EN 12457 will be carried out at room temperature (20±5°C)
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11/03/2024 16:07:28

CERTIFICATE OF ANALYSIS

SDG: 240228-29 | Report Number: 722728 | Superseded Report: 722617
Client Ref.: 70119985 | Location: Unit 10, Barton Park

CEN 2:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/1

Client Reference		**Site Location**	Unit 10, Barton Park
Mass Sample taken (kg)	0.222	**Natural Moisture Content (%)**	26.1
Mass of dry sample (kg)	0.175	**Dry Matter Content (%)**	79.3
Particle Size <4mm	>95%		

Case	
SDG	240228-29
Lab Sample Number(s)	29422381
Sampled Date	20-Feb-2024
Customer Sample Ref.	WS04 ESZ
Depth (m)	1.00 - 1.20

Eluate Analysis	Concⁿ in 2:1 eluate (mg/l)		2:1 concⁿ leached (mg/kg)	
	Result	Limit of Detection	Result	Limit of Detection
SVOC MS (W) - Aqueous				
Nitrobenzene	<0.004	<0.004	<0.008	<0.008
Naphthalene	<0.001	<0.001	<0.002	<0.002
Isophorone	<0.004	<0.004	<0.008	<0.008
Hexachlorocyclopentadiene	<0.004	<0.004	<0.008	<0.008
Phenanthrene	<0.004	<0.004	<0.008	<0.008
Indeno (1,2,3-cd) Pyrene	<0.004	<0.004	<0.008	<0.008
Pyrene	<0.004	<0.004	<0.008	<0.008
TPH CWG (W)				
Surrogate Recovery	-	-	-	-
GRO TOT (C5-C12)	<0.05	<0.05	<0.1	<0.1
Aliphatics C5-C6	<0.01	<0.01	<0.02	<0.02
Aliphatics >C6-C8	<0.01	<0.01	<0.02	<0.02
Aliphatics >C8-C10	<0.01	<0.01	<0.02	<0.02
Aliphatics >C10-C12	<0.01	<0.01	<0.02	<0.02
Aliphatics >C12-C16	<0.02	<0.02	<0.04	<0.04
Aliphatics >C16-C21	<0.02	<0.02	<0.04	<0.04
Aliphatics >C21-C35	<0.02	<0.02	<0.04	<0.04
Total Aliphatics >C12-C35 (b)	<0.02	<0.02	<0.04	<0.04
Aromatics C6-C7	<0.01	<0.01	<0.02	<0.02
Aromatics >C7-C8	<0.01	<0.01	<0.02	<0.02
Aromatics >EC8 -EC10	<0.01	<0.01	<0.02	<0.02
Aromatics >EC10-EC12	<0.01	<0.01	<0.02	<0.02
Aromatics >C12-C16	<0.02	<0.02	<0.04	<0.04
Aromatics >C16-C21	<0.02	<0.02	<0.04	<0.04
Aromatics >C21-C35	<0.02	<0.02	<0.04	<0.04
Total Aromatics >C12-C35 (b)	<0.02	<0.02	<0.04	<0.04
TPH (Total Aliphatics + Total Aromatics) >C5-C35	<0.01	<0.01	<0.02	<0.02
VOC MS (W)				
Dibromofluoromethane	-	-	-	-
Toluene-d8	-	-	-	-
4-Bromofluorobenzene	-	-	-	-
Dichlorodifluoromethane	<0.001	<0.001	<0.002	<0.002
Chloromethane	<0.001	<0.001	<0.002	<0.002
Vinyl Chloride	<0.001	<0.001	<0.002	<0.002
Bromomethane	<0.001	<0.001	<0.002	<0.002
Chloroethane	<0.001	<0.001	<0.002	<0.002
Trichlorofluoromethane	<0.001	<0.001	<0.002	<0.002

Leach Test Information

Date Prepared	29-Feb-2024
pH (pH Units)	8.31
Conductivity (µS/cm)	424
Volume Leachant (Litres)	0.303
Volume of Eluate VE1 (Litres)	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Leachates prepared in accordance with BS EN 12457 will be carried out at room temperature (20±5°C)
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11/03/2024 16:07:28

CERTIFICATE OF ANALYSIS

SDG: 240228-29 | Report Number: 722728 | Superseded Report: 722617
Client Ref.: 70119985 | Location: Unit 10, Barton Park

CEN 2:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/1

Client Reference		**Site Location**	Unit 10, Barton Park
Mass Sample taken (kg)	0.222	**Natural Moisture Content (%)**	26.1
Mass of dry sample (kg)	0.175	**Dry Matter Content (%)**	79.3
Particle Size <4mm	>95%		

Case	
SDG	240228-29
Lab Sample Number(s)	29422381
Sampled Date	20-Feb-2024
Customer Sample Ref.	WS04 ESZ
Depth (m)	1.00 - 1.20

Eluate Analysis	Concⁿ in 2:1 eluate (mg/l)		2:1 concⁿ leached (mg/kg)	
	Result	Limit of Detection	Result	Limit of Detection
VOC MS (W)				
1,1-Dichloroethene	<0.001	<0.001	<0.002	<0.002
Carbon Disulphide	<0.001	<0.001	<0.002	<0.002
Dichloromethane	<0.003	<0.003	<0.006	<0.006
Tert-butyl methyl ether	<0.001	<0.001	<0.002	<0.002
Trans-1,2-Dichloroethene	<0.001	<0.001	<0.002	<0.002
1,1-Dichloroethane	<0.001	<0.001	<0.002	<0.002
Cis-1,2-Dichloroethene	<0.001	<0.001	<0.002	<0.002
2,2-Dichloropropane	<0.001	<0.001	<0.002	<0.002
Bromochloromethane	<0.001	<0.001	<0.002	<0.002
Chloroform	<0.001	<0.001	<0.002	<0.002
1,1,1-Trichloroethane	<0.001	<0.001	<0.002	<0.002
1,1-Dichloropropene	<0.001	<0.001	<0.002	<0.002
Carbontetrachloride	<0.001	<0.001	<0.002	<0.002
1,2-Dichloroethane	<0.001	<0.001	<0.002	<0.002
Benzene	<0.001	<0.001	<0.002	<0.002
Trichloroethene	<0.001	<0.001	<0.002	<0.002
1,2-Dichloropropane	<0.001	<0.001	<0.002	<0.002
Dibromomethane	<0.001	<0.001	<0.002	<0.002
Bromodichloromethane	<0.001	<0.001	<0.002	<0.002
Cis-1,3-Dichloropropene	<0.001	<0.001	<0.002	<0.002
Toluene	<0.001	<0.001	<0.002	<0.002
Trans-1,3-Dichloropropene	<0.001	<0.001	<0.002	<0.002
1,1,2-Trichloroethane	<0.001	<0.001	<0.002	<0.002
1,3-Dichloropropane	<0.001	<0.001	<0.002	<0.002
Tetrachloroethene	<0.001	<0.001	<0.002	<0.002
Dibromochloromethane	<0.001	<0.001	<0.002	<0.002
1,2-Dibromoethane	<0.001	<0.001	<0.002	<0.002
Chlorobenzene	<0.001	<0.001	<0.002	<0.002
1,1,1,2-Tetrachloroethane	<0.001	<0.001	<0.002	<0.002
Ethylbenzene	<0.001	<0.001	<0.002	<0.002
p/m-Xylene	<0.001	<0.001	<0.002	<0.002
o-Xylene	<0.001	<0.001	<0.002	<0.002
Styrene	<0.001	<0.001	<0.002	<0.002
Bromoform	<0.001	<0.001	<0.002	<0.002
Isopropylbenzene	<0.001	<0.001	<0.002	<0.002

Leach Test Information

Date Prepared	29-Feb-2024
pH (pH Units)	8.31
Conductivity (µS/cm)	424
Volume Leachant (Litres)	0.303
Volume of Eluate VE1 (Litres)	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Leachates prepared in accordance with BS EN 12457 will be carried out at room temperature (20±5°C)
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11/03/2024 16:07:28

CERTIFICATE OF ANALYSIS

SDG: 240228-29 **Report Number:** 722728 **Superseded Report:** 722617
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

CEN 2:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/1

Client Reference		**Site Location**	Unit 10, Barton Park
Mass Sample taken (kg)	0.222	**Natural Moisture Content (%)**	26.1
Mass of dry sample (kg)	0.175	**Dry Matter Content (%)**	79.3
Particle Size <4mm	>95%		

Case	
SDG	240228-29
Lab Sample Number(s)	29422381
Sampled Date	20-Feb-2024
Customer Sample Ref.	WS04 ESZ
Depth (m)	1.00 - 1.20

Eluate Analysis	**Concⁿ in 2:1 eluate (mg/l)**		**2:1 concⁿ leached (mg/kg)**	
	Result	**Limit of Detection**	**Result**	**Limit of Detection**
VOC MS (W)				
1,1,2,2-Tetrachloroethane	<0.001	<0.001	<0.002	<0.002
1,2,3-Trichloropropane	<0.001	<0.001	<0.002	<0.002
Bromobenzene	<0.001	<0.001	<0.002	<0.002
Propylbenzene	<0.001	<0.001	<0.002	<0.002
2-Chlorotoluene	<0.001	<0.001	<0.002	<0.002
1,3,5-Trimethylbenzene	<0.001	<0.001	<0.002	<0.002
4-Chlorotoluene	<0.001	<0.001	<0.002	<0.002
Tert-Butylbenzene	<0.001	<0.001	<0.002	<0.002
1,2,4-Trimethylbenzene	<0.001	<0.001	<0.002	<0.002
Sec-Butylbenzene	<0.001	<0.001	<0.002	<0.002
4-Isopropyltoluene	<0.001	<0.001	<0.002	<0.002
1,3-Dichlorobenzene	<0.001	<0.001	<0.002	<0.002
1,4-Dichlorobenzene	<0.001	<0.001	<0.002	<0.002
n-Butylbenzene	<0.001	<0.001	<0.002	<0.002
1,2-Dichlorobenzene	<0.001	<0.001	<0.002	<0.002
1,2-Dibromo-3-Chloropropane	<0.001	<0.001	<0.002	<0.002
1,2,4-Trichlorobenzene	<0.001	<0.001	<0.002	<0.002
Hexachlorobutadiene	<0.001	<0.001	<0.002	<0.002
Tert-amyl methyl ether	<0.001	<0.001	<0.002	<0.002
Naphthalene	<0.001	<0.001	<0.002	<0.002
1,2,3-Trichlorobenzene	<0.001	<0.001	<0.002	<0.002
1,3,5-Trichlorobenzene	<0.001	<0.001	<0.002	<0.002
VOC TIC	-	-	-	-
Total Xylenes	<0.002	<0.002	<0.004	<0.004
Sum of BTEX	<0.005	<0.005	<0.01	<0.01
Total VOC TIC	-	-	-	-

Leach Test Information

Date Prepared	29-Feb-2024
pH (pH Units)	8.31
Conductivity (µS/cm)	424
Volume Leachant (Litres)	0.303
Volume of Eluate VE1 (Litres)	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Leachates prepared in accordance with BS EN 12457 will be carried out at room temperature (20±5°C)
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CERTIFICATE OF ANALYSIS

SDG: 240228-29 | Report Number: 722728 | Superseded Report: 722617
Client Ref.: 70119985 | Location: Unit 10, Barton Park

CEN 2:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/1

Client Reference		**Site Location**	Unit 10, Barton Park
Mass Sample taken (kg)	0.230	**Natural Moisture Content (%)**	31.7
Mass of dry sample (kg)	0.175	**Dry Matter Content (%)**	75.9
Particle Size <4mm	>95%		

Case	
SDG	240228-29
Lab Sample Number(s)	29422386
Sampled Date	21-Feb-2024
Customer Sample Ref.	WS04 ESZ
Depth (m)	1.40 - 1.70

Eluate Analysis	Concⁿ in 2:1 eluate (mg/l)		2:1 concⁿ leached (mg/kg)	
	Result	Limit of Detection	Result	Limit of Detection
PAH Spec MS - Aqueous (W)				
Naphthalene by GCMS	0.000152	<0.00002	0.000304	<0.00004
Acenaphthene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Acenaphthylene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Fluoranthene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Anthracene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Phenanthrene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Fluorene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Chrysene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Pyrene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Benz(a)anthracene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Benzo(b)fluoranthene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Benzo(k)fluoranthene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Benzo(a)pyrene by GCMS	<0.000004	<0.000004	<0.000008	<0.000008
Dibenzo(ah)anthracene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Benzo(ghi)perylene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Indeno(123cd)pyrene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
PAH 16 EPA Total by GCMS	<0.000164	<0.000164	<0.000328	<0.000328
SVOC MS (W) - Aqueous				
1,2,4-Trichlorobenzene	<0.01	<0.01	<0.02	<0.02
1,2-Dichlorobenzene	<0.01	<0.01	<0.02	<0.02
1,3-Dichlorobenzene	<0.01	<0.01	<0.02	<0.02
1,4-Dichlorobenzene	<0.01	<0.01	<0.02	<0.02
2,4,5-Trichlorophenol	<0.01	<0.01	<0.02	<0.02
2,4,6-Trichlorophenol	<0.01	<0.01	<0.02	<0.02
2,4-Dichlorophenol	<0.01	<0.01	<0.02	<0.02
2,4-Dimethylphenol	<0.01	<0.01	<0.02	<0.02
2,4-Dinitrotoluene	<0.01	<0.01	<0.02	<0.02
2,6-Dinitrotoluene	<0.01	<0.01	<0.02	<0.02
2-Chloronaphthalene	<0.01	<0.01	<0.02	<0.02
2-Chlorophenol	<0.01	<0.01	<0.02	<0.02
2-Methylnaphthalene	<0.01	<0.01	<0.02	<0.02
2-Methylphenol	<0.01	<0.01	<0.02	<0.02
2-Nitroaniline	<0.01	<0.01	<0.02	<0.02
2-Nitrophenol	<0.01	<0.01	<0.02	<0.02
3-Nitroaniline	<0.01	<0.01	<0.02	<0.02
4-Bromophenylphenylether	<0.01	<0.01	<0.02	<0.02

Leach Test Information

Date Prepared	29-Feb-2024
pH (pH Units)	8.42
Conductivity (µS/cm)	312
Volume Leachant (Litres)	0.295
Volume of Eluate VE1 (Litres)	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
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11/03/2024 16:07:28

CERTIFICATE OF ANALYSIS

SDG: 240228-29 | Report Number: 722728 | Superseded Report: 722617
Client Ref.: 70119985 | Location: Unit 10, Barton Park

CEN 2:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/1

Client Reference		**Site Location**	Unit 10, Barton Park
Mass Sample taken (kg)	0.230	**Natural Moisture Content (%)**	31.7
Mass of dry sample (kg)	0.175	**Dry Matter Content (%)**	75.9
Particle Size <4mm	>95%		

Case	
SDG	240228-29
Lab Sample Number(s)	29422386
Sampled Date	21-Feb-2024
Customer Sample Ref.	WS04 ESZ
Depth (m)	1.40 - 1.70

Eluate Analysis	Concⁿ in 2:1 eluate (mg/l)		2:1 concⁿ leached (mg/kg)	
	Result	Limit of Detection	Result	Limit of Detection
SVOC MS (W) - Aqueous				
4-Chloro-3-methylphenol	<0.01	<0.01	<0.02	<0.02
4-Chloroaniline	<0.01	<0.01	<0.02	<0.02
4-Chlorophenylphenylether	<0.01	<0.01	<0.02	<0.02
4-Methylphenol	<0.01	<0.01	<0.02	<0.02
4-Nitroaniline	<0.01	<0.01	<0.02	<0.02
4-Nitrophenol	<0.01	<0.01	<0.02	<0.02
Azobenzene	<0.01	<0.01	<0.02	<0.02
Acenaphthylene	<0.01	<0.01	<0.02	<0.02
Acenaphthene	<0.01	<0.01	<0.02	<0.02
Anthracene	<0.01	<0.01	<0.02	<0.02
Bis(2-chloroethyl)ether	<0.01	<0.01	<0.02	<0.02
Bis(2-chloroethoxy)methane	<0.01	<0.01	<0.02	<0.02
Bis(2-ethylhexyl) phthalate	<0.02	<0.02	<0.04	<0.04
Butylbenzyl phthalate	<0.01	<0.01	<0.02	<0.02
Benzo(a)anthracene	<0.01	<0.01	<0.02	<0.02
Benzo(b)fluoranthene	<0.01	<0.01	<0.02	<0.02
Benzo(k)fluoranthene	<0.01	<0.01	<0.02	<0.02
Benzo(a)pyrene	<0.01	<0.01	<0.02	<0.02
Benzo(ghi)perylene	<0.01	<0.01	<0.02	<0.02
Carbazole	<0.01	<0.01	<0.02	<0.02
Chrysene	<0.01	<0.01	<0.02	<0.02
Dibenzofuran	<0.01	<0.01	<0.02	<0.02
Di-n-butyl phthalate	<0.01	<0.01	<0.02	<0.02
Diethyl phthalate	<0.01	<0.01	<0.02	<0.02
Dibenzo(a,h)anthracene	<0.01	<0.01	<0.02	<0.02
Dimethyl phthalate	<0.01	<0.01	<0.02	<0.02
Di-n-Octyl phthalate	<0.05	<0.05	<0.1	<0.1
Fluoranthene	<0.01	<0.01	<0.02	<0.02
Fluorene	<0.01	<0.01	<0.02	<0.02
Hexachlorobenzene	<0.01	<0.01	<0.02	<0.02
Hexachlorobutadiene	<0.01	<0.01	<0.02	<0.02
Pentachlorophenol	<0.01	<0.01	<0.02	<0.02
Phenol	<0.01	<0.01	<0.02	<0.02
N-nitrosodi-n-propylamine	<0.01	<0.01	<0.02	<0.02
Hexachloroethane	<0.01	<0.01	<0.02	<0.02

Leach Test Information

Date Prepared	29-Feb-2024
pH (pH Units)	8.42
Conductivity (µS/cm)	312
Volume Leachant (Litres)	0.295
Volume of Eluate VE1 (Litres)	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Leachates prepared in accordance with BS EN 12457 will be carried out at room temperature (20±5°C)
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11/03/2024 16:07:28

CERTIFICATE OF ANALYSIS

SDG: 240228-29 **Report Number:** 722728 **Superseded Report:** 722617
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

CEN 2:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/1

Client Reference		**Site Location**	Unit 10, Barton Park
Mass Sample taken (kg)	0.230	**Natural Moisture Content (%)**	31.7
Mass of dry sample (kg)	0.175	**Dry Matter Content (%)**	75.9
Particle Size <4mm	>95%		

Case	
SDG	240228-29
Lab Sample Number(s)	29422386
Sampled Date	21-Feb-2024
Customer Sample Ref.	WS04 ESZ
Depth (m)	1.40 - 1.70

Eluate Analysis	Concⁿ in 2:1 eluate (mg/l)		2:1 concⁿ leached (mg/kg)	
	Result	Limit of Detection	Result	Limit of Detection
SVOC MS (W) - Aqueous				
Nitrobenzene	<0.01	<0.01	<0.02	<0.02
Naphthalene	<0.01	<0.01	<0.02	<0.02
Isophorone	<0.01	<0.01	<0.02	<0.02
Hexachlorocyclopentadiene	<0.01	<0.01	<0.02	<0.02
Phenanthrene	<0.01	<0.01	<0.02	<0.02
Indeno (1,2,3-cd) Pyrene	<0.01	<0.01	<0.02	<0.02
Pyrene	<0.01	<0.01	<0.02	<0.02
TPH CWG (W)				
Surrogate Recovery	-	-	-	-
GRO TOT (C5-C12)	<0.05	<0.05	<0.1	<0.1
Aliphatics C5-C6	<0.01	<0.01	<0.02	<0.02
Aliphatics >C6-C8	<0.01	<0.01	<0.02	<0.02
Aliphatics >C8-C10	<0.01	<0.01	<0.02	<0.02
Aliphatics >C10-C12	<0.01	<0.01	<0.02	<0.02
Aliphatics >C12-C16	<0.01	<0.01	<0.02	<0.02
Aliphatics >C16-C21	<0.01	<0.01	<0.02	<0.02
Aliphatics >C21-C35	<0.01	<0.01	<0.02	<0.02
Total Aliphatics >C12-C35 (b)	<0.01	<0.01	<0.02	<0.02
Aromatics C6-C7	<0.01	<0.01	<0.02	<0.02
Aromatics >C7-C8	<0.01	<0.01	<0.02	<0.02
Aromatics >EC8 -EC10	<0.01	<0.01	<0.02	<0.02
Aromatics >EC10-EC12	<0.01	<0.01	<0.02	<0.02
Aromatics >C12-C16	<0.01	<0.01	<0.02	<0.02
Aromatics >C16-C21	<0.01	<0.01	<0.02	<0.02
Aromatics >C21-C35	<0.01	<0.01	<0.02	<0.02
Total Aromatics >C12-C35 (b)	<0.01	<0.01	<0.02	<0.02
TPH (Total Aliphatics + Total Aromatics) >C5-C35	<0.01	<0.01	<0.02	<0.02
VOC MS (W)				
Dibromofluoromethane	-	-	-	-
Toluene-d8	-	-	-	-
4-Bromofluorobenzene	-	-	-	-
Dichlorodifluoromethane	<0.01	<0.01	<0.02	<0.02
Chloromethane	<0.01	<0.01	<0.02	<0.02
Vinyl Chloride	<0.01	<0.01	<0.02	<0.02
Bromomethane	<0.01	<0.01	<0.02	<0.02
Chloroethane	<0.01	<0.01	<0.02	<0.02
Trichlorofluoromethane	<0.01	<0.01	<0.02	<0.02

Leach Test Information

Date Prepared	29-Feb-2024
pH (pH Units)	8.42
Conductivity (µS/cm)	312
Volume Leachant (Litres)	0.295
Volume of Eluate VE1 (Litres)	

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11/03/2024 16:07:28

CERTIFICATE OF ANALYSIS

SDG: 240228-29 | Report Number: 722728 | Superseded Report: 722617
Client Ref.: 70119985 | Location: Unit 10, Barton Park

CEN 2:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/1

Client Reference		**Site Location**	Unit 10, Barton Park
Mass Sample taken (kg)	0.230	**Natural Moisture Content (%)**	31.7
Mass of dry sample (kg)	0.175	**Dry Matter Content (%)**	75.9
Particle Size <4mm	>95%		

Case	
SDG	240228-29
Lab Sample Number(s)	29422386
Sampled Date	21-Feb-2024
Customer Sample Ref.	WS04 ESZ
Depth (m)	1.40 - 1.70

Eluate Analysis	Concⁿ in 2:1 eluate (mg/l)		2:1 concⁿ leached (mg/kg)	
	Result	Limit of Detection	Result	Limit of Detection
VOC MS (W)				
1,1-Dichloroethene	<0.01	<0.01	<0.02	<0.02
Carbon Disulphide	<0.01	<0.01	<0.02	<0.02
Dichloromethane	<0.03	<0.03	<0.06	<0.06
Tert-butyl methyl ether	<0.01	<0.01	<0.02	<0.02
Trans-1,2-Dichloroethene	<0.01	<0.01	<0.02	<0.02
1,1-Dichloroethane	<0.01	<0.01	<0.02	<0.02
Cis-1,2-Dichloroethene	<0.01	<0.01	<0.02	<0.02
2,2-Dichloropropane	<0.01	<0.01	<0.02	<0.02
Bromochloromethane	<0.01	<0.01	<0.02	<0.02
Chloroform	<0.01	<0.01	<0.02	<0.02
1,1,1-Trichloroethane	<0.01	<0.01	<0.02	<0.02
1,1-Dichloropropene	<0.01	<0.01	<0.02	<0.02
Carbontetrachloride	<0.01	<0.01	<0.02	<0.02
1,2-Dichloroethane	<0.01	<0.01	<0.02	<0.02
Benzene	<0.01	<0.01	<0.02	<0.02
Trichloroethene	<0.01	<0.01	<0.02	<0.02
1,2-Dichloropropane	<0.01	<0.01	<0.02	<0.02
Dibromomethane	<0.01	<0.01	<0.02	<0.02
Bromodichloromethane	<0.01	<0.01	<0.02	<0.02
Cis-1,3-Dichloropropene	<0.01	<0.01	<0.02	<0.02
Toluene	<0.01	<0.01	<0.02	<0.02
Trans-1,3-Dichloropropene	<0.01	<0.01	<0.02	<0.02
1,1,2-Trichloroethane	<0.01	<0.01	<0.02	<0.02
1,3-Dichloropropane	<0.01	<0.01	<0.02	<0.02
Tetrachloroethene	<0.01	<0.01	<0.02	<0.02
Dibromochloromethane	<0.01	<0.01	<0.02	<0.02
1,2-Dibromoethane	<0.01	<0.01	<0.02	<0.02
Chlorobenzene	<0.01	<0.01	<0.02	<0.02
1,1,1,2-Tetrachloroethane	<0.01	<0.01	<0.02	<0.02
Ethylbenzene	<0.01	<0.01	<0.02	<0.02
p/m-Xylene	<0.01	<0.01	<0.02	<0.02
o-Xylene	<0.01	<0.01	<0.02	<0.02
Styrene	<0.01	<0.01	<0.02	<0.02
Bromoform	<0.01	<0.01	<0.02	<0.02
Isopropylbenzene	<0.01	<0.01	<0.02	<0.02

Leach Test Information

Date Prepared	29-Feb-2024
pH (pH Units)	8.42
Conductivity (µS/cm)	312
Volume Leachant (Litres)	0.295
Volume of Eluate VE1 (Litres)	

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CERTIFICATE OF ANALYSIS

SDG: 240228-29 | Report Number: 722728 | Superseded Report: 722617
Client Ref.: 70119985 | Location: Unit 10, Barton Park

CEN 2:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/1

Client Reference		**Site Location**	Unit 10, Barton Park
Mass Sample taken (kg)	0.230	**Natural Moisture Content (%)**	31.7
Mass of dry sample (kg)	0.175	**Dry Matter Content (%)**	75.9
Particle Size <4mm	>95%		

Case	
SDG	240228-29
Lab Sample Number(s)	29422386
Sampled Date	21-Feb-2024
Customer Sample Ref.	WS04 ESZ
Depth (m)	1.40 - 1.70

Eluate Analysis	Concⁿ in 2:1 eluate (mg/l)		2:1 concⁿ leached (mg/kg)	
	Result	Limit of Detection	Result	Limit of Detection
VOC MS (W)				
1,1,2,2-Tetrachloroethane	<0.01	<0.01	<0.02	<0.02
1,2,3-Trichloropropane	<0.01	<0.01	<0.02	<0.02
Bromobenzene	<0.01	<0.01	<0.02	<0.02
Propylbenzene	<0.01	<0.01	<0.02	<0.02
2-Chlorotoluene	<0.01	<0.01	<0.02	<0.02
1,3,5-Trimethylbenzene	<0.01	<0.01	<0.02	<0.02
4-Chlorotoluene	<0.01	<0.01	<0.02	<0.02
Tert-Butylbenzene	<0.01	<0.01	<0.02	<0.02
1,2,4-Trimethylbenzene	<0.01	<0.01	<0.02	<0.02
Sec-Butylbenzene	<0.01	<0.01	<0.02	<0.02
4-Isopropyltoluene	<0.01	<0.01	<0.02	<0.02
1,3-Dichlorobenzene	<0.01	<0.01	<0.02	<0.02
1,4-Dichlorobenzene	<0.01	<0.01	<0.02	<0.02
n-Butylbenzene	<0.01	<0.01	<0.02	<0.02
1,2-Dichlorobenzene	<0.01	<0.01	<0.02	<0.02
1,2-Dibromo-3-Chloropropane	<0.01	<0.01	<0.02	<0.02
1,2,4-Trichlorobenzene	<0.01	<0.01	<0.02	<0.02
Hexachlorobutadiene	<0.01	<0.01	<0.02	<0.02
Tert-amyl methyl ether	<0.01	<0.01	<0.02	<0.02
Naphthalene	<0.01	<0.01	<0.02	<0.02
1,2,3-Trichlorobenzene	<0.01	<0.01	<0.02	<0.02
1,3,5-Trichlorobenzene	<0.01	<0.01	<0.02	<0.02
VOC TIC	-	-	-	-
Total Xylenes	<0.02	<0.02	<0.04	<0.04
Sum of BTEX	<0.05	<0.05	<0.1	<0.1
Total VOC TIC	-	-	-	-

Leach Test Information

Date Prepared	29-Feb-2024
pH (pH Units)	8.42
Conductivity (µS/cm)	312
Volume Leachant (Litres)	0.295
Volume of Eluate VE1 (Litres)	

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CERTIFICATE OF ANALYSIS

SDG: 240228-29 **Report Number:** 722728 **Superseded Report:** 722617
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

CEN 2:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/1

Client Reference		**Site Location**	Unit 10, Barton Park
Mass Sample taken (kg)	0.190	**Natural Moisture Content (%)**	8.87
Mass of dry sample (kg)	0.175	**Dry Matter Content (%)**	91.8
Particle Size <4mm	>95%		

Case	
SDG	240228-29
Lab Sample Number(s)	29422396
Sampled Date	21-Feb-2024
Customer Sample Ref.	WS05A ESZ
Depth (m)	0.35 - 0.50

Eluate Analysis	**Concⁿ in 2:1 eluate (mg/l)**		**2:1 concⁿ leached (mg/kg)**	
	Result	**Limit of Detection**	**Result**	**Limit of Detection**
PAH Spec MS - Aqueous (W)				
Naphthalene by GCMS	0.000823	<0.00002	0.00165	<0.00004
Acenaphthene by GCMS	0.0000167	<0.00001	0.0000334	<0.00002
Acenaphthylene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Fluoranthene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Anthracene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Phenanthrene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Fluorene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Chrysene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Pyrene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Benz(a)anthracene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Benzo(b)fluoranthene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Benzo(k)fluoranthene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Benzo(a)pyrene by GCMS	<0.000004	<0.000004	<0.000008	<0.000008
Dibenzo(ah)anthracene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Benzo(ghi)perylene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Indeno(123cd)pyrene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
PAH 16 EPA Total by GCMS	0.000839	<0.000164	0.00168	<0.000328
SVOC MS (W) - Aqueous				
1,2,4-Trichlorobenzene	<0.001	<0.001	<0.002	<0.002
1,2-Dichlorobenzene	<0.001	<0.001	<0.002	<0.002
1,3-Dichlorobenzene	<0.001	<0.001	<0.002	<0.002
1,4-Dichlorobenzene	<0.001	<0.001	<0.002	<0.002
2,4,5-Trichlorophenol	<0.002	<0.002	<0.004	<0.004
2,4,6-Trichlorophenol	<0.002	<0.002	<0.004	<0.004
2,4-Dichlorophenol	<0.002	<0.002	<0.004	<0.004
2,4-Dimethylphenol	<0.002	<0.002	<0.004	<0.004
2,4-Dinitrotoluene	<0.002	<0.002	<0.004	<0.004
2,6-Dinitrotoluene	<0.002	<0.002	<0.004	<0.004
2-Chloronaphthalene	<0.002	<0.002	<0.004	<0.004
2-Chlorophenol	<0.002	<0.002	<0.004	<0.004
2-Methylnaphthalene	<0.002	<0.002	<0.004	<0.004
2-Methylphenol	<0.002	<0.002	<0.004	<0.004
2-Nitroaniline	<0.002	<0.002	<0.004	<0.004
2-Nitrophenol	<0.002	<0.002	<0.004	<0.004
3-Nitroaniline	<0.002	<0.002	<0.004	<0.004
4-Bromophenylphenylether	<0.002	<0.002	<0.004	<0.004

Leach Test Information

Date Prepared	28-Feb-2024
pH (pH Units)	8.12
Conductivity (µS/cm)	690
Volume Leachant (Litres)	0.335
Volume of Eluate VE1 (Litres)	

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CERTIFICATE OF ANALYSIS

SDG: 240228-29 | Report Number: 722728 | Superseded Report: 722617
Client Ref.: 70119985 | Location: Unit 10, Barton Park

CEN 2:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/1

Client Reference		**Site Location**	Unit 10, Barton Park
Mass Sample taken (kg)	0.190	**Natural Moisture Content (%)**	8.87
Mass of dry sample (kg)	0.175	**Dry Matter Content (%)**	91.8
Particle Size <4mm	>95%		

Case	
SDG	240228-29
Lab Sample Number(s)	29422396
Sampled Date	21-Feb-2024
Customer Sample Ref.	WS05A ESZ
Depth (m)	0.35 - 0.50

Eluate Analysis	Concⁿ in 2:1 eluate (mg/l)		2:1 concⁿ leached (mg/kg)	
	Result	Limit of Detection	Result	Limit of Detection
SVOC MS (W) - Aqueous				
4-Chloro-3-methylphenol	<0.002	<0.002	<0.004	<0.004
4-Chloroaniline	<0.002	<0.002	<0.004	<0.004
4-Chlorophenylphenylether	<0.002	<0.002	<0.004	<0.004
4-Methylphenol	<0.002	<0.002	<0.004	<0.004
4-Nitroaniline	<0.002	<0.002	<0.004	<0.004
4-Nitrophenol	<0.002	<0.002	<0.004	<0.004
Azobenzene	<0.002	<0.002	<0.004	<0.004
Acenaphthylene	<0.002	<0.002	<0.004	<0.004
Acenaphthene	<0.002	<0.002	<0.004	<0.004
Anthracene	<0.002	<0.002	<0.004	<0.004
Bis(2-chloroethyl)ether	<0.002	<0.002	<0.004	<0.004
Bis(2-chloroethoxy)methane	<0.002	<0.002	<0.004	<0.004
Bis(2-ethylhexyl) phthalate	<0.004	<0.004	<0.008	<0.008
Butylbenzyl phthalate	<0.002	<0.002	<0.004	<0.004
Benzo(a)anthracene	<0.002	<0.002	<0.004	<0.004
Benzo(b)fluoranthene	<0.002	<0.002	<0.004	<0.004
Benzo(k)fluoranthene	<0.002	<0.002	<0.004	<0.004
Benzo(a)pyrene	<0.002	<0.002	<0.004	<0.004
Benzo(ghi)perylene	<0.002	<0.002	<0.004	<0.004
Carbazole	<0.002	<0.002	<0.004	<0.004
Chrysene	<0.002	<0.002	<0.004	<0.004
Dibenzofuran	<0.002	<0.002	<0.004	<0.004
Di-n-butyl phthalate	<0.002	<0.002	<0.004	<0.004
Diethyl phthalate	<0.002	<0.002	<0.004	<0.004
Dibenzo(a,h)anthracene	<0.002	<0.002	<0.004	<0.004
Dimethyl phthalate	<0.002	<0.002	<0.004	<0.004
Di-n-Octyl phthalate	<0.01	<0.01	<0.02	<0.02
Fluoranthene	<0.002	<0.002	<0.004	<0.004
Fluorene	<0.002	<0.002	<0.004	<0.004
Hexachlorobenzene	<0.002	<0.002	<0.004	<0.004
Hexachlorobutadiene	<0.001	<0.001	<0.002	<0.002
Pentachlorophenol	<0.002	<0.002	<0.004	<0.004
Phenol	<0.002	<0.002	<0.004	<0.004
N-nitrosodi-n-propylamine	<0.002	<0.002	<0.004	<0.004
Hexachloroethane	<0.002	<0.002	<0.004	<0.004

Leach Test Information

Date Prepared	28-Feb-2024
pH (pH Units)	8.12
Conductivity (µS/cm)	690
Volume Leachant (Litres)	0.335
Volume of Eluate VE1 (Litres)	

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11/03/2024 16:07:28

CERTIFICATE OF ANALYSIS

SDG: 240228-29 | Report Number: 722728 | Superseded Report: 722617
Client Ref.: 70119985 | Location: Unit 10, Barton Park

CEN 2:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/1

Client Reference		**Site Location**	Unit 10, Barton Park
Mass Sample taken (kg)	0.190	**Natural Moisture Content (%)**	8.87
Mass of dry sample (kg)	0.175	**Dry Matter Content (%)**	91.8
Particle Size <4mm	>95%		

Case	
SDG	240228-29
Lab Sample Number(s)	29422396
Sampled Date	21-Feb-2024
Customer Sample Ref.	WS05A ESZ
Depth (m)	0.35 - 0.50

Eluate Analysis	Concⁿ in 2:1 eluate (mg/l)		2:1 concⁿ leached (mg/kg)	
	Result	Limit of Detection	Result	Limit of Detection
SVOC MS (W) - Aqueous				
Nitrobenzene	<0.002	<0.002	<0.004	<0.004
Naphthalene	<0.001	<0.001	<0.002	<0.002
Isophorone	<0.002	<0.002	<0.004	<0.004
Hexachlorocyclopentadiene	<0.002	<0.002	<0.004	<0.004
Phenanthrene	<0.002	<0.002	<0.004	<0.004
Indeno (1,2,3-cd) Pyrene	<0.002	<0.002	<0.004	<0.004
Pyrene	<0.002	<0.002	<0.004	<0.004
TPH CWG (W)				
Surrogate Recovery	-	-	-	-
GRO TOT (C5-C12)	<0.05	<0.05	<0.1	<0.1
Aliphatics C5-C6	<0.01	<0.01	<0.02	<0.02
Aliphatics >C6-C8	<0.01	<0.01	<0.02	<0.02
Aliphatics >C8-C10	<0.01	<0.01	<0.02	<0.02
Aliphatics >C10-C12	<0.01	<0.01	<0.02	<0.02
Aliphatics >C12-C16	<0.01	<0.01	<0.02	<0.02
Aliphatics >C16-C21	<0.01	<0.01	<0.02	<0.02
Aliphatics >C21-C35	<0.01	<0.01	<0.02	<0.02
Total Aliphatics >C12-C35 (b)	<0.01	<0.01	<0.02	<0.02
Aromatics C6-C7	<0.01	<0.01	<0.02	<0.02
Aromatics >C7-C8	<0.01	<0.01	<0.02	<0.02
Aromatics >EC8 -EC10	<0.01	<0.01	<0.02	<0.02
Aromatics >EC10-EC12	<0.01	<0.01	<0.02	<0.02
Aromatics >C12-C16	<0.01	<0.01	<0.02	<0.02
Aromatics >C16-C21	<0.01	<0.01	<0.02	<0.02
Aromatics >C21-C35	<0.01	<0.01	<0.02	<0.02
Total Aromatics >C12-C35 (b)	<0.01	<0.01	<0.02	<0.02
TPH (Total Aliphatics + Total Aromatics) >C5-C35	<0.01	<0.01	<0.02	<0.02
VOC MS (W)				
Dibromofluoromethane	-	-	-	-
Toluene-d8	-	-	-	-
4-Bromofluorobenzene	-	-	-	-
Dichlorodifluoromethane	<0.001	<0.001	<0.002	<0.002
Chloromethane	<0.001	<0.001	<0.002	<0.002
Vinyl Chloride	<0.001	<0.001	<0.002	<0.002
Bromomethane	<0.001	<0.001	<0.002	<0.002
Chloroethane	<0.001	<0.001	<0.002	<0.002
Trichlorofluoromethane	<0.001	<0.001	<0.002	<0.002

Leach Test Information

Date Prepared	28-Feb-2024
pH (pH Units)	8.12
Conductivity (µS/cm)	690
Volume Leachant (Litres)	0.335
Volume of Eluate VE1 (Litres)	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Leachates prepared in accordance with BS EN 12457 will be carried out at room temperature (20±5°C)
Stated limits are for guidance only and ALS Laboratories (UK) Limited cannot be held responsible for any discrepancies with current legislation

11/03/2024 16:07:28

CERTIFICATE OF ANALYSIS

SDG: 240228-29 | Report Number: 722728 | Superseded Report: 722617
Client Ref.: 70119985 | Location: Unit 10, Barton Park

CEN 2:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/1

Client Reference		**Site Location**	Unit 10, Barton Park
Mass Sample taken (kg)	0.190	**Natural Moisture Content (%)**	8.87
Mass of dry sample (kg)	0.175	**Dry Matter Content (%)**	91.8
Particle Size <4mm	>95%		

Case	
SDG	240228-29
Lab Sample Number(s)	29422396
Sampled Date	21-Feb-2024
Customer Sample Ref.	WS05A ESZ
Depth (m)	0.35 - 0.50

Eluate Analysis	Concⁿ in 2:1 eluate (mg/l)		2:1 concⁿ leached (mg/kg)	
	Result	Limit of Detection	Result	Limit of Detection
VOC MS (W)				
1,1-Dichloroethene	<0.001	<0.001	<0.002	<0.002
Carbon Disulphide	<0.001	<0.001	<0.002	<0.002
Dichloromethane	<0.003	<0.003	<0.006	<0.006
Tert-butyl methyl ether	<0.001	<0.001	<0.002	<0.002
Trans-1,2-Dichloroethene	<0.001	<0.001	<0.002	<0.002
1,1-Dichloroethane	<0.001	<0.001	<0.002	<0.002
Cis-1,2-Dichloroethene	<0.001	<0.001	<0.002	<0.002
2,2-Dichloropropane	<0.001	<0.001	<0.002	<0.002
Bromochloromethane	<0.001	<0.001	<0.002	<0.002
Chloroform	<0.001	<0.001	<0.002	<0.002
1,1,1-Trichloroethane	<0.001	<0.001	<0.002	<0.002
1,1-Dichloropropene	<0.001	<0.001	<0.002	<0.002
Carbontetrachloride	<0.001	<0.001	<0.002	<0.002
1,2-Dichloroethane	<0.001	<0.001	<0.002	<0.002
Benzene	<0.001	<0.001	<0.002	<0.002
Trichloroethene	<0.001	<0.001	<0.002	<0.002
1,2-Dichloropropane	<0.001	<0.001	<0.002	<0.002
Dibromomethane	<0.001	<0.001	<0.002	<0.002
Bromodichloromethane	<0.001	<0.001	<0.002	<0.002
Cis-1,3-Dichloropropene	<0.001	<0.001	<0.002	<0.002
Toluene	<0.001	<0.001	<0.002	<0.002
Trans-1,3-Dichloropropene	<0.001	<0.001	<0.002	<0.002
1,1,2-Trichloroethane	<0.001	<0.001	<0.002	<0.002
1,3-Dichloropropane	<0.001	<0.001	<0.002	<0.002
Tetrachloroethene	<0.001	<0.001	<0.002	<0.002
Dibromochloromethane	<0.001	<0.001	<0.002	<0.002
1,2-Dibromoethane	<0.001	<0.001	<0.002	<0.002
Chlorobenzene	<0.001	<0.001	<0.002	<0.002
1,1,1,2-Tetrachloroethane	<0.001	<0.001	<0.002	<0.002
Ethylbenzene	<0.001	<0.001	<0.002	<0.002
p/m-Xylene	<0.001	<0.001	<0.002	<0.002
o-Xylene	<0.001	<0.001	<0.002	<0.002
Styrene	<0.001	<0.001	<0.002	<0.002
Bromoform	<0.001	<0.001	<0.002	<0.002
Isopropylbenzene	<0.001	<0.001	<0.002	<0.002

Leach Test Information

Date Prepared	28-Feb-2024
pH (pH Units)	8.12
Conductivity (µS/cm)	690
Volume Leachant (Litres)	0.335
Volume of Eluate VE1 (Litres)	

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CERTIFICATE OF ANALYSIS

SDG: 240228-29 **Report Number:** 722728 **Superseded Report:** 722617
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

CEN 2:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/1

Client Reference		**Site Location**	Unit 10, Barton Park
Mass Sample taken (kg)	0.190	**Natural Moisture Content (%)**	8.87
Mass of dry sample (kg)	0.175	**Dry Matter Content (%)**	91.8
Particle Size <4mm	>95%		

Case	
SDG	240228-29
Lab Sample Number(s)	29422396
Sampled Date	21-Feb-2024
Customer Sample Ref.	WS05A ESZ
Depth (m)	0.35 - 0.50

Eluate Analysis	**Concⁿ in 2:1 eluate (mg/l)**		**2:1 concⁿ leached (mg/kg)**	
	Result	**Limit of Detection**	**Result**	**Limit of Detection**
VOC MS (W)				
1,1,2,2-Tetrachloroethane	<0.001	<0.001	<0.002	<0.002
1,2,3-Trichloropropane	<0.001	<0.001	<0.002	<0.002
Bromobenzene	<0.001	<0.001	<0.002	<0.002
Propylbenzene	<0.001	<0.001	<0.002	<0.002
2-Chlorotoluene	<0.001	<0.001	<0.002	<0.002
1,3,5-Trimethylbenzene	<0.001	<0.001	<0.002	<0.002
4-Chlorotoluene	<0.001	<0.001	<0.002	<0.002
Tert-Butylbenzene	<0.001	<0.001	<0.002	<0.002
1,2,4-Trimethylbenzene	<0.001	<0.001	<0.002	<0.002
Sec-Butylbenzene	<0.001	<0.001	<0.002	<0.002
4-Isopropyltoluene	<0.001	<0.001	<0.002	<0.002
1,3-Dichlorobenzene	<0.001	<0.001	<0.002	<0.002
1,4-Dichlorobenzene	<0.001	<0.001	<0.002	<0.002
n-Butylbenzene	<0.001	<0.001	<0.002	<0.002
1,2-Dichlorobenzene	<0.001	<0.001	<0.002	<0.002
1,2-Dibromo-3-Chloropropane	<0.001	<0.001	<0.002	<0.002
1,2,4-Trichlorobenzene	<0.001	<0.001	<0.002	<0.002
Hexachlorobutadiene	<0.001	<0.001	<0.002	<0.002
Tert-amyl methyl ether	<0.001	<0.001	<0.002	<0.002
Naphthalene	<0.001	<0.001	<0.002	<0.002
1,2,3-Trichlorobenzene	<0.001	<0.001	<0.002	<0.002
1,3,5-Trichlorobenzene	<0.001	<0.001	<0.002	<0.002
VOC TIC	-	-	-	-
Total Xylenes	<0.002	<0.002	<0.004	<0.004
Sum of BTEX	<0.005	<0.005	<0.01	<0.01
Total VOC TIC	-	-	-	-

Leach Test Information

Date Prepared	28-Feb-2024
pH (pH Units)	8.12
Conductivity (µS/cm)	690
Volume Leachant (Litres)	0.335
Volume of Eluate VE1 (Litres)	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
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Client Ref.: 70119985 **Location:** Unit 10, Barton Park

CEN 2:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/1

Client Reference		**Site Location**	Unit 10, Barton Park
Mass Sample taken (kg)	0.230	**Natural Moisture Content (%)**	31.1
Mass of dry sample (kg)	0.175	**Dry Matter Content (%)**	76.3
Particle Size <4mm	>95%		

Case	
SDG	240228-29
Lab Sample Number(s)	29422401
Sampled Date	21-Feb-2024
Customer Sample Ref.	WS05A ESZ
Depth (m)	1.20 - 1.30

Eluate Analysis	**Concⁿ in 2:1 eluate (mg/l)**		**2:1 concⁿ leached (mg/kg)**	
	Result	**Limit of Detection**	**Result**	**Limit of Detection**
PAH Spec MS - Aqueous (W)				
Naphthalene by GCMS	0.0000698	<0.00002	0.00014	<0.00004
Acenaphthene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Acenaphthylene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Fluoranthene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Anthracene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Phenanthrene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Fluorene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Chrysene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Pyrene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Benz(a)anthracene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Benzo(b)fluoranthene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Benzo(k)fluoranthene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Benzo(a)pyrene by GCMS	<0.000004	<0.000004	<0.000008	<0.000008
Dibenzo(ah)anthracene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Benzo(ghi)perylene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Indeno(123cd)pyrene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
PAH 16 EPA Total by GCMS	<0.000164	<0.000164	<0.000328	<0.000328
TPH CWG (W)				
Surrogate Recovery	-	-	-	-
GRO TOT (C5-C12)	<0.05	<0.05	<0.1	<0.1
Aliphatics C5-C6	<0.01	<0.01	<0.02	<0.02
Aliphatics >C6-C8	<0.01	<0.01	<0.02	<0.02
Aliphatics >C8-C10	<0.01	<0.01	<0.02	<0.02
Aliphatics >C10-C12	<0.01	<0.01	<0.02	<0.02
Aliphatics >C12-C16	<0.02	<0.02	<0.04	<0.04
Aliphatics >C16-C21	<0.02	<0.02	<0.04	<0.04
Aliphatics >C21-C35	<0.02	<0.02	<0.04	<0.04
Total Aliphatics >C12-C35 (b)	<0.02	<0.02	<0.04	<0.04
Aromatics C6-C7	<0.01	<0.01	<0.02	<0.02
Aromatics >C7-C8	<0.01	<0.01	<0.02	<0.02
Aromatics >EC8 -EC10	<0.01	<0.01	<0.02	<0.02
Aromatics >EC10-EC12	<0.01	<0.01	<0.02	<0.02
Aromatics >C12-C16	<0.02	<0.02	<0.04	<0.04
Aromatics >C16-C21	<0.02	<0.02	<0.04	<0.04
Aromatics >C21-C35	<0.02	<0.02	<0.04	<0.04
Total Aromatics >C12-C35 (b)	<0.02	<0.02	<0.04	<0.04

Leach Test Information

Date Prepared	29-Feb-2024
pH (pH Units)	8.09
Conductivity (µS/cm)	395
Volume Leachant (Litres)	0.295
Volume of Eluate VE1 (Litres)	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Leachates prepared in accordance with BS EN 12457 will be carried out at room temperature (20±5°C)
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CERTIFICATE OF ANALYSIS

SDG: 240228-29 **Report Number:** 722728 **Superseded Report:** 722617
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

CEN 2:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/1

Client Reference		**Site Location**	Unit 10, Barton Park
Mass Sample taken (kg)	0.230	**Natural Moisture Content (%)**	31.1
Mass of dry sample (kg)	0.175	**Dry Matter Content (%)**	76.3
Particle Size <4mm	>95%		

Case	
SDG	240228-29
Lab Sample Number(s)	29422401
Sampled Date	21-Feb-2024
Customer Sample Ref.	WS05A ESZ
Depth (m)	1.20 - 1.30

Eluate Analysis	**Concⁿ in 2:1 eluate (mg/l)**		**2:1 concⁿ leached (mg/kg)**	
	Result	**Limit of Detection**	**Result**	**Limit of Detection**
TPH CWG (W)				
TPH (Total Aliphatics + Total Aromatics) >C5-C35	<0.01	<0.01	<0.02	<0.02
VOC MS (W)				
Tert-butyl methyl ether	<0.01	<0.01	<0.02	<0.02
Benzene	<0.01	<0.01	<0.02	<0.02
Toluene	<0.01	<0.01	<0.02	<0.02
Ethylbenzene	<0.01	<0.01	<0.02	<0.02
p/m-Xylene	<0.01	<0.01	<0.02	<0.02
o-Xylene	<0.01	<0.01	<0.02	<0.02
Total Xylenes	<0.02	<0.02	<0.04	<0.04
Sum of BTEX	<0.05	<0.05	<0.1	<0.1

Leach Test Information

Date Prepared	29-Feb-2024
pH (pH Units)	8.09
Conductivity (µS/cm)	395
Volume Leachant (Litres)	0.295
Volume of Eluate VE1 (Litres)	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
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SDG: 240228-29 **Report Number:** 722728 **Superseded Report:** 722617
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

CEN 2:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/1

Client Reference		**Site Location**	Unit 10, Barton Park
Mass Sample taken (kg)	0.203	**Natural Moisture Content (%)**	16.8
Mass of dry sample (kg)	0.175	**Dry Matter Content (%)**	85.6
Particle Size <4mm	>95%		

Case	
SDG	240228-29
Lab Sample Number(s)	29422454
Sampled Date	20-Feb-2024
Customer Sample Ref.	WS04 ESZ
Depth (m)	0.30 - 0.40

Eluate Analysis	**Concⁿ in 2:1 eluate (mg/l)**		**2:1 concⁿ leached (mg/kg)**	
	Result	**Limit of Detection**	**Result**	**Limit of Detection**
PAH Spec MS - Aqueous (W)				
Naphthalene by GCMS	0.00078	<0.00002	0.00156	<0.00004
Acenaphthene by GCMS	0.00002	<0.00001	0.00004	<0.00002
Acenaphthylene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Fluoranthene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Anthracene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Phenanthrene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Fluorene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Chrysene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Pyrene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Benz(a)anthracene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Benzo(b)fluoranthene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Benzo(k)fluoranthene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Benzo(a)pyrene by GCMS	<0.000004	<0.000004	<0.000008	<0.000008
Dibenzo(ah)anthracene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Benzo(ghi)perylene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
Indeno(123cd)pyrene by GCMS	<0.00001	<0.00001	<0.00002	<0.00002
PAH 16 EPA Total by GCMS	0.0008	<0.000164	0.0016	<0.000328
TPH CWG (W)				
Surrogate Recovery	-	-	-	-
GRO TOT (C5-C12)	<0.05	<0.05	<0.1	<0.1
Aliphatics C5-C6	<0.01	<0.01	<0.02	<0.02
Aliphatics >C6-C8	<0.01	<0.01	<0.02	<0.02
Aliphatics >C8-C10	<0.01	<0.01	<0.02	<0.02
Aliphatics >C10-C12	<0.01	<0.01	<0.02	<0.02
Aliphatics >C12-C16	<0.01	<0.01	<0.02	<0.02
Aliphatics >C16-C21	<0.01	<0.01	<0.02	<0.02
Aliphatics >C21-C35	<0.01	<0.01	<0.02	<0.02
Total Aliphatics >C12-C35 (b)	<0.01	<0.01	<0.02	<0.02
Aromatics C6-C7	<0.01	<0.01	<0.02	<0.02
Aromatics >C7-C8	<0.01	<0.01	<0.02	<0.02
Aromatics >EC8 -EC10	<0.01	<0.01	<0.02	<0.02
Aromatics >EC10-EC12	<0.01	<0.01	<0.02	<0.02
Aromatics >C12-C16	<0.01	<0.01	<0.02	<0.02
Aromatics >C16-C21	<0.01	<0.01	<0.02	<0.02
Aromatics >C21-C35	<0.01	<0.01	<0.02	<0.02
Total Aromatics >C12-C35 (b)	<0.01	<0.01	<0.02	<0.02

Leach Test Information

Date Prepared	29-Feb-2024
pH (pH Units)	8.64
Conductivity (µS/cm)	279
Volume Leachant (Litres)	0.321
Volume of Eluate VE1 (Litres)	

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Client Ref.: 70119985 **Location:** Unit 10, Barton Park

CEN 2:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/1

Client Reference		**Site Location**	Unit 10, Barton Park
Mass Sample taken (kg)	0.203	**Natural Moisture Content (%)**	16.8
Mass of dry sample (kg)	0.175	**Dry Matter Content (%)**	85.6
Particle Size <4mm	>95%		

Case	
SDG	240228-29
Lab Sample Number(s)	29422454
Sampled Date	20-Feb-2024
Customer Sample Ref.	WS04 ESZ
Depth (m)	0.30 - 0.40

Eluate Analysis	**Concⁿ in 2:1 eluate (mg/l)**		**2:1 concⁿ leached (mg/kg)**	
	Result	**Limit of Detection**	**Result**	**Limit of Detection**
TPH CWG (W)				
TPH (Total Aliphatics + Total Aromatics) >C5-C35	<0.01	<0.01	<0.02	<0.02
VOC MS (W)				
Tert-butyl methyl ether	<0.1	<0.1	<0.2	<0.2
Benzene	<0.1	<0.1	<0.2	<0.2
Toluene	<0.1	<0.1	<0.2	<0.2
Ethylbenzene	<0.1	<0.1	<0.2	<0.2
p/m-Xylene	<0.1	<0.1	<0.2	<0.2
o-Xylene	<0.1	<0.1	<0.2	<0.2
Total Xylenes	<0.2	<0.2	<0.4	<0.4
Sum of BTEX	<0.5	<0.5	<1	<1

Leach Test Information

Date Prepared	29-Feb-2024
pH (pH Units)	8.64
Conductivity (µS/cm)	279
Volume Leachant (Litres)	0.321
Volume of Eluate VE1 (Litres)	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Leachates prepared in accordance with BS EN 12457 will be carried out at room temperature (20±5°C)
Stated limits are for guidance only and ALS Laboratories (UK) Limited cannot be held responsible for any discrepancies with current legislation

11/03/2024 16:07:28

CERTIFICATE OF ANALYSIS

SDG: 240228-29 | Report Number: 722728 | Superseded Report: 722617
Client Ref.: 70119985 | Location: Unit 10, Barton Park

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Unit 10, Barton Park
Mass Sample taken (kg)	0.099	**Natural Moisture Content (%)**	10.1
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	90.8
Particle Size <4mm	>95%		

Case	
SDG	240228-29
Lab Sample Number(s)	29422427
Sampled Date	21-Feb-2024
Customer Sample Ref.	WS02 ESZ
Depth (m)	0.63 - 1.50

Solid Waste Analysis	Result	Landfill Waste Acceptance Criteria Limits: Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Total Organic Carbon (%)	1.65	3	5	6
Loss on Ignition (%)	4.85	-	-	10
Sum of BTEX (mg/kg)	<0.07	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg) (EH_2D_AL)	<5	500	-	-
PAH Sum of 17 (mg/kg)	191	100	-	-
pH (pH Units)	8.85	-	>6	-
ANC to pH 6 (mol/kg)	0.0605	-	-	-
ANC to pH 4 (mol/kg)	1.29	-	-	-

Eluate Analysis	C_2 Concⁿ in 10:1 eluate (mg/l)		A_2 10:1 concⁿ leached (mg/kg)		Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg		
	Result	Limit of Detection	Result	Limit of Detection			
Arsenic	0.00556	<0.0005	0.0556	<0.005	0.5	2	25
Barium	0.0167	<0.0002	0.167	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	<0.001	<0.001	<0.01	<0.01	0.5	10	70
Copper	0.00509	<0.0003	0.0509	<0.003	2	50	100
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	0.01	0.2	2
Molybdenum	0.00816	<0.003	0.0816	<0.03	0.5	10	30
Nickel	0.00218	<0.0004	0.0218	<0.004	0.4	10	40
Lead	0.000454	<0.0002	0.00454	<0.002	0.5	10	50
Antimony	0.00246	<0.001	0.0246	<0.01	0.06	0.7	5
Selenium	<0.001	<0.001	<0.01	<0.01	0.1	0.5	7
Zinc	0.00193	<0.001	0.0193	<0.01	4	50	200
Chloride	3.3	<2	33	<20	800	15000	25000
Fluoride	<0.5	<0.5	<5	<5	10	150	500
Sulphate (soluble)	2.4	<2	24	<20	1000	20000	50000
Total Dissolved Solids	113	<10	1130	<100	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	8.7	<3	87	<30	500	800	1000

Leach Test Information

Date Prepared	28-Feb-2024
pH (pH Units)	8.44
Conductivity (µS/cm)	147
Volume Leachant (Litres)	0.891

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Leachates prepared in accordance with BS EN 12457 will be carried out at room temperature (20±5°C)
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11/03/2024 16:07:32

CERTIFICATE OF ANALYSIS

SDG: 240228-29 | Report Number: 722728 | Superseded Report: 722617
Client Ref.: 70119985 | Location: Unit 10, Barton Park

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Unit 10, Barton Park
Mass Sample taken (kg)	0.123	**Natural Moisture Content (%)**	36.9
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	73
Particle Size <4mm	>95%		

Case	
SDG	240228-29
Lab Sample Number(s)	29422448
Sampled Date	21-Feb-2024
Customer Sample Ref.	WS04 ESZ
Depth (m)	0.18 - 1.30

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	9.55	3	5	6
Loss on Ignition (%)	10	-	-	10
Sum of BTEX (mg/kg)	<0.07	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg) (EH_2D_AL)	<5	500	-	-
PAH Sum of 17 (mg/kg)	<10	100	-	-
pH (pH Units)	8.76	-	>6	-
ANC to pH 6 (mol/kg)	0.0311	-	-	-
ANC to pH 4 (mol/kg)	0.0855	-	-	-

Eluate Analysis	**C_2 Concⁿ in 10:1 eluate (mg/l)**		**A_2 10:1 concⁿ leached (mg/kg)**		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	0.0081	<0.0005	0.081	<0.005	0.5	2	25
Barium	0.00615	<0.0002	0.0615	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	0.00179	<0.001	0.0179	<0.01	0.5	10	70
Copper	0.00528	<0.0003	0.0528	<0.003	2	50	100
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	0.01	0.2	2
Molybdenum	0.00323	<0.003	0.0323	<0.03	0.5	10	30
Nickel	0.00222	<0.0004	0.0222	<0.004	0.4	10	40
Lead	0.00146	<0.0002	0.0146	<0.002	0.5	10	50
Antimony	0.00154	<0.001	0.0154	<0.01	0.06	0.7	5
Selenium	0.00102	<0.001	0.0102	<0.01	0.1	0.5	7
Zinc	0.0126	<0.001	0.126	<0.01	4	50	200
Chloride	9.4	<2	94	<20	800	15000	25000
Fluoride	<0.5	<0.5	<5	<5	10	150	500
Sulphate (soluble)	6.2	<2	62	<20	1000	20000	50000
Total Dissolved Solids	107	<10	1070	<100	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	5.27	<3	52.7	<30	500	800	1000

Leach Test Information

Date Prepared	29-Feb-2024
pH (pH Units)	8.57
Conductivity (µS/cm)	140
Volume Leachant (Litres)	0.867

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
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11/03/2024 16:07:32

Table of Results - Appendix

Method No	Description
PM024	Soil preparation including homogenisation, moisture, screens of soils for Asbestos Containing Material
PM115	Leaching Procedure for CEN One Stage Leach Test 2:1 & 10:1 1 Step
TM018	Determination of Loss on Ignition
TM048	Identification of Asbestos in Bulk Material
TM062 (S)	Determination of Phenols in Soils by HPLC
TM089	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM090	Determination of Total Organic Carbon/Total Inorganic Carbon in Water and Waste Water
TM104	Determination of Fluoride using the Kone Analyser
TM116	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	ELTRA CS800 Operators Guide
TM133	Determination of pH in Soil and Water using the GLpH pH Meter
TM151	Determination of Hexavalent Chromium using Kone analyser
TM152	Analysis of Aqueous Samples by ICP-MS
TM157	Determination of SVOC in Soils by GC-MS extracted by sonication in DCM/Acetone
TM168	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Soils
TM176	Determination of SVOCs in Water by GCMS
TM178	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters
TM181	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM182	Determination of Acid Neutralisation Capacity (ANC) Using Autotitration in Soils
TM183	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM208	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters
TM218	The determination of PAH in soil samples by GC-MS
TM222	Determination of Hot Water Soluble Boron in Soils (10:1 Water:Soil) by ICP OES.
TM243	Mixed Anions In Soils By Kone
TM245	Determination of GRO by Headspace in waters
TM256	Determination of pH, EC, TDS and Alkalinity in Aqueous samples
TM259	Determination of Phenols in Waters and Leachates by HPLC
TM304	Asbestos Quantification in Soil: Fibres identified by morphology only
TM410	Determination of Coronene in soils by GCMS
TM414	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID
TM415	Determination of Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID
TM439	Determination of Extractable Petroleum Hydrocarbons (EPH) CWG banding by GC-FID on liquids

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden (Method codes TM).

CERTIFICATE OF ANALYSIS

SDG: 240228-29 **Report Number:** 722728 **Superseded Report:** 722617
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

Test Completion Dates

Lab Sample No(s)	29422416	29422421	29422427	29422438	29422443	29422381	29422386	29422448	29422454	29422391
Customer Sample Ref.	HP01/2	WS02	WS02	WS03	WS03	WS04	WS04	WS04	WS04	WS05
AGS Ref.	ES	ES	ES	ES	ES	ES	ES	ES	ES	ES
Depth	0.40 - 0.50	0.35 - 0.50	0.63 - 1.50	0.35 - 0.50	0.60 - 0.75	1.00 - 1.20	1.40 - 1.70	0.18 - 1.30	0.30 - 0.40	0.25 - 0.35
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
ANC at pH4 and ANC at pH 6			04-Mar-2024					04-Mar-2024		
Anions by Kone (soil)	01-Mar-2024	04-Mar-2024			04-Mar-2024	04-Mar-2024	04-Mar-2024		04-Mar-2024	
Anions by Kone (w)			01-Mar-2024					01-Mar-2024		
Asbestos ID in Solid Samples	29-Feb-2024	29-Feb-2024	29-Feb-2024	28-Feb-2024				28-Feb-2024	29-Feb-2024	04-Mar-2024
Asbestos Quantification - Full									11-Mar-2024	11-Mar-2024
Boron Water Soluble	05-Mar-2024	05-Mar-2024			05-Mar-2024	05-Mar-2024	05-Mar-2024		05-Mar-2024	
CEN 10:1 Leachate (1 Stage)			29-Feb-2024					29-Feb-2024		
CEN 2:1 Leachate (1 Stage)						04-Mar-2024	04-Mar-2024		04-Mar-2024	
CEN Readings			05-Mar-2024			06-Mar-2024	06-Mar-2024	05-Mar-2024	07-Mar-2024	
Coronene			11-Mar-2024					11-Mar-2024		
Dissolved Metals by ICP-MS			11-Mar-2024					11-Mar-2024		
Dissolved Organic/Inorganic Carbon			02-Mar-2024					02-Mar-2024		
EPH and CWG (Filtered) by FID						07-Mar-2024	07-Mar-2024		07-Mar-2024	
EPH by GCxGC-FID			04-Mar-2024					04-Mar-2024		
EPH CWG GC (S)	29-Feb-2024	04-Mar-2024			01-Mar-2024	01-Mar-2024	01-Mar-2024		01-Mar-2024	
Fluoride			04-Mar-2024					04-Mar-2024		
GRO by GC-FID (S)	29-Feb-2024	06-Mar-2024			29-Feb-2024	29-Feb-2024	06-Mar-2024		04-Mar-2024	
GRO by GC-FID (W)						04-Mar-2024	04-Mar-2024		04-Mar-2024	
Hexavalent Chromium (s)	29-Feb-2024	04-Mar-2024			29-Feb-2024	29-Feb-2024	05-Mar-2024		05-Mar-2024	
Loss on Ignition in soils			05-Mar-2024					05-Mar-2024		
Mercury Dissolved			07-Mar-2024					08-Mar-2024		
Metals in solid samples by OES	04-Mar-2024	05-Mar-2024			05-Mar-2024	05-Mar-2024	05-Mar-2024		05-Mar-2024	
Moisture at 105C			28-Feb-2024			29-Feb-2024	29-Feb-2024	29-Feb-2024	29-Feb-2024	
PAH 16 & 17 Calc			11-Mar-2024					11-Mar-2024		
PAH by GCMS	08-Mar-2024	11-Mar-2024	11-Mar-2024		08-Mar-2024	08-Mar-2024	08-Mar-2024	11-Mar-2024	11-Mar-2024	
PAH Spec MS - Aqueous (W)						07-Mar-2024	07-Mar-2024		07-Mar-2024	
PCBs by GCMS			07-Mar-2024					07-Mar-2024		
pH	06-Mar-2024	06-Mar-2024	06-Mar-2024		06-Mar-2024	06-Mar-2024	06-Mar-2024	06-Mar-2024	06-Mar-2024	
pH Value of Filtered Water			05-Mar-2024			07-Mar-2024	07-Mar-2024	05-Mar-2024	07-Mar-2024	
Phenols by HPLC (S)						01-Mar-2024	01-Mar-2024			
Phenols by HPLC (W)			06-Mar-2024					06-Mar-2024		
Sample description	28-Feb-2024	29-Feb-2024	28-Feb-2024		28-Feb-2024	28-Feb-2024	28-Feb-2024	28-Feb-2024	28-Feb-2024	
Semi Volatile Organic Compounds						05-Mar-2024	05-Mar-2024			
SVOC MS (W) - Aqueous						07-Mar-2024	06-Mar-2024			
Total Organic Carbon			07-Mar-2024			07-Mar-2024	07-Mar-2024	07-Mar-2024		
TPH CWG Filtered (W)						07-Mar-2024	07-Mar-2024		07-Mar-2024	
TPH CWG GC (S)	29-Feb-2024	06-Mar-2024			01-Mar-2024	01-Mar-2024	06-Mar-2024		04-Mar-2024	
VOC MS (S)	04-Mar-2024	04-Mar-2024	04-Mar-2024		04-Mar-2024	04-Mar-2024	04-Mar-2024	04-Mar-2024	04-Mar-2024	
VOC MS (W)						04-Mar-2024	04-Mar-2024		04-Mar-2024	

CERTIFICATE OF ANALYSIS

SDG: 240228-29 **Report Number:** 722728 **Superseded Report:** 722617
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

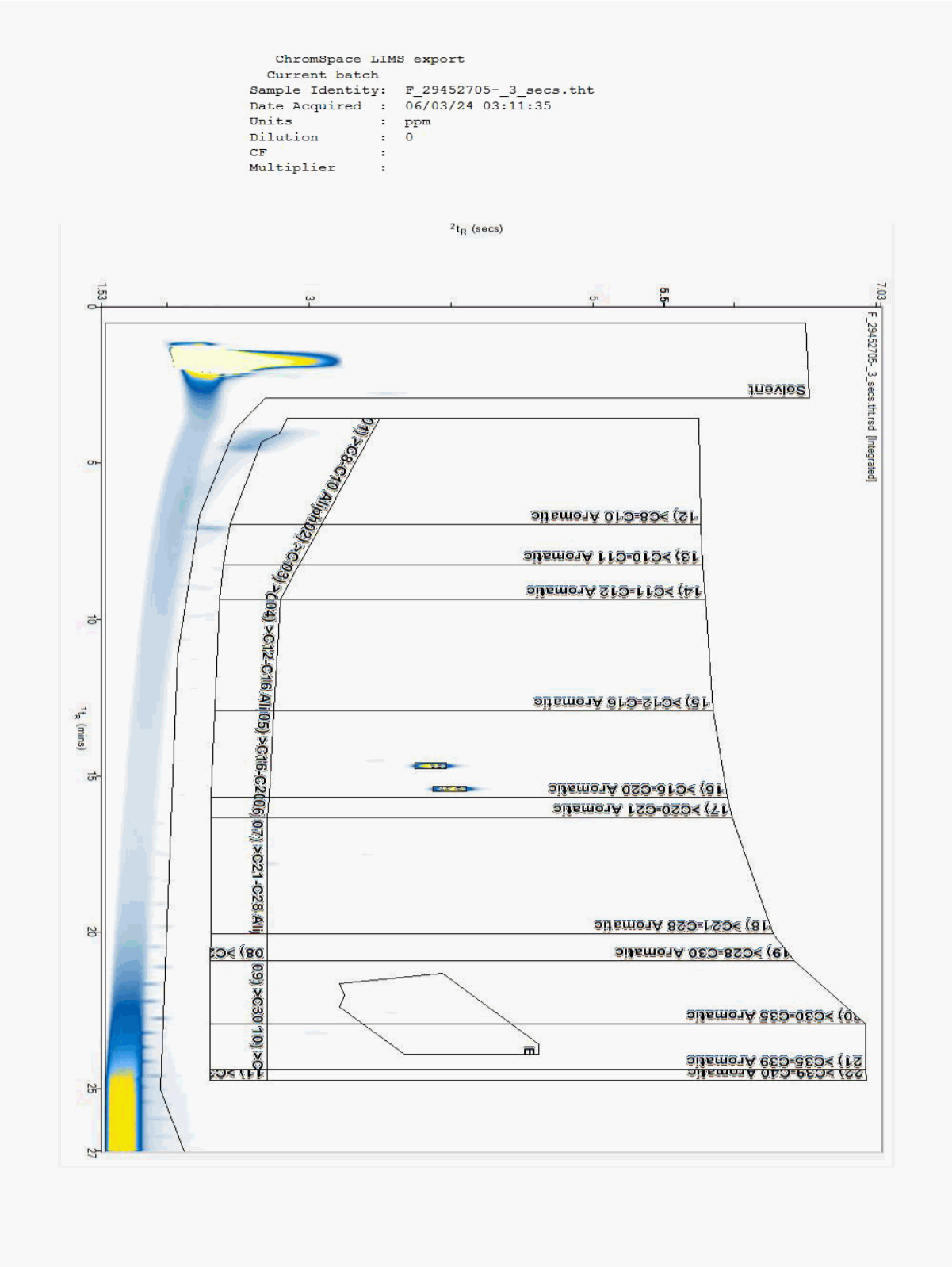
Lab Sample No(s)	29422396	29422401	29422406	29422411
Customer Sample Ref.	WS05A	WS05A	WS06A	WS06A
AGS Ref.	ES	ES	ES	ES
Depth	0.35 - 0.50	1.20 - 1.30	0.35 - 0.40	3.00 - 3.30
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (soil)	01-Mar-2024	04-Mar-2024	01-Mar-2024	04-Mar-2024
Asbestos ID in Solid Samples	28-Feb-2024		01-Mar-2024	
Asbestos Quantification - Full	08-Mar-2024			
Boron Water Soluble	05-Mar-2024	05-Mar-2024	05-Mar-2024	05-Mar-2024
CEN 2:1 Leachate (1 Stage)	04-Mar-2024	04-Mar-2024		
CEN Readings	06-Mar-2024	06-Mar-2024		
EPH and CWG (Filtered) by FID	07-Mar-2024	07-Mar-2024		
EPH CWG GC (S)	29-Feb-2024	01-Mar-2024	29-Feb-2024	01-Mar-2024
GRO by GC-FID (S)	29-Feb-2024	29-Feb-2024	29-Feb-2024	06-Mar-2024
GRO by GC-FID (W)	01-Mar-2024	04-Mar-2024		
Hexavalent Chromium (s)	05-Mar-2024	29-Feb-2024	05-Mar-2024	04-Mar-2024
Metals in solid samples by OES	04-Mar-2024	05-Mar-2024	04-Mar-2024	05-Mar-2024
Moisture at 105C	28-Feb-2024	29-Feb-2024		
PAH by GCMS	11-Mar-2024	08-Mar-2024	11-Mar-2024	08-Mar-2024
PAH Spec MS - Aqueous (W)	07-Mar-2024	07-Mar-2024		
pH	06-Mar-2024	06-Mar-2024	06-Mar-2024	06-Mar-2024
pH Value of Filtered Water	07-Mar-2024	07-Mar-2024		
Phenols by HPLC (S)	01-Mar-2024	01-Mar-2024	01-Mar-2024	04-Mar-2024
Sample description	28-Feb-2024	28-Feb-2024	28-Feb-2024	29-Feb-2024
Semi Volatile Organic Compounds	04-Mar-2024			
SVOC MS (W) - Aqueous	06-Mar-2024			
Total Organic Carbon	07-Mar-2024	07-Mar-2024		07-Mar-2024
TPH CWG Filtered (W)	07-Mar-2024	07-Mar-2024		
TPH CWG GC (S)	29-Feb-2024	01-Mar-2024	29-Feb-2024	06-Mar-2024
VOC MS (S)	04-Mar-2024	04-Mar-2024	04-Mar-2024	04-Mar-2024
VOC MS (W)	01-Mar-2024	04-Mar-2024		

CERTIFICATE OF ANALYSIS

SDG: 240228-29 **Report Number:** 722728 **Superseded Report:** 722617
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

Chromatogram

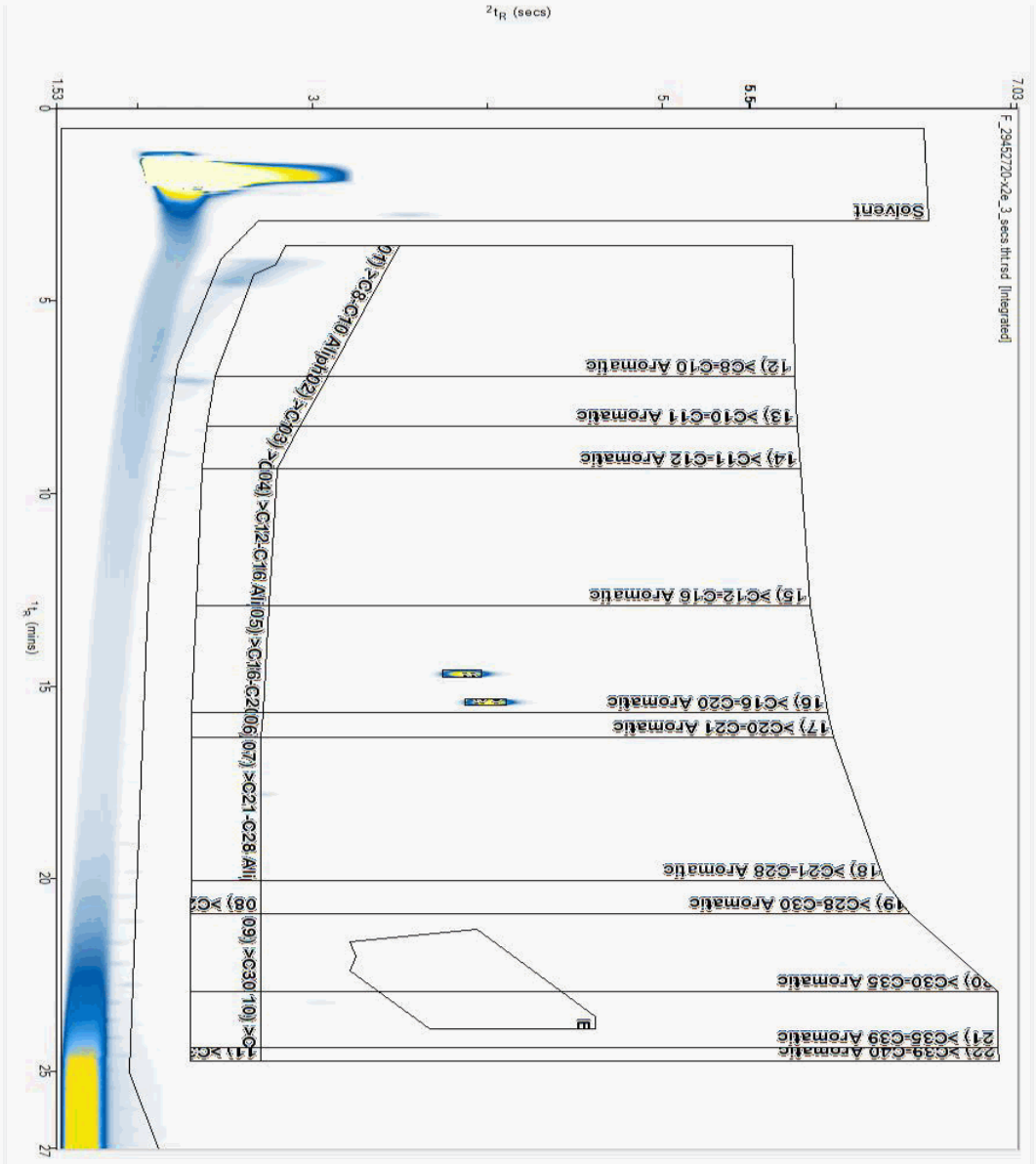
Analysis: EPH and CWG (Filtered) by FID **Sample No :** 29452705 **Depth :** 1.40 - 1.70
Sample ID : WS04



Chromatogram

Analysis: EPH and CWG (Filtered) by FID **Sample No :** 29452720 **Depth :** 1.00 - 1.20
Sample ID : WS04

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_29452720-x2e_3_secs.tht
Date Acquired   :  06/03/24 04:16:06
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
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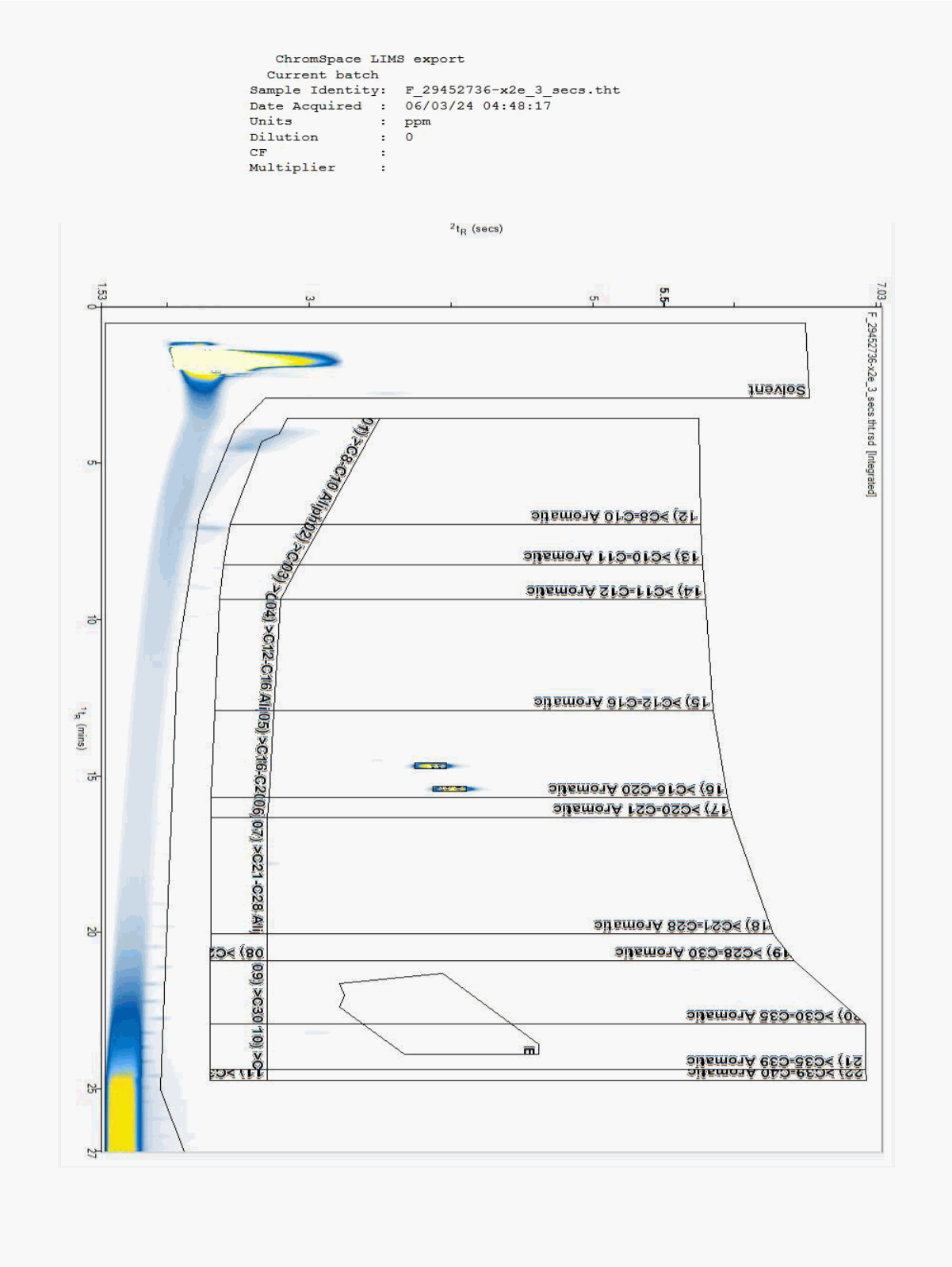


CERTIFICATE OF ANALYSIS

SDG: 240228-29 **Report Number:** 722728 **Superseded Report:** 722617
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

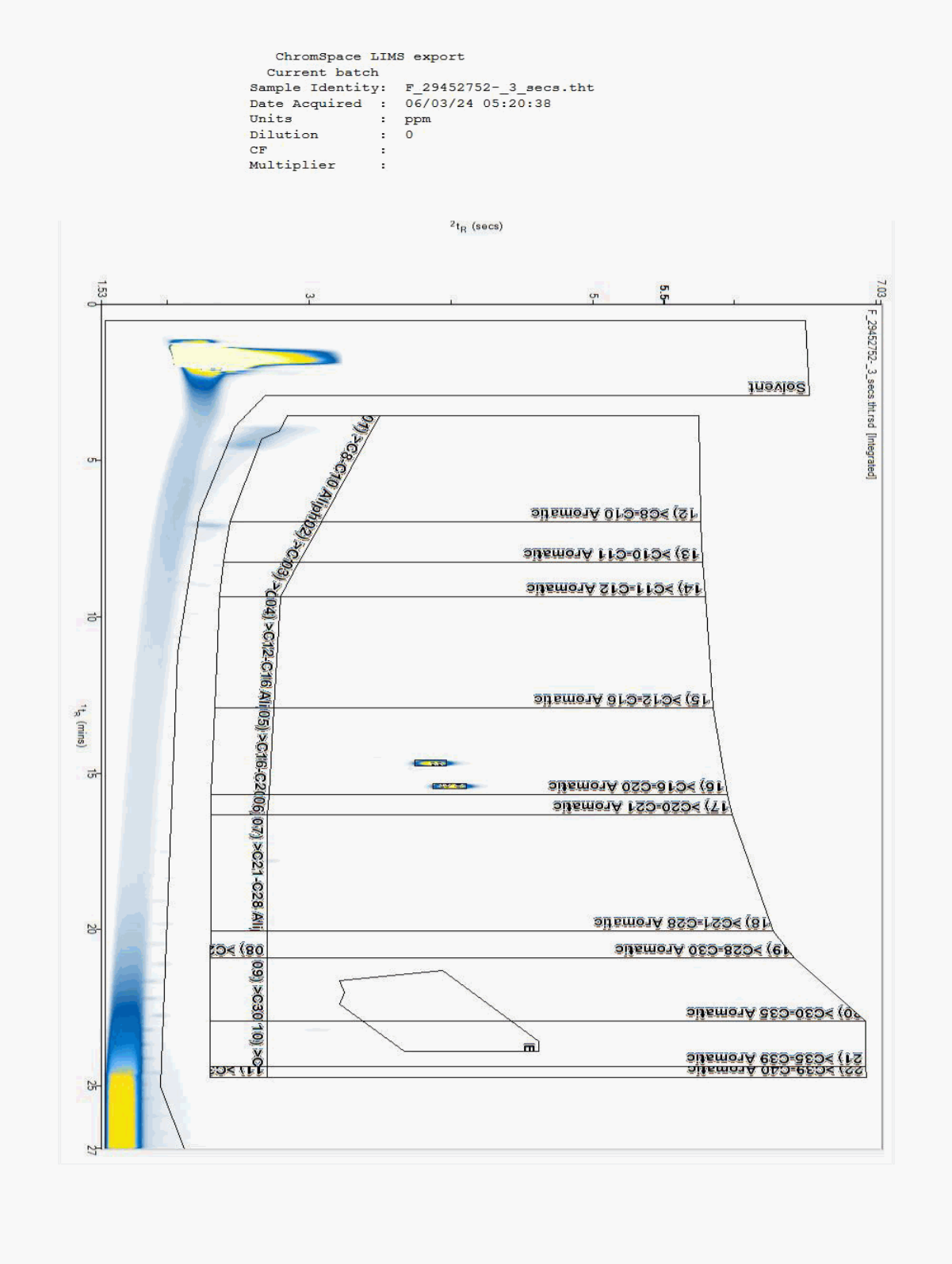
Chromatogram

Analysis: EPH and CWG (Filtered) by FID **Sample No :** 29452736 **Depth :** 1.20 - 1.30
Sample ID : WS05A



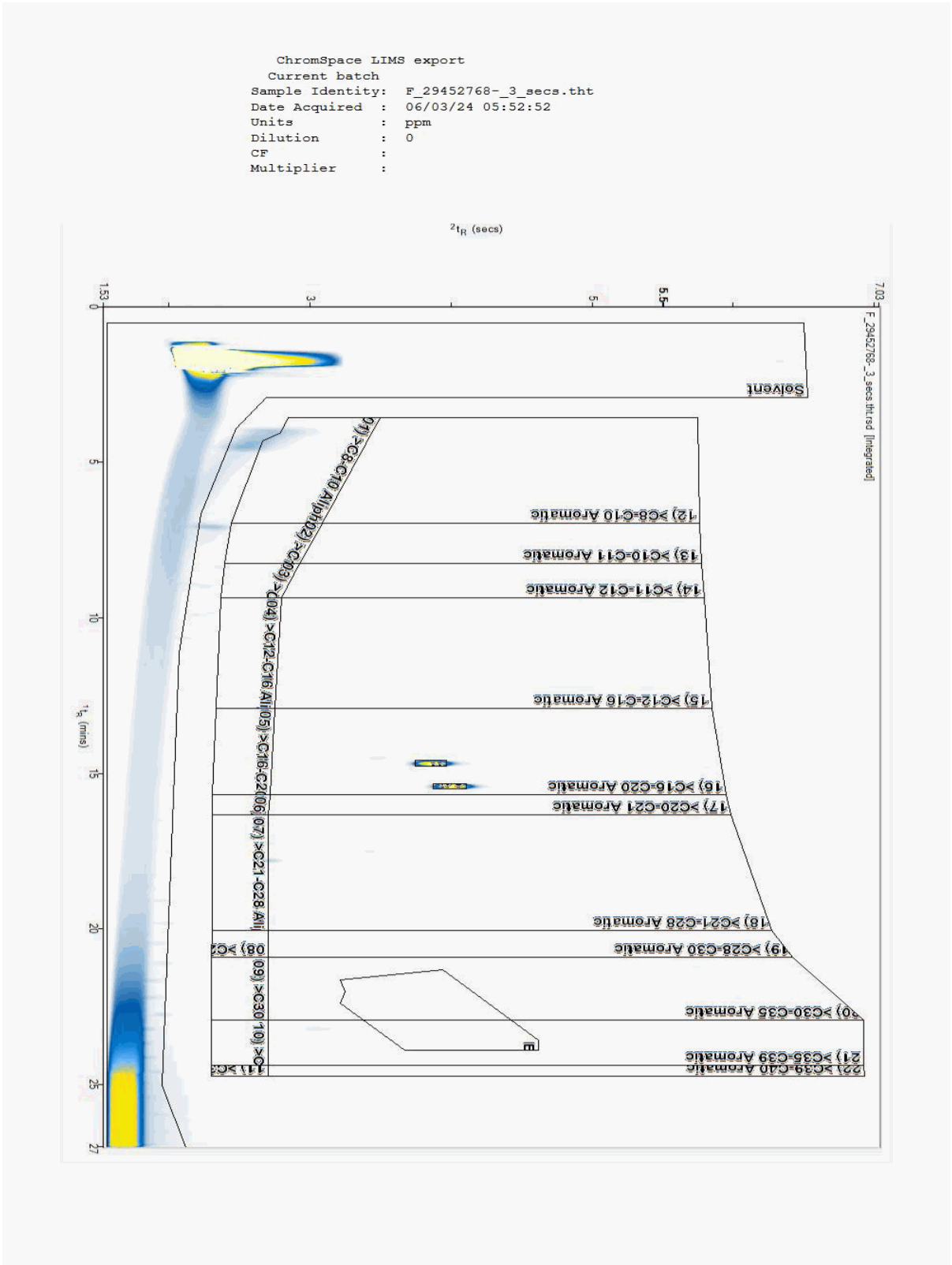
Chromatogram

Analysis: EPH and CWG (Filtered) by FID **Sample No :** 29452752 **Depth :** 0.35 - 0.50
Sample ID : WS05A



Chromatogram

Analysis: EPH and CWG (Filtered) by FID **Sample No :** 29452768 **Depth :** 0.30 - 0.40
Sample ID : WS04

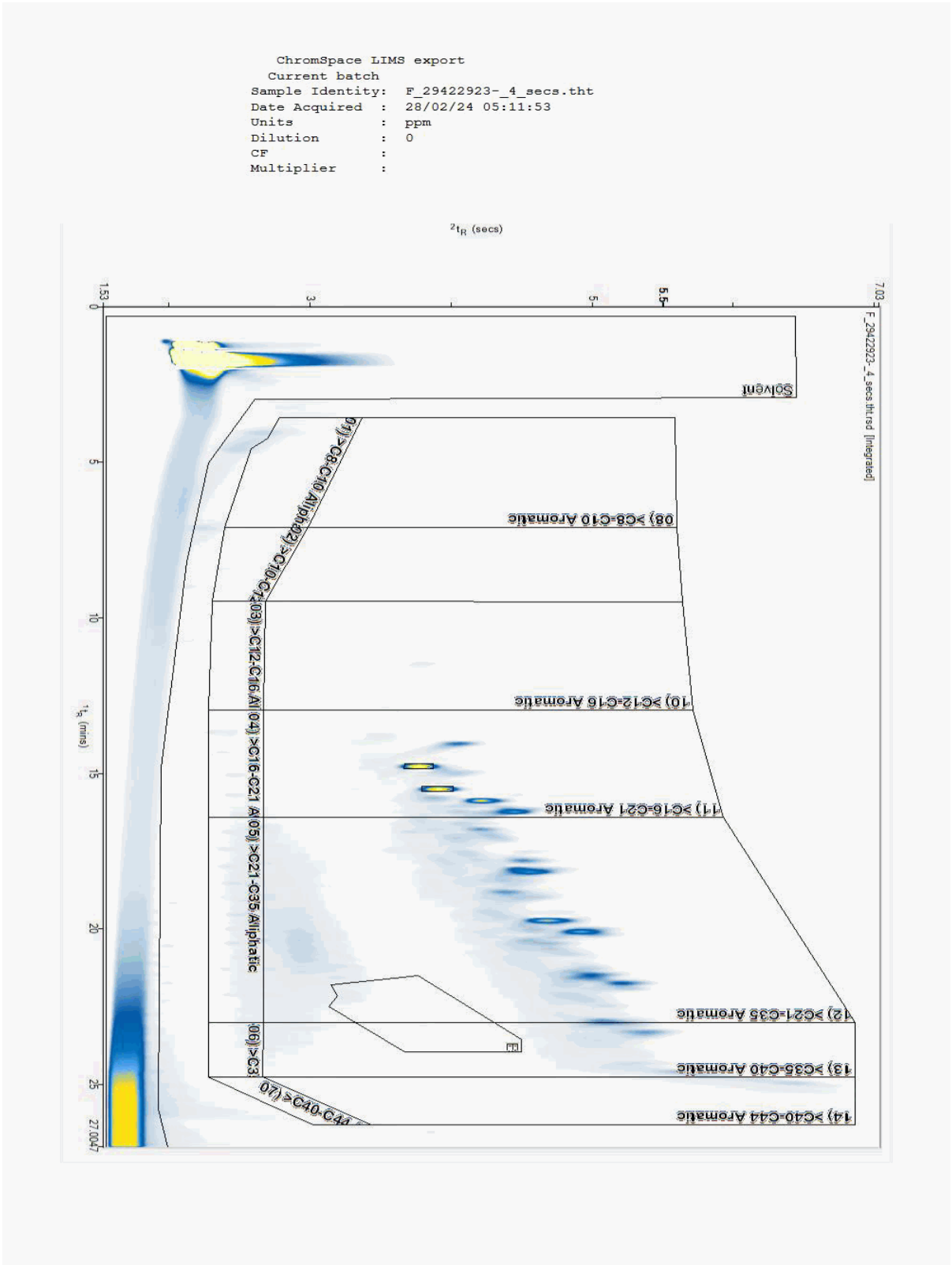


CERTIFICATE OF ANALYSIS

SDG: 240228-29 **Report Number:** 722728 **Superseded Report:** 722617
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

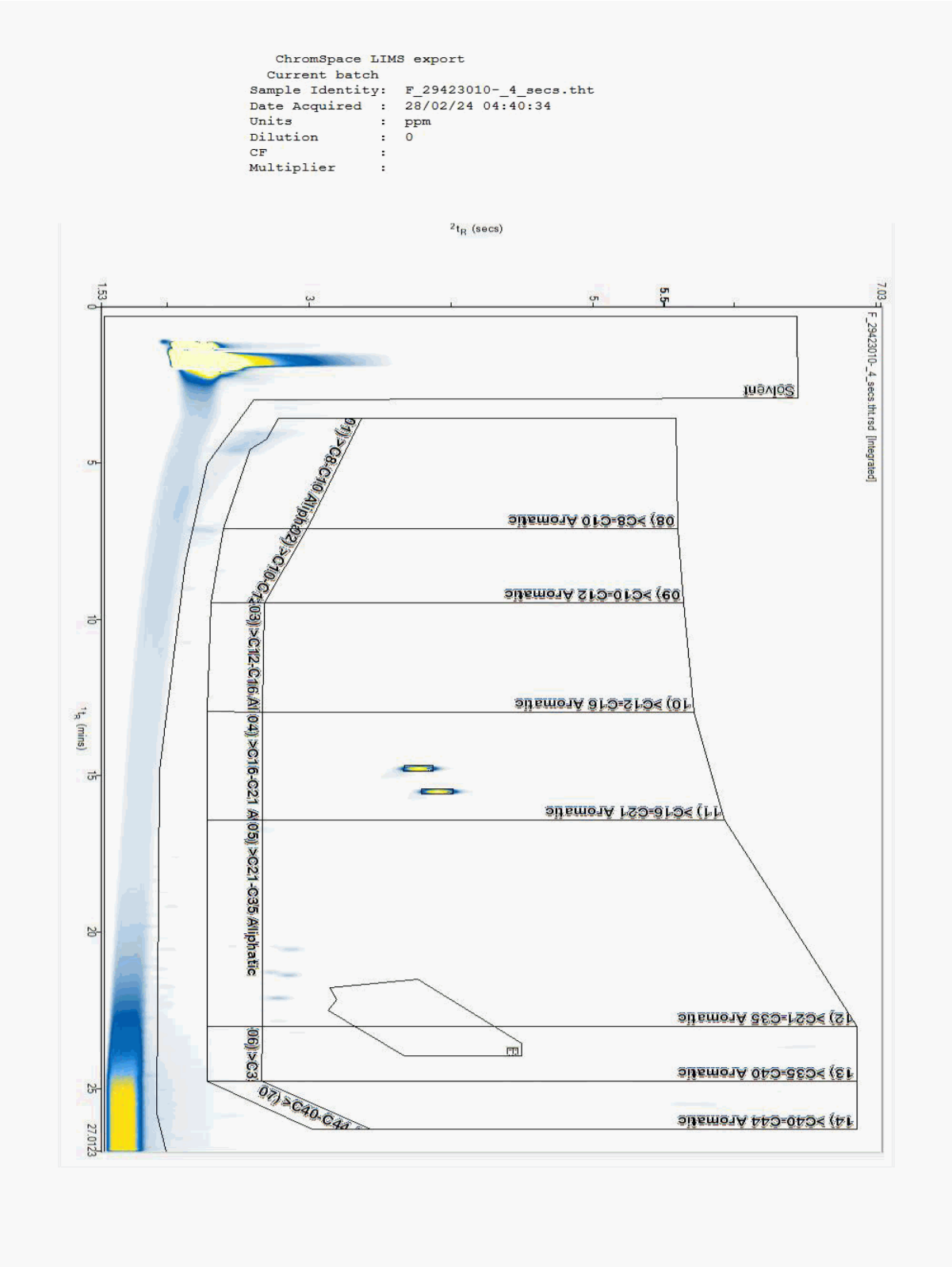
Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 29422923 **Depth :** 0.35 - 0.40
Sample ID : WS06A



Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 29423010 **Depth :** 1.40 - 1.70
Sample ID : WS04

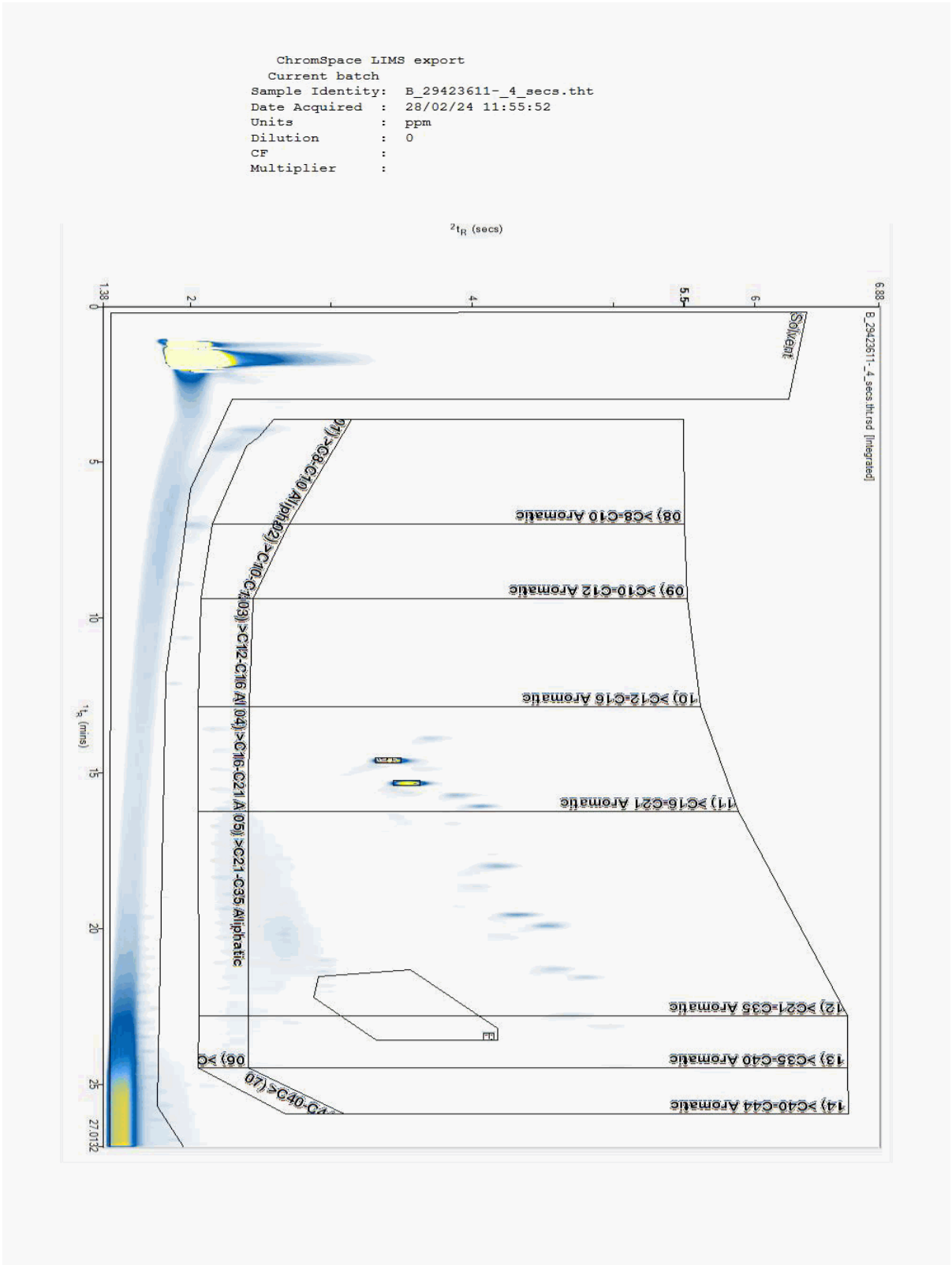


CERTIFICATE OF ANALYSIS

SDG: 240228-29 **Report Number:** 722728 **Superseded Report:** 722617
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 29423611 **Depth :** 0.35 - 0.50
Sample ID : WS05A

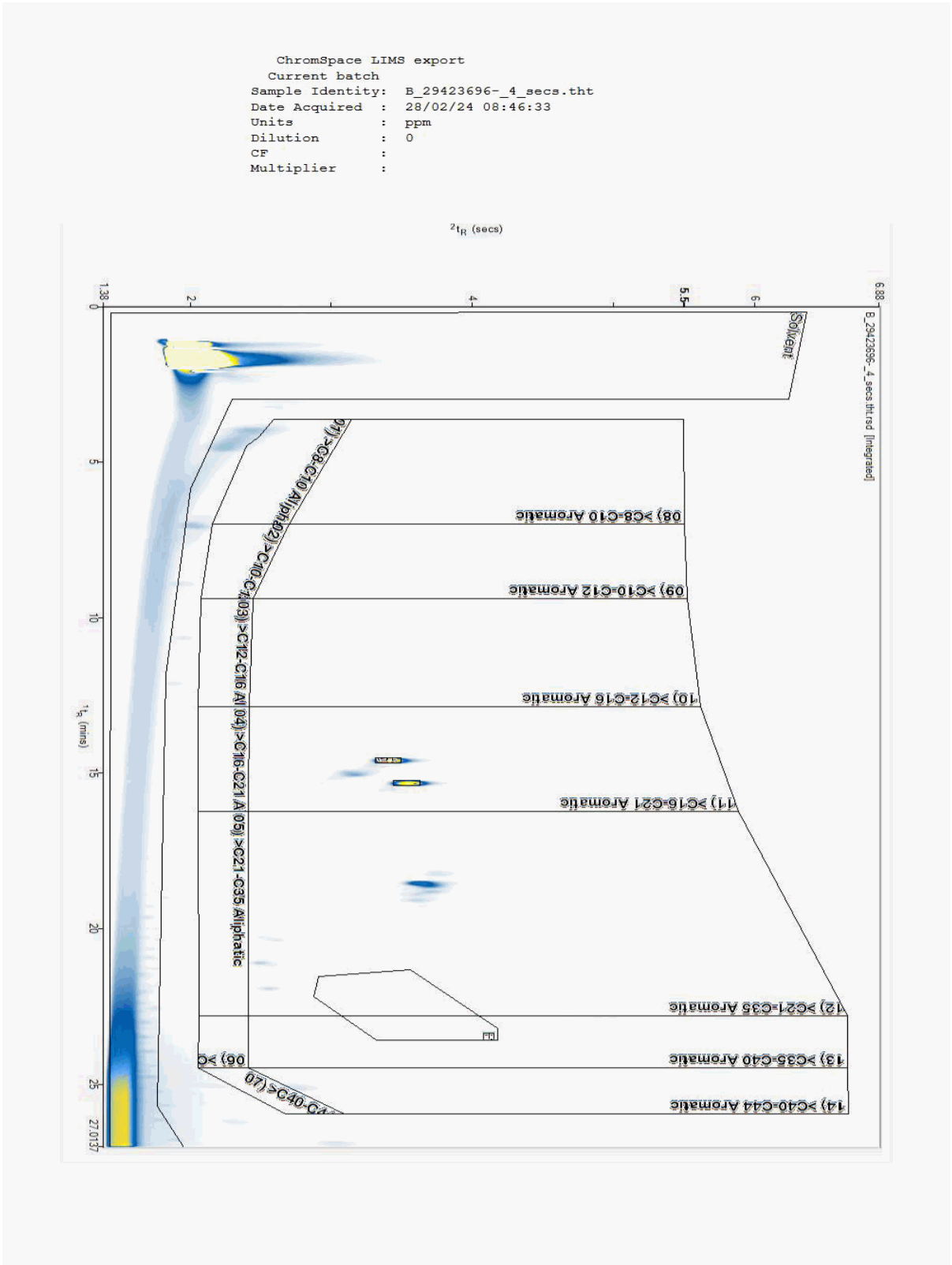


CERTIFICATE OF ANALYSIS

SDG: 240228-29 **Report Number:** 722728 **Superseded Report:** 722617
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 29423696 **Depth :** 0.40 - 0.50
Sample ID : HP01/2

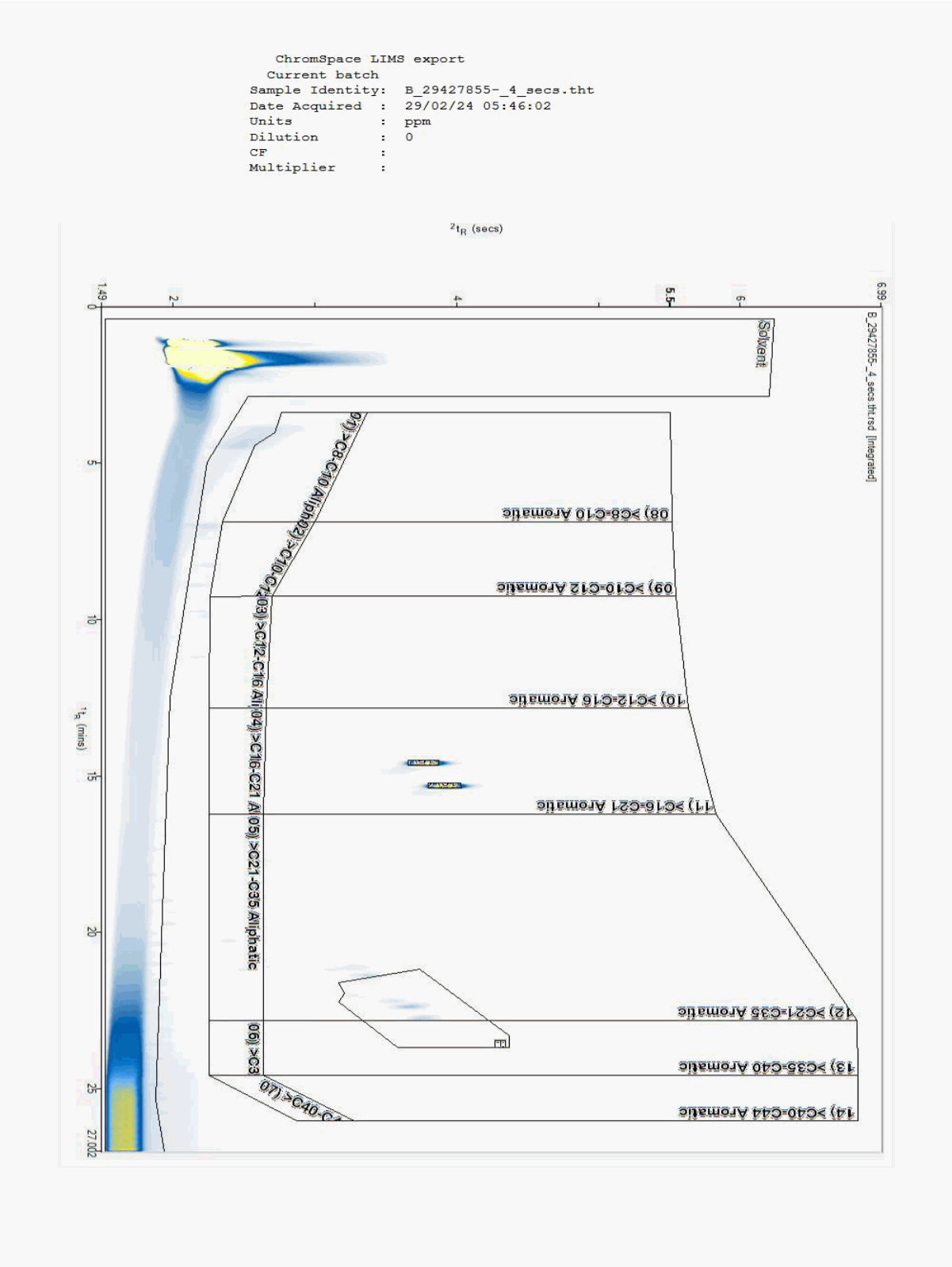


CERTIFICATE OF ANALYSIS

SDG: 240228-29 **Report Number:** 722728 **Superseded Report:** 722617
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 29427855 **Depth :** 1.00 - 1.20
Sample ID : WS04

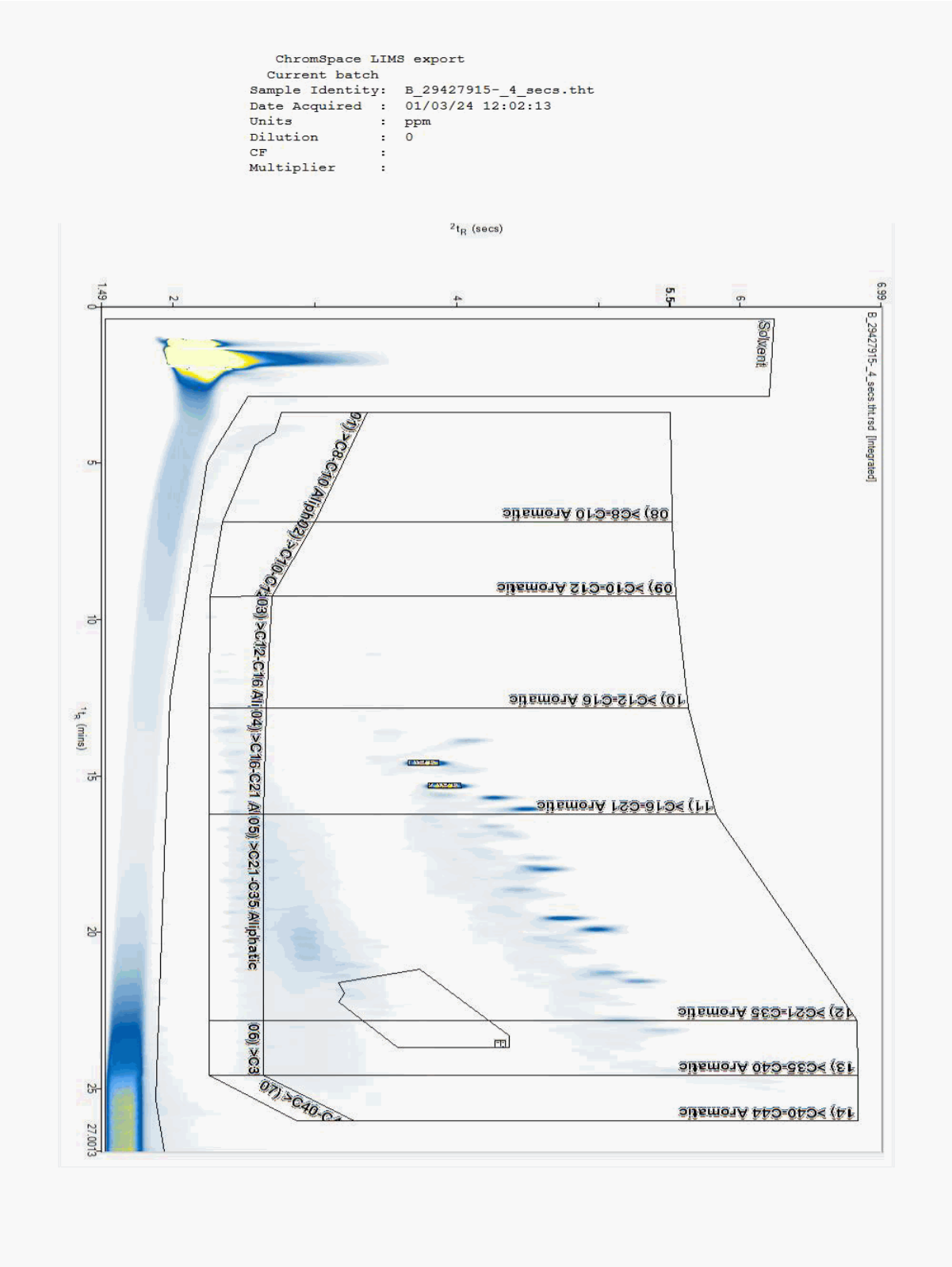


CERTIFICATE OF ANALYSIS

SDG: 240228-29 **Report Number:** 722728 **Superseded Report:** 722617
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 29427915 **Depth :** 0.30 - 0.40
Sample ID : WS04

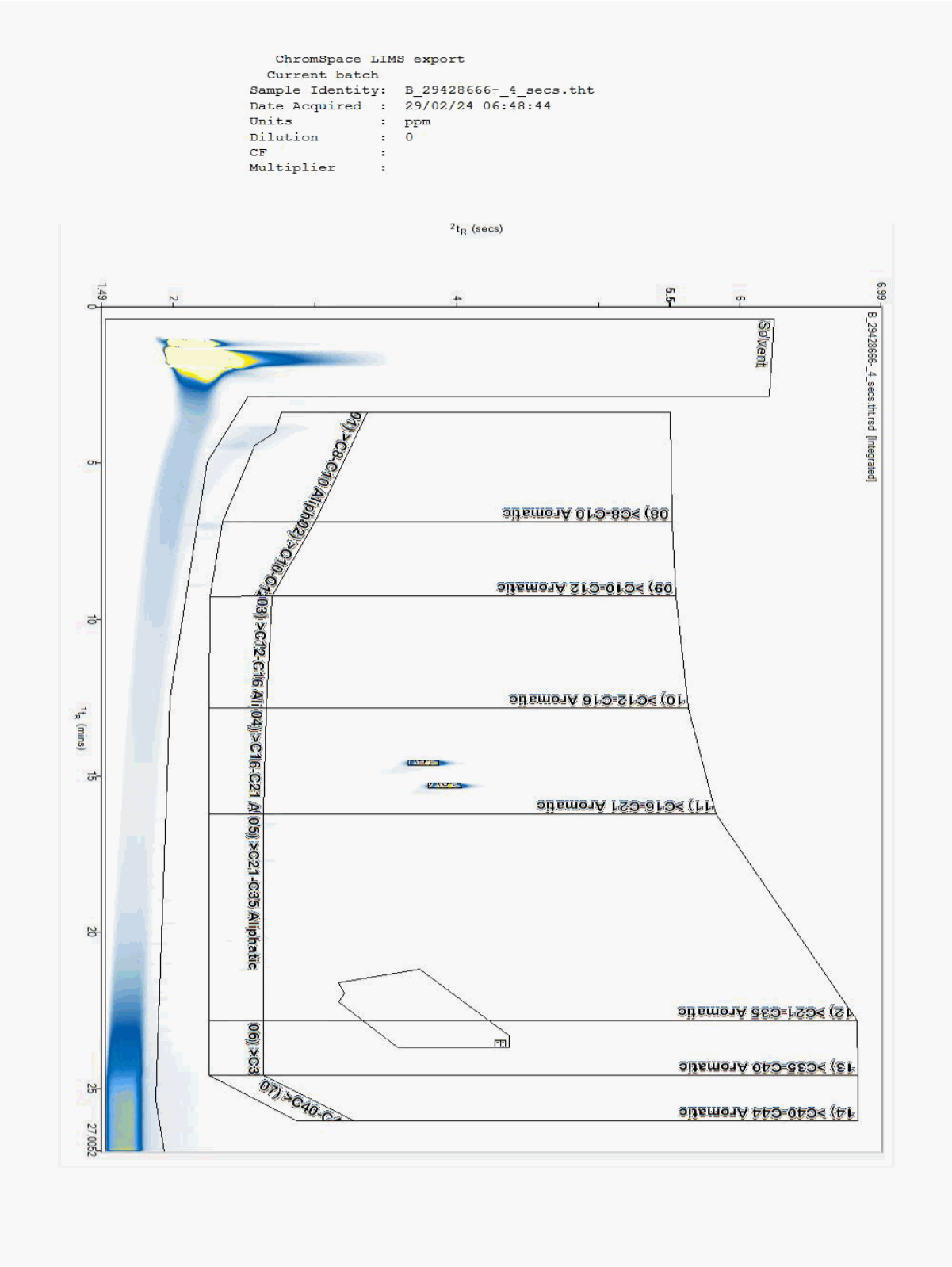


CERTIFICATE OF ANALYSIS

SDG: 240228-29 **Report Number:** 722728 **Superseded Report:** 722617
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 29428666 **Depth :** 1.20 - 1.30
Sample ID : WS05A

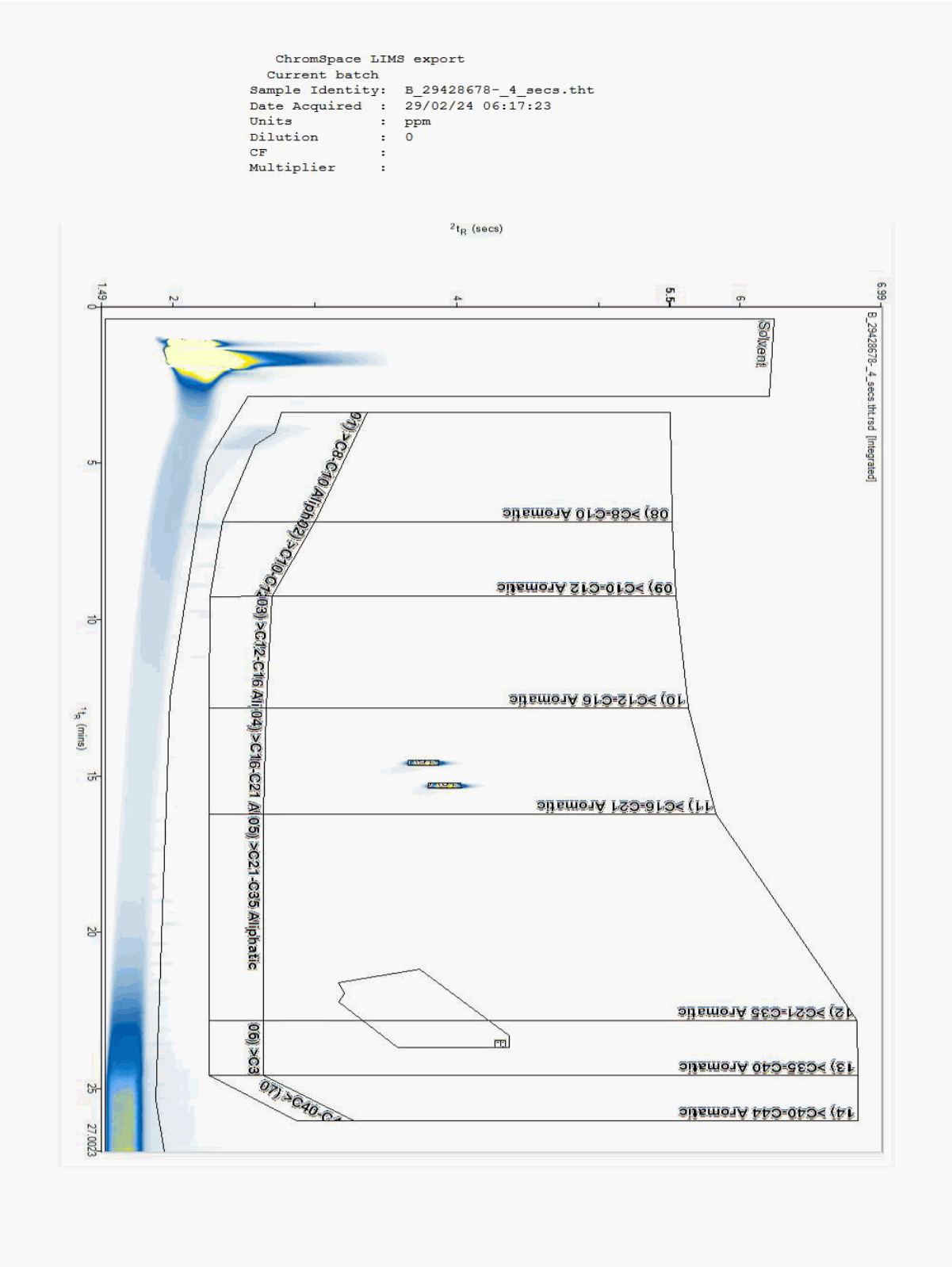


CERTIFICATE OF ANALYSIS

SDG: 240228-29 **Report Number:** 722728 **Superseded Report:** 722617
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

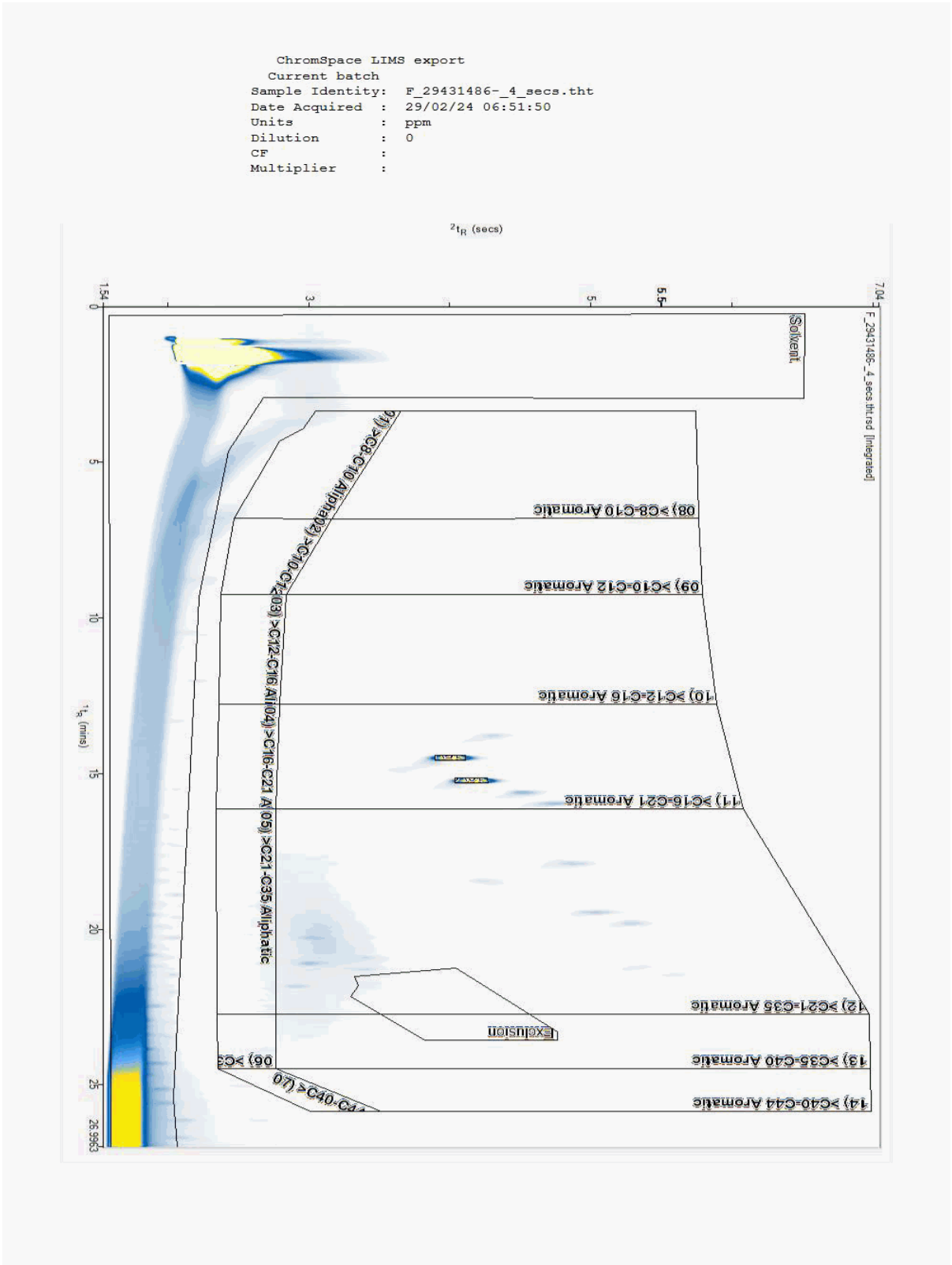
Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 29428678 **Depth :** 0.60 - 0.75
Sample ID : WS03



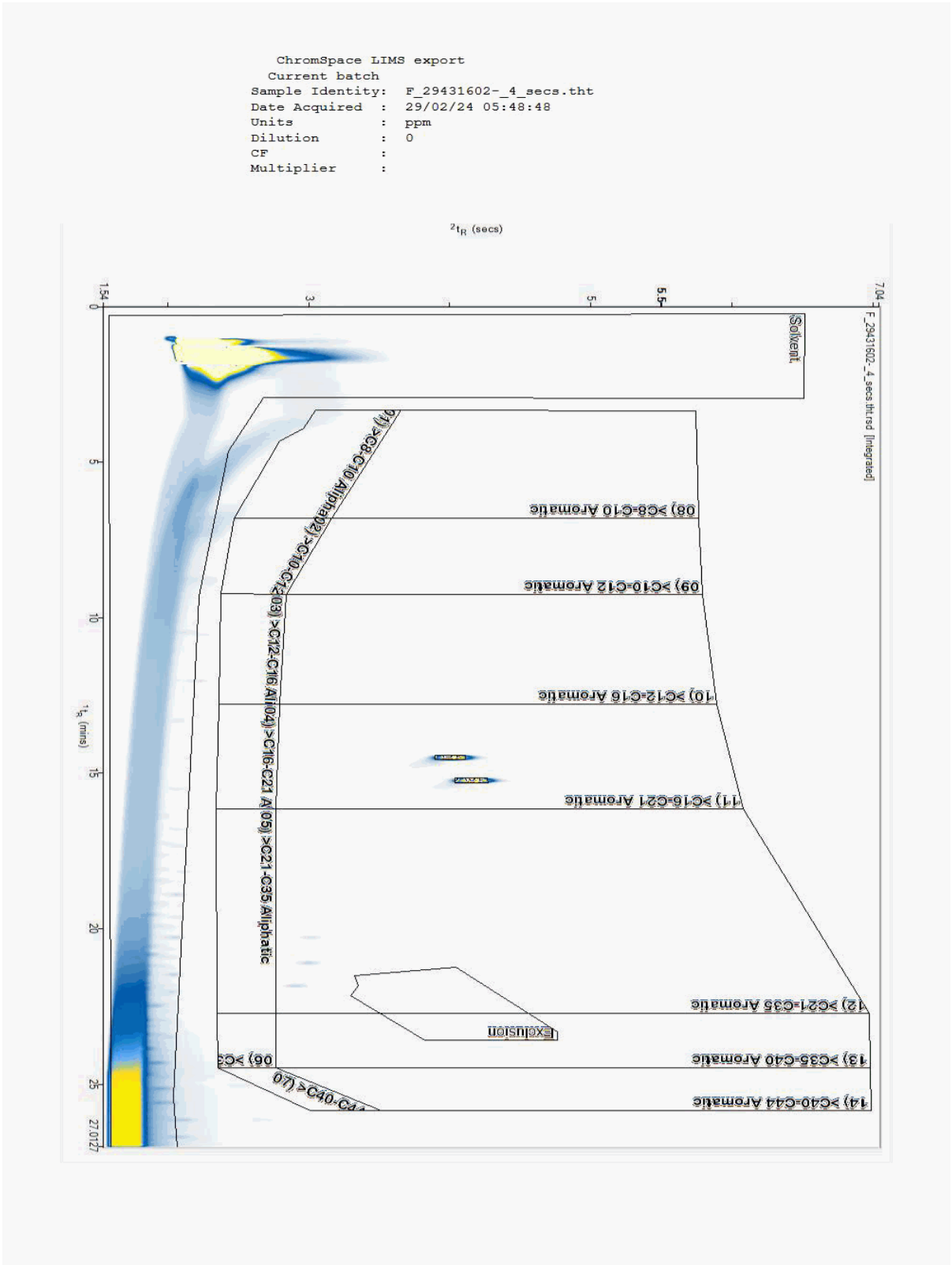
Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 29431486 **Depth :** 0.35 - 0.50
Sample ID : WS02



Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 29431602 **Depth :** 3.00 - 3.30
Sample ID : WS06A

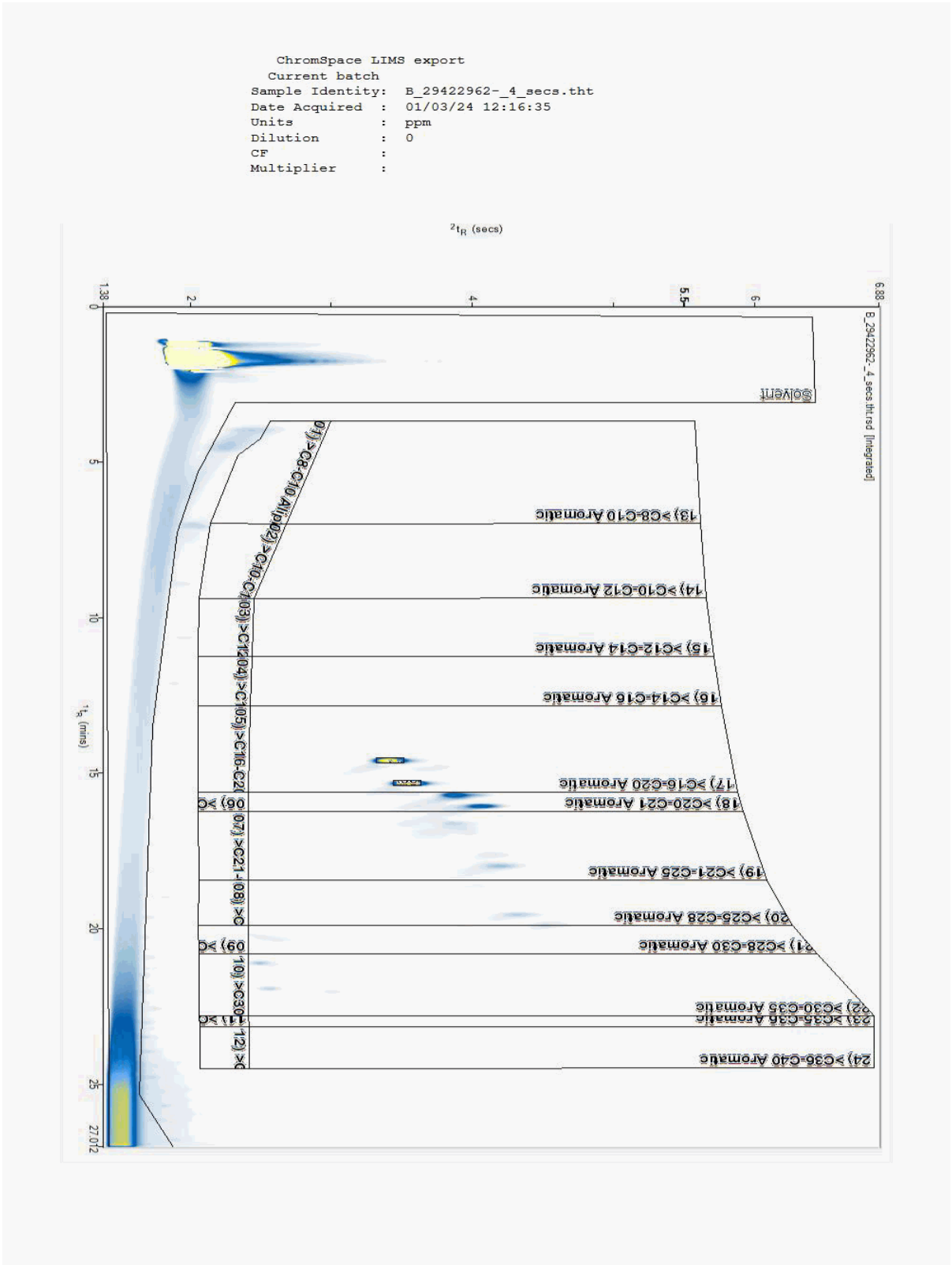


CERTIFICATE OF ANALYSIS

SDG: 240228-29 **Report Number:** 722728 **Superseded Report:** 722617
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

Chromatogram

Analysis: EPH by GCxGC-FID **Sample No :** 29422962 **Depth :** 0.63 - 1.50
Sample ID : WS02

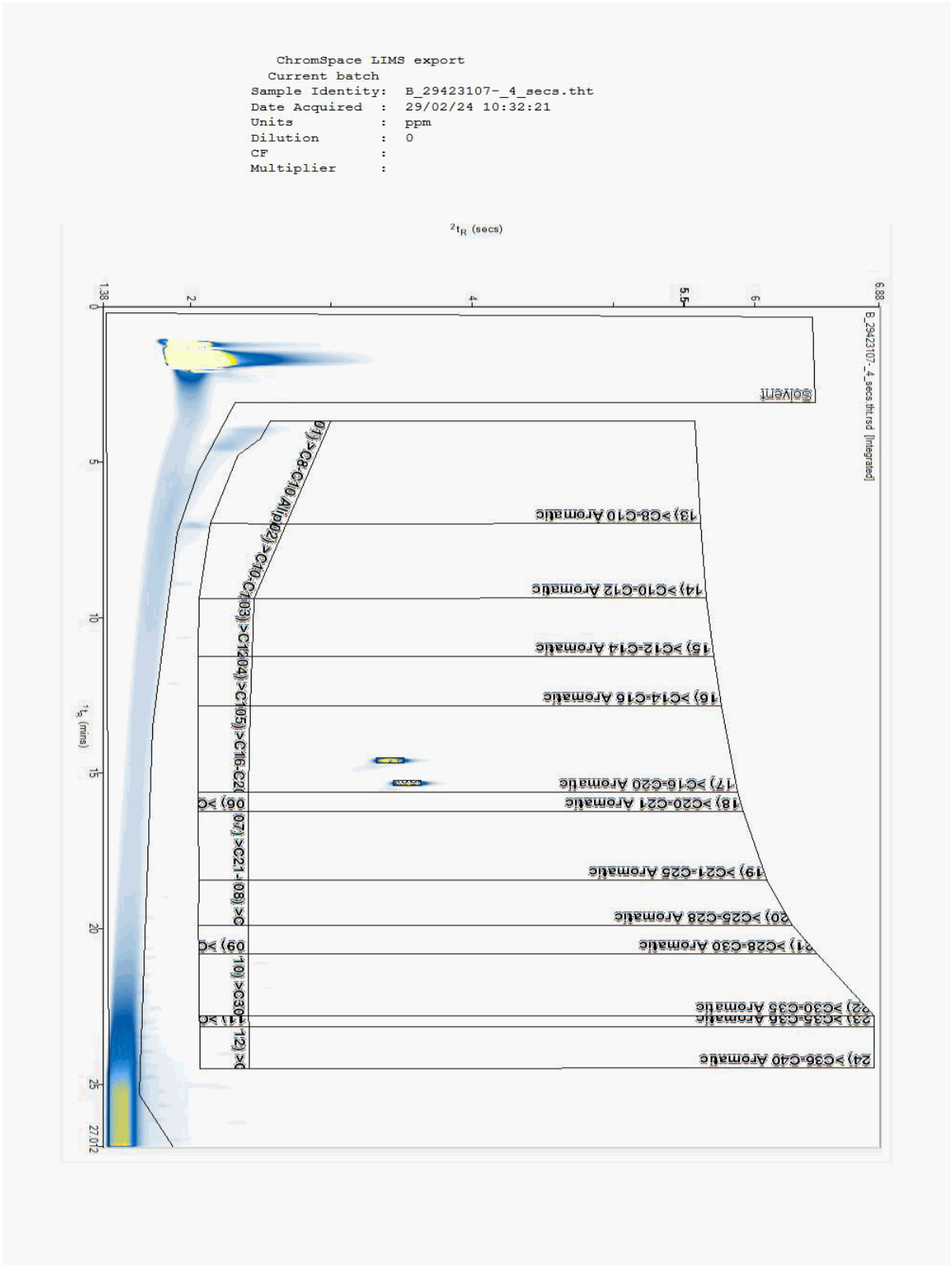


CERTIFICATE OF ANALYSIS

SDG: 240228-29 **Report Number:** 722728 **Superseded Report:** 722617
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

Chromatogram

Analysis: EPH by GCxGC-FID **Sample No :** 29423107 **Depth :** 0.18 - 1.30
Sample ID : WS04

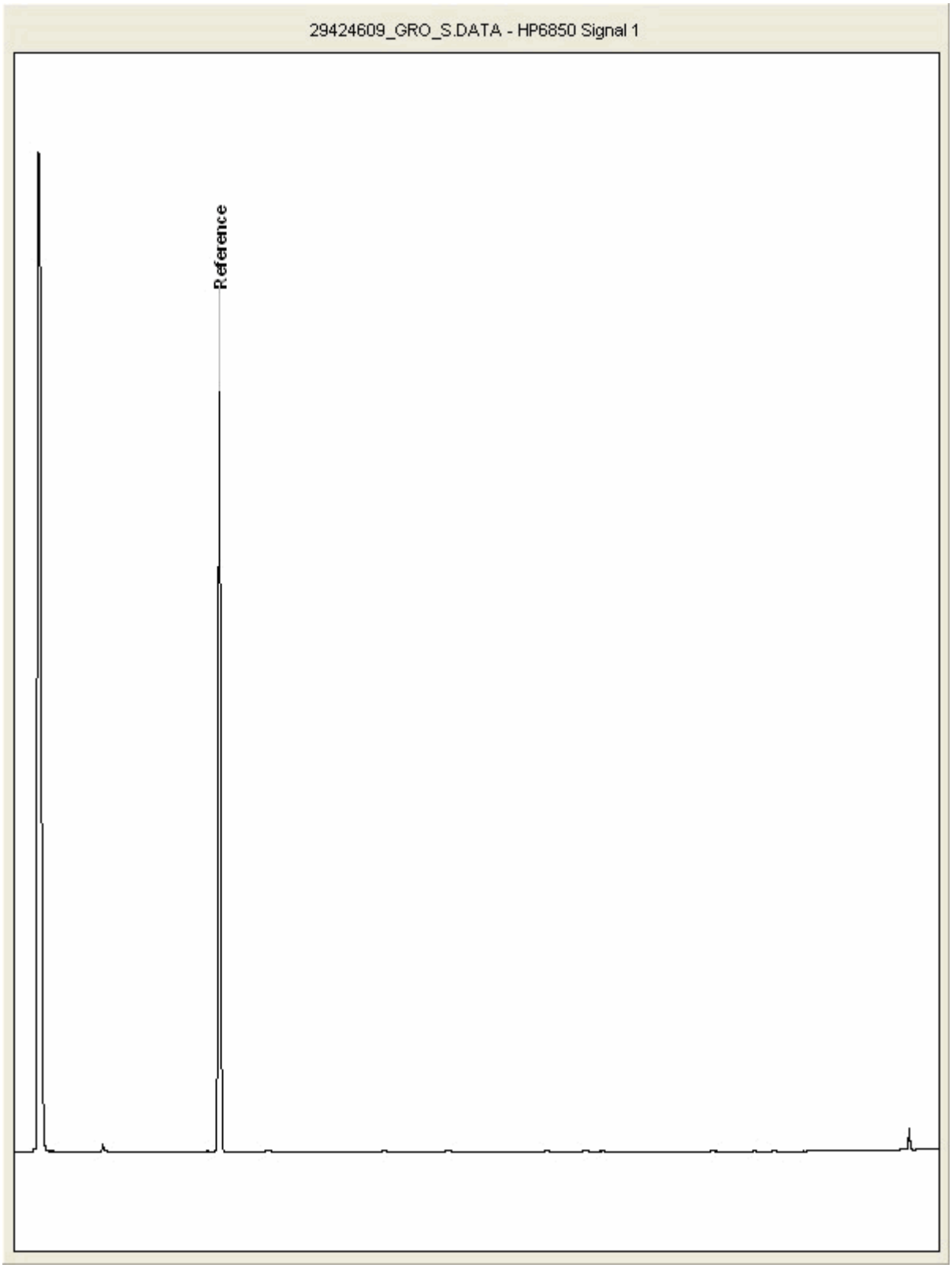


CERTIFICATE OF ANALYSIS

SDG: 240228-29 **Report Number:** 722728 **Superseded Report:** 722617
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 29424609 **Depth :** 0.60 - 0.75
Sample ID : WS03

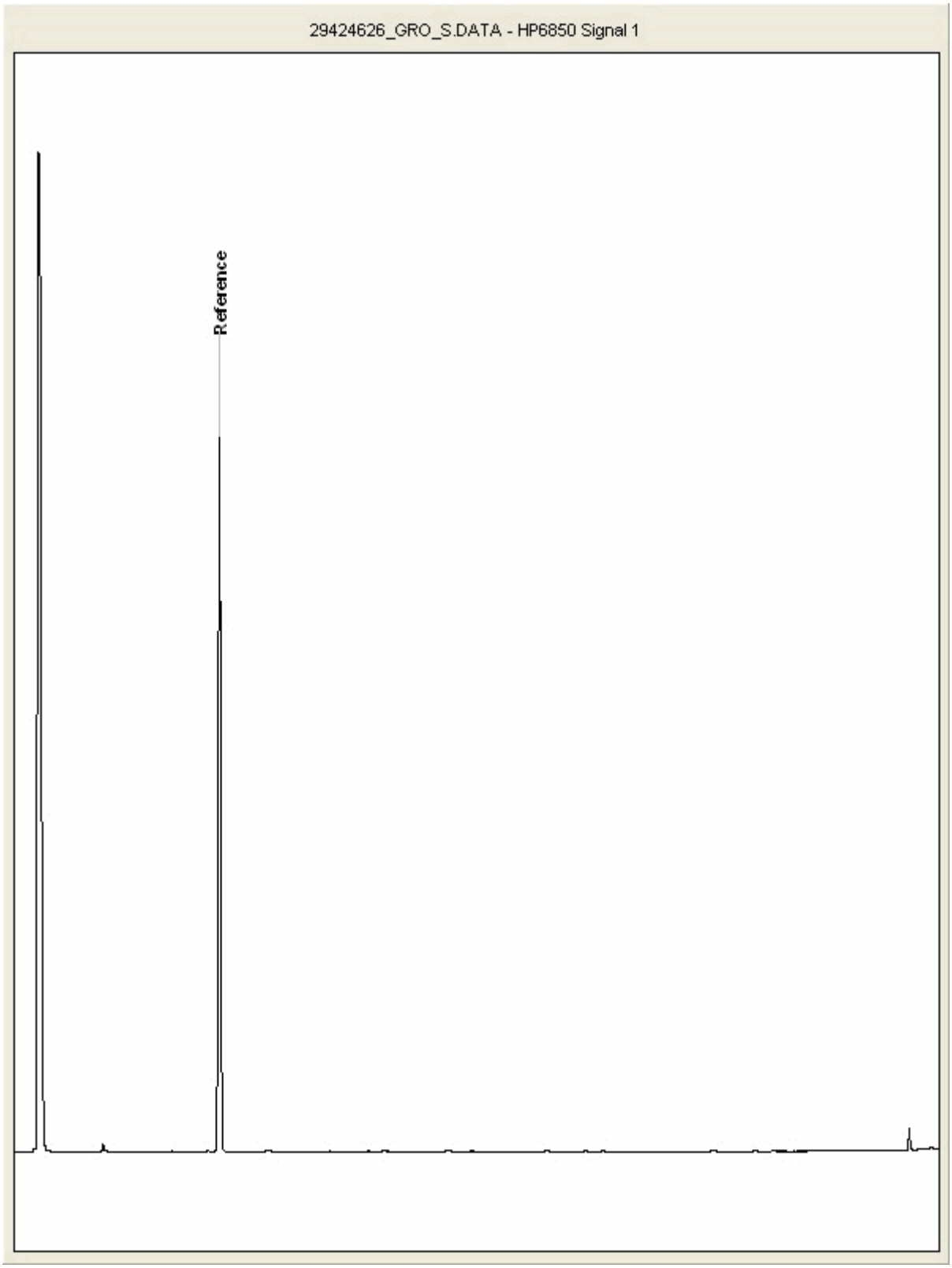


CERTIFICATE OF ANALYSIS

SDG: 240228-29 **Report Number:** 722728 **Superseded Report:** 722617
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 29424626 **Depth :** 1.40 - 1.70
Sample ID : WS04

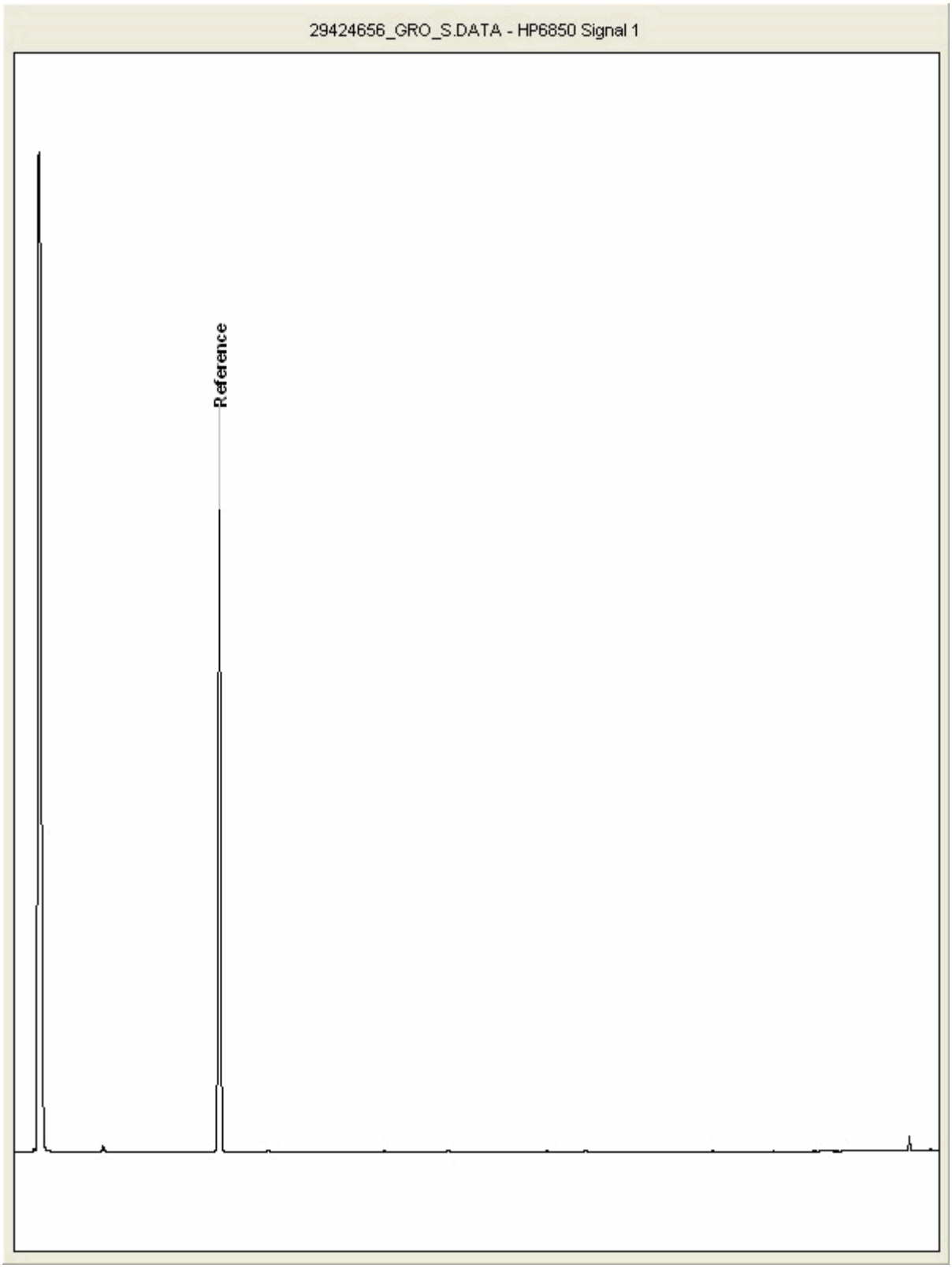


CERTIFICATE OF ANALYSIS

SDG: 240228-29 **Report Number:** 722728 **Superseded Report:** 722617
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 29424656 **Depth :** 1.20 - 1.30
Sample ID : WS05A

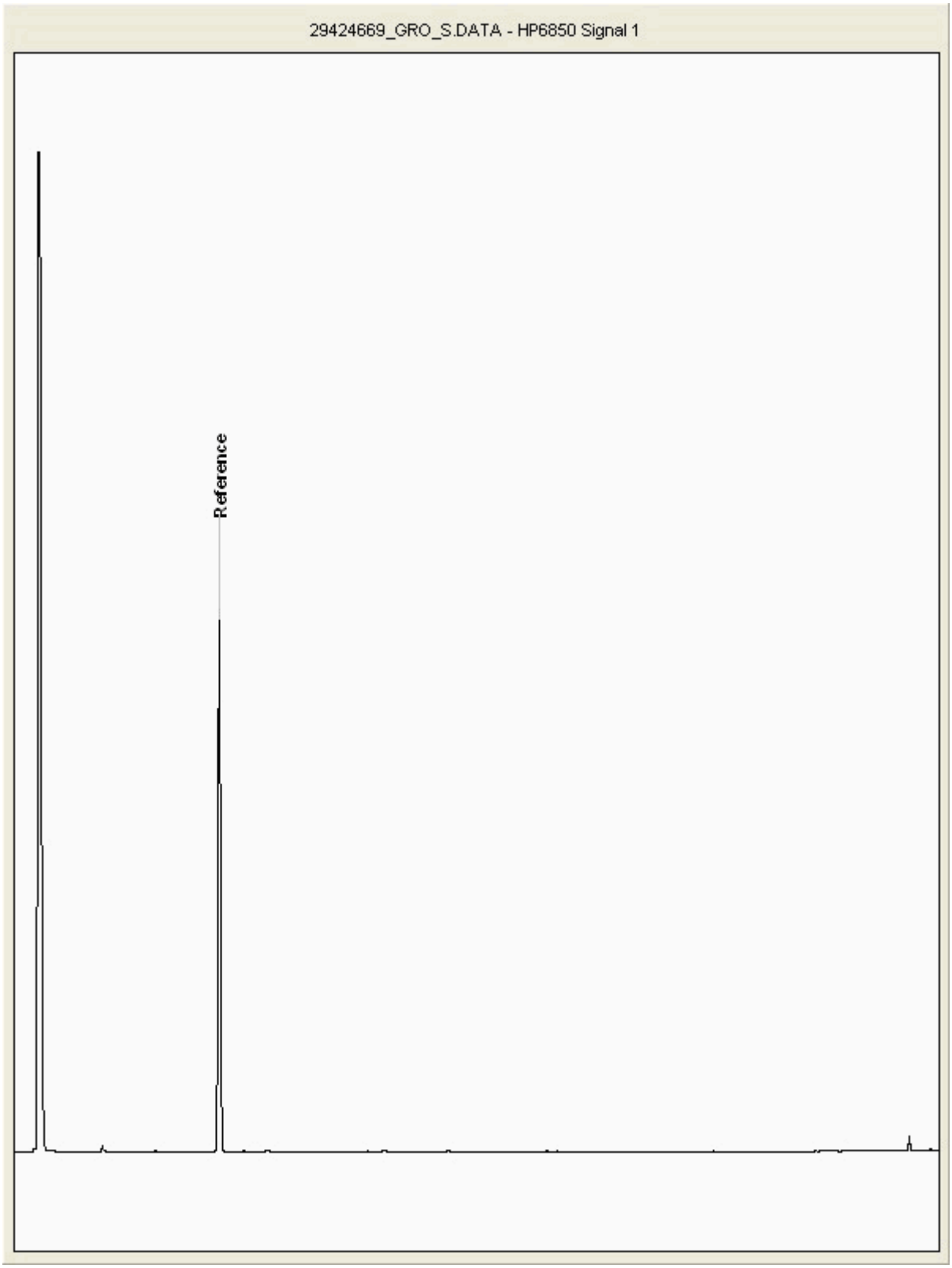


CERTIFICATE OF ANALYSIS

SDG: 240228-29 **Report Number:** 722728 **Superseded Report:** 722617
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 29424669 **Depth :** 0.35 - 0.50
Sample ID : WS02

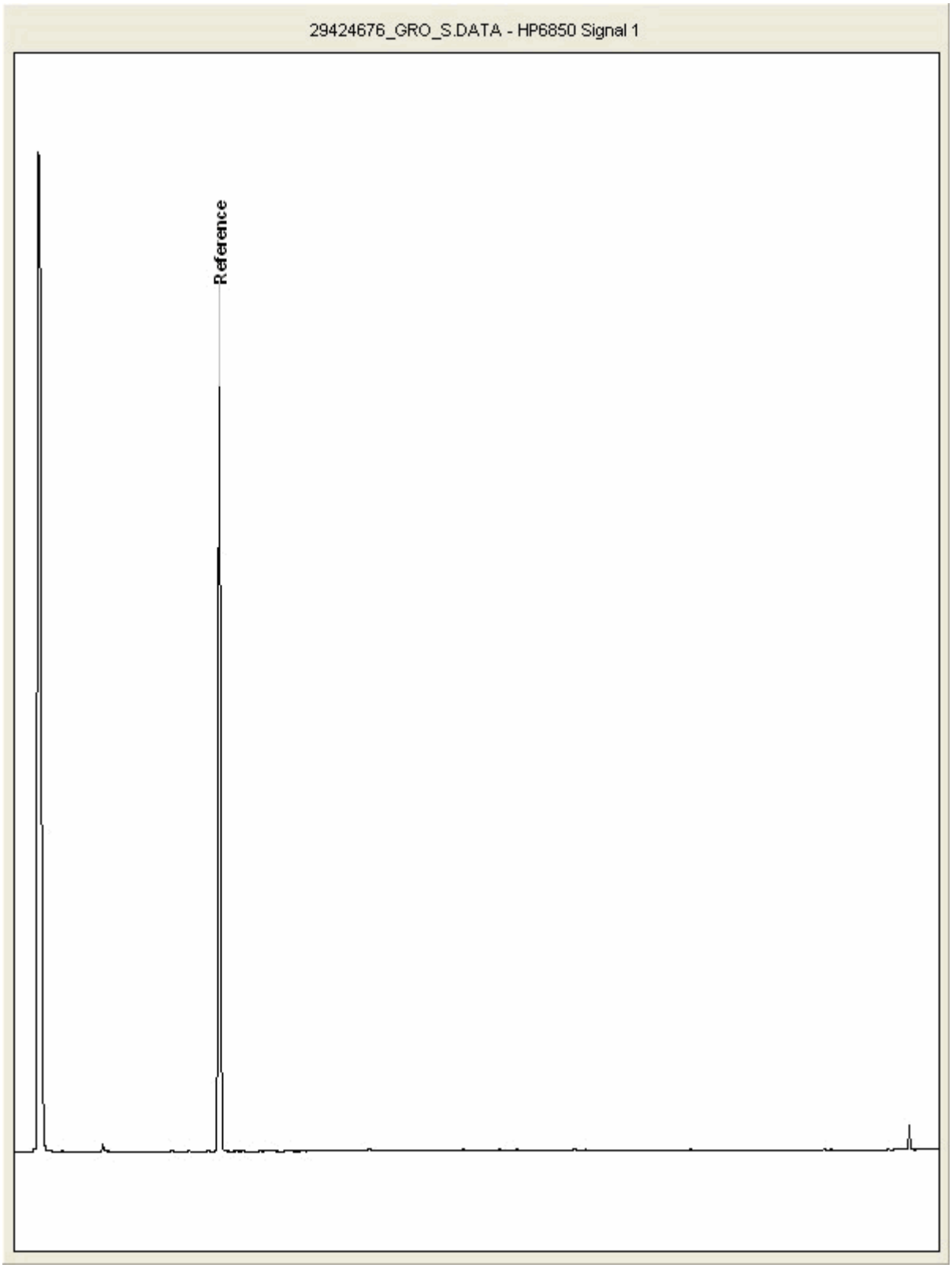


CERTIFICATE OF ANALYSIS

SDG: 240228-29 **Report Number:** 722728 **Superseded Report:** 722617
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 29424676 **Depth :** 3.00 - 3.30
Sample ID : WS06A

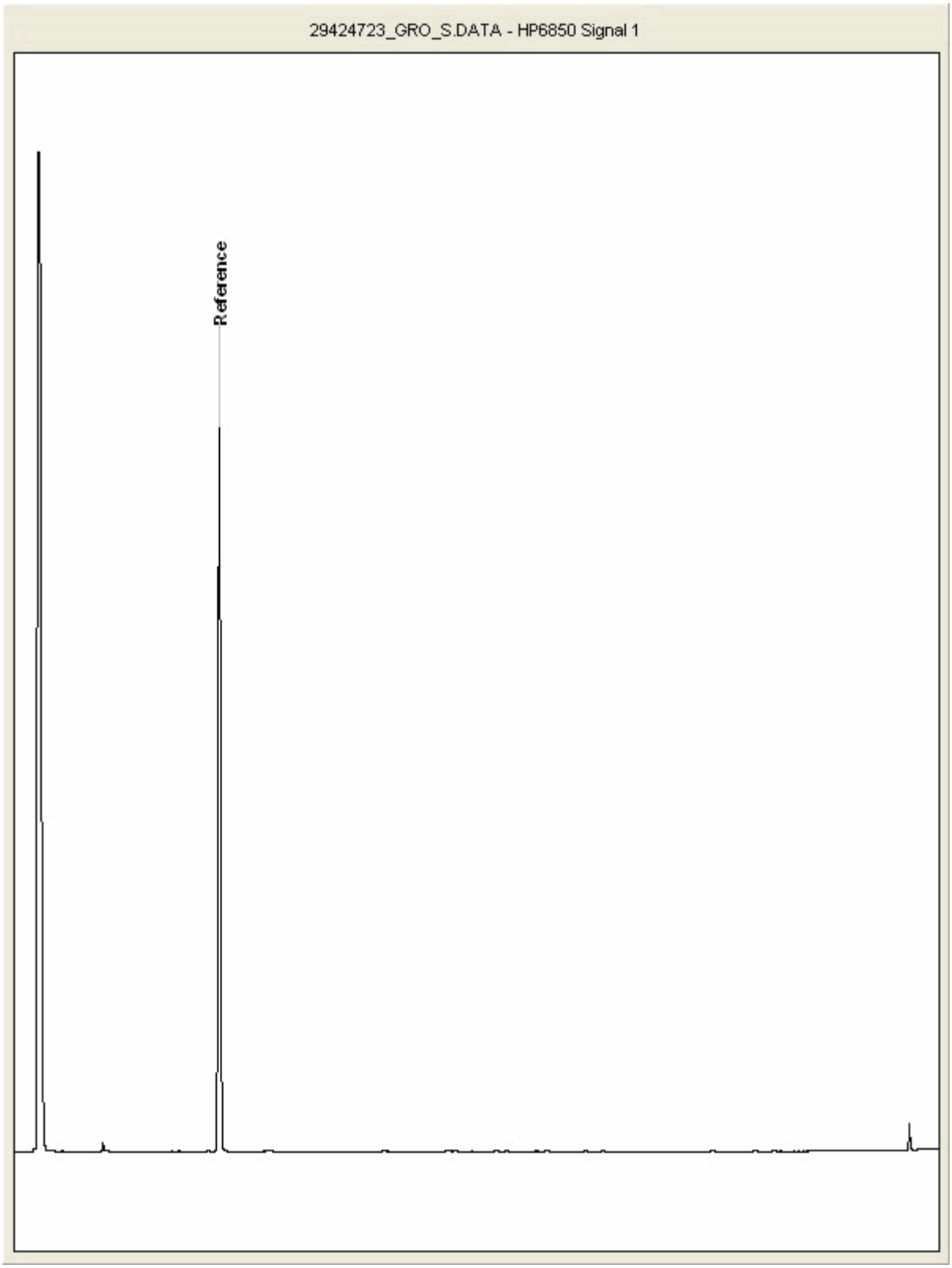


CERTIFICATE OF ANALYSIS

SDG: 240228-29 **Report Number:** 722728 **Superseded Report:** 722617
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 29424723 **Depth :** 0.40 - 0.50
Sample ID : HP01/2

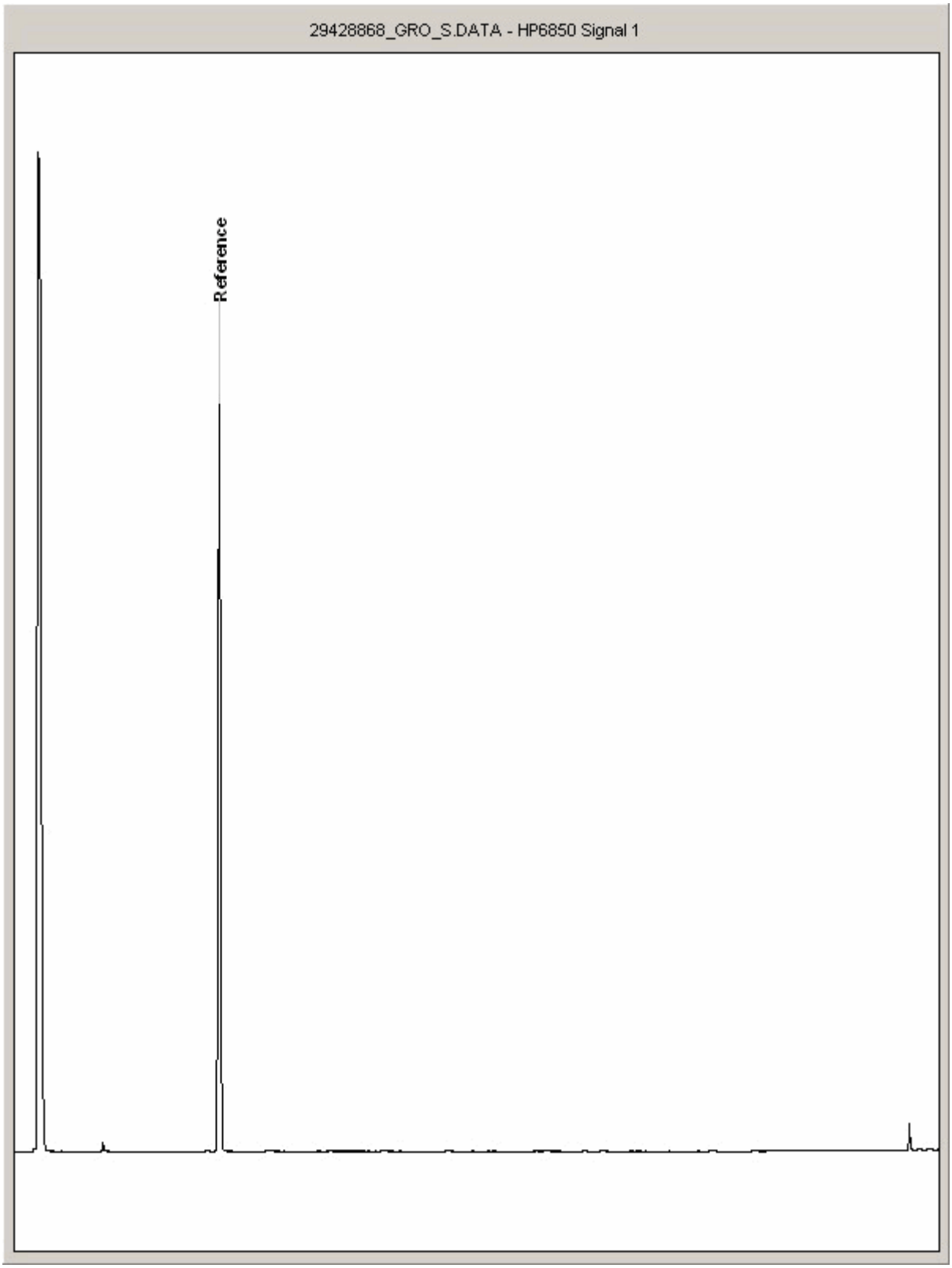


CERTIFICATE OF ANALYSIS

SDG: 240228-29 **Report Number:** 722728 **Superseded Report:** 722617
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 29428868 **Depth :** 1.00 - 1.20
Sample ID : WS04

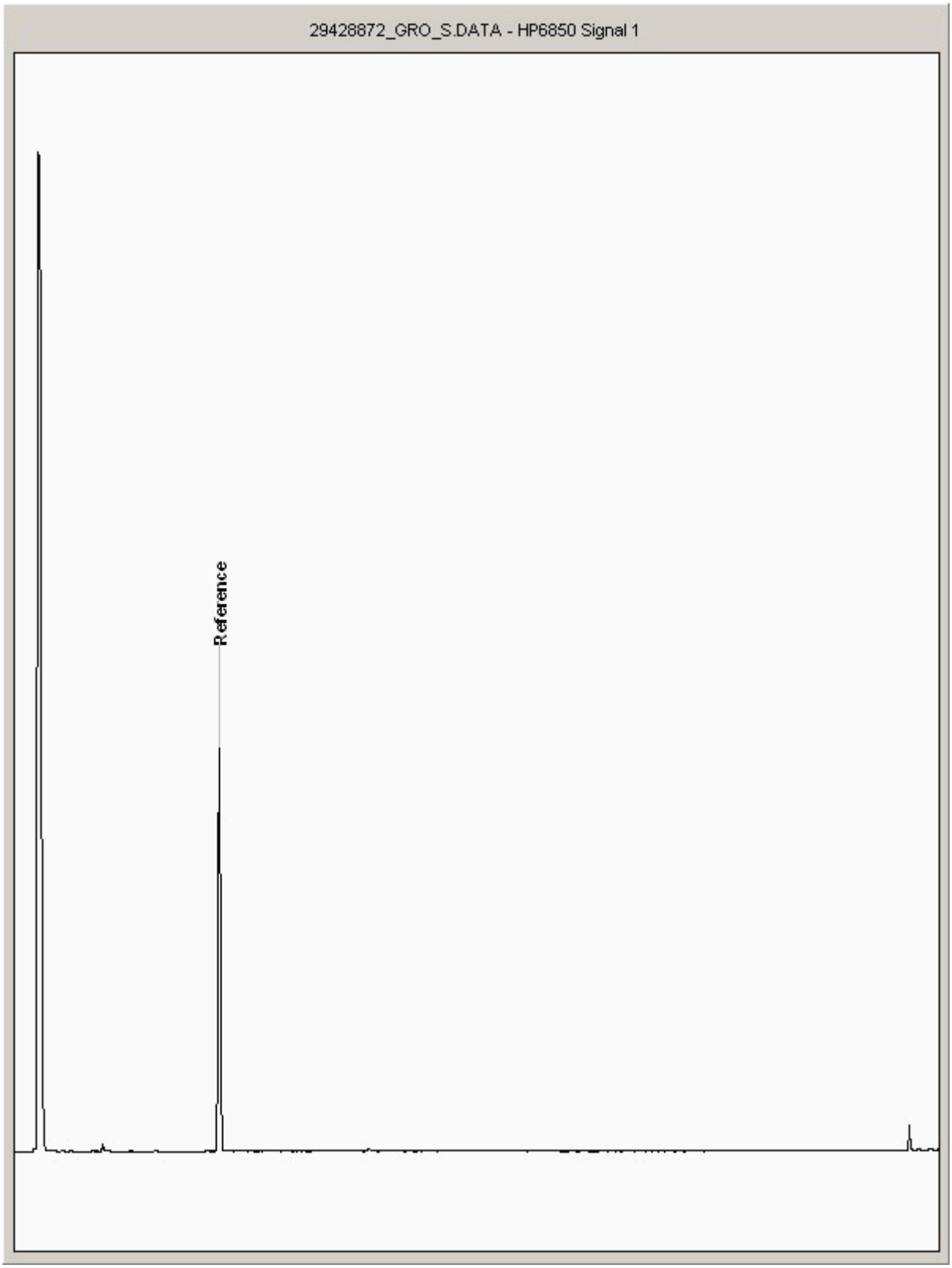


CERTIFICATE OF ANALYSIS

SDG: 240228-29 **Report Number:** 722728 **Superseded Report:** 722617
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 29428872 **Depth :** 0.30 - 0.40
Sample ID : WS04

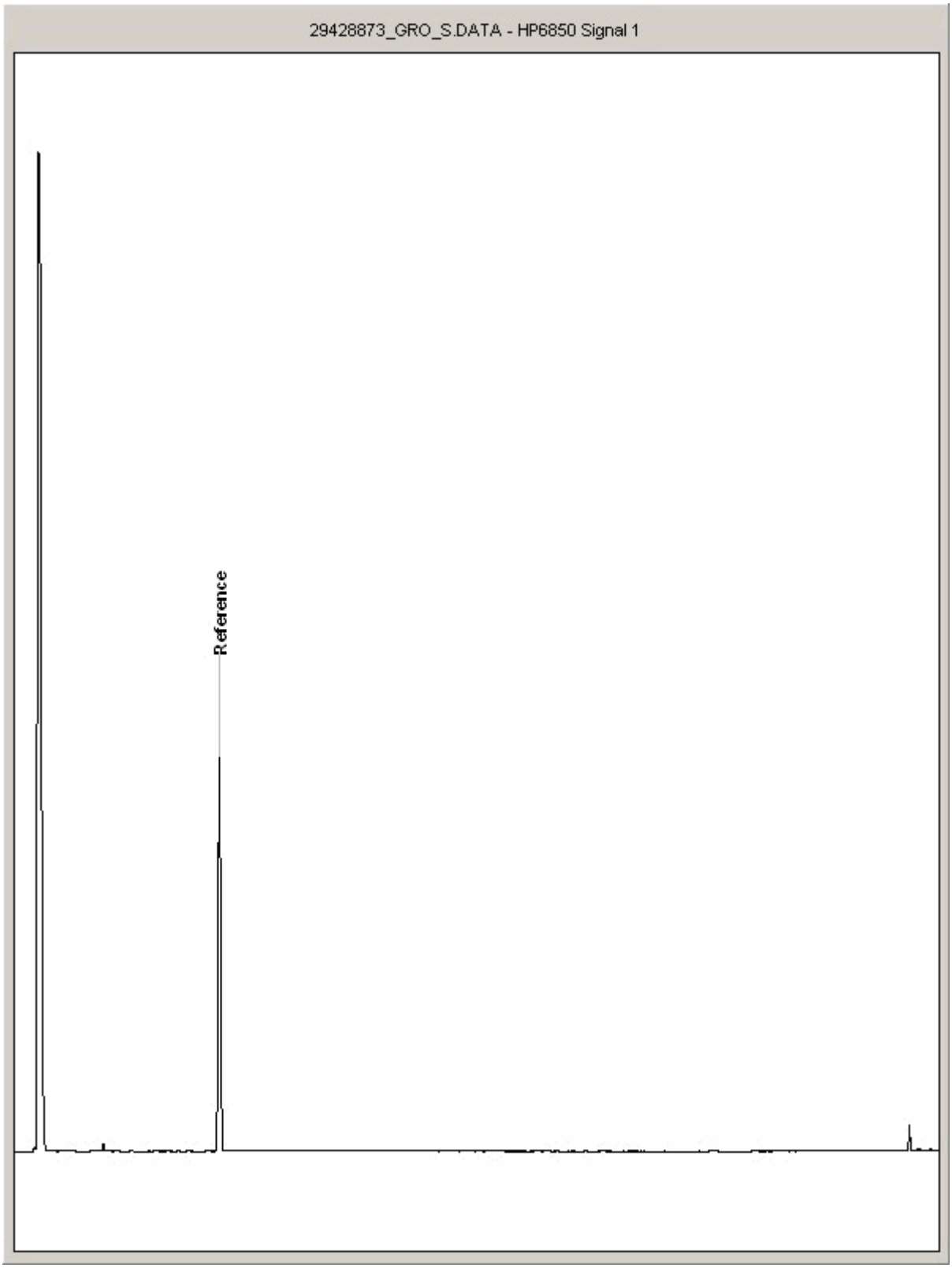


CERTIFICATE OF ANALYSIS

SDG: 240228-29 **Report Number:** 722728 **Superseded Report:** 722617
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 29428873 **Depth :** 0.35 - 0.40
Sample ID : WS06A

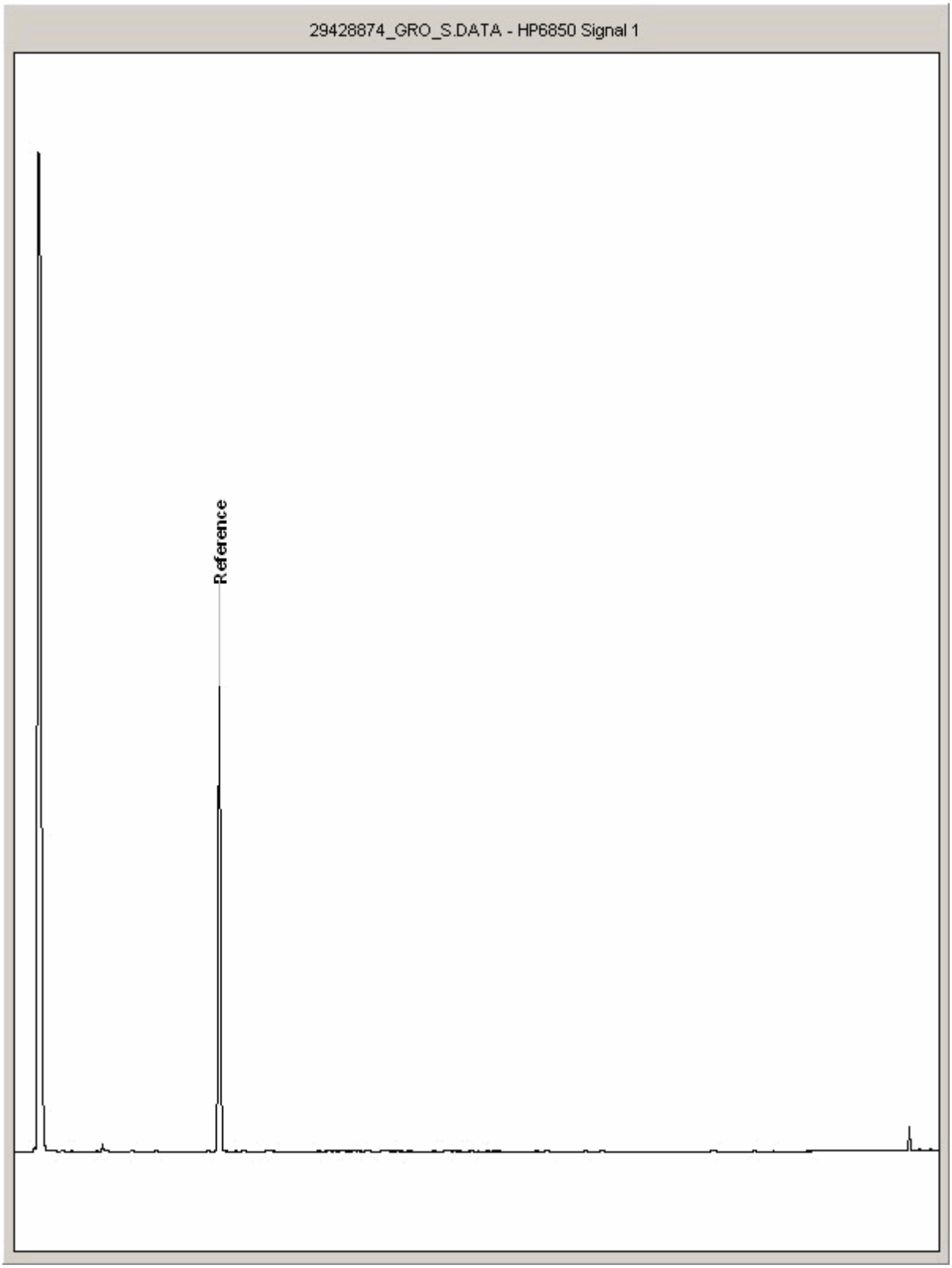


CERTIFICATE OF ANALYSIS

SDG: 240228-29 **Report Number:** 722728 **Superseded Report:** 722617
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 29428874 **Depth :** 0.35 - 0.50
Sample ID : WS05A

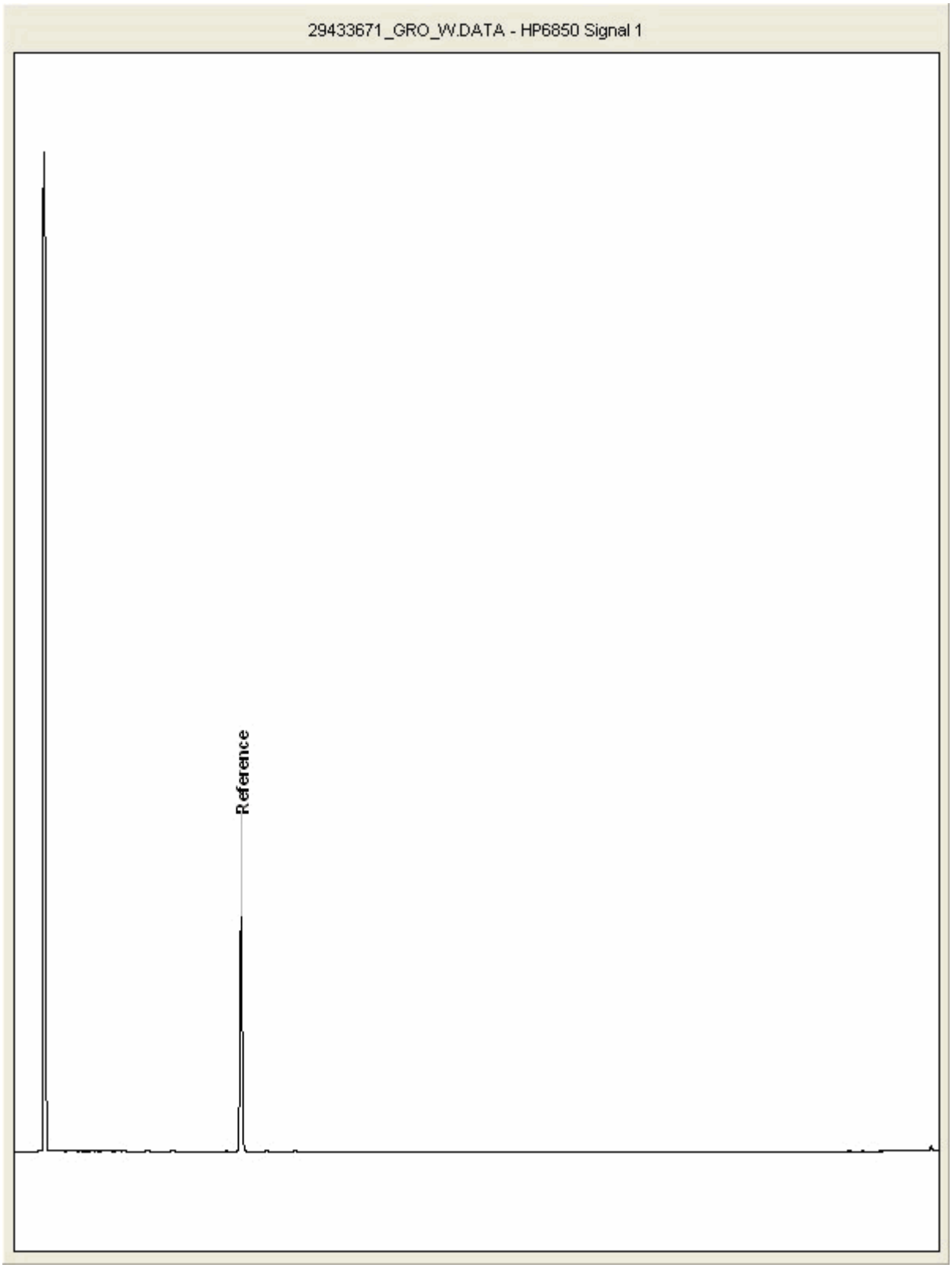


CERTIFICATE OF ANALYSIS

SDG: 240228-29 **Report Number:** 722728 **Superseded Report:** 722617
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

Chromatogram

Analysis: GRO by GC-FID (W) **Sample No :** 29433671 **Depth :** 0.35 - 0.50
Sample ID : WS05A

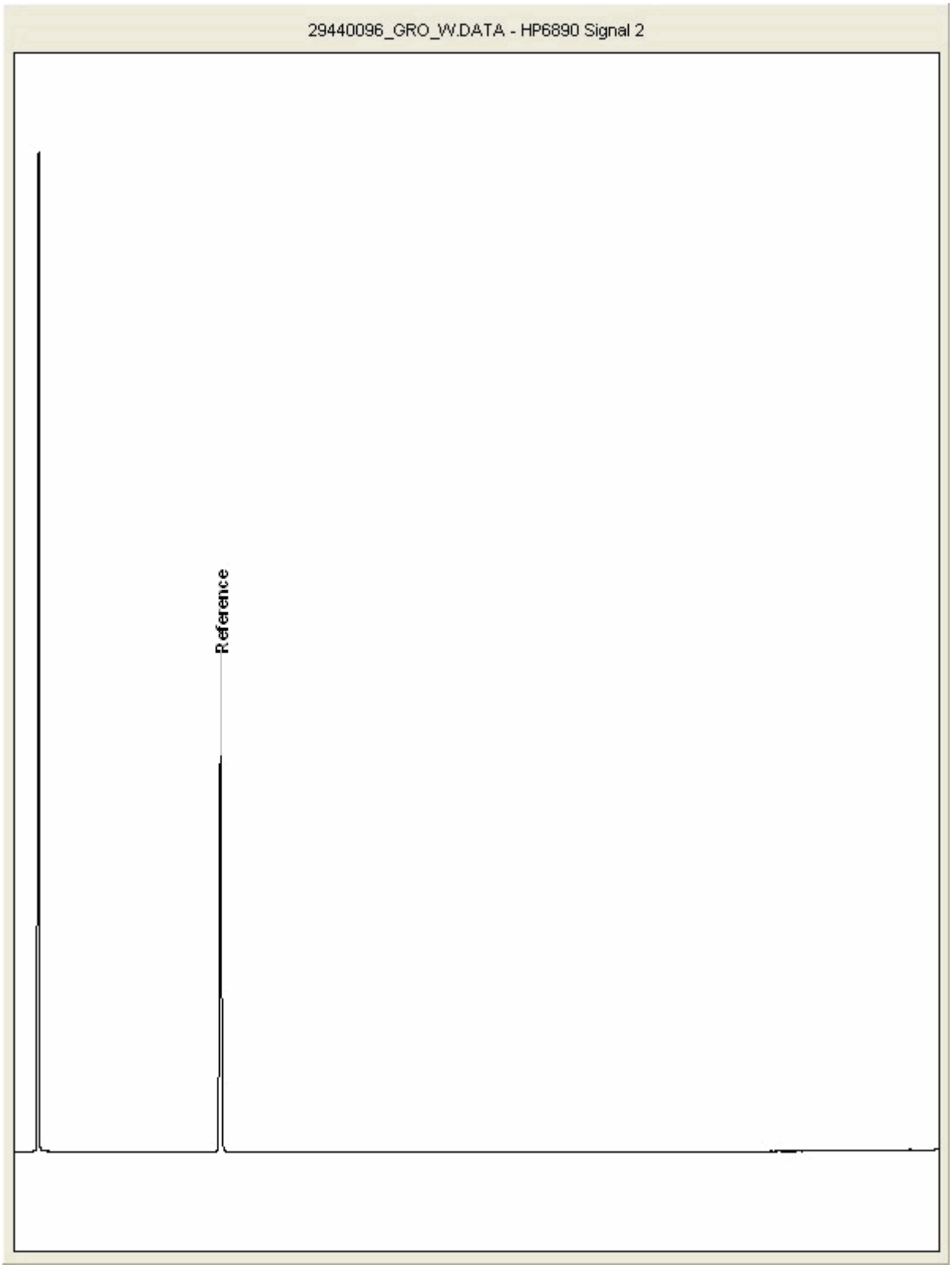


CERTIFICATE OF ANALYSIS

SDG: 240228-29 **Report Number:** 722728 **Superseded Report:** 722617
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

Chromatogram

Analysis: GRO by GC-FID (W) **Sample No :** 29440096 **Depth :** 1.20 - 1.30
Sample ID : WS05A

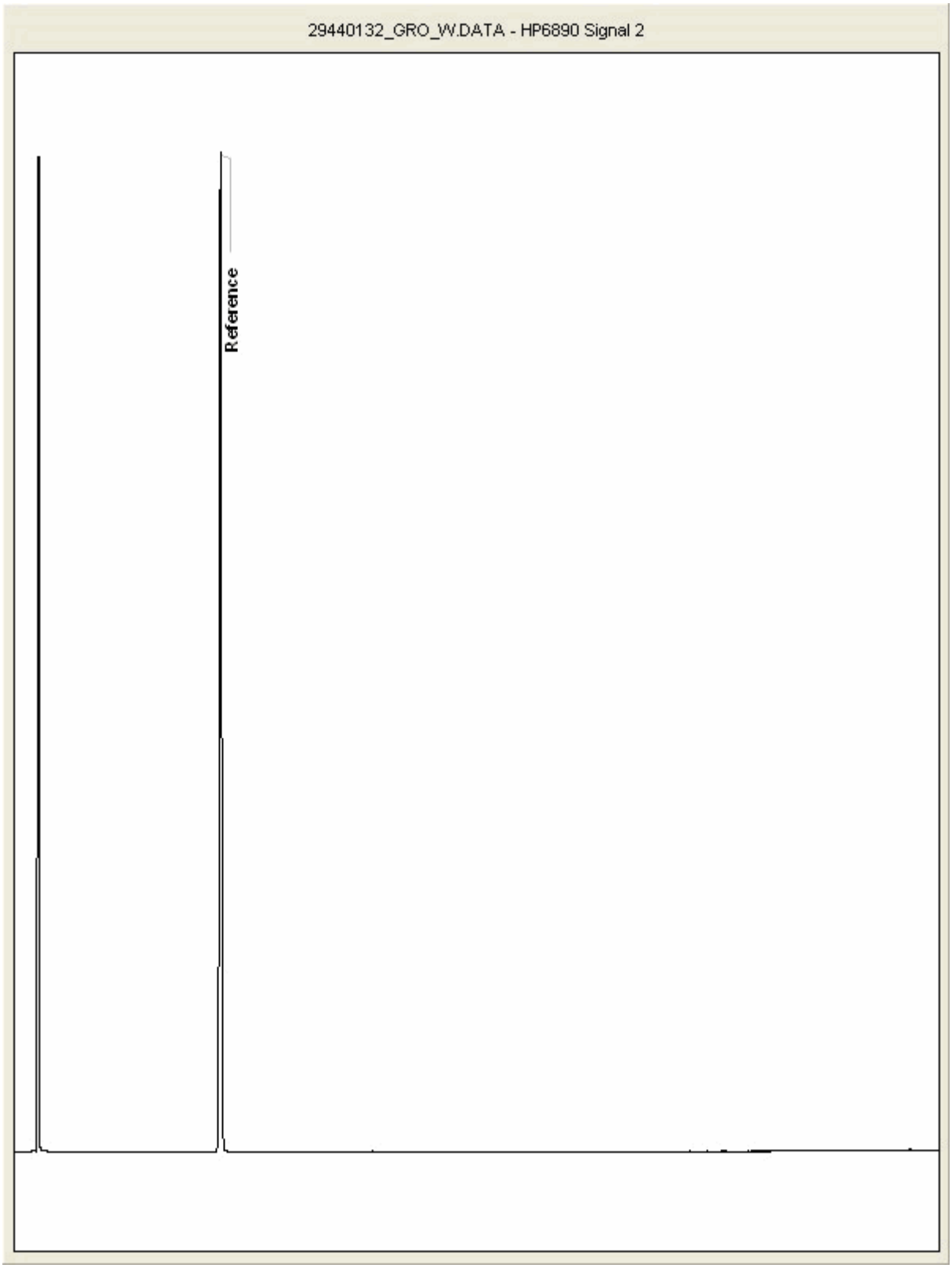


CERTIFICATE OF ANALYSIS

SDG: 240228-29 **Report Number:** 722728 **Superseded Report:** 722617
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

Chromatogram

Analysis: GRO by GC-FID (W) **Sample No :** 29440132 **Depth :** 1.40 - 1.70
Sample ID : WS04

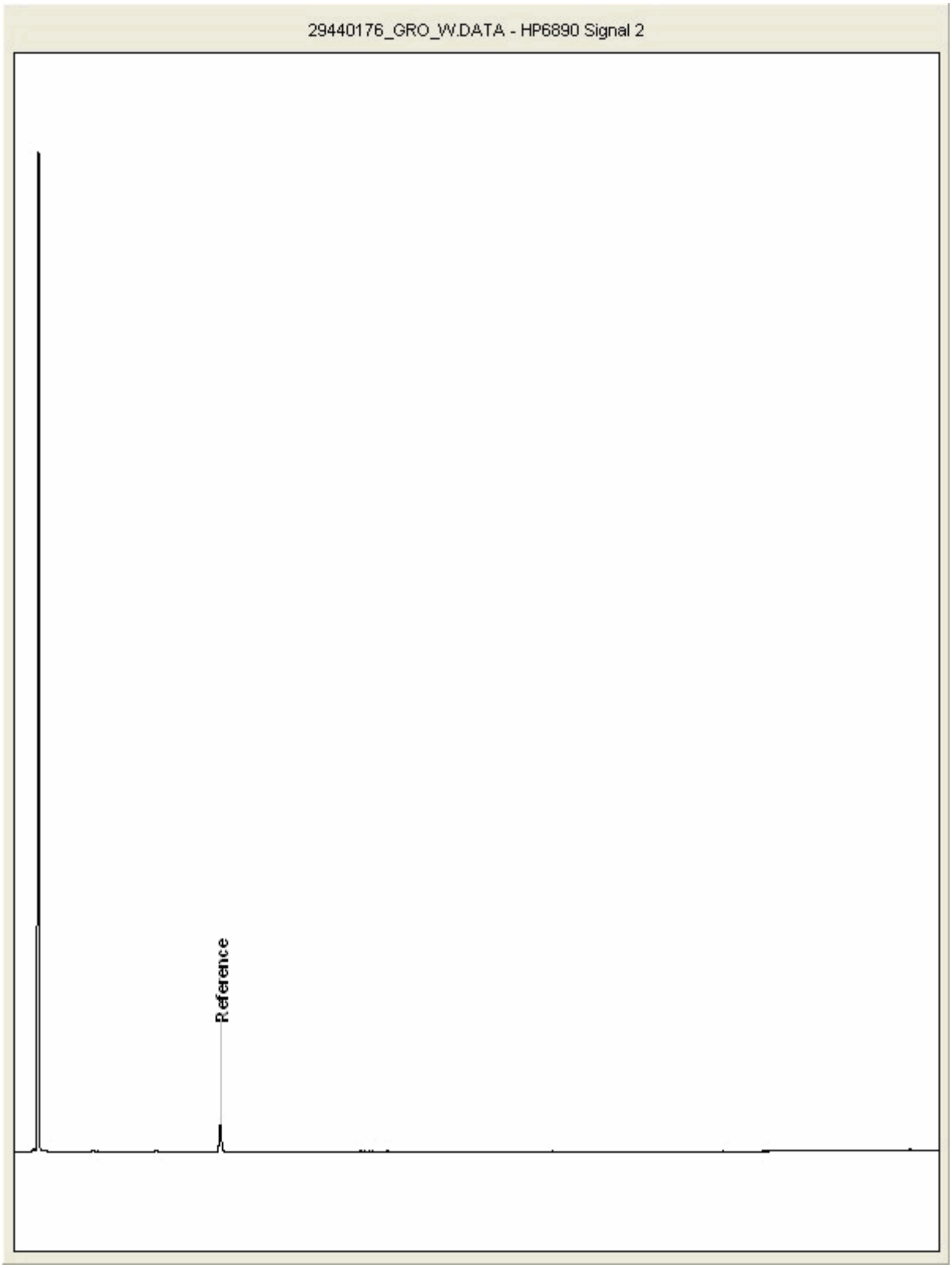


CERTIFICATE OF ANALYSIS

SDG: 240228-29 **Report Number:** 722728 **Superseded Report:** 722617
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

Chromatogram

Analysis: GRO by GC-FID (W) **Sample No :** 29440176 **Depth :** 0.30 - 0.40
Sample ID : WS04

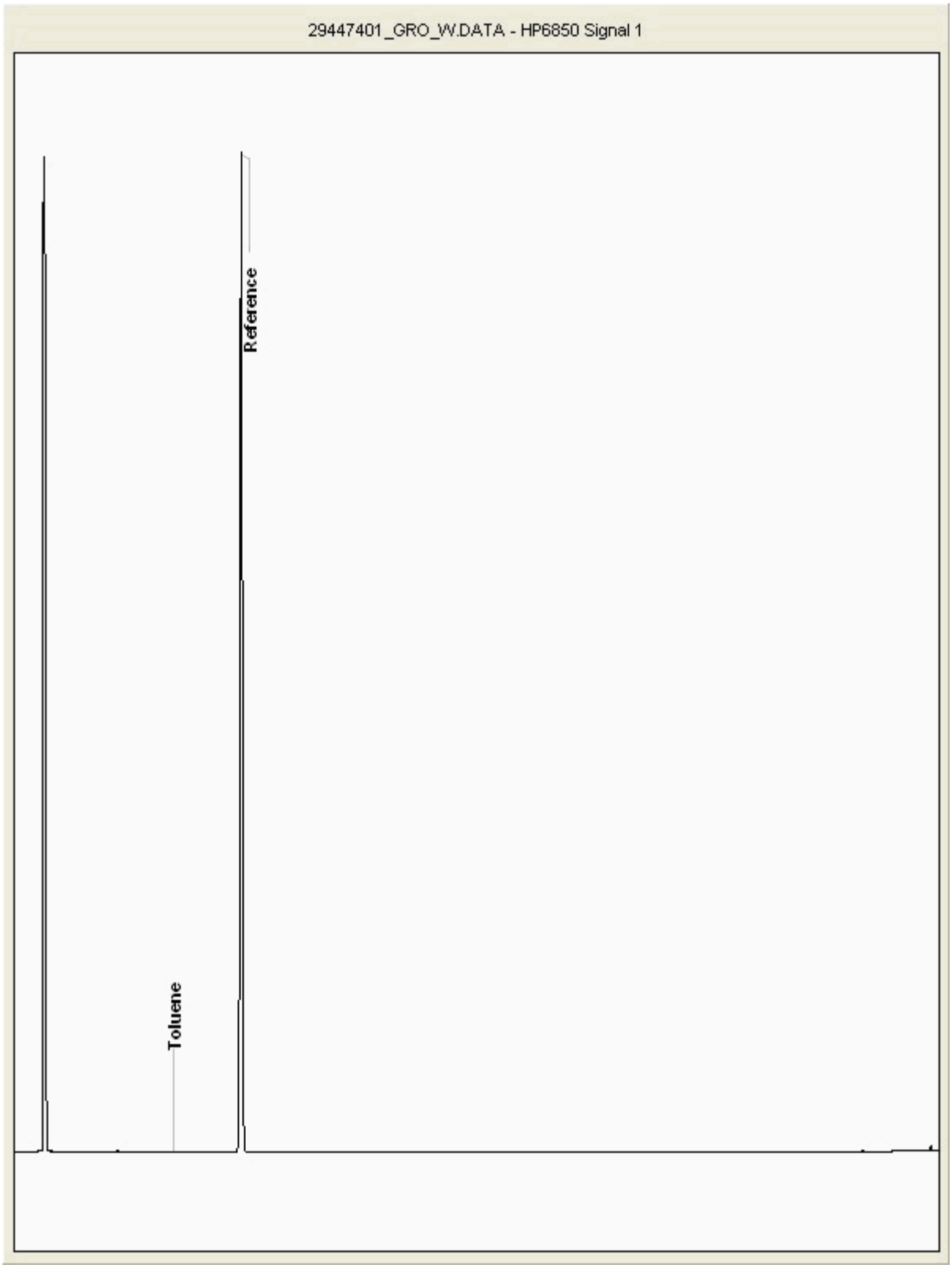


CERTIFICATE OF ANALYSIS

SDG: 240228-29 **Report Number:** 722728 **Superseded Report:** 722617
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

Chromatogram

Analysis: GRO by GC-FID (W) **Sample No :** 29447401 **Depth :** 1.00 - 1.20
Sample ID : WS04



Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 15 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of 15 days after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining.

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528777
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

WSP UK Limited
8 First Street
Manchester
Lancashire
M15 4RP

Attention: Matthew Jones

CERTIFICATE OF ANALYSIS

Date of report Generation:	13 March 2024
Customer:	WSP UK Limited
Sample Delivery Group (SDG):	240304-44
Your Reference:	70119985
Location:	Unit 10, Barton Park
Report No:	722906
Order Number:	70119985-002

We received 16 samples on Monday March 04, 2024 and 6 of these samples were scheduled for analysis which was completed on Wednesday March 13, 2024. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan
Operations Manager

CERTIFICATE OF ANALYSIS

SDG: 240304-44 **Report Number:** 722906 **Superseded Report:**
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
29448461	WS04	B	0.30 - 0.40	21/02/2024
29448450	WS04	D	1.20 - 1.30	20/02/2024
29448464	WS04	SPT	1.30 - 1.75	21/02/2024
29448471	WS04	B	1.70 - 2.00	21/02/2024
29448469	WS04	SPT	2.00 - 2.45	21/02/2024
29448454	WS07	B	2.25 - 2.75	22/02/2024
29448456	WS07	D	3.70 - 3.85	22/02/2024
29448458	WS07	D	4.50 - 4.65	22/02/2024
29448473	WS05A	B	0.35 - 0.50	22/02/2024
29448476	WS05A	D	1.30 - 1.45	21/02/2024
29448479	WS06A	B	0.35 - 0.40	20/02/2024
29448482	WS06A	D	1.20 - 1.35	20/02/2024
29448484	WS06A	D	1.40 - 1.60	20/02/2024
29448486	WS06A	B	2.30 - 2.80	20/02/2024
29448488	WS06A	D	3.85 - 4.00	20/02/2024
29448452	WS06A	D	4.85 - 5.00	20/02/2024

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG: 240304-44 **Report Number:** 722906 **Superseded Report:**
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water
Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			29448450	29448454	29448456	29448482	29448486	29448452
Customer Sample Reference			WS04	WS07	WS07	WS06A	WS06A	WS06A
AGS Reference			D	B	D	D	B	D
Depth (m)			1.20 - 1.30	2.25 - 2.75	3.70 - 3.85	1.20 - 1.35	2.30 - 2.80	4.85 - 5.00
Container			Geolabs container	Geolabs container	1kg TUB with Handle (ALE260)	1kg TUB with Handle (ALE260)	Geolabs container	1kg TUB with Handle (ALE260)
Sample Type			S	S	S	S	S	S
Geotechnical Testing*	All	NDPs: 0 Tests: 6	X	X	X	X	X	X

Validated

CERTIFICATE OF ANALYSIS

SDG: 240304-44 **Report Number:** 722906 **Superseded Report:**
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	WS04	WS07	WS07	WS06A	WS06A	WS06A
			Depth (m)	1.20 - 1.30	2.25 - 2.75	3.70 - 3.85	1.20 - 1.35	2.30 - 2.80	4.85 - 5.00
			Sample Type	GeoTech Soils	GeoTech Soils	GeoTech Soils	GeoTech Soils	GeoTech Soils	GeoTech Soils
			Date Sampled	20/02/2024	22/02/2024	22/02/2024	20/02/2024	20/02/2024	20/02/2024
			Sample Time	.	.	.	.	.	.
			Date Received	04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024	04/03/2024
			SDG Ref	240304-44	240304-44	240304-44	240304-44	240304-44	240304-44
			Lab Sample No.(s)	29448450	29448454	29448456	29448482	29448486	29448452
			AGS Reference	D	B	D	D	B	D
Moisture Content (GEOTECH)*		SUB		See Attached		See Attached	See Attached		See Attached
Plasticity Index 4 point*		SUB		See Attached		See Attached	See Attached		See Attached
PSD Wet/Dry sieve*		SUB			See Attached			See Attached	

Table of Results - Appendix

Method No	Description
SUB	Subcontracted Test

NA = not applicable.
Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden (Method codes TM).

CERTIFICATE OF ANALYSIS

SDG: 240304-44 **Report Number:** 722906 **Superseded Report:**
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

Test Completion Dates

Lab Sample No(s)	29448450	29448454	29448456	29448452	29448482	29448486
Customer Sample Ref.	WS04	WS07	WS07	WS06A	WS06A	WS06A
AGS Ref.	D	B	D	D	D	B
Depth	1.20 - 1.30	2.25 - 2.75	3.70 - 3.85	4.85 - 5.00	1.20 - 1.35	2.30 - 2.80
Type	GeoTech	GeoTech	GeoTech	GeoTech	GeoTech	GeoTech
Geotechnical Testing*	13-Mar-2024	13-Mar-2024	13-Mar-2024	13-Mar-2024	13-Mar-2024	13-Mar-2024

ALS Environmental
Units 7-8 Hawarden Business Park
Manor Lane
Hawarden
Deeside
CH5 3US
For the attention of Lukas

TEST REPORT

PROJECT/SITE	Barton Park	Version No.	1
REPORT NUMBER	24/3939	Page No.	1 to 9
Your ref/PO:	240304-44	Date of Issue	13/03/2024
		Status	Final

SUMMARY OF RESULTS ATTACHED

TEST METHOD & DESCRIPTION	QUANTITY
BS EN ISO 17892-1: 2014 Water Content	4
BS 1377: Part 2: Clause 4.2-4.4 & 5.2-5.4: 1990 Liquid & Plastic Limits	4
BS EN ISO 17892-4:2016 Determination of particle size distribution	2

Remarks
This report may not be partially reproduced without written permission from this laboratory.
Any descriptions, opinions and interpretations are outside the scope of UKAS accreditation.
The results reported herein relate only to the items tested or sampled.
* Tests have been sub-contracted out.
Tests are not UKAS accredited.

Approved Signatories:
L Griffin LG (QA Technical & Laboratory Manager)
K Mazerant KM (Laboratory Manager)



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47-49 Brunel Road
London
W3 7XR
lab@conceptsi.co.uk
020 8740 1553

Coventry Laboratory
Unit D, Herald Way
Binley Industrial Estate
Coventry
CV3 2RQ
coventrylab@conceptsi.co.uk
024 7708 7673

CONCEPT SITE INVESTIGATIONS

Site Name:	Unit 10, Barton Park	**Job No.:**	24/3939
Client:	ALS	**Date Reported:**	13/03/2024

Summary Test Report
Determination of Water Content, Liquid and Plastic Limits by 4 Point Cone Method

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Water Content %	Passing 425 µm sieve %	Sample Prep Natural/ Washed	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
WS04	D	1	1.20	Brown slightly gravelly sandy siltyCLAY. Gravel comprises of fine to medium flint and coal fragments	26.9	90	Tested after washing to remove >425um	36	19	17	

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS EN ISO 17892-1_2014 + A1_2022 Clause 5 Determination of water content

Remarks: The results reported relate only to the items tested or sampled.

4503

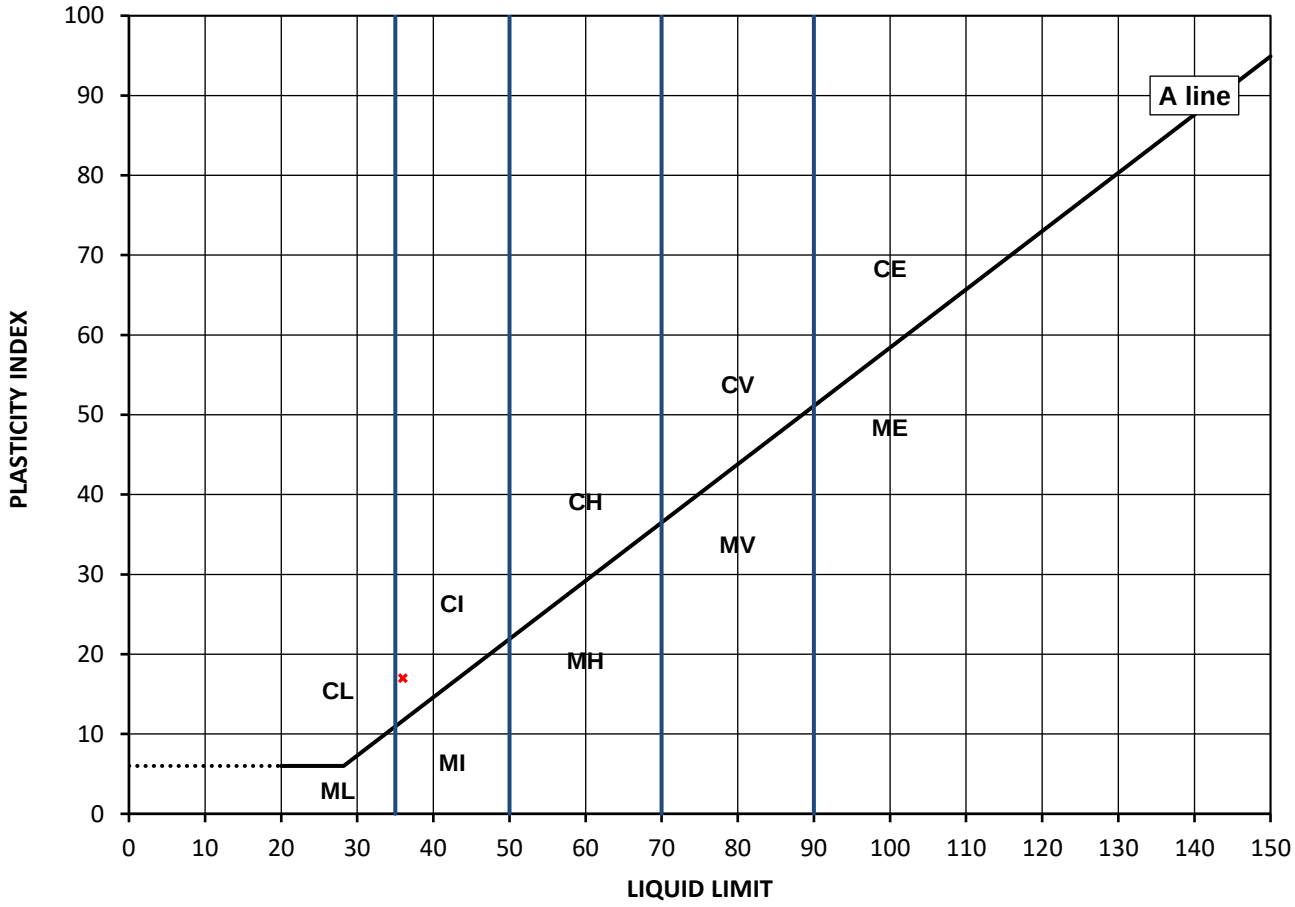
Date - samples received:	26/02/2024		
Date - sample testing commenced :	06/03/2024	Checked / Approved by:	LG
Date - sample testing completed :	11/03/2024	Date Approved:	13/03/2024
Approved Signatories:	L Griffin LG (QA Technical & Lab Mngr) – K Mazerant KM (Lab Mngr)		

CONCEPT
Unit D, Herald Way, Coventry CV3 2RQ
Tel: 02477087673
Email:coventrylab@conceptconsultants.co.uk

CONCEPT SITE INVESTIGATIONS A PHENNA GROUP COMPANY

Plasticity (A-line) Chart

Project No.	Project Name
24/3939	Unit 10, Barton Park



Legend, based on BS 5930:2015 +A1: 2020 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

CONCEPT SITE INVESTIGATIONS

Site Name:	Unit 10, Barton Park	**Job No.:**	24/3939
Client:	ALS	**Date Reported:**	13/03/2024

Summary Test Report
Determination of Water Content, Liquid and Plastic Limits by 4 Point Cone Method

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Water Content %	Passing 425 µm sieve %	Sample Prep Natural/ Washed	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
WS06A	D	6	1.20	Dark grey slightly gravelly sandy silty CLAY. Gravel is fine to coarse flint	22.1	90	Tested after washing to remove >425um	33	21	12	
WS06A	D	10	4.85	Dark greyish brown slightly sandy silty CLAY with rare pyrite nodules	22.0	100	Tested in natural condition	47	20	27	

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS EN ISO 17892-1_2014 + A1_2022 Clause 5 Determination of water content

Remarks: The results reported relate only to the items tested or sampled.

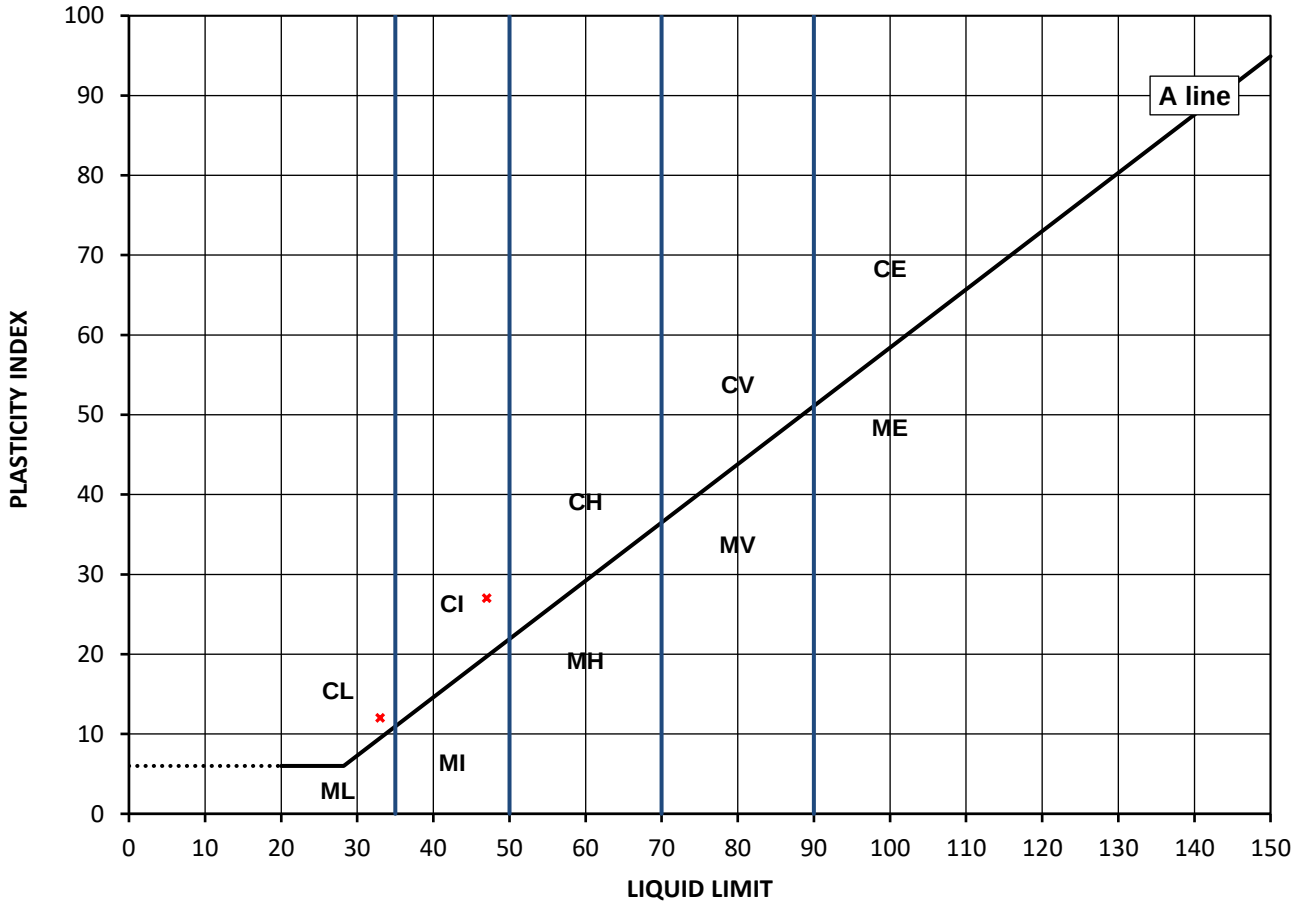
4503

Date - samples received:	26/02/2024		
Date - sample testing commenced :	06/03/2024	Checked / Approved by:	LG
Date - sample testing completed :	11/03/2024	Date Approved:	13/03/2024
Approved Signatories:	L Griffin LG (QA Technical & Lab Mngr) – K Mazerant KM (Lab Mngr)		

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Plasticity (A-line) Chart

Project No.	Project Name
24/3939	Unit 10, Barton Park



Legend, based on BS 5930:2015 +A1: 2020 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

CONCEPT SITE INVESTIGATIONS

Site Name:	Unit 10, Barton Park	**Job No.:**	24/3939
Client:	ALS	**Date Reported:**	13/03/2024

Summary Test Report
Determination of Water Content, Liquid and Plastic Limits by 4 Point Cone Method

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Water Content %	Passing 425 µm sieve %	Sample Prep Natural/ Washed	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
WS07	D	12	3.70	Dark greyish brown slightly sandy silty CLAY	22.5	100	Tested in natural condition	44	21	23	

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS EN ISO 17892-1_2014 + A1_2022 Clause 5 Determination of water content

Remarks: The results reported relate only to the items tested or sampled.

4503

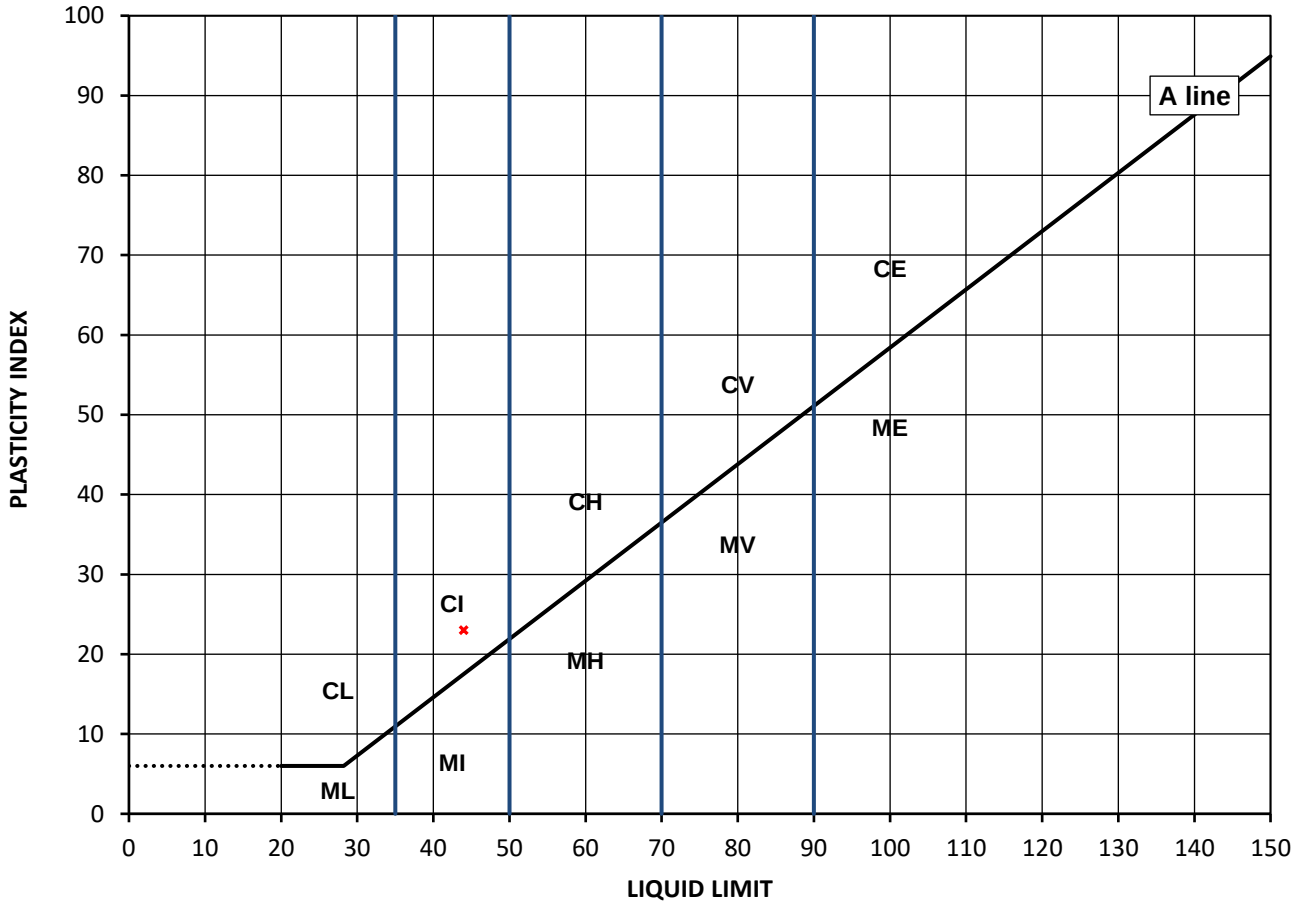
Date - samples received:	26/02/2024		
Date - sample testing commenced :	06/03/2024	Checked / Approved by:	LG
Date - sample testing completed :	11/03/2024	Date Approved:	13/03/2024
Approved Signatories:	L Griffin LG (QA Technical & Lab Mngr) – K Mazerant KM (Lab Mngr)		

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CONCEPT SITE INVESTIGATIONS A PHENNA GROUP COMPANY

Plasticity (A-line) Chart

Project No.	Project Name
24/3939	Unit 10, Barton Park



Legend, based on BS 5930:2015 +A1: 2020 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

TEST REPORT

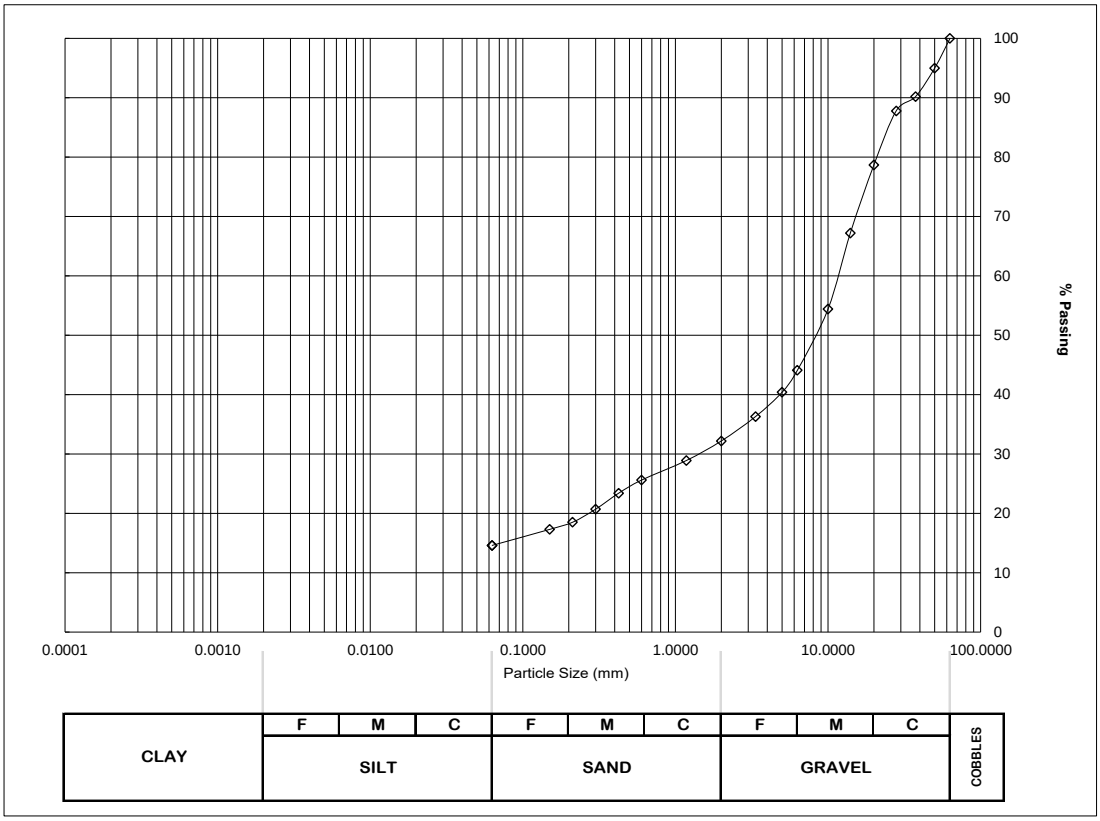
Site Name:	**Unit 10, Barton Park**					**Job Number:**	**24/3939**
Client:	**ALS**					**Date Reported:**	**13/03/2024**
Borehole No:	**WS06A**	**Sample Type/No.**	**B**	**8**	**Top Depth:** **2.30 m**	**Bottom Depth:**	**2.80 m**

Soil Description:

Brown slightly clayey sandy fine to coarse flint GRAVEL

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	95
37.500	90
28.000	88
20.000	79
14.000	67
10.000	54
6.300	44
5.000	40
3.350	36
2.000	32
1.180	29
0.600	26
0.425	23
0.300	21
0.212	19
0.150	17
0.063	15

Sedimentation (*if applicable)	
Size (mm)	% Passing
0.02	
0.006	
0.002	



Method(s) used:	Sieving

BS EN ISO 17892-4:2016 Clause 5.2 Determination of particle size distribution

Particle Proportions %	
Cobbles	
Gravel	68
Sand	18
Silt and Clay	15

4503

Remarks:

Particle Density 2.65 Mg/m3 Assumed

The results reported relate only to the items tested or sampled.

Date - samples received:	26/02/2024		
Date - sample testing commenced:	07/03/2024	Checked / Approved by:	LG
Date - samples testeing completed:	11/03/2024	Date Approved:	13/03/2024

Approved Signatories: L Griffin LG (Quality Mngr) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

TEST REPORT

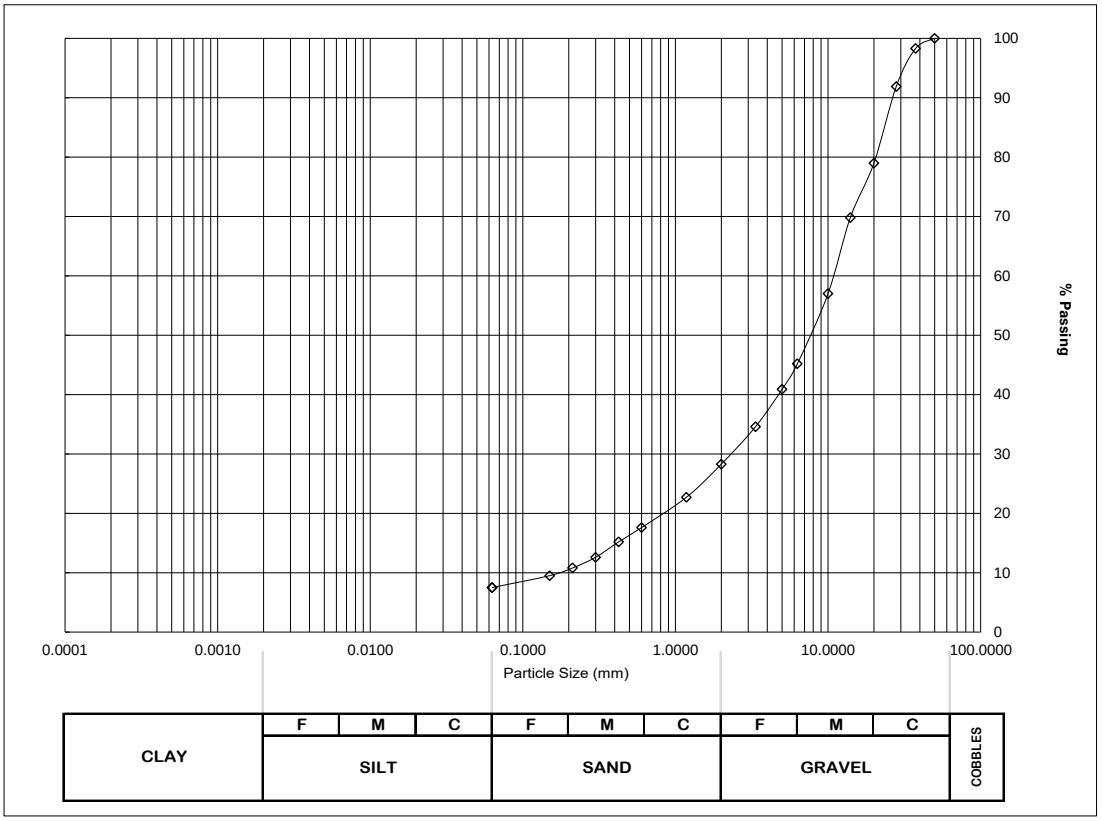
Site Name:	**Unit 10, Barton Park**					**Job Number:**	**24/3939**
Client:	**ALS**					**Date Reported:**	**13/03/2024**
Borehole No:	**WS07**	**Sample Type/No.**	**B**	**11**	**Top Depth:** **2.25 m**	**Bottom Depth:**	**2.75 m**

Soil Description:

Orangish brown very sandy fine to coarse flint GRAVEL

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	98
28.000	92
20.000	79
14.000	70
10.000	57
6.300	45
5.000	41
3.350	35
2.000	28
1.180	23
0.600	18
0.425	15
0.300	13
0.212	11
0.150	10
0.063	8

Sedimentation (*if applicable)	
Size (mm)	% Passing
0.02	
0.006	
0.002	



Method(s) used:	Sieving

BS EN ISO 17892-4:2016 Clause 5.2 Determination of particle size distribution

Particle Proportions %	
Cobbles	
Gravel	72
Sand	21
Silt and Clay	7

4503

Remarks:

Particle Density 2.65 Mg/m3 Assumed

The results reported relate only to the items tested or sampled.

Date - samples received:	26/02/2024		
Date - sample testing commenced:	07/03/2024	Checked / Approved by:	LG
Date - samples testeing completed:	11/03/2024	Date Approved:	13/03/2024

Approved Signatories: L Griffin LG (Quality Mngr) – K Mazerant KM (Lab Mngr)

CONCEPT
Unit D, Herald Way, Coventry CV3 2RQ
Tel: 02477087673
Email: coventrylab@conceptsi.co.uk

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 15 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of 15 days after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining.

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Appendix D.5

LABORATORY DATA - GROUNDWATER ANALYSIS

Confidential

Units 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528777
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

WSP UK Limited
8 First Street
Manchester
Lancashire
M15 4RP

Attention: Matthew Jones

CERTIFICATE OF ANALYSIS

Date of report Generation:	20 March 2024
Customer:	WSP UK Limited
Sample Delivery Group (SDG):	240309-46
Your Reference:	70119985
Location:	Unit 10, Barton Park
Report No:	723592
Order Number:	70119985-002

We received 2 samples on Saturday March 09, 2024 and 2 of these samples were scheduled for analysis which was completed on Wednesday March 20, 2024. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Sonia McWhan
Operations Manager

1291

SDG: 240309-46 **Report Number:** 723592 **Superseded Report:**
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
29473944	WS07	EW20240308	2.00 - 4.00	08/03/2024
29473934	WS06A	EW20240308	1.50 - 3.00	08/03/2024

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG: 240309-46 **Report Number:** 723592 **Superseded Report:**
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water
Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			29473944					29473934				
Customer Sample Reference			WS07					WS06A				
AGS Reference			EW20240308					EW20240308				
Depth (m)			2.00 - 4.00					1.50 - 3.00				
Container			0.5l glass bottle (ALE227)	250ml Amber Gl. PTFE/PE	330ml plastic bottle (ALE503)	HNO3 Filtered (ALE204)	Vial (ALE297)	0.5l glass bottle (ALE227)	250ml Amber Gl. PTFE/PE	330ml plastic bottle (ALE503)	HNO3 Filtered (ALE204)	Vial (ALE297)
Sample Type			GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 2				X					X	
EPH and CWG by FID	All	NDPs: 0 Tests: 2	X					X				
GRO by GC-FID (W)	All	NDPs: 0 Tests: 2					X					X
Hexavalent Chromium (w)	All	NDPs: 0 Tests: 2			X					X		
Mercury Dissolved	All	NDPs: 0 Tests: 2				X					X	
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 2		X					X			
Phenols by HPLC (W)	All	NDPs: 0 Tests: 2			X					X		
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 2	X					X				
TPH CWG (W)	All	NDPs: 0 Tests: 2	X					X				
VOC MS (W)	All	NDPs: 0 Tests: 2					X					X

CERTIFICATE OF ANALYSIS

SDG: 240309-46 **Report Number:** 723592 **Superseded Report:**
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.	WS07	WS06A
Depth (m)	2.00 - 4.00	1.50 - 3.00
Sample Type	Ground Water (GW)	Ground Water (GW)
Date Sampled	08/03/2024	08/03/2024
Sampled Time	.	.
Date Received	09/03/2024	09/03/2024
SDG Ref	240309-46	240309-46
Lab Sample No.(s)	29473944	29473934
AGS Reference	EW20240308	EW20240308

Component	LOD/Units	Method		
Arsenic (diss.filt)	<0.5 µg/l	TM152	<0.5 #	5.4 #
Barium (diss.filt)	<0.2 µg/l	TM152	21.6 #	44.7 #
Beryllium (diss.filt)	<0.1 µg/l	TM152	<0.1 #	<0.1 #
Boron (diss.filt)	<10 µg/l	TM152	34.4 #	168 #
Cadmium (diss.filt)	<0.08 µg/l	TM152	<0.08 #	<0.08 #
Chromium (diss.filt)	<1 µg/l	TM152	<1 #	<1 #
Copper (diss.filt)	<0.3 µg/l	TM152	0.901 #	1.18 #
Lead (diss.filt)	<0.2 µg/l	TM152	<0.2 #	0.567 #
Nickel (diss.filt)	<0.4 µg/l	TM152	1.33 #	14.3 #
Selenium (diss.filt)	<1 µg/l	TM152	<1 #	<1 #
Vanadium (diss.filt)	<1 µg/l	TM152	<1 #	<1 #
Zinc (diss.filt)	<1 µg/l	TM152	13.7 #	21.3 #
Mercury (diss.filt)	<0.01 µg/l	TM183	<0.01 #	<0.01 #
Chromium, Hexavalent	<30 µg/l	TM241	<30 #	<30 #
Phenol	<2 µg/l	TM259	<2 2 #	<2 2 #
Cresols	<6 µg/l	TM259	<6 2 #	<6 2 #
Xylenols	<8 µg/l	TM259	<8 2 #	<8 2 #
Phenols, Total Detected monohydric	<16 µg/l	TM259	<16 2 #	<16 2 #

CERTIFICATE OF ANALYSIS

SDG: 240309-46 **Report Number:** 723592 **Superseded Report:**
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

PAH Spec MS - Aqueous (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4♦§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	WS07	WS06A
			Depth (m)	2.00 - 4.00	1.50 - 3.00
			Sample Type	Ground Water (GW)	Ground Water (GW)
			Date Sampled	08/03/2024	08/03/2024
			Sampled Time	.	.
			Date Received	09/03/2024	09/03/2024
			SDG Ref	240309-46	240309-46
			Lab Sample No.(s)	29473944	29473934
			AGS Reference	EW20240308	EW20240308
Naphthalene (aq)	<0.01 µg/l	TM178		<0.01 #	<0.02 ♦ #
Acenaphthene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.01 ♦ #
Acenaphthylene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.01 ♦ #
Fluoranthene (aq)	<0.005 µg/l	TM178		0.0837 #	0.673 ♦ #
Anthracene (aq)	<0.005 µg/l	TM178		<0.005 #	0.0562 ♦ #
Phenanthrene (aq)	<0.005 µg/l	TM178		<0.005 #	0.237 ♦ #
Fluorene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.01 ♦ #
Chrysene (aq)	<0.005 µg/l	TM178		0.0735 #	0.627 ♦ #
Pyrene (aq)	<0.005 µg/l	TM178		0.0904 #	0.622 ♦ #
Benzo(a)anthracene (aq)	<0.005 µg/l	TM178		0.0399 #	0.442 ♦ #
Benzo(b)fluoranthene (aq)	<0.005 µg/l	TM178		0.0959 #	1.09 ♦ #
Benzo(k)fluoranthene (aq)	<0.005 µg/l	TM178		<0.005 #	0.48 ♦ #
Benzo(a)pyrene (aq)	<0.002 µg/l	TM178		0.0782 #	0.946 ♦ #
Dibenzo(a,h)anthracene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.01 ♦ #
Benzo(g,h,i)perylene (aq)	<0.005 µg/l	TM178		<0.005 #	0.592 ♦ #
Indeno(1,2,3-cd)pyrene (aq)	<0.005 µg/l	TM178		0.0464 #	0.434 ♦ #
PAH, Total Detected USEPA 16 (aq)	<0.082 µg/l	TM178		0.508 #	6.2 ♦ #

SVOC MS (W) - Aqueous

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	WS07	WS06A				
			Depth (m)	2.00 - 4.00	1.50 - 3.00				
			Sample Type	Ground Water (GW)	Ground Water (GW)				
			Date Sampled	08/03/2024	08/03/2024				
			Sampled Time	.	.				
			Date Received	09/03/2024	09/03/2024				
			SDG Ref	240309-46	240309-46				
			Lab Sample No.(s)	29473944	29473934				
			AGS Reference	EW20240308	EW20240308				
1,2,4-Trichlorobenzene (aq)	<1 µg/l	TM176		<4 #	<10 #				
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176		<4 #	<10 #				
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176		<4 #	<10 #				
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176		<4 #	<10 #				
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176		<4 #	<10 #				
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176		<4 #	<10 #				
2,4-Dichlorophenol (aq)	<1 µg/l	TM176		<4 #	<10 #				
2,4-Dimethylphenol (aq)	<1 µg/l	TM176		<4 #	<10 #				
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176		<4 #	<10 #				
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176		<4 #	<10 #				
2-Chloronaphthalene (aq)	<1 µg/l	TM176		<4 #	<10 #				
2-Chlorophenol (aq)	<1 µg/l	TM176		<4 #	<10 #				
2-Methylnaphthalene (aq)	<1 µg/l	TM176		<4 #	<10 #				
2-Methylphenol (aq)	<1 µg/l	TM176		<4 #	<10 #				
2-Nitroaniline (aq)	<1 µg/l	TM176		<4 #	<10 #				
2-Nitrophenol (aq)	<1 µg/l	TM176		<4 #	<10 #				
3-Nitroaniline (aq)	<1 µg/l	TM176		<4	<10				
4-Bromophenylphenylether (aq)	<1 µg/l	TM176		<4 #	<10 #				
4-Chloro-3-methylphenol (aq)	<1 µg/l	TM176		<4 #	<10 #				
4-Chloroaniline (aq)	<1 µg/l	TM176		<4	<10				
4-Chlorophenylphenylether (aq)	<1 µg/l	TM176		<4 #	<10 #				
4-Methylphenol (aq)	<1 µg/l	TM176		<4 #	<10 #				
4-Nitroaniline (aq)	<1 µg/l	TM176		<4 #	<10 #				
4-Nitrophenol (aq)	<1 µg/l	TM176		<4	<10				
Azobenzene (aq)	<1 µg/l	TM176		<4 #	<10 #				
Acenaphthylene (aq)	<1 µg/l	TM176		<4 #	<10 #				
Acenaphthene (aq)	<1 µg/l	TM176		<4 #	<10 #				
Anthracene (aq)	<1 µg/l	TM176		<4 #	<10 #				
bis(2-Chloroethyl)ether (aq)	<1 µg/l	TM176		<4 #	<10 #				
bis(2-Chloroethoxy)methane (aq)	<1 µg/l	TM176		<4 #	<10 #				
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l	TM176		<8 #	<20 #				
Butylbenzyl phthalate (aq)	<1 µg/l	TM176		<4 #	<10 #				

SVOC MS (W) - Aqueous

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	WS07	WS06A
			Depth (m)	2.00 - 4.00	1.50 - 3.00
			Sample Type	Ground Water (GW)	Ground Water (GW)
			Date Sampled	08/03/2024	08/03/2024
			Sampled Time	.	.
			Date Received	09/03/2024	09/03/2024
			SDG Ref	240309-46	240309-46
			Lab Sample No.(s)	29473944	29473934
			AGS Reference	EW20240308	EW20240308
Benzo(a)anthracene (aq)	<1 µg/l	TM176		<4 #	<10 #
Benzo(b)fluoranthene (aq)	<1 µg/l	TM176		<4 #	<10 #
Benzo(k)fluoranthene (aq)	<1 µg/l	TM176		<4 #	<10 #
Benzo(a)pyrene (aq)	<1 µg/l	TM176		<4 #	<10 #
Benzo(g,h,i)perylene (aq)	<1 µg/l	TM176		<4 #	<10 #
Carbazole (aq)	<1 µg/l	TM176		<4 #	<10 #
Chrysene (aq)	<1 µg/l	TM176		<4 #	<10 #
Dibenzofuran (aq)	<1 µg/l	TM176		<4 #	<10 #
n-Dibutyl phthalate (aq)	<1 µg/l	TM176		<4 #	<10 #
Diethyl phthalate (aq)	<1 µg/l	TM176		<4 #	<10 #
Dibenzo(a,h)anthracene (aq)	<1 µg/l	TM176		<4 #	<10 #
Dimethyl phthalate (aq)	<1 µg/l	TM176		<4 #	<10 #
n-Dioctyl phthalate (aq)	<5 µg/l	TM176		<20 #	<50 #
Fluoranthene (aq)	<1 µg/l	TM176		<4 #	<10 #
Fluorene (aq)	<1 µg/l	TM176		<4 #	<10 #
Hexachlorobenzene (aq)	<1 µg/l	TM176		<4 #	<10 #
Hexachlorobutadiene (aq)	<1 µg/l	TM176		<4 #	<10 #
Pentachlorophenol (aq)	<1 µg/l	TM176		<4	<10
Phenol (aq)	<1 µg/l	TM176		<4	<10
n-Nitroso-n-dipropylamine (aq)	<1 µg/l	TM176		<4 #	<10 #
Hexachloroethane (aq)	<1 µg/l	TM176		<4 #	<10 #
Nitrobenzene (aq)	<1 µg/l	TM176		<4 #	<10 #
Naphthalene (aq)	<1 µg/l	TM176		<4 #	<10 #
Isophorone (aq)	<1 µg/l	TM176		<4 #	<10 #
Hexachlorocyclopentadiene (aq)	<1 µg/l	TM176		<4	<10
Phenanthrene (aq)	<1 µg/l	TM176		<4 #	<10 #
Indeno(1,2,3-cd)pyrene (aq)	<1 µg/l	TM176		<4 #	<10 #
Pyrene (aq)	<1 µg/l	TM176		<4 #	<10 #

CERTIFICATE OF ANALYSIS

SDG: 240309-46 **Report Number:** 723592 **Superseded Report:**
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

TPH CWG (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	WS07	WS06A				
			Depth (m)	2.00 - 4.00	1.50 - 3.00				
			Sample Type	Ground Water (GW)	Ground Water (GW)				
			Date Sampled	08/03/2024	08/03/2024				
			Sampled Time	-	-				
			Date Received	09/03/2024	09/03/2024				
			SDG Ref	240309-46	240309-46				
			Lab Sample No.(s)	29473944	29473934				
			AGS Reference	EW20240308	EW20240308				
GRO Surrogate % recovery**	%	TM245		106	110				
GRO >C5-C12 (HS_1D_TOTAL)	<50 µg/l	TM245		<50 #	<50 #				
Aliphatics >C5-C6 (HS_1D_AL)	<10 µg/l	TM245		<10	<10				
Aliphatics >C6-C8 (HS_1D_AL)	<10 µg/l	TM245		<10	<10				
Aliphatics >C8-C10 (HS_1D_AL)	<10 µg/l	TM245		<10	<10				
Aliphatics >C10-C12 (HS_1D_AL)	<10 µg/l	TM245		<10	<10				
Aliphatics >C12-C16 (aq) (SPECD_AL1_W)	<10 µg/l	TM439		<10	<10				
Aliphatics >C16-C21 (aq) (SPECD_AL2_W)	<10 µg/l	TM439		<10	<10				
Aliphatics >C21-C35 (aq) (SPECD_AL3_W)	<10 µg/l	TM439		<10	<10				
Total Aliphatics >C12-C35 (aq) (EPHAL12_35T_GC_W)	<10 µg/l	TM439		<10	<10				
Aromatics >EC5-EC7 (HS_1D_AR)	<10 µg/l	TM245		<10	<10				
Aromatics >EC7-EC8 (HS_1D_AR)	<10 µg/l	TM245		<10	<10				
Aromatics >EC8-EC10	<10 µg/l	TM245		<10	<10				
Aromatics >EC10-EC12	<10 µg/l	TM245		<10	<10				
Aromatics >EC12-EC16 (aq) (SPECD_AROM1_W)	<10 µg/l	TM439		<10	<10				
Aromatics >EC16-EC21 (aq) (SPECD_AROM2_W)	<10 µg/l	TM439		<10	<10				
Aromatics >EC21-EC35 (aq) (SPECD_AROM3_W)	<10 µg/l	TM439		<10	<10				
Total Aromatics >EC12-EC35 (aq) (EPHAR12_35T_GC_W)	<10 µg/l	TM439		<10	<10				
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM439		<10	<10				
Aliphatics >C16-C35 Aqueous	<10 µg/l	TM439		<10	<10				
Aromatics >EC16-EC35 (aq)	<10 µg/l	TM439		<10	<10				

CERTIFICATE OF ANALYSIS

SDG: 240309-46 **Report Number:** 723592 **Superseded Report:**
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	WS07	WS06A
			Depth (m)	2.00 - 4.00	1.50 - 3.00
			Sample Type	Ground Water (GW)	Ground Water (GW)
			Date Sampled	08/03/2024	08/03/2024
			Sampled Time	.	.
			Date Received	09/03/2024	09/03/2024
			SDG Ref	240309-46	240309-46
			Lab Sample No.(s)	29473944	29473934
			AGS Reference	EW20240308	EW20240308
Dibromofluoromethane**	%	TM208		103	106
Toluene-d8**	%	TM208		103	99.8
4-Bromofluorobenzene**	%	TM208		100	95.3
Dichlorodifluoromethane	<1 µg/l	TM208		<1	<1
Chloromethane	<1 µg/l	TM208		<1 #	<1 #
Vinyl chloride	<1 µg/l	TM208		<1 #	<1 #
Bromomethane	<1 µg/l	TM208		<1 #	<1 #
Chloroethane	<1 µg/l	TM208		<1 #	<1 #
Trichlorofluoromethane	<1 µg/l	TM208		<1 #	<1 #
1,1-Dichloroethene	<1 µg/l	TM208		<1 #	<1 #
Carbon disulphide	<1 µg/l	TM208		<1 #	<1 #
Dichloromethane	<3 µg/l	TM208		<3 #	<3 #
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208		<1 #	<1 #
trans-1,2-Dichloroethene	<1 µg/l	TM208		<1 #	<1 #
1,1-Dichloroethane	<1 µg/l	TM208		<1 #	<1 #
cis-1,2-Dichloroethene	<1 µg/l	TM208		<1 #	<1 #
2,2-Dichloropropane	<1 µg/l	TM208		<1	<1
Bromochloromethane	<1 µg/l	TM208		<1 #	<1 #
Chloroform	<1 µg/l	TM208		<1 #	<1 #
1,1,1-Trichloroethane	<1 µg/l	TM208		<1 #	<1 #
1,1-Dichloropropene	<1 µg/l	TM208		<1 #	<1 #
Carbontetrachloride	<1 µg/l	TM208		<1 #	<1 #
1,2-Dichloroethane	<1 µg/l	TM208		<1 #	<1 #
Benzene	<1 µg/l	TM208		<1 #	<1 #
Trichloroethene	<1 µg/l	TM208		<1 #	<1 #
1,2-Dichloropropane	<1 µg/l	TM208		<1 #	<1 #
Dibromomethane	<1 µg/l	TM208		<1 #	<1 #
Bromodichloromethane	<1 µg/l	TM208		<1 #	<1 #
cis-1,3-Dichloropropene	<1 µg/l	TM208		<1 #	<1 #
Toluene	<1 µg/l	TM208		<1 #	<1 #
trans-1,3-Dichloropropene	<1 µg/l	TM208		<1 #	<1 #
1,1,2-Trichloroethane	<1 µg/l	TM208		<1 #	<1 #

CERTIFICATE OF ANALYSIS

SDG: 240309-46 **Report Number:** 723592 **Superseded Report:**
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.	WS07	WS06A
Depth (m)	2.00 - 4.00	1.50 - 3.00
Sample Type	Ground Water (GW)	Ground Water (GW)
Date Sampled	08/03/2024	08/03/2024
Sampled Time	.	.
Date Received	09/03/2024	09/03/2024
SDG Ref	240309-46	240309-46
Lab Sample No.(s)	29473944	29473934
AGS Reference	EW20240308	EW20240308

Component	LOD/Units	Method		
1,3-Dichloropropane	<1 µg/l	TM208	<1 #	<1 #
Tetrachloroethene	<1 µg/l	TM208	<1 #	<1 #
Dibromochloromethane	<1 µg/l	TM208	<1 #	<1 #
1,2-Dibromoethane	<1 µg/l	TM208	<1 #	<1 #
Chlorobenzene	<1 µg/l	TM208	<1 #	<1 #
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208	<1 #	<1 #
Ethylbenzene	<1 µg/l	TM208	<1 #	<1 #
m,p-Xylene	<1 µg/l	TM208	<1 #	<1 #
o-Xylene	<1 µg/l	TM208	<1 #	<1 #
Styrene	<1 µg/l	TM208	<1 #	<1 #
Bromoform	<1 µg/l	TM208	<1.5 #	<1 #
Isopropylbenzene	<1 µg/l	TM208	<1 #	<1 #
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208	<1 #	<1 #
1,2,3-Trichloropropane	<1 µg/l	TM208	<1 #	<1 #
Bromobenzene	<1 µg/l	TM208	<1 #	<1 #
Propylbenzene	<1 µg/l	TM208	<1 #	<1 #
2-Chlorotoluene	<1 µg/l	TM208	<1 #	<1 #
1,3,5-Trimethylbenzene	<1 µg/l	TM208	<1 #	<1 #
4-Chlorotoluene	<1 µg/l	TM208	<1 #	<1 #
tert-Butylbenzene	<1 µg/l	TM208	<1 #	<1 #
1,2,4-Trimethylbenzene	<1 µg/l	TM208	<1 #	<1 #
sec-Butylbenzene	<1 µg/l	TM208	<1 #	<1 #
4-iso-Propyltoluene	<1 µg/l	TM208	<1 #	<1 #
1,3-Dichlorobenzene	<1 µg/l	TM208	<1 #	<1 #
1,4-Dichlorobenzene	<1 µg/l	TM208	<1 #	<1 #
n-Butylbenzene	<1 µg/l	TM208	<1 #	<1 #
1,2-Dichlorobenzene	<1 µg/l	TM208	<1 #	<1 #
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208	<1	<1
1,2,4-Trichlorobenzene	<1 µg/l	TM208	<1 #	<1 #
Hexachlorobutadiene	<1 µg/l	TM208	<1 #	<1 #
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208	<1 #	<1 #
Naphthalene	<1 µg/l	TM208	<1 #	<1 #

CERTIFICATE OF ANALYSIS

SDG: 240309-46 **Report Number:** 723592 **Superseded Report:**
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Customer Sample Ref.	WS07	WS06A
Depth (m)	2.00 - 4.00	1.50 - 3.00
Sample Type	Ground Water (GW)	Ground Water (GW)
Date Sampled	08/03/2024	08/03/2024
Sampled Time	.	.
Date Received	09/03/2024	09/03/2024
SDG Ref	240309-46	240309-46
Lab Sample No.(s)	29473944	29473934
AGS Reference	EW20240308	EW20240308

Component	LOD/Units	Method		
1,2,3-Trichlorobenzene	<1 µg/l	TM208	<1 #	<1 #
1,3,5-Trichlorobenzene	<1 µg/l	TM208	<1	<1
Sum of detected Xylenes	<2 µg/l	TM208	<2	<2

Table of Results - Appendix

Method No	Description
TM183	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM241	The Determination of Hexavalent Chromium in Waters and Leachates using the Kone Analyser
TM245	Determination of GRO by Headspace in waters
TM178	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters
TM439	Determination of Extractable Petroleum Hydrocarbons (EPH) CWG banding by GC-FID on liquids
TM176	Determination of SVOCs in Water by GCMS
TM259	Determination of Phenols in Waters and Leachates by HPLC
TM152	Analysis of Aqueous Samples by ICP-MS
TM208	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden (Method codes TM).

CERTIFICATE OF ANALYSIS

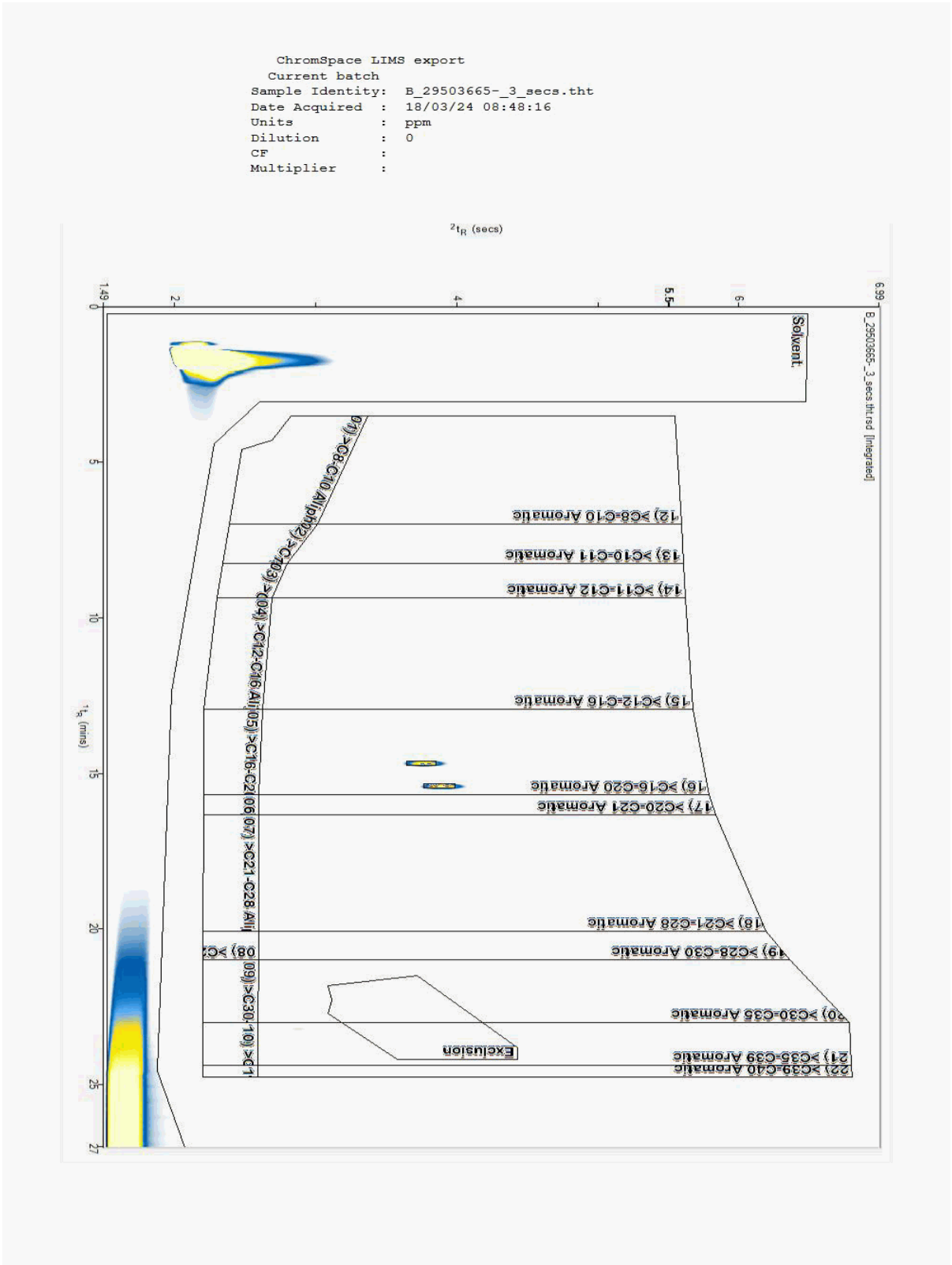
SDG: 240309-46 **Report Number:** 723592 **Superseded Report:**
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

Test Completion Dates

Lab Sample No(s)	29473944	29473934
Customer Sample Ref.	WS07	WS06A
AGS Ref.	EW20240308	EW20240308
Depth	2.00 - 4.00	1.50 - 3.00
Type	Ground Water	Ground Water
Dissolved Metals by ICP-MS	19-Mar-2024	19-Mar-2024
EPH and CWG by FID	19-Mar-2024	19-Mar-2024
GRO by GC-FID (W)	13-Mar-2024	13-Mar-2024
Hexavalent Chromium (w)	15-Mar-2024	15-Mar-2024
Mercury Dissolved	19-Mar-2024	19-Mar-2024
PAH Spec MS - Aqueous (W)	20-Mar-2024	20-Mar-2024
Phenols by HPLC (W)	18-Mar-2024	18-Mar-2024
SVOC MS (W) - Aqueous	19-Mar-2024	19-Mar-2024
TPH CWG (W)	19-Mar-2024	19-Mar-2024
VOC MS (W)	13-Mar-2024	13-Mar-2024

Chromatogram

Analysis: EPH and CWG by FID **Sample No :** 29503665 **Depth :** 2.00 - 4.00
Sample ID : WS07

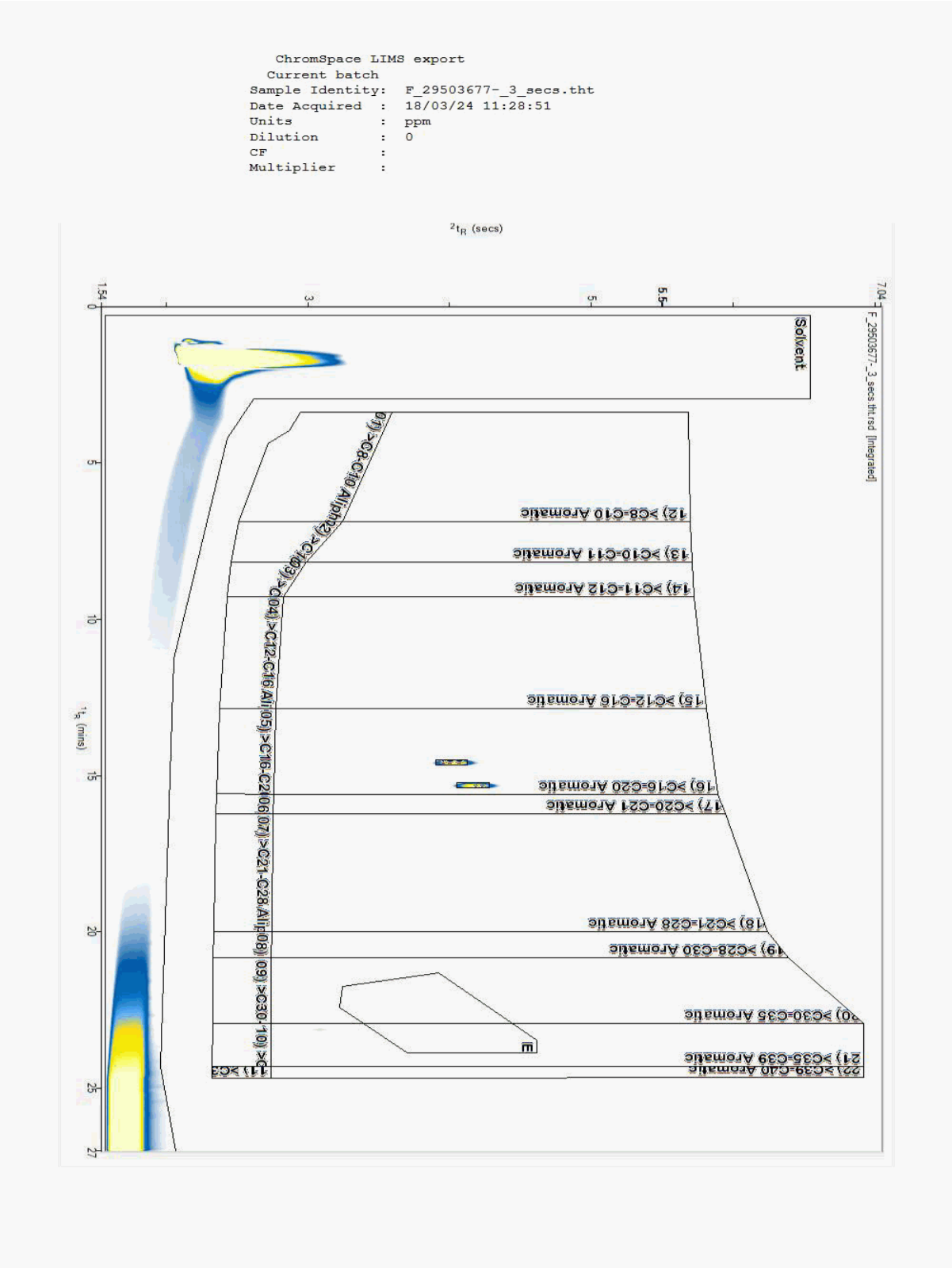


CERTIFICATE OF ANALYSIS

SDG: 240309-46 **Report Number:** 723592 **Superseded Report:**
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

Chromatogram

Analysis: EPH and CWG by FID **Sample No :** 29503677 **Depth :** 1.50 - 3.00
Sample ID : WS06A

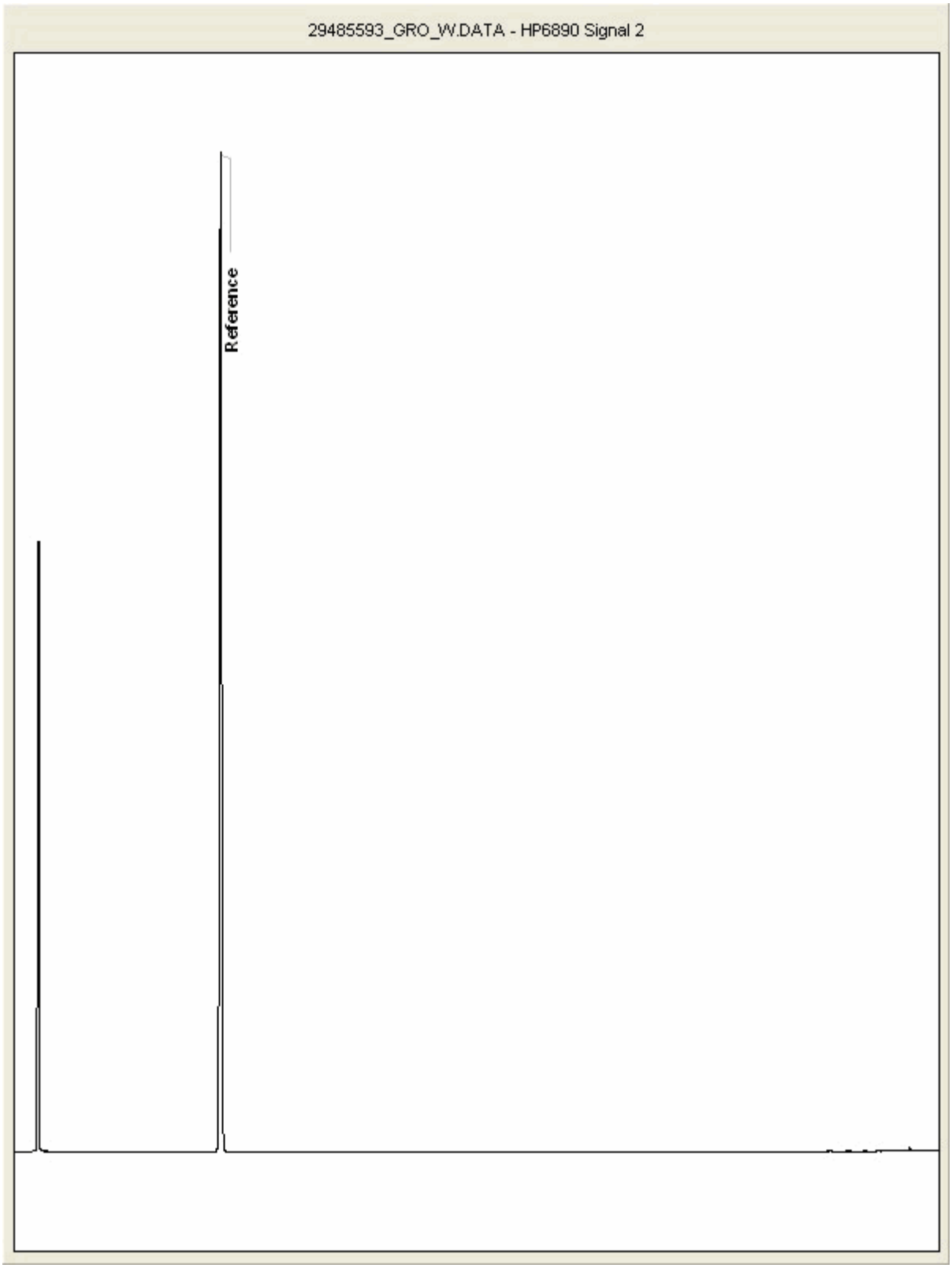


CERTIFICATE OF ANALYSIS

SDG: 240309-46 **Report Number:** 723592 **Superseded Report:**
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

Chromatogram

Analysis: GRO by GC-FID (W) **Sample No :** 29485593 **Depth :** 2.00 - 4.00
Sample ID : WS07

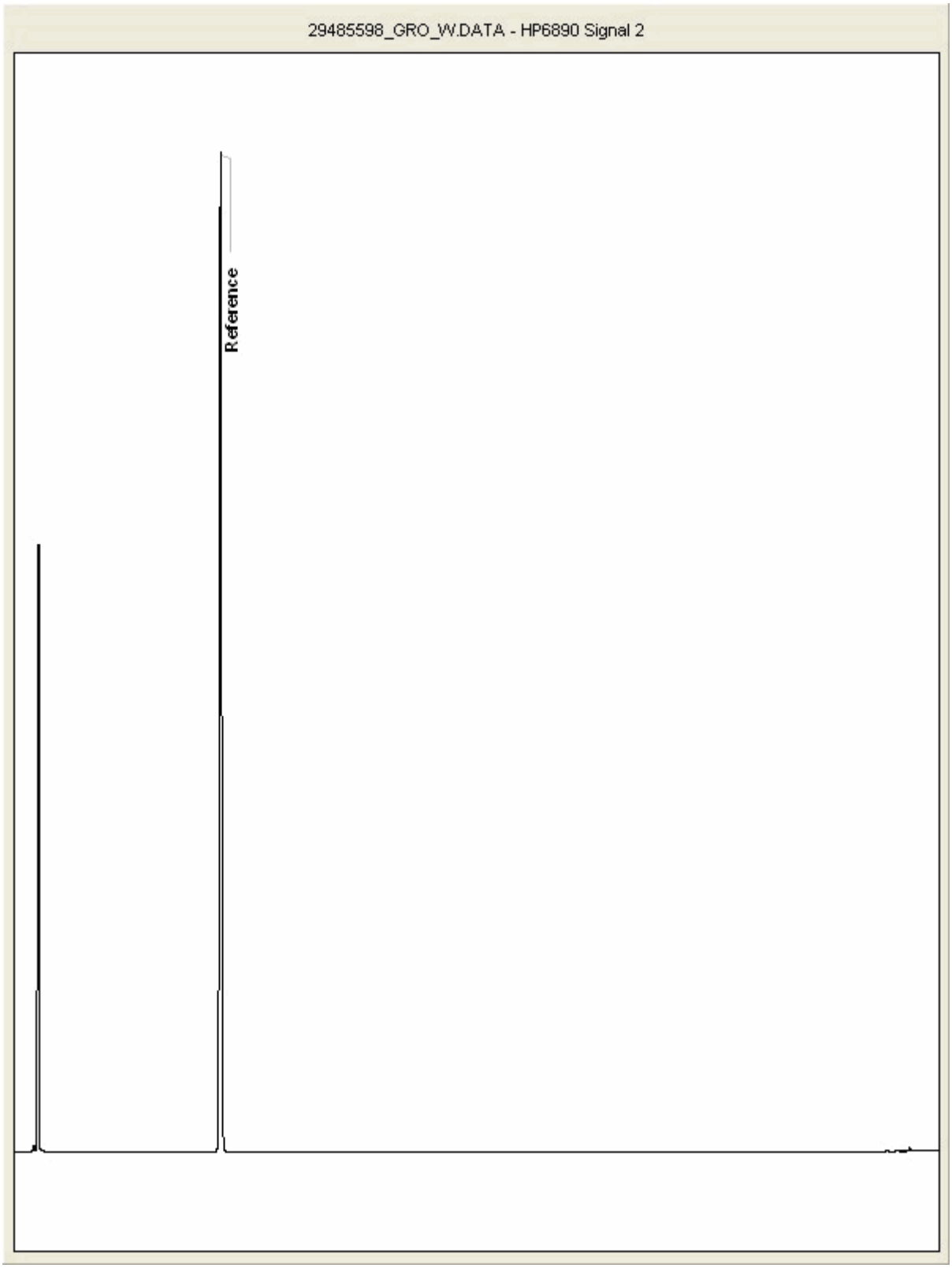


CERTIFICATE OF ANALYSIS

SDG: 240309-46 **Report Number:** 723592 **Superseded Report:**
Client Ref.: 70119985 **Location:** Unit 10, Barton Park

Chromatogram

Analysis: GRO by GC-FID (W) **Sample No :** 29485598 **Depth :** 1.50 - 3.00
Sample ID : WS06A



Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 15 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of 15 days after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining.

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Appendix D.6

POST SITE MONITORING DATA

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Barton Park

Key:

Data checks

- Datum or reponse zone information missing. "Depth to Water" and "Elev of Water" cannot be calculated.
- Reference elevation captured during drilling is missing. "Depth to Water" cannot be calculated.

Depth to water

- Response zone *fully* flooded during sampling
- Response zone *significantly* flooded during sampling

Methane	Carbon Dioxide	Gas Flow
> 1% v/v	> 5% v/v	> 70 l/hr

Event(s) Selected: Unit 10 Round 1, Unit 10 Round 2 , Site Area(s) Selected: Whole site

Current Event: Unit 10 Round 1, Visit Date: 01/03/2024

Engineer	Matthew Jones
Start/End Time	10:14 - 14:25
Pressure Start/End (mB)	990 - 990
Temperature (Deg C)	
Weather Conditions	Rain Showers

Equipment	SerialNo	Calibrated
Gas Analyser		True
PID		True
Interface Probe		True

Comments and Ground Conditions:

Borehole	Response Zone (mbgl)		Gas Flow (l/hr)		Borehole Differential Pressure	Methane (% v/v)		Carbon Dioxide (% v/v)		Oxygen (% v/v)		Other Gases (ppmV)			Depth to Water	Elev of Water	Depth to Base	Elev of Base	Thickness of product	Sampled ?
	Top	Base	Initial	Steady	Pa	Initial	Steady	Initial	Steady	Initial	Steady	PID	H2S	CO	mbgl	mAOD	mbgl	mAOD	mm	Y/N
WS03	0.50	1.50	0.00	0.00	0.00	0.00	0.00	0.10	0.00	18.20	20.30	0.00	0.00	0.00	Dry	Dry	1.50	13.32	N/A	No
WS04	0.30	1.00	0.00	0.00	0.00	0.00	0.00	0.20	0.90	18.10	18.00	0.00	0.00	0.00	Dry	Dry	1.00	13.59	N/A	No
WS04	1.70	2.00	0.00	0.00	0.00	0.00	0.00	0.10	0.30	18.20	12.40	0.10	0.00	0.00	Dry	Dry	1.76	12.83	N/A	No
WS05A	0.30	1.00	0.00	0.00	0.00	0.00	0.00	0.20	2.20	20.30	15.80	0.00	0.00	0.00	0.90	13.70	1.00	13.60	N/A	No
WS05A	1.60	2.00	0.00	0.00	0.00	0.00	0.00	0.20	2.50	18.40	11.40	0.10	0.00	0.00	Dry	Dry	2.09	12.51	N/A	No
WS06A	0.30	1.00	0.00	0.00	0.00	0.00	0.00	0.30	1.80	20.10	17.00	0.00	0.00	0.00	Dry	Dry	1.00	13.61	N/A	No
WS06A	1.50	3.00	0.00	0.00	0.00	0.00	0.00	0.10	3.60	19.60	7.00	0.80	0.00	16.00	2.71	11.90	3.12	11.49	N/A	No
WS07	2.00	4.00	0.00	0.00	0.00	0.00	0.00	0.30	1.20	16.70	14.70	0.10	0.00	0.00	2.42	12.29	4.13	10.57	N/A	No

Barton Park

Key:

Data checks

- Datum or reponse zone information missing. "Depth to Water" and "Elev of Water" cannot be calculated.
- Reference elevation captured during drilling is missing. "Depth to Water" cannot be calculated.

Depth to water

- Response zone *fully* flooded during sampling
- Response zone *significantly* flooded during sampling

Methane	Carbon Dioxide	Gas Flow
> 1% v/v	> 5% v/v	> 70 l/hr

Event(s) Selected: Unit 10 Round 1, Unit 10 Round 2 , Site Area(s) Selected: Whole site

Current Event: Unit 10 Round 2, Visit Date: 08/03/2024

Engineer	Matthew Jones
Start/End Time	09:16 - 12:56
Pressure Start/End (mB)	1004 - 1002
Temperature (Deg C)	
Weather Conditions	Dry

Equipment	SerialNo	Calibrated
YSI Pro Plus multi-parameter		True
Gas Analyser		True
PID		True
Interface Probe		True

Comments and Ground Conditions:

Borehole	Response Zone (mbgl)		Gas Flow (l/hr)		Borehole Differential Pressure	Methane (% v/v)		Carbon Dioxide (% v/v)		Oxygen (% v/v)		Other Gases (ppmV)			Depth to Water	Elev of Water	Depth to Base	Elev of Base	Thickness of product	Sampled ?
	Top	Base	Initial	Steady	Pa	Initial	Steady	Initial	Steady	Initial	Steady	PID	H2S	CO	mbgl	mAOD	mbgl	mAOD	mm	Y/N
WS03	0.50	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.40	20.30	20.10	0.00	0.00	0.00	Dry	Dry	1.50	13.32	N/A	No
WS04	0.30	1.00	0.00	0.00	0.00	0.00	0.00	0.50	0.60	18.10	19.70	0.00	0.00	0.00	Dry	Dry	1.00	13.59	N/A	No
WS04	1.70	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	20.20	17.70	0.00	0.00	0.00	Dry	Dry	2.09	12.50	N/A	No
WS05A	0.30	1.00	0.00	0.00	0.00	0.00	0.00	0.20	0.00	19.10	20.20	0.00	0.00	0.00	0.95	13.65	1.00	13.60	N/A	No
WS05A	1.60	2.00	0.00	0.00	0.00	0.00	0.00	0.20	1.70	20.30	14.60	0.10	0.00	0.00	Dry	Dry	2.08	12.52	N/A	No
WS06A	0.30	1.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	19.50	20.30	0.00	0.00	0.00	Dry	Dry	1.00	13.61	N/A	No
WS06A	1.50	3.00	0.00	0.00	0.00	0.00	0.00	0.20	4.00	20.40	4.50	0.90	0.00	0.00	2.75	11.86	3.11	11.50	N/A	Yes
WS07	2.00	4.00	0.00	0.00	0.00	0.00	0.00	0.20	0.90	20.70	18.40	0.00	0.00	0.00	2.56	12.14	4.12	10.58	N/A	Yes

Appendix D.7

GROUND INVESTIGATION PHOTOGRAPHS

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Photograph 1: General View of Site and Bus Maintenance Shed Unit 10



Photograph 2: View north along east elevation of Unit 10 building showing vehicle wash



Photograph 3: Fuel Dispenser along East elevation of Unit 10 building



Photograph 4: Fuel ASTs to south of the site with service yard of adjacent Bus Maintenance Depot (BueStar)



Photograph 5: View north and land to west of Unit 10 depot building (right of image) and unit 6 east elevation (left of image)



Photograph 6: AST Fuel Tank in Northwest corner of Maintenance Building



Photograph 7: WS1. L-R. Surface hardstanding, concrete core



Photograph 8: WS2: R-L Soil arising 0.22 m to 1.50 mbgl

.



Photograph 9: WS3: *L-R. Surface hardstanding, concrete core*



Photograph 10: WS3: Down hole view



Photograph 11: WS3: : R-L Soil arising 0.33 m to 1.50 mbgl



Photograph 12: WS4: Concrete Core L-R



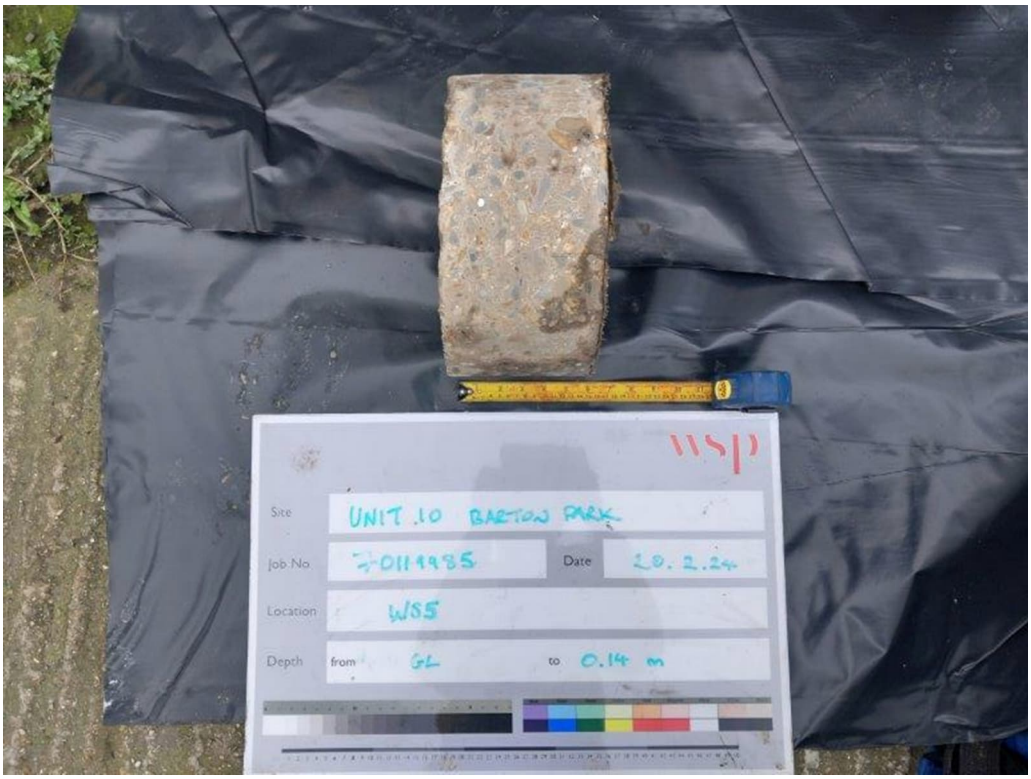
Photograph 13: WS4: Arisings beneath Ground Slab



Photograph 14: WS4: Arisings 0.24 m to 1.30 m bgl



Photograph 15: WS4: L-R. 1.30 m to 2.0 m bgl



Photograph 16: WS5: Concrete Core L-R



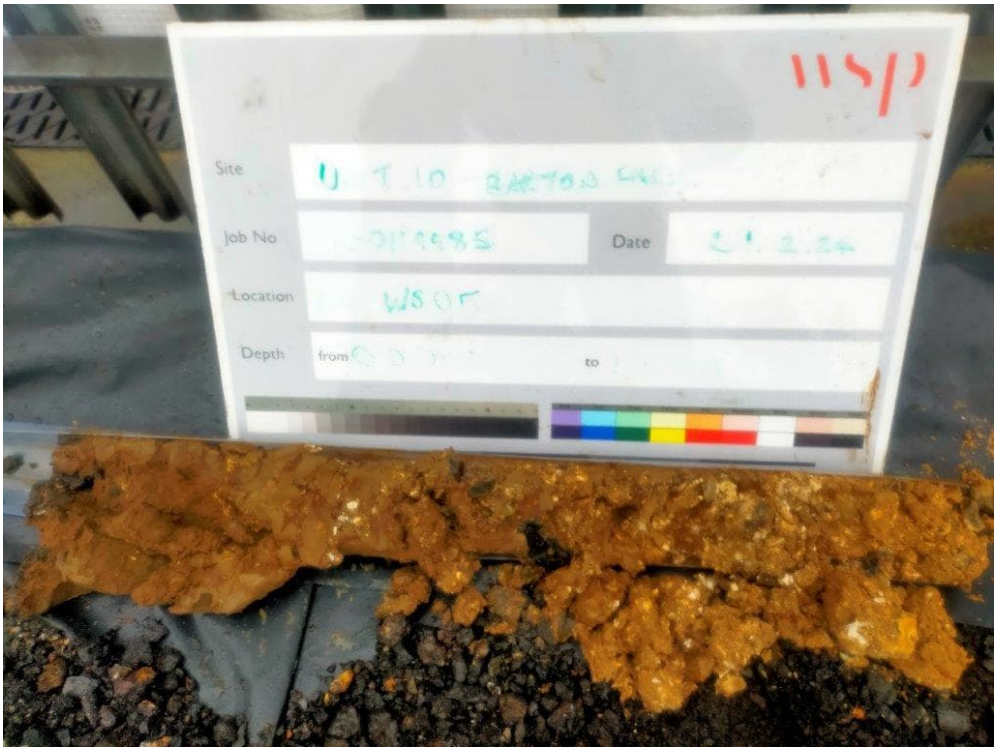
Photograph 17: WS5: GL to 0.35 m with bulk suspected ACM fragment at base



Photograph 18: WS5: *Suspected Bulk ACM fragment*



Photograph 19: WS5A. L-R: Arisings from 0.13 m to 1.30 m bgl (front R-L)



Photograph 20: WS5A: *1.30 m to 2.00 m bgl R-L*



Photograph 21: WS6: View showing base of Exploratory Hole and concrete obstruction at 0.30 mbgl



Photograph 22: WS6A: Natural Arisings 1.30 m to 3.0m showing River Terrace Deposits and Underlying Wittering Formation (Grey)



Photograph 23: WS6A : 1.20 m to 1.40 m . Soft grey brown silty Clay with organic odour



Photograph 24: WS6A: Finely interlaminated sandy silty Clay 2.00 m bgl (Top of Wittering Formation)



Photograph 25: TP01/02: Elevation Unit 6



Photograph 26: TP01/02: Plan View of exposed Corbelling at top of Foundation



Photograph 26: TP01/02: South Face



Photograph 28: *TP01/02*: North Face

Appendix E

RISK ASSESSMENT

Confidential

Appendix E.1

RISK ASSESSMENT METHODOLOGY

Confidential

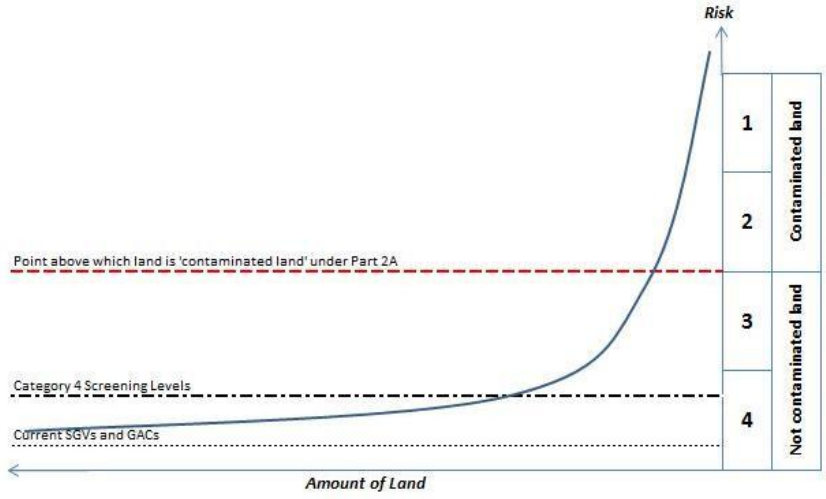
METHODOLOGY FOR THE DERIVATION OF GENERIC QUANTITATIVE ASSESSMENT CRITERIA TO EVALUATE RISKS TO HUMAN HEALTH FROM SOIL & GROUNDWATER CONTAMINATION

UK APPROACH

In the UK, the potential risks to human health from contamination in the ground are usually evaluated through a generic quantitative risk assessment (GQRA) approach. This allows generic and conservative exposure assumptions to be readily applied to risk assessments, and can be a useful tool for rapidly screening data and to identify those contaminants or scenarios that could benefit from further investigation and/or site-specific detailed quantitative risk assessment (DQRA). Current industry good practice is to use the approach presented in the Environment Agency (EA) publications SR2[1] and SR3[2]. This approach allows the derivation of Generic Assessment Criteria (GACs), primarily for chronic exposure.

In April 2012, the Department of Environment, Food and Rural Affairs (Defra) published updated statutory guidance[3] which introduced a four category approach to determining whether land in England and Wales is contaminated or not on the grounds of significant possibility of significant harm (SPOSH). **Figure 1** presents a graphical representation of the categories.

Figure 1: Four Categories for Determining if Land Represent a SPOSH



Cases classified as Category 1 are considered to be SPOSH based on actual evidence or an unacceptably high probability of harm existing. Category 4 cases are those where there is no risk, or a low risk of SPOSH.

[1] Environment Agency '*Human Health Toxicological Assessment of Contaminants in Soil',* Report SC050021/SR2. January 2009.
[2] Environment Agency '*Updated Technical Background to the CLEA Model*,' Report SC050021/SR3. January 2009.
[3] Defra '*Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance'.* April 2012.

GACs represent a minimal risk level, well within Category 4. A 2014 publication by Contaminated Land: Applicatons in Real Environments (CL:AIRE),SP1010[4] and endorsed by Defra[5] provided an approach to determine Category 4 Screening Levels (C4SLs) which are higher than the GACs whilst being "more pragmatic but still strongly precautionary". It also provided C4SLs for six contaminants of concern. Although the C4SLs were designed to support Part 2A assessments to determine 'contaminated land' they are specifically mentioned, along with reference to the Part 2A statutory guidance, by the Department for Communities and Local Government (DCLG) for use in a planning context[6].

An updated version the Contaminated Land Exposure Assessment (CLEA) Workbook (v1.071) was released by the EA in September 2015 to take into account the publication of SP1010. The updates comprised: additional toxicity data for the six chemicals for which C4SLs were derived; two new public open space land use scenarios; updated exposure parameters; options to run the model using C4SL exposure assumptions; and increased functionality. There were no changes to algorithms, so it is still possible to replicate the withdrawn SGVs using the input parameters held within v1.071.

It should be noted that the four category approach has not been adopted in Scotland under Part 2A or the planning regime. The Part 2A statutory guidance applicable in Scotland (Paper SE/2006/44 dated May 2006) does not reflect the changes introduced by Defra in April 2012 which allow for the use of C4SLs within Part 2A risk assessments. Additionally, it is considered that the principal of 'minimal risk' should still apply under planning in Scotland, based on current guidance.

WSP APPROACH

Following the withdrawal of the SGVs, and in the absence of an industry-wide, accepted set of GACs it is down to individual practitioners to derive their own soil assessment criteria. WSP has used the approach provided within SR2, SR3, SP1010, CLEA Workbook v1.071 and SR4[7] to produce a set of minimal risk GACs. The chemical-specific data within two key publications were considered during their production: CL:AIRE 2010[8] and LQM 2015[9]. Both documents provide comprehensive sets of GACs for different contaminants of concern.

The LQM Suitable For Use Levels (S4ULs) have selected exposure parameters consistent with the C4SL exposure scenarios. This approach was rejected by WSP as not representing minimal risk. However, the LQM S4UL document was critically reviewed and the approach and chemical input parameters were utilised where considered to be appropriate.

An industry-led C4SL Working Group is in the process of deriving a larger set of C4SLs in the near future, for approximately 20 contaminants. This will include a critical review of the chemical input data for all selected substances, and may therefore lead to further amendments to the chemical input data used in the WSP in-house screening values. It is considered likely that the contaminant list will

[4] CL:AIRE *'Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination'* SP1010, Final Project Report (Revision 2). September 2014.
[5] Defra 'SP1010: *Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination – Policy Companion Document'*. December 2014.
[6] DCLG Planning Practice Guidance '*Land Affected by Contamination'*, particularly Paragraphs 001 and 007. Ref IDs: 33-001-20140306 & 33-007-20140612.
[7] Environment Agency '*CLEA Software (Version 1.05) Handbook (and Software)',* Report SC050021/SR4. September 2009.
[8] CL:AIRE 'The EIC/AGS/CL:AIRE *Soil Generic Assessment Criteria for Human Health Risk Assessment'.* ISBN 978-1-05046-20-1. January 2010.
[9] Nathanail et al '*The LQM/CIEH S4ULs for Human Health Risk Assessment'*, Land Quality Press, ISBN 978-0-9931084-0-2. 2015.

crossover with the 2009 EIC/AGS/CL:AIRE GACs. As such, this document was not critically reviewed by WSP.

WSP's current approach to the assessment of risks to human health is to continue to evaluate minimal risk through the use of in-house derived GACs, and to use the published C4SLs as a secondary tier of assessment until such time as additional C4SLs are published and/or in-house values are derived.

EXPOSURE MODELS

LAND USES

WSP has largely adopted the exposure assumptions of the generic land use scenarios included within SR3, with two additional public open space scenarios included from within SP1010 and two bespoke exposure scenarios (highways):

- Residential with homegrown produce consumption;
- Residential without homegrown produce consumption;
- Allotments;
- Commercial;
- Public open space near residential housing (POS_{resi});
- Public park (POS_{park});
- Highways (surface soils); and
- Highways (subsurface soils).

Exceptions are described in the following Sections.

SOIL PROPERTIES

SR3 assumes a sandy loam soil with a pH of 7 and a Soil Organic Matter (SOM) content of 6% for its generic land uses, based on the geographical spread of topsoils in the UK. WSP has adopted these default values. In addition, GACs based on an SOM of 1% and 2.5% have been derived, based on common experience of the nature of Made Ground and lack of topsoil on many brownfield sites.

RECEPTOR CHARACTERISTICS AND BEHAVIOURS

SP1010 provides some updated exposure parameters for long-term inhalation rates[10] and the consumption rates for homegrown produce[11] compared to those provided in SR3. This data was used to derived WSP's GACs.

The changes in inhalation rates do not apply to the allotment generic land use scenario, as these are based on the breathing rates for short-term exposure of light to moderate intensity activity which were derived from a study that was not updated in USEPA 2011, so the SR3 rates were retained.

[10] USEPA, National Centre for Environmental Assessment '*Exposure Factors Handbook: 2011 Edition*' EPA/600/R-09/052F. September 2011.
[11] National Diet and Nutrition Survey 2008/2009 to 2010/2011.

HIGHWAYS EXPOSURE SCENARIOS

Human health GAC for a Highways exposure scenario have been derived. The site area is defined by publicly accessible land adjacent to highways, comprising both hard and soft landscaped areas. Exposure is considered to be largely transitory.

There are no publicly available GAC for this exposure scenario. Consequently, WSP have derived GAC for the following exposure scenarios:

- à Highways (surface soils); and
- à Highways (sub-surface soils).

Surface soils GAC are for soil at ground level and within 300mm of the surface. Conversely, subsurface GAC are for soils at a depth exceeding 0.3m bgl. These GAC are not to be used as import criteria.

The critical receptor is a young female child, CLEA age classes 4-9. This is consistent with the critical receptor for the POS(resi) exposure scenario, and considered to be appropriate for a child potentially playing outside without direct adult supervision.

For all GAC, a sandy loam soil and a soil organic matter content of 1% is assumed. There is no building on site.

Exposure scenarios for surface and subsurface soils are detailed below. These are considered to be conservative estimates, due to the mostly transitory use of publically accessible lands adjacent to highways.

HIGHWAYS GAC (SURFACE SOILS)

The relevant exposure pathways include direct soil and dust ingestion, dermal contact (outdoors) and the inhalation of outdoor dust and vapour.

The exposure frequency is 170 days per annum, and the occupancy period outdoors is 1 hour per day (as per the POS (resi) exposure scenario). The soil and dust ingestion rate has been set at 50 mg/day, consistent with a POS(park) exposure scenario.

HIGHWAYS GAC (SUBSURFACE SOILS)

The single relevant exposure pathway is the inhalation of outdoor vapour. Direct exposure pathways are not viable due to the depth of the soils below ground level.

The exposure frequency is 170 days per annum, and the occupancy period outdoors is 1 hour per day (as per the POS (resi) exposure scenario). The soil and dust ingestion rate has been set to zero, as direct exposure pathways to soils at this depth are not viable.

CHEMICAL DATA

PHYSICO-CHEMICAL PARAMETERS

Physico-chemical properties for the contaminants for which GACs have been derived have been obtained following critical review of the following hierarchy of data sources:

1. Environment Agency/Defra SGV reports where available;
2. Environment Agency '*Compilation of Data for Priority Organic Pollutants for Derivation of Soil Guideline Values*', Report SC050021/SR7, November 2008; and
3. Published fate and transport reviews within Nathanail et. al 2015 and CL:AIRE 2010.

Where appropriate, and where sufficient data is available, values were adjusted to reflect a UK soil temperature of 10ºC (e.g. K_{aw}).

TOXICOLOGICAL DATA

Toxicological data for the derivation of minimal risk Health Criteria Values (HCV) for each contaminant was selected with due regard to the approach presented in SR2. Where appropriate, the following hierarchy of data sources was used:

1. UK toxicity reviews published by authoritative bodies including:
   - EA;
   - Public Health England (PHE);
   - Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment (COT); and
   - Committee on Carcinogenicity of Chemicals in Food, Consumer Products and the Environment (COC).
2. Authoritative European sources such as European Food Standards Agency (EFSA)
3. International organisations including:
   - World Health Organisation (WHO); and
   - Joint FAO/WHO Expert Committee on Food Additives (JECFA).
4. Authoritative country-specific sources including:
   - United States Environmental Protection Agency (USEPA);
   - US Agency for Toxic Substances and Disease Registry (ATSDR);
   - US Integrated Risk Information System (IRIS); and
   - Netherlands National Institute for Public Health and the Environment (RIVM).

Factors such as the applicability of the data to human health (e.g. epidemiological vs. animal studies), the quality of the data, the level of uncertainty in the results and the age of the data were also taken into account in the final selection. Details for specific substances are available on request.

MEAN DAILY INTAKES

Estimations of background exposure for each threshold substance have been updated. In line with the SR2 approach, the exposure from non-threshold substances in the soil does not take into account exposure from other sources, and as such GACs were derived without consideration of the Mean Daily Intake (MDI) for those substances.

The data published by the EA in its series of TOX reports between 2002 and 2009 was evaluated to determine whether the values were considered to remain valid today. Values from these current UK published sources were not amended unless they were considered to be significantly different so that the GACs remained as comparable as possible with the revoked SGVs.

ORAL MEAN DAILY INTAKES

Oral MDI were generally estimated as the sum of exposure via the ingestion of food and drinking water using the default adult physiological parameters presented in Table 3.3 of SR2.

Data on the exposure of substances from food ingestion was generally obtained from UK Total Diet Studies (TDS) published by the Food Standards Agency (FSA) and its predecessor the Ministry of Agriculture, Fisheries and Food (MAFF) and from studies commissioned by COT. Where no UK-specific data was available, MDI were derived from the European Food Safety Authority (EFSA), Health Canada and US sources. This was a rare occurrence, and in these instances, the data was evaluated to determine its applicability to the UK.

Data on the concentrations of substances in tap water was obtained from a variety of sources. UK data was used where available, with preference given to Drinking Water Inspectorate (DWI) 2014 data from water company tap water testing (LOD, 1st and 99th percentile data is available). Where the substance was not included in tap water testing, other UK sources of information were considered including:

- à DWI data from water company tap water testing from previous years;
- à COT; and
- à FSA.

Where UK data was not available, a number of other data sources were considered, largely WHO International Programme on Chemical Safety (IPCS) Concise International Chemical Assessment Documents (CICADs) and background documents for the development of Guidelines for Drinking Water Quality, using professional judgement on the relevance of the data to the UK. The final decision on the MDI from drinking water was made using professional judgement on the balance of relevance and probability, taking into account the detection limit where not detected, Koc and solubility, reduction in use of the substance, banned substances, tight controls (e.g. on explosives) and with due consideration to the SR2 instruction that “if no data or information in background exposure are available, background exposure should be assumed to be negligible and the MDI set to zero….”.

Data from other countries was generally not used because it was considered that the hydrogeology of these countries along with industrial practices were unlikely to be reflective of the UK.

INHALATION MEAN DAILY INTAKES

Inhalation MDIs were based on estimates of average daily exposure by the inhalation pathway and calculated using the default adult physiological parameters presented in Table 3.3 of SR2.

The inhalation MDIs were generally estimated using background exposure data from the UK, derived from Defra's UK-AIR: Air Information Resource[12], which provides ambient air quality data from a number of sites forming a UK-wide monitoring network. The MDIs for heavy metals were based on rolling annual average metal mass concentration data from Defra's UK Heavy Metals Monitoring Network from the period October 2009 to September 2010[13].

Information for some substances was obtained from UK sources including Environment Agency TOX reports and data from the UK Expert Panel on Air Quality Standards (EPAQS). Where recent UK data was not available, data was sourced from the International Programme on Chemical Safety (IPCS), the World Health Organisation (WHO), the Agency for Toxic Substances and Diseases Registry (ATSDR), Health Canada, and various other peer-reviewed sources summarised by LQM/CIEH[14].

For other substances, where no data or information on background exposure was available, background exposure was assumed to be negligible and the MDI set at 0.5*TDI in accordance with guidance in SR2.

PLANT UPTAKE

Soil to plant concentration factors are available in CLEA v1.071 for arsenic, cadmium, hexavalent chromium, lead, mercury, nickel and selenium. For all remaining inorganic chemicals, concentration factors were obtained using the PRISM model. Substance-specific correction factors have been selected in accordance with the guidance established within SR3. This is consistent to the approach utilised in the derivation of the LQM S4UL and the EIC/AGS/CL:AIRE GAC.

Where there is a lack of appropriate data to enable the derivation of specific soil to plant concentrations factors for organic chemicals, plant uptake was modelled within CLEA v1.071 using the generic equations recommended within SR3, as follows:

- Green Vegetables – Ryan et al. (1988);
- Root Vegetables – Trapp (2002);
- Tuber Vegetables – Trapp et al. (2007); and
- Tree Fruit – Trapp et al. (2003).

There are no suitable models available for modelling uptake for herbaceous fruit or shrub fruit. Exposure is considered negligible.

[12] Crown 2016 copyright Defra via uk-air.defra.gov.uk, licenced under the Open Government Licence (OGL).
[13] Defra, 2013 Spreadsheet of historic data for multiple years for the Metals network. Available online at: http://uk-air.defra.gov.uk/data/metals-data. [Accessed 13/03/2016].
[14] LQM/CIEH, 2015. The LQM/CIEH S4ULs for Human Health Risk Assessment.

SOIL SATURATION LIMITS

GACs are not limited to their theoretical soil saturation within CLEA, although where either the aqueous or the vapour-based saturation is exceeded, this is highlighted within the Workbook (compared with the lower of the two values). This affects pathways which depend on partitioning calculations so in reality this only affects the vapour pathways and is relevant to organic substances and other substances, such as elemental mercury, that have a significant volatile component. However, the Workbook highlights saturation for direct contact pathways to indicate to the user where further qualitative consideration of free phase contamination at the surface may be required.

Where the lower of the two saturation limits is exceeded and the vapour pathway is the only exposure route being considered, the chronic risks to human health are likely to be negligible. Further evaluation could be undertaken using an alternative model suitable for evaluating non-aqueous phase liquids (NAPLs), such as the Johnson & Ettinger (J&E) approach described in USEPA 2003. However, WSP considers that if NAPLs are suspected, given the known limitations and over-simplifications of J&E, soil vapour monitoring is a more accurate way of assessing potential risks.

Where the lower saturation limit is exceeded for the vapour pathway and a number of exposure routes are being considered, then the contribution from the NAPL via vapour inhalation to the overall exposure can be evaluated using the procedure provided in SR4. WSP would evaluate this as part of a DQRA process or through soil vapour monitoring on-site to determine site-specific soil vapour concentrations.

CHEMICAL SPECIFIC ASSUMPTIONS

CYANIDES

Cyanide has high acute toxicity, and short term exposure is an important consideration when assessing the risks from soils contaminated with cyanide. The primary risk to human receptors from free cyanide in soils is an acute risk.

There is no current UK guidance available for calculating acute risks from free cyanide. Consequently, GAC for acute exposure were derived using the algorithms presented in MADEP 1992[15] and assuming a one-off ingestion of 10g of soil (this conservative value has been taken as an upper bound estimate for a one-off soil ingestion rate amongst children). Receptor body weights have been selected according to the critical receptor for each exposure scenario. The lowest of the chronic and acute GAC for each land use scenario were adopted by WSP.

LEAD

The SGV for lead was withdrawn by the EA in 2009, and in 2011 the EA withdrew their published TOX report in light of new scientific evidence. The C4SL for lead was derived using the latest scientific evidence from a large human dataset. As such, no chemical-specific margin was applied in the derivation of the C4SL for lead. It may be possible for WSP to derive a GAC for lead using the same dataset and applying a chemical-specific margin, but the value is likely to be lower than UK natural background concentrations. Therefore, WSP has adopted the toxicological data used to derive the C4SLs in deriving the GAC for lead until such time as alternative GACs are published by an authoritative body. The relative bioavailability was set at 100% in line with the approach taken for other GACs, whereas the C4SL assumes 60% for soil and 64% for airborne dust. Thus, the WSP GAC are lower than the C4SLs.

[15] MADEP '*Background Documentation for the Development of an "Available Cyanide" Benchmark Concentration'* 1992. http://www.mass.gov/dep/toxics/cn_soil.htm

POLYCYCLIC AROMATIC HYDROCARBONS

WSP's approach to the assessment of polycyclic aromatic hydrocarbons (PAHs) uses the surrogate marker approach. BaP was used as a surrogate marker for all genotoxic PAHs in line with the Health Protection Agency 2010[16] recommendations and SP1010. This assumes that the PAH profile of the data is similar to that of the coal tars used in the Culp *et al* oral carcinogenicity study from which the toxicity data for BaP was produced. In reality, this profile has been shown by HPA to be applicable on the majority of contaminated sites based on assessment of sites across the country.

The alternative is the Toxic Equivalency Factor (TEF) approach which uses a reference compound and assigns TEFs for other compounds based on estimates of potency. Key uncertainties with this approach include the assumption that all compounds have the same toxic mechanism of action within the body and that no compounds with a greater potency than the reference compound are present. It is considered by the HPA that the TEF approach is likely to under predict the true carcinogenicity of PAHs and therefore favours the surrogate marker approach.

For these reasons, WSP considers that the adoption of BaP as a surrogate marker for genotoxic PAHs, as opposed to the TEF approach, is reasonable. In rare cases where the PAH profile may differ from the wide definitions of the Culp *et al* study the user should discuss their project with an experienced risk assessor. In addition, WSP has derived a GAC for naphthalene, which is commonly a risk driver due to its high volatility, relative to other PAH compounds.

TRIMETHYLBENZENES

The GAC for trimethylbenzenes can be used for the assessment of any individual isomer (1,2,3-trimethylbenzene, 1,2,4-trimethylbenzene or 1,3,5-trimethylbenzene), or a mixture of the three isomers.

CHEMICAL GROUPS

For a number of chemical groups, the available toxicity data is for combinations of chemicals. Given that the physico-chemical parameters may differ between the chemicals, the GACs for the chemicals within the groups have been calculated and then the lowest GAC selected to represent the entire group. This was the approach taken by the EA for m-, o- and p-xylenes, and has also been adopted by WSP for:

- 2-chlorophenol, 2,4-dichlorophenol, 2,4,6-trichlorophenol and 2,3,4,6-tetrachlorophenol;
- 2-, 3- and 4-methylphenol (total cresols);
- aldrin and dieldrin; and
- α- and β-endosulphan.

[16] HPA Contaminated Land Information Sheet '*Risk Assessment Approaches for Polycyclic Aromatic Hydrocarbons (PAHs)* 2010

EXPOSURE TO VAPOURS

INHALATION OF MEASURED VAPOURS

WSP has derived a set of soil vapour GACs (GAC_{sv}) that allow for the assessment of measured site soil vapour concentrations, using J&E, in order to establish potential risks via indoor inhalation of vapours. This methodology enables a more robust assessment of exposure via the inhalation of soil vapours indoors than using CLEA-derived soil GAC, as it is based upon measured soil vapour concentrations beneath the site. It also allows for the assessment of vapours from all source terms (i.e. groundwater, soil or NAPL). Outdoor inhalation was not included. WSP considers that the indoor inhalation pathway is the significantly dominant risk-driver.

The generic land use scenarios within CLEA (residential and commercial) that were used to derive the soil GAC were used to define the receptor and building characteristics for the soil vapour GAC. Only residential and commercial generic land use scenarios include the indoor inhalation of vapours pathway.

The GAC_{sv} were derived for three different soil types; sand, sandy loam and clay, reflecting the importance of this parameter within the J&E model. A depth to contamination of 0.85 m below the base of the building foundation was assumed (i.e. 1 m below ground level). This differs from the depth assumed for the soil GAC (0.5 m bgl), but was selected by WSP as a reasonable worst case scenario.

It is acknowledged that the J&E commonly over-predicts indoor vapour concentrations. In particular, it will significantly over-predict vapour concentrations for suspended floor slabs, which many new builds are constructed with, it does not take into account lateral migration and assumes an infinite source of contamination at steady state conditions. In addition, it is common for soil gas/vapour wells to be installed with at least 1 m of plain riser at the surface and this equates to a total depth of 0.85 m below the building foundation plus a 0.15 m thick foundation, and so is more representative of the depth that samples will be taken from.

The TDSIs and IDs for each substance were converted from $\mu gkg^{-1}_{bw}day^{-1}$ to μgm^{-3} using the standard conversions quoted in Table 3.3 of SR2, thereby replacing the need to model C_{air} in the equation:

$$C_{air} = \alpha . C_{vap} . 1{,}000{,}000 cm^3 m^{-3}$$

Where:

C_{air} is the concentration of vapours within the building, mg^{-3}
α is the steady state attenuation coefficient between soil and indoor air, dimensionless
C_{vap} is the soil vapour concentration, $mgcm^{-3}$

The target concentrations within indoor air for each substance (C_{air}) are a function of receptor inhalation rates and occupancy periods, as defined by the site conceptual exposure model (assuming standard CLEA occupancy periods and receptors).

The attenuation factor was calculated using J&E (Equation 10.4 in SR3) and the resulting C_{vap} is equivalent to the GAC_{sv} for the modelled exposure scenario.

Where reported soil vapour concentrations exceed the relevant saturated vapour concentration, free product may occur, and the user should discuss their project with an experienced risk assessor.

INHALATION OF GROUNDWATER-DERIVED VAPOURS

WSP has derived a set of groundwater GACs (GAC_{gw}) to evaluate the potential risks through the indoor inhalation of groundwater-derived vapours by first applying the approach described above for the derivation of the WSP GAC_{sv} to determine the acceptable concentration in soil vapour directly above the water table.

The depth to groundwater was assumed to be 1 m bgl (i.e. 0.85 m below the base of the building foundation). This depth was considered to be more representative of commonly encountered groundwater conditions than the 0.5 m below the base of the building foundation (i.e. 0.65 m bgl) that is used by CLEA for an unsaturated source present in the overlying soil.

The GAC_{gw} was then back-calculated from the GAC_{sv} using the air-water partition coefficient (K_{aw}) for each substance.

The WSP Groundwater Vapour GAC are protective against a dissolved phase contaminant source only. If the presence of NAPL is suspected, the risks from this source will need to be assessed. Where reported groundwater concentrations exceed the relevant solubility limit, free product may occur, and the user should discuss their project with an experienced risk assessor.

Appendix E.2

HUMAN HEALTH RISK ASSESSMENT SCREENING TABLES

Confidential

Commercial, SOM=1%

Site Area(s): Whole site
Phase(s): Unit 10 Service Yard Investigation

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	GAC	PointID	WS02	WS04
				Depth (m bgl)	0.6-1.5	0.2-1.3
				Sample Date	21/02/24	21/02/24
				Geology (at top depth of sample)	Made Ground Granular	Concrete
WAC (Unrecognised code)	mg/kg				200	10

Commercial, SOM=1%

Site Area(s): Whole site
Phase(s): Unit 10 Service Yard Investigation

Aliphatics and Aromatics

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	GAC	PointID	HP01/2	WS02	WS03	WS04			WS05A		WS06A	
				Depth (m bgl)	0.4-0.5	0.4-0.5	0.6-0.8	0.3-0.4	1.0-1.2	1.4-1.7	0.4-0.5	1.2-1.3	0.4-0.4	3.0-3.3
				Sample Date	22/02/24	21/02/24	21/02/24	20/02/24	20/02/24	21/02/24	21/02/24	21/02/24	20/02/24	20/02/24
				Geology (at top depth of sample)	Made Ground Cohesive	Made Ground Granular	Made Ground Granular	Made Ground Granular	Made Ground Cohesive	River Terrace Deposits	Made Ground Granular	River Terrace Deposits	Made Ground Granular	Wittering Formation
Aliphatic C05-C06	mg/kg	0.010	3,190		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aliphatic C05-C10	mg/kg	0.050			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.127
Aliphatic C06-C08	mg/kg	0.010	7,780		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0381
Aliphatic C08-C10	mg/kg	0.010	2,000		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0886
Aliphatic C10-C12	mg/kg	1.00	9,690		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Aliphatic C10-C44	mg/kg	5.00			<5	<5	<5	16.7	<5	<5	28	<5	11	<5
Aliphatic C12-C16	mg/kg	1.00	58,800		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Aliphatic C16-C21	mg/kg	1.00			<1	<1	<1	7.26	<1	<1	4.32	<1	1.3	<1
Aliphatic C16-C35	mg/kg	1.00	1,910,000		<1	2.55	<1	15.6	<1	<1	22.9	<1	10.1	<1
Aliphatic C21-C35	mg/kg	1.00			<1	2.38	<1	8.32	<1	<1	18.6	<1	8.79	<1
Aliphatic C35-C44	mg/kg	1.00	1,910,000		<1	<1	<1	<1	<1	<1	5	<1	<1	<1
Aromatic C05-C10	mg/kg	0.050			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.059
Aromatic C06-C07	mg/kg	0.010			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aromatic C07-C08	mg/kg	0.010	56,100		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aromatic C08-C10	mg/kg	0.010	3,460		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.059
Aromatic C10-C12	mg/kg	1.00	16,200		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

Commercial, SOM=1%

Site Area(s): Whole site
Phase(s): Unit 10 Service Yard Investigation

Aliphatics and Aromatics

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	GAC	PointID	HP01/2	WS02	WS03	WS04			WS05A		WS06A	
				Depth (m bgl)	0.4-0.5	0.4-0.5	0.6-0.8	0.3-0.4	1.0-1.2	1.4-1.7	0.4-0.5	1.2-1.3	0.4-0.4	3.0-3.3
				Sample Date	22/02/24	21/02/24	21/02/24	20/02/24	20/02/24	21/02/24	21/02/24	21/02/24	20/02/24	20/02/24
				Geology (at top depth of sample)	Made Ground Cohesive	Made Ground Granular	Made Ground Granular	Made Ground Granular	Made Ground Cohesive	River Terrace Deposits	Made Ground Granular	River Terrace Deposits	Made Ground Granular	Wittering Formation
Aromatic C12-C16	mg/kg	1.00	36,200		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Aromatic C16-C21	mg/kg	1.00	28,600		2.37	4.69	<1	12.6	<1	<1	5.33	<1	28.4	<1
Aromatic C16-C35	mg/kg	1.00			12.2	50.8	<1	113	1.17	1.76	39.8	<1	169	1.15
Aromatic C21-C35	mg/kg	1.00	28,600		9.82	46.1	<1	100	<1	1.76	34.5	<1	140	<1
Aromatic C35-C44	mg/kg	1.00	28,600		1.3	5.46	<1	24.2	<1	<1	3.16	<1	23.4	<1
Aromatic C40-C44	mg/kg	1.00			<1	<1	<1	4.07	<1	<1	<1	<1	3.16	<1
Aromatics C10-C44	mg/kg	5.00			14.1	56.2	<5	138	<5	<5	43.2	<5	192	<5
Total Aliphatics and Aromatics (C05-C44)	mg/kg	10.0			14.1	56.2	<10	155	<10	<10	71.2	<10	203	<10
Total Aliphatics and Aromatics (C10-C44)	mg/kg	10.0			15.3	59.3	<10	155	<10	<10	71.2	<10	203	<10

Commercial, SOM=1%

Site Area(s): Whole site
Phase(s): Unit 10 Service Yard Investigation

Alkali and Alkaline Earth Metals

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	GAC	PointID	HP01/2	WS02	WS03	WS04			WS05A		WS06A	
				Depth (m bgl)	0.4-0.5	0.4-0.5	0.6-0.8	0.3-0.4	1.0-1.2	1.4-1.7	0.4-0.5	1.2-1.3	0.4-0.4	3.0-3.3
				Sample Date	22/02/24	21/02/24	21/02/24	20/02/24	20/02/24	21/02/24	21/02/24	21/02/24	20/02/24	20/02/24
				Geology (at top depth of sample)	Made Ground Cohesive	Made Ground Granular	Made Ground Granular	Made Ground Granular	Made Ground Cohesive	River Terrace Deposits	Made Ground Granular	River Terrace Deposits	Made Ground Granular	Wittering Formation
Barium	mg/kg	0.60 - 6.00	22,100		83.9	577	15	686	85.2	82.4	262	215	342	35.6
Beryllium	mg/kg	0.010 - 0.10	12.0		0.782	0.822	0.13	1.21	0.808	0.833	0.79	0.738	2.02	0.745

Commercial, SOM=1%

Site Area(s): Whole site
Phase(s): Unit 10 Service Yard Investigation

Asbestos

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	GAC	PointID	WS04	WS05	WS05A
				Depth (m bgl)	0.3-0.4	0.3-0.4	0.4-0.5
				Sample Date	20/02/24	20/02/24	21/02/24
				Geology (at top depth of sample)	Made Ground Granular	Made Ground Granular	Made Ground Granular
Asbestos Quantification - Gravimetric	%	0.001			0.0101	1.13	<0.001
Asbestos Quantification - PCM Evaluation	%	0.001			<0.001	<0.001	<0.001
Asbestos Quantification - Total %	%	0.001			0.0101	1.13	<0.001

Commercial, SOM=1%

Site Area(s): Whole site
Phase(s): Unit 10 Service Yard Investigation

BTEX and Fuel Additives

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	GAC	PointID	HP01/2	WS02		WS03	WS04				WS05A		WS06A	
				Depth (m bgl)	0.4-0.5	0.4-0.5	0.6-1.5	0.6-0.8	0.2-1.3	0.3-0.4	1.0-1.2	1.4-1.7	0.4-0.5	1.2-1.3	0.4-0.4	3.0-3.3
				Sample Date	22/02/24	21/02/24	21/02/24	21/02/24	21/02/24	20/02/24	20/02/24	21/02/24	21/02/24	21/02/24	20/02/24	20/02/24
				Geology (at top depth of sample)	Made Ground Cohesive	Made Ground Granular	Made Ground Granular	Made Ground Granular	Concrete	Made Ground Granular	Made Ground Cohesive	River Terrace Deposits	Made Ground Granular	River Terrace Deposits	Made Ground Granular	Wittering Formation
1,2,4-Trimethylbenzene	mg/kg	0.030	611								<0.03	<0.03	<0.03			
1,3,5-Trimethylbenzene	mg/kg	0.020	611								<0.02	<0.02	<0.02			
Benzene	mg/kg	0.010 - 0.020	27.0	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
BTEX	mg/kg	0.070 - 0.14		<0.07	<0.07	<0.07	<0.07	<0.07	<0.14	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
Ethylbenzene	mg/kg	0.010 - 0.020	5,710	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Methyl t-butylether (MTBE)	mg/kg	0.005 - 0.010	7,480	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
TAME	mg/kg	0.010 - 0.020		<0.01	<0.01		<0.01		<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Toluene	mg/kg	0.010 - 0.020	56,300	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Xylene - Total (Summed)	mg/kg	-999	5,920	0.02	0.02	0.02	0.02	0.02	0.04	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Xylene-m & p	mg/kg	0.020 - 0.040	5,920	<0.02	<0.02	<0.02	<0.02	<0.02	<0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Xylene-o	mg/kg	0.020 - 0.040	5,920	<0.02	<0.02	<0.02	<0.02	<0.02	<0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02

Commercial, SOM=1%

Site Area(s): Whole site
Phase(s): Unit 10 Service Yard Investigation

Chlorinated Aliphatics

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	GAC	PointID	WS04		WS05A
				Depth (m bgl)	1.0-1.2	1.4-1.7	0.4-0.5
				Sample Date	20/02/24	21/02/24	21/02/24
				Geology (at top depth of sample)	Made Ground Cohesive	River Terrace Deposits	Made Ground Granular
1,1,1,2-Tetrachloroethane	mg/kg	0.010	108		<0.01	<0.01	<0.01
1,1,1-Trichloroethane	mg/kg	0.005	1,580		<0.005	<0.005	<0.005
1,1,2,2-Tetrachloroethane	mg/kg	0.020	274		<0.02	<0.02	<0.02
1,1,2-Trichloroethane	mg/kg	0.010	89.0		<0.01	<0.01	<0.01
1,1-Dichloroethane	mg/kg	0.005	263		<0.005	<0.005	<0.005
1,1-Dichloroethene	mg/kg	0.005	24.0		<0.005	<0.005	<0.005
1,1-Dichloropropene	mg/kg	0.005			<0.005	<0.005	<0.005
1,2,3-Trichloropropane	mg/kg	0.020			<0.02	<0.02	<0.02
1,2-Dichloroethane	mg/kg	0.010	0.67		<0.01	<0.01	<0.01
1,2-Dichloropropane	mg/kg	0.005	3.10		<0.005	<0.005	<0.005
1,3-Dichloropropane	mg/kg	0.010			<0.01	<0.01	<0.01
2,2-Dichloropropane	mg/kg	0.010			<0.01	<0.01	<0.01
Carbon tetrachloride	mg/kg	0.005	31.0		<0.005	<0.005	<0.005
Chloroethane	mg/kg	0.010	904		<0.01	<0.01	<0.01
Chloroform	mg/kg	0.030	99.0		<0.03	<0.03	<0.03
Chloromethane	mg/kg	0.020	0.96		<0.02	<0.02	<0.02

Commercial, SOM=1%

Site Area(s): Whole site
Phase(s): Unit 10 Service Yard Investigation

Chlorinated Aliphatics

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	GAC	PointID	WS04		WS05A
				Depth (m bgl)	1.0-1.2	1.4-1.7	0.4-0.5
				Sample Date	20/02/24	21/02/24	21/02/24
				Geology (at top depth of sample)	Made Ground Cohesive	River Terrace Deposits	Made Ground Granular
Cis 1,2-Dichloroethene	mg/kg	0.005	14.0		<0.005	<0.005	<0.005
Cis 1,3-Dichloropropene	mg/kg	0.005			<0.005	<0.005	<0.005
Dichloromethane	mg/kg	0.050	257		<0.05	<0.05	0.0975
Hexachlorobutadiene	mg/kg	0.040	31.0		<0.04	<0.04	<0.04
Hexachloroethane	mg/kg	0.10	21.0		<0.1	<0.1	<0.1
PCE	mg/kg	0.020	19.0		<0.02	<0.02	<0.02
Trans-1,2-Dichloroethene	mg/kg	0.010	21.0		<0.01	<0.01	<0.01
Trans-1,3-Dichloropropene	mg/kg	0.010			<0.01	<0.01	<0.01
Trichloroethene (TCE)	mg/kg	0.010	1.20		<0.01	<0.01	<0.01
Vinyl chloride	mg/kg	0.005	0.059		<0.005	<0.005	<0.005

Commercial, SOM=1%

Site Area(s): Whole site
Phase(s): Unit 10 Service Yard Investigation

Chlorinated Aromatics

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	GAC	PointID	WS04		WS05A
				Depth (m bgl)	1.0-1.2	1.4-1.7	0.4-0.5
				Sample Date	20/02/24	21/02/24	21/02/24
				Geology (at top depth of sample)	Made Ground Cohesive	River Terrace Deposits	Made Ground Granular
1,2,3-Trichlorobenzene	mg/kg	0.10	102		<0.1	<0.1	<0.1
1,2,4-Trichlorobenzene	mg/kg	0.070	265		<0.07	<0.07	<0.07
1,2-Dichlorobenzene	mg/kg	0.050	2,020		<0.05	<0.05	<0.05
1,3,5-Trichlorobenzene	mg/kg	0.070	22.0		<0.07	<0.07	<0.07
1,3-Dichlorobenzene	mg/kg	0.050	30.0		<0.05	<0.05	<0.05
1,4-Dichlorobenzene	mg/kg	0.050	584		<0.05	<0.05	<0.05
2-Chlorotoluene	mg/kg	0.030			<0.03	<0.03	<0.03
4-Chlorotoluene	mg/kg	0.030			<0.03	<0.03	<0.03
Chlorobenzene	mg/kg	0.020	58.0		<0.02	<0.02	<0.02
Hexachlorobenzene	mg/kg	0.10	105		<0.1	<0.1	<0.1

Commercial, SOM=1%

Site Area(s): Whole site
Phase(s): Unit 10 Service Yard Investigation

Chlorinated Phenols

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	GAC	PointID	WS04		WS05A
				Depth (m bgl)	1.0-1.2	1.4-1.7	0.4-0.5
				Sample Date	20/02/24	21/02/24	21/02/24
				Geology (at top depth of sample)	Made Ground Cohesive	River Terrace Deposits	Made Ground Granular
2,4,5-Trichlorophenol	mg/kg	0.10			<0.1	<0.1	<0.1
2,4,6-Trichlorophenol	mg/kg	0.10	2,700		<0.1	<0.1	<0.1
2,4-Dichlorophenol	mg/kg	0.10	2,700		<0.1	<0.1	<0.1
2-Chlorophenol	mg/kg	0.10	2,700		<0.1	<0.1	<0.1
4-Chloro-3-Methlphenol	mg/kg	0.10			<0.1	<0.1	<0.1
Chlorophenols - Total (Summed Isomers)	mg/kg	-999	2,700		0.1	0.1	0.1

Commercial, SOM=1%

Site Area(s): Whole site
Phase(s): Unit 10 Service Yard Investigation

Dioxins and Furans

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	GAC	PointID	WS04		WS05A
				Depth (m bgl)	1.0-1.2	1.4-1.7	0.4-0.5
				Sample Date	20/02/24	21/02/24	21/02/24
				Geology (at top depth of sample)	Made Ground Cohesive	River Terrace Deposits	Made Ground Granular
Dibenzofuran	mg/kg	0.10			<0.1	<0.1	0.136

Commercial, SOM=1%

Site Area(s): Whole site
Phase(s): Unit 10 Service Yard Investigation

Dyes

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	GAC	PointID	WS04		WS05A
				Depth (m bgl)	1.0-1.2	1.4-1.7	0.4-0.5
				Sample Date	20/02/24	21/02/24	21/02/24
				Geology (at top depth of sample)	Made Ground Cohesive	River Terrace Deposits	Made Ground Granular
3-Nitroaniline	mg/kg	0.10			<0.1	<0.1	<0.1
4-Nitroaniline	mg/kg	0.10			<0.1	<0.1	<0.1

Commercial, SOM=1%

Site Area(s): Whole site
Phase(s): Unit 10 Service Yard Investigation

Explosives

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	GAC	PointID	WS04		WS05A
				Depth (m bgl)	1.0-1.2	1.4-1.7	0.4-0.5
				Sample Date	20/02/24	21/02/24	21/02/24
				Geology (at top depth of sample)	Made Ground Cohesive	River Terrace Deposits	Made Ground Granular
2,4-Dinitrotoluene	mg/kg	0.10	3,720		<0.1	<0.1	<0.1
2,6-Dinitrotoluene	mg/kg	0.10	1,850		<0.1	<0.1	<0.1

Commercial, SOM=1%

Site Area(s): Whole site
Phase(s): Unit 10 Service Yard Investigation

General Chemistry

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	GAC	PointID	HP01/2	WS02		WS03	WS04				WS05A		WS06A	
				Depth (m bgl)	0.4-0.5	0.4-0.5	0.6-1.5	0.6-0.8	0.2-1.3	0.3-0.4	1.0-1.2	1.4-1.7	0.4-0.5	1.2-1.3	0.4-0.4	3.0-3.3
				Sample Date	22/02/24	21/02/24	21/02/24	21/02/24	21/02/24	20/02/24	20/02/24	21/02/24	21/02/24	21/02/24	20/02/24	20/02/24
				Geology (at top depth of sample)	Made Ground Cohesive	Made Ground Granular	Made Ground Granular	Made Ground Granular	Concrete	Made Ground Granular	Made Ground Cohesive	River Terrace Deposits	Made Ground Granular	River Terrace Deposits	Made Ground Granular	Wittering Formation
Acid Neutralisation Capacity at pH 6	mol/kg						0.0605		0.0311							
Acid Neutralisation Capacity pH4	mol/kg						1.29		0.0855							
pH	pH units	1.00			8.59	9.09	8.85	9.87	8.76	8.75	8.13	8.19	8.41	7.87	8.21	8.25

Commercial, SOM=1%

Site Area(s): Whole site
Phase(s): Unit 10 Service Yard Investigation

Halogonated Hydrocarbons

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	GAC	PointID	WS04		WS05A
				Depth (m bgl)	1.0-1.2	1.4-1.7	0.4-0.5
				Sample Date	20/02/24	21/02/24	21/02/24
				Geology (at top depth of sample)	Made Ground Cohesive	River Terrace Deposits	Made Ground Granular
1,2-Dibromo-3-Chloropropane	mg/kg	0.020			<0.02	<0.02	<0.02
1,2-Dibromoethane	mg/kg	0.010			<0.01	<0.01	<0.01
Bromobenzene	mg/kg	0.020	91.0		<0.02	<0.02	<0.02
Bromochloromethane	mg/kg	0.020			<0.02	<0.02	<0.02
Bromodichloromethane	mg/kg	0.020	2.00		<0.02	<0.02	<0.02
Bromoform	mg/kg	0.020	714		<0.059	<0.064	<0.073
Bromomethane	mg/kg	0.010			<0.01	<0.01	<0.01
Dibromochloromethane	mg/kg	0.020			<0.02	<0.02	<0.02
Dibromomethane	mg/kg	0.010			<0.01	<0.01	<0.01
Dichlorodifluoromethane	mg/kg	0.005			<0.005	<0.005	<0.005
Trichlorofluoromethane	mg/kg	0.005			<0.005	<0.005	<0.005

Commercial, SOM=1%

Site Area(s): Whole site
Phase(s): Unit 10 Service Yard Investigation

Inorganics

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	GAC	PointID	HP01/2	WS02	WS03	WS04			WS05A		WS06A	
				Depth (m bgl)	0.4-0.5	0.4-0.5	0.6-0.8	0.3-0.4	1.0-1.2	1.4-1.7	0.4-0.5	1.2-1.3	0.4-0.4	3.0-3.3
				Sample Date	22/02/24	21/02/24	21/02/24	20/02/24	20/02/24	21/02/24	21/02/24	21/02/24	20/02/24	20/02/24
				Geology (at top depth of sample)	Made Ground Cohesive	Made Ground Granular	Made Ground Granular	Made Ground Granular	Made Ground Cohesive	River Terrace Deposits	Made Ground Granular	River Terrace Deposits	Made Ground Granular	Wittering Formation
Sulphate as SO4	ug/l	4,000			17100	20200	10900	52900	29600	<4000	101000	59800	117000	57300

Commercial, SOM=1%

Site Area(s): Whole site
Phase(s): Unit 10 Service Yard Investigation

Ketones

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	GAC	PointID	WS04	WS04	WS05A
				Depth (m bgl)	1.0-1.2	1.4-1.7	0.4-0.5
				Sample Date	20/02/24	21/02/24	21/02/24
				Geology (at top depth of sample)	Made Ground Cohesive	River Terrace Deposits	Made Ground Granular
Isophorone	mg/kg	0.10			<0.1	<0.1	<0.1

Commercial, SOM=1%

Site Area(s): Whole site
Phase(s): Unit 10 Service Yard Investigation

Metals

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	GAC	PointID	HP01/2	WS02	WS03	WS04			WS05A		WS06A	
				Depth (m bgl)	0.4-0.5	0.4-0.5	0.6-0.8	0.3-0.4	1.0-1.2	1.4-1.7	0.4-0.5	1.2-1.3	0.4-0.4	3.0-3.3
				Sample Date	22/02/24	21/02/24	21/02/24	20/02/24	20/02/24	21/02/24	21/02/24	21/02/24	20/02/24	20/02/24
				Geology (at top depth of sample)	Made Ground Cohesive	Made Ground Granular	Made Ground Granular	Made Ground Granular	Made Ground Cohesive	River Terrace Deposits	Made Ground Granular	River Terrace Deposits	Made Ground Granular	Wittering Formation
Arsenic	mg/kg	0.60 - 6.00	635		5.37	11.5	1.92	33.9	9.33	9.18	48.2	8.93	27.3	1.7
Boron	mg/kg	1.00	207,000		<1	<1	<1	<1	<1	<1	1.48	1.19	1.44	1.38
Cadmium	mg/kg	0.020 - 0.20	223		0.386	1.5	0.389	1.15	0.779	0.567	2.05	0.749	0.723	0.302
Chromium	mg/kg	0.90 - 9.00			18.9	8.85	<0.9	<0.9	21	21.1	<9	18.2	<0.9	25.9
Copper	mg/kg	1.40 - 14.0	69,800		16.4	215	5.5	220	17.4	13.8	145	25.8	129	11
Hexavalent Chromium	mg/kg	0.60	24.0		<0.6	0.983	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Lead	mg/kg	0.70 - 7.00	1,390		41.6	1650	8.33	1490	19	17.5	580	46.1	859	10.7
Mercury	mg/kg	0.10 - 1.00	1,110		<0.1	1.59	37.5	0.579	<0.1	<0.1	<1	<0.1	0.544	<0.1
Nickel	mg/kg	0.20 - 2.00	1,710		21.1	22.1	6.27	45	27.1	25.7	57	26.1	62.8	15.9
Selenium	mg/kg	1.00 - 10.0	12,300		<1	<1	1.06	<1	<1	<1	<10	1.23	<1	<1
Vanadium	mg/kg	0.20 - 2.00	9,220		35.8	28.4	4.81	32.1	39.6	40.7	33.3	33.7	42.5	41.7
Zinc	mg/kg	1.90 - 19.0	1,050,000		82.1	849	32.1	370	64.6	56.8	91.9	68.8	124	50.8

Commercial, SOM=1%

Site Area(s): Whole site
Phase(s): Unit 10 Service Yard Investigation

Other

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	GAC	PointID	WS02	WS04			WS05A		WS06A
				Depth (m bgl)	0.6-1.5	0.2-1.3	1.0-1.2	1.4-1.7	0.4-0.5	1.2-1.3	3.0-3.3
				Sample Date	21/02/24	21/02/24	20/02/24	21/02/24	21/02/24	21/02/24	20/02/24
				Geology (at top depth of sample)	Made Ground Granular	Concrete	Made Ground Cohesive	River Terrace Deposits	Made Ground Granular	River Terrace Deposits	Wittering Formation
2-Chloronaphthalene	mg/kg	0.10	370				<0.1	<0.1	<0.1		
4-Bromophenylphenyl ether	mg/kg	0.10					<0.1	<0.1	<0.1		
4-Chloroaniline	mg/kg	0.10					<0.1	<0.1	<0.1		
4-Chlorophenyl phenyl ether	mg/kg	0.10					<0.1	<0.1	<0.1		
Azobenzene	mg/kg	0.10					<0.1	<0.1	<0.1		
Bis (2-chloroethoxy) methane	mg/kg	0.10					<0.1	<0.1	<0.1		
Bis (2-chloroethyl) ether	mg/kg	0.10					<0.1	<0.1	<0.1		
Bis (2-chloroisopropyl) ether	mg/kg	0.10					<0.1	<0.1	<0.1		
Carbazole	mg/kg	0.10					<0.1	<0.1	0.152		
Carbon Disulphide	mg/kg	0.010	11.0				<0.01	<0.01	<0.01		
Nitrobenzene	mg/kg	0.10					<0.1	<0.1	<0.1		
n-Nitrosodi-n-Propylamine	mg/kg	0.10					<0.1	<0.1	<0.1		
Soil Organic Matter (SOM)	%	0.35			2.84		1.98	1.46	35	3.22	<0.35
Styrene	mg/kg	0.020	3,170				<0.02	<0.02	<0.02		
Total organic carbon (TOC)	%	0.20			1.65	9.55					

Commercial, SOM=1%

Site Area(s): Whole site
Phase(s): Unit 10 Service Yard Investigation

PAHs

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	GAC	PointID	HP01/2	WS02		WS03	WS04				WS05A		WS06A	
				Depth (m bgl)	0.4-0.5	0.4-0.5	0.6-1.5	0.6-0.8	0.2-1.3	0.3-0.4	1.0-1.2	1.4-1.7	0.4-0.5	1.2-1.3	0.4-0.4	3.0-3.3
				Sample Date	22/02/24	21/02/24	21/02/24	21/02/24	21/02/24	20/02/24	20/02/24	21/02/24	21/02/24	21/02/24	20/02/24	20/02/24
				Geology (at top depth of sample)	Made Ground Cohesive	Made Ground Granular	Made Ground Granular	Made Ground Granular	Concrete	Made Ground Granular	Made Ground Cohesive	River Terrace Deposits	Made Ground Granular	River Terrace Deposits	Made Ground Granular	Wittering Formation
2-Methylnaphthalene	mg/kg	0.10									<0.1	<0.1	0.204			
Acenaphthene	mg/kg	0.008 - 0.10			0.0128	0.0161		<0.008		0.114	<0.008	<0.008	0.114	<0.008	0.0383	<0.008
Acenaphthylene	mg/kg	0.012 - 0.10			<0.012	<0.012		<0.012		0.068	<0.012	<0.012	0.1	<0.012	0.385	<0.012
Anthracene	mg/kg	0.016 - 0.032			<0.016	0.0709		<0.016		0.378	<0.016	<0.016	0.314	<0.016	0.499	<0.016
Benzo (a) anthracene	mg/kg	0.014 - 0.028			0.0451	0.321		<0.014		1.61	<0.014	<0.014	1.37	<0.014	4.14	<0.014
Benzo (a) pyrene	mg/kg	0.015 - 0.030	38.0		0.0299	0.329		<0.015		1.77	<0.015	<0.015	1.57	<0.015	4.15	<0.015
Benzo (b) fluoranthene	mg/kg	0.015 - 0.030			0.0454	0.417		<0.015		2.35	<0.015	<0.015	2.03	0.0244	5.62	<0.015
Benzo (ghi) perylene	mg/kg	0.024 - 0.048			<0.024	0.237		<0.024		1.33	<0.024	<0.024	1.14	<0.024	2.82	<0.024
Benzo (k) fluoranthene	mg/kg	0.014 - 0.10			<0.014	0.161		<0.014		0.76	<0.014	<0.014	0.965	<0.014	2.08	<0.014
Chrysene	mg/kg	0.010 - 0.020			0.0518	0.315		<0.01		1.67	<0.01	<0.01	1.31	0.0167	4.01	<0.01
Coronene	mg/kg	0.20					<0.2		<0.2							
Dibenzo (ah) anthracene	mg/kg	0.023 - 0.10			<0.023	0.0329		<0.023		0.18	<0.023	<0.023	0.167	<0.023	0.341	<0.023
Fluoranthene	mg/kg	0.017 - 0.034			0.118	0.628		<0.017		3.24	<0.017	<0.017	1.96	0.0272	6.89	<0.017
Fluorene	mg/kg	0.010 - 0.10			<0.01	0.0132		<0.01		0.104	<0.01	<0.01	0.108	<0.01	0.0856	<0.01
Indeno (1,2,3-cd) pyrene	mg/kg	0.018 - 0.036			0.0247	0.209		<0.018		1.08	<0.018	<0.018	1.08	<0.018	2.67	<0.018
Naphthalene	mg/kg	0.009 - 0.10	193		0.0198	0.0185		<0.009		0.116	<0.009	<0.009	0.142	<0.009	0.102	<0.009

Commercial, SOM=1%

Site Area(s): Whole site
Phase(s): Unit 10 Service Yard Investigation

PAHs

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	GAC	PointID	HP01/2	WS02		WS03	WS04				WS05A		WS06A	
				Depth (m bgl)	0.4-0.5	0.4-0.5	0.6-1.5	0.6-0.8	0.2-1.3	0.3-0.4	1.0-1.2	1.4-1.7	0.4-0.5	1.2-1.3	0.4-0.4	3.0-3.3
				Sample Date	22/02/24	21/02/24	21/02/24	21/02/24	21/02/24	20/02/24	20/02/24	21/02/24	21/02/24	21/02/24	20/02/24	20/02/24
				Geology (at top depth of sample)	Made Ground Cohesive	Made Ground Granular	Made Ground Granular	Made Ground Granular	Concrete	Made Ground Granular	Made Ground Cohesive	River Terrace Deposits	Made Ground Granular	River Terrace Deposits	Made Ground Granular	Wittering Formation
PAH Total (EPA 16)	mg/kg	0.12 - 0.24			0.541	3.66		<0.118		19.9	<0.118	<0.118	15.2	<0.118	42	<0.118
PAH Total (EPA 17)	mg/kg	10.0					191		<10							
Phenanthrene	mg/kg	0.015 - 0.030			0.0923	0.3		<0.015		1.82	<0.015	<0.015	1.49	<0.015	2.21	<0.015
Pyrene	mg/kg	0.015 - 0.030			0.101	0.591		<0.015		3.28	<0.015	<0.015	1.77	0.0361	6	<0.015

Commercial, SOM=1%

Site Area(s): Whole site
Phase(s): Unit 10 Service Yard Investigation

PCBs

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	GAC	PointID	WS02	WS04
				Depth (m bgl)	0.6-1.5	0.2-1.3
				Sample Date	21/02/24	21/02/24
				Geology (at top depth of sample)	Made Ground Granular	Concrete
PCB101	mg/kg	0.003			<0.003	<0.003
PCB118	mg/kg	0.003			<0.003	<0.003
PCB138	mg/kg	0.003			<0.003	<0.003
PCB153	mg/kg	0.003			<0.003	<0.003
PCB180	mg/kg	0.003			<0.003	<0.003
PCB28	mg/kg	0.003			<0.003	<0.003
PCB52	mg/kg	0.003			<0.003	<0.003
Total PCB Congeners ICES 7	mg/kg	0.021	9.50		<0.021	<0.021

Commercial, SOM=1%

Site Area(s): Whole site
Phase(s): Unit 10 Service Yard Investigation

Pesticides, Herbicides and Insecticides

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	GAC	PointID	WS04		WS05A
				Depth (m bgl)	1.0-1.2	1.4-1.7	0.4-0.5
				Sample Date	20/02/24	21/02/24	21/02/24
				Geology (at top depth of sample)	Made Ground Cohesive	River Terrace Deposits	Made Ground Granular
Hexachlorocyclopentadiene	mg/kg	0.10			<0.1	<0.1	<0.1
Pentachlorophenol	mg/kg	0.10	406		<0.1	<0.1	<0.1

Commercial, SOM=1%

Site Area(s): Whole site
Phase(s): Unit 10 Service Yard Investigation

Pharmaceuticals

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	GAC	PointID	WS04		WS05A
				Depth (m bgl)	1.0-1.2	1.4-1.7	0.4-0.5
				Sample Date	20/02/24	21/02/24	21/02/24
				Geology (at top depth of sample)	Made Ground Cohesive	River Terrace Deposits	Made Ground Granular
2-Nitroaniline	mg/kg	0.10			<0.1	<0.1	<0.1

Commercial, SOM=1%

Site Area(s): Whole site
Phase(s): Unit 10 Service Yard Investigation

Phenols

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	GAC	PointID	WS04		WS05A		WS06A	
				Depth (m bgl)	1.0-1.2	1.4-1.7	0.4-0.5	1.2-1.3	0.4-0.4	3.0-3.3
				Sample Date	20/02/24	21/02/24	21/02/24	21/02/24	20/02/24	20/02/24
				Geology (at top depth of sample)	Made Ground Cohesive	River Terrace Deposits	Made Ground Granular	River Terrace Deposits	Made Ground Granular	Wittering Formation
2,4-Dimethylphenol	mg/kg	0.10	15,700		<0.1	<0.1	<0.1			
2-Methylphenol (o-Cresol)	mg/kg	0.10	160,000		<0.1	<0.1	<0.1			
2-Nitrophenol	mg/kg	0.10			<0.1	<0.1	<0.1			
4-Methylphenol	mg/kg	0.10	160,000		<0.1	<0.1	<0.1			
4-Nitrophenol	mg/kg	0.10			<0.1	<0.1	<0.1			
Cresols	mg/kg	0.010	160,000		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Methylphenols Total (Summed)	mg/kg	-999	160,000		0.1	0.1	0.1			
Phenol	mg/kg	0.010	760		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phenol (Monohydric)	mg/kg	0.035			<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
Xylenols	mg/kg	0.015			<0.015	<0.015	<0.015	<0.015	<0.015	<0.015

Commercial, SOM=1%

Site Area(s): Whole site
Phase(s): Unit 10 Service Yard Investigation

Phthalates

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	GAC	PointID	WS04		WS05A
				Depth (m bgl)	1.0-1.2	1.4-1.7	0.4-0.5
				Sample Date	20/02/24	21/02/24	21/02/24
				Geology (at top depth of sample)	Made Ground Cohesive	River Terrace Deposits	Made Ground Granular
Bis (2-ethylhexyl) phthalate	mg/kg	0.10	85,200		<0.1	<0.1	<0.1
Butyl benzyl phthalate	mg/kg	0.10	940,000		<0.1	<0.1	<0.1
Diethyl phthalate	mg/kg	0.10	144,000		<0.1	<0.1	<0.1
Dimethyl phthalate	mg/kg	0.10			<0.1	<0.1	<0.1
Di-n-butyl phthalate	mg/kg	0.10	15,400		<0.1	<0.1	<0.1
Di-n-octyl phthalate	mg/kg	0.10	89,100		<0.1	<0.1	<0.1

Commercial, SOM=1%

Site Area(s): Whole site
Phase(s): Unit 10 Service Yard Investigation

Physical

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	GAC	PointID	WS02	WS04
				Depth (m bgl)	0.6-1.5	0.2-1.3
				Sample Date	21/02/24	21/02/24
				Geology (at top depth of sample)	Made Ground Granular	Concrete
Loss on ignition	%	0.70			4.85	10

Commercial, SOM=1%

Site Area(s): Whole site
Phase(s): Unit 10 Service Yard Investigation

QA Standard

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	GAC	PointID	HP01/2	WS02		WS03	WS04				WS05A		WS06A	
				Depth (m bgl)	0.4-0.5	0.4-0.5	0.6-1.5	0.6-0.8	0.2-1.3	0.3-0.4	1.0-1.2	1.4-1.7	0.4-0.5	1.2-1.3	0.4-0.4	3.0-3.3
				Sample Date	22/02/24	21/02/24	21/02/24	21/02/24	21/02/24	20/02/24	20/02/24	21/02/24	21/02/24	21/02/24	20/02/24	20/02/24
				Geology (at top depth of sample)	Made Ground Cohesive	Made Ground Granular	Made Ground Granular	Made Ground Granular	Concrete	Made Ground Granular	Made Ground Cohesive	River Terrace Deposits	Made Ground Granular	River Terrace Deposits	Made Ground Granular	Wittering Formation
4-Bromofluorobenzene	%						101		100		101	102	75.3			
Acenaphthene-d10	%				80.4	80		85.3		80.6	81.2	80.2	80.6	79.5	85.8	81.1
Chrysene-d12	%				74.4	76.7		77.3		70.3	74.2	75.6	72.4	75.7	82.4	80.8
Dibromofluoromethane	%						120		116		112	115	115			
EPH Surrogate % recovery**	%						96.3		87.5							
Naphthalene-d8	%				83.5	84.8		88.8		84.5	85.7	84.2	84.4	83.1	89.5	86.1
Perylene-d12**	%				81.5	84.5		84.6		76.5	80.9	82.8	67.4	81.3	79.4	87.1
Phenanthrene-d10 IS	%				80.4	78.1		85.3		81.3	79.9	80.1	76.9	78.8	83.2	80.2
Toluene-d8 Surrogate	%						103		103		103	103	101			

Commercial, SOM=1%

Site Area(s): Whole site
Phase(s): Unit 10 Service Yard Investigation

TPH/EPH

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	GAC	PointID	HP01/2	WS02		WS03	WS04				WS05A		WS06A	
				Depth (m bgl)	0.4-0.5	0.4-0.5	0.6-1.5	0.6-0.8	0.2-1.3	0.3-0.4	1.0-1.2	1.4-1.7	0.4-0.5	1.2-1.3	0.4-0.4	3.0-3.3
				Sample Date	22/02/24	21/02/24	21/02/24	21/02/24	21/02/24	20/02/24	20/02/24	21/02/24	21/02/24	21/02/24	20/02/24	20/02/24
				Geology (at top depth of sample)	Made Ground Cohesive	Made Ground Granular	Made Ground Granular	Made Ground Granular	Concrete	Made Ground Granular	Made Ground Cohesive	River Terrace Deposits	Made Ground Granular	River Terrace Deposits	Made Ground Granular	Wittering Formation
GRO Surrogate	%				96	108		100		54.1	96.8	101	61	130	56.2	103
Mineral oils	mg/kg	5.00					<5		<5							
PRO (>C5-C10)	mg/kg	0.020			<0.02	<0.02		<0.02		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.186

Commercial, SOM=1%

Site Area(s): Whole site
Phase(s): Unit 10 Service Yard Investigation

VOCs

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	GAC	PointID	WS04		WS05A
				Depth (m bgl)	1.0-1.2	1.4-1.7	0.4-0.5
				Sample Date	20/02/24	21/02/24	21/02/24
				Geology (at top depth of sample)	Made Ground Cohesive	River Terrace Deposits	Made Ground Granular
4-Isopropyltoluene	mg/kg	0.020			<0.02	<0.02	<0.02
iso-Propylbenzene	mg/kg	0.020	1,300		<0.02	<0.02	<0.02
n-Butylbenzene	mg/kg	0.030			<0.03	<0.03	<0.03
n-Propylbenzene	mg/kg	0.020	3,860		<0.02	<0.02	<0.02
Sec-Butylbenzene	mg/kg	0.010			<0.01	<0.01	<0.01
Tert-Butylbenzene	mg/kg	0.020			<0.02	<0.02	<0.02

Water Vapour Screening, Landuse=Commercial, Soil Type=Sand

Site Area(s): Whole site
Phase(s): Unit 10 Service Yard Investigation

Aliphatics and Aromatics

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	GAC	PointID	WS06A	WS07
				Response Zone Depth (m bgl)	1.50 - 3.00	2.00 - 4.00
				Sample Date	08/03/24	08/03/24
Aliphatic C05-C06	ug/l	10.0	GAC > Sol		<10	<10
Aliphatic C06-C08	ug/l	10.0	GAC > Sol		<10	<10
Aliphatic C08-C10	ug/l	10.0	GAC > Sol		<10	<10
Aliphatic C10-C12	ug/l	10.0	GAC > Sol		<10	<10
Aliphatic C12-C16	ug/l	10.0	GAC > Sol		<10	<10
Aromatic C07-C08	ug/l	10.0	GAC > Sol		<10	<10
Aromatic C08-C10	ug/l	10.0	GAC > Sol		<10	<10
Aromatic C10-C12	ug/l	10.0	GAC > Sol		<10	<10
Aromatic C12-C16	ug/l	10.0	GAC > Sol		<10	<10

Water Vapour Screening, Landuse=Commercial, Soil Type=Sand

Site Area(s): Whole site
Phase(s): Unit 10 Service Yard Investigation

BTEX and Fuel Additives

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	GAC	PointID	WS06A	WS07
				Response Zone Depth (m bgl)	1.50 - 3.00	2.00 - 4.00
				Sample Date	08/03/24	08/03/24
1,2,4-Trimethylbenzene	ug/l	1.00	34,100		<1	<1
1,3,5-Trimethylbenzene	ug/l	1.00	34,100		<1	<1
Benzene	ug/l	1.00	19,300		<1	<1
Ethylbenzene	ug/l	1.00	GAC > Sol		<1	<1
Methyl t-butylether (MTBE)	ug/l	1.00	7,530,000		<1	<1
Toluene	ug/l	1.00	GAC > Sol		<1	<1
Xylene - Total (Summed)	ug/l	-999	GAC > Sol		1	1

Water Vapour Screening, Landuse=Commercial, Soil Type=Sand

Site Area(s): Whole site
Phase(s): Unit 10 Service Yard Investigation

Chlorinated Aliphatics

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	GAC	PointID	WS06A	WS07
				Response Zone Depth (m bgl)	1.50 - 3.00	2.00 - 4.00
				Sample Date	08/03/24	08/03/24
1,1,1,2-Tetrachloroethane	ug/l	1.00	21,400		<1	<1
1,1,1-Trichloroethane	ug/l	1.00	666,000		<1	<1
1,1,2,2-Tetrachloroethane	ug/l	1.00	145,000		<1	<1
1,1,2-Trichloroethane	ug/l	1.00	47,000		<1	<1
1,1-Dichloroethene	ug/l	1.00	15,100		<1	<1
1,2-Dichloroethane	ug/l	1.00	811		<1	<1
1,2-Dichloropropane	ug/l	1.00	2,500		<1	<1
Carbon tetrachloride	ug/l	1.00	8,090		<1	<1
Chloroethane	ug/l	1.00	955,000		<1	<1
Chloromethane	ug/l	1.00	1,320		<1	<1
Dichloromethane	ug/l	3.00	347,000		<3	<3
Hexachlorobutadiene	ug/l	1.00	237		<1	<1
PCE	ug/l	1.00	4,520		<1	<1
Trans-1,2-Dichloroethene	ug/l	1.00	15,000		<1	<1
Trichloroethene (TCE)	ug/l	1.00	509		<1	<1
Vinyl chloride	ug/l	1.00	58.0		<1	<1

Gint Database: Barton Park Resurfacing v8.gpj
Data range: All data selected

Print date: 25/03/2024
Report Name:
Appx_LabResults_WaterVapour_v2.01.rpt

Water Vapour Screening, Landuse=Commercial, Soil Type=Sand

Site Area(s): Whole site
Phase(s): Unit 10 Service Yard Investigation

Chlorinated Aromatics

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	GAC	PointID	WS06A	WS07
				Response Zone Depth (m bgl)	1.50 - 3.00	2.00 - 4.00
				Sample Date	08/03/24	08/03/24
1,2,3-Trichlorobenzene	ug/l	1.00	3,060		<1	<1
1,2,4-Trichlorobenzene	ug/l	1.00	9,000		<1	<1
1,2-Dichlorobenzene	ug/l	1.00	GAC > Sol		<1	<1
1,3,5-Trichlorobenzene	ug/l	1.00	651		<1	<1
1,3-Dichlorobenzene	ug/l	1.00	2,710		<1	<1
1,4-Dichlorobenzene	ug/l	1.00	GAC > Sol		<1	<1
Chlorobenzene	ug/l	1.00	15,500		<1	<1

Water Vapour Screening, Landuse=Commercial, Soil Type=Sand

Site Area(s): Whole site
Phase(s): Unit 10 Service Yard Investigation

Halogonated Hydrocarbons

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	GAC	PointID	WS06A	WS07
				Response Zone Depth (m bgl)	1.50 - 3.00	2.00 - 4.00
				Sample Date	08/03/24	08/03/24
Bromobenzene	ug/l	1.00	19,200		<1	<1

Water Vapour Screening, Landuse=Commercial, Soil Type=Sand

Site Area(s): Whole site
Phase(s): Unit 10 Service Yard Investigation

Other

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	GAC	PointID	WS06A	WS07
				Response Zone Depth (m bgl)	1.50 - 3.00	2.00 - 4.00
				Sample Date	08/03/24	08/03/24
2-Chloronaphthalene	ug/l	4.00 - 10.0	GAC > Sol		<10	<4
Carbon Disulphide	ug/l	1.00	5,230		<1	<1
Styrene	ug/l	1.00	GAC > Sol		<1	<1

Water Vapour Screening, Landuse=Commercial, Soil Type=Sand

Site Area(s): Whole site
Phase(s): Unit 10 Service Yard Investigation

PAHs

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	GAC	PointID	WS06A	WS07
				Response Zone Depth (m bgl)	1.50 - 3.00	2.00 - 4.00
				Sample Date	08/03/24	08/03/24
Naphthalene	ug/l	1.00	GAC > Sol		<1	<1

Water Vapour Screening, Landuse=Commercial, Soil Type=Sand

Site Area(s): Whole site
Phase(s): Unit 10 Service Yard Investigation

VOCs

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	GAC	PointID	WS06A	WS07
				Response Zone Depth (m bgl)	1.50 - 3.00	2.00 - 4.00
				Sample Date	08/03/24	08/03/24
iso-Propylbenzene	ug/l	1.00	GAC > Sol		<1	<1
n-Propylbenzene	ug/l	1.00	GAC > Sol		<1	<1

Appendix E.3

CONTROLLED WATERS RISK ASSESSMENT SCREENING TABLES

Confidential

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

Aliphatics and Aromatics

Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS04			WS05A	
					Sample Depth (m bgl)	0.3-0.4	1.0-1.2	1.4-1.7	0.4-0.5	1.2-1.3
					Sample Date	20/02/24	20/02/24	21/02/24	21/02/24	21/02/24
Aliphatic C05-C06	mg/kg					<0.02	<0.02	<0.02	<0.02	<0.02
	ug/l		WHO 2008	15,000		<10	<10	<10	<10	<10
Aliphatic C06-C08	mg/kg					<0.02	<0.02	<0.02	<0.02	<0.02
	ug/l		WHO 2008	15,000		<10	<10	<10	<10	<10
Aliphatic C08-C10	mg/kg					<0.02	<0.02	<0.02	<0.02	<0.02
	ug/l		WHO 2008	300		<10	<10	<10	<10	<10
Aliphatic C10-C12	mg/kg					<0.02	<0.02	<0.02	<0.02	<0.02
	ug/l		WHO 2008	300		<10	<10	<10	<10	<10
Aromatic C06-C07	mg/kg					<0.02	<0.02	<0.02	<0.02	<0.02
	ug/l					<10	<10	<10	<10	<10
Aromatic C07-C08	mg/kg					<0.02	<0.02	<0.02	<0.02	<0.02
	ug/l					<10	<10	<10	<10	<10
Aromatic C08-C10	mg/kg					<0.02	<0.02	<0.02	<0.02	<0.02
	ug/l		WHO 2008	300		<10	<10	<10	<10	<10
Aromatic C10-C12	mg/kg					<0.02	<0.02	<0.02	<0.02	<0.02
	ug/l		WHO 2008	90.0		<10	<10	<10	<10	<10

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

Alkali and Alkaline Earth Metals — Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS02	WS04
					Sample Depth (m bgl)	0.6-1.5	0.2-1.3
					Sample Date	21/02/24	21/02/24
Barium	mg/kg					0.167	0.0615
	ug/l		WHO 2017	700		16.7	6.15

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

BTEX and Fuel Additives

Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS04			WS05A	
					Sample Depth (m bgl)	0.3-0.4	1.0-1.2	1.4-1.7	0.4-0.5	1.2-1.3
					Sample Date	20/02/24	20/02/24	21/02/24	21/02/24	21/02/24
1,2,4-Trimethylbenzene	mg/kg						<0.002	<0.02	<0.002	
	ug/l						<1	<10	<1	
1,3,5-Trimethylbenzene	mg/kg						<0.002	<0.02	<0.002	
	ug/l						<1	<10	<1	
Benzene	mg/kg					<0.2	<0.002	<0.02	<0.002	<0.02
	ug/l		UK DWS	1.00		<100	<1	<10	<1	<10
BTEX	mg/kg					<1	<0.01	<0.1	<0.01	<0.1
	ug/l					<500	<5	<50	<5	<50
Ethylbenzene	mg/kg					<0.2	<0.002	<0.02	<0.002	<0.02
	ug/l		WHO 2017	300		<100	<1	<10	<1	<10
Methyl t-butylether (MTBE)	mg/kg					<0.2	<0.002	<0.02	<0.002	<0.02
	ug/l		WHO 2017	15.0		<100	<1	<10	<1	<10
TAME	mg/kg						<0.002	<0.02	<0.002	
	ug/l						<1	<10	<1	
Toluene	mg/kg					<0.2	<0.002	<0.02	<0.002	<0.02
	ug/l		WHO 2017	700		<100	<1	<10	<1	<10
Xylene	mg/kg					<0.4	<0.004	<0.04	<0.004	<0.04
	ug/l		WHO 2017	500		<200	<2	<20	<2	<20
Xylene-m & p	mg/kg					<0.2	<0.002	<0.02	<0.002	<0.02
	ug/l					<100	<1	<10	<1	<10

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

BTEX and Fuel Additives — Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS04			WS05A	
					Sample Depth (m bgl)	0.3-0.4	1.0-1.2	1.4-1.7	0.4-0.5	1.2-1.3
					Sample Date	20/02/24	20/02/24	21/02/24	21/02/24	21/02/24
Xylene-o	mg/kg					<0.2	<0.002	<0.02	<0.002	<0.02
	ug/l					<100	<1	<10	<1	<10

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

Chlorinated Aliphatics — Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS04		WS05A
					Sample Depth (m bgl)	1.0-1.2	1.4-1.7	0.4-0.5
					Sample Date	20/02/24	21/02/24	21/02/24
1,1,1,2-Tetrachloroethane	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
1,1,1-Trichloroethane	mg/kg					<0.002	<0.02	<0.002
	ug/l		WHO 2017	2,000		<1	<10	<1
1,1,2,2-Tetrachloroethane	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
1,1,2-Trichloroethane	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
1,1-Dichloroethane	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
1,1-Dichloroethene	mg/kg					<0.002	<0.02	<0.002
	ug/l		WHO 2017	140		<1	<10	<1
1,1-Dichloropropene	mg/kg					<0.002	<0.02	<0.002
	ug/l		WHO 2017	20.0		<1	<10	<1
1,2,3-Trichloropropane	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
1,2-Dichloroethane	mg/kg					<0.002	<0.02	<0.002
	ug/l		UK DWS	3.00		<1	<10	<1
1,2-Dichloropropane	mg/kg					<0.002	<0.02	<0.002
	ug/l		WHO 2017	40.0		<1	<10	<1

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

Chlorinated Aliphatics — Aquifer: N/A

Result > Assessment Criteria
Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS04		WS05A
					Sample Depth (m bgl)	1.0-1.2	1.4-1.7	0.4-0.5
					Sample Date	20/02/24	21/02/24	21/02/24
1,3-Dichloropropane	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
2,2-Dichloropropane	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
Carbon tetrachloride	mg/kg					<0.002	<0.02	<0.002
	ug/l		UK DWS	3.00		<1	<10	<1
Chloroethane	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
Chloroform	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
Chloromethane	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
Cis 1,2-Dichloroethene	mg/kg					<0.002	<0.02	<0.002
	ug/l		WHO 2017	50.0		<1	<10	<1
Cis 1,3-Dichloropropene	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
Dichloromethane	mg/kg					<0.006	<0.06	<0.006
	ug/l		WHO 2017	20.0		<3	<30	<3
Hexachlorobutadiene	mg/kg					<0.002	<0.02	<0.002
	ug/l		WHO 2017	0.60		<1	<10	<1

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

Chlorinated Aliphatics — Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS04		WS05A
					Sample Depth (m bgl)	1.0-1.2	1.4-1.7	0.4-0.5
					Sample Date	20/02/24	21/02/24	21/02/24
Hexachloroethane	mg/kg					<0.008	<0.02	<0.004
	ug/l					<4	<10	<2
PCE	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
Trans-1,2-Dichloroethene	mg/kg					<0.002	<0.02	<0.002
	ug/l		WHO 2017	50.0		<1	<10	<1
Trans-1,3-Dichloropropene	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
Trichloroethene (TCE)	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
Vinyl chloride	mg/kg					<0.002	<0.02	<0.002
	ug/l		UK DWS	0.50		<1	<10	<1

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

Chlorinated Aromatics

Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS04		WS05A
					Sample Depth (m bgl)	1.0-1.2	1.4-1.7	0.4-0.5
					Sample Date	20/02/24	21/02/24	21/02/24
1,2,3-Trichlorobenzene	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
1,2,4-Trichlorobenzene	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
1,2-Dichlorobenzene	mg/kg					<0.002	<0.02	<0.002
	ug/l		WHO 2017	1,000		<1	<10	<1
1,3,5-Trichlorobenzene	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
1,3-Dichlorobenzene	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
1,4-Dichlorobenzene	mg/kg					<0.002	<0.02	<0.002
	ug/l		WHO 2017	300		<1	<10	<1
2-Chlorotoluene	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
4-Chlorotoluene	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
Chlorobenzene	mg/kg					<0.002	<0.02	<0.002
	ug/l		WHO 2017	300		<1	<10	<1
Hexachlorobenzene	mg/kg					<0.008	<0.02	<0.004
	ug/l					<4	<10	<2

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

Chlorinated Phenols — Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS04		WS05A
					Sample Depth (m bgl)	1.0-1.2	1.4-1.7	0.4-0.5
					Sample Date	20/02/24	21/02/24	21/02/24
2,4,5-Trichlorophenol	mg/kg					<0.008	<0.02	<0.004
	ug/l					<4	<10	<2
2,4,6-Trichlorophenol	mg/kg					<0.008	<0.02	<0.004
	ug/l		WHO 2017	200		<4	<10	<2
2,4-Dichlorophenol	mg/kg					<0.008	<0.02	<0.004
	ug/l					<4	<10	<2
2-Chlorophenol	mg/kg					<0.008	<0.02	<0.004
	ug/l					<4	<10	<2
4-Chloro-3-Methlphenol	mg/kg					<0.008	<0.02	<0.004
	ug/l					<4	<10	<2

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

Dioxins and Furans — Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS04		WS05A
					Sample Depth (m bgl)	1.0-1.2	1.4-1.7	0.4-0.5
					Sample Date	20/02/24	21/02/24	21/02/24
Dibenzofuran	mg/kg					<0.008	<0.02	<0.004
	ug/l					<4	<10	<2

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

Dyes — Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS04		WS05A
					Sample Depth (m bgl)	1.0-1.2	1.4-1.7	0.4-0.5
					Sample Date	20/02/24	21/02/24	21/02/24
3-Nitroaniline	mg/kg					<0.008	<0.02	<0.004
	ug/l					<4	<10	<2
4-Nitroaniline	mg/kg					<0.008	<0.02	<0.004
	ug/l					<4	<10	<2

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

Explosives — Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS04		WS05A
					Sample Depth (m bgl)	1.0-1.2	1.4-1.7	0.4-0.5
					Sample Date	20/02/24	21/02/24	21/02/24
2,4-Dinitrotoluene	mg/kg					<0.008	<0.02	<0.004
	ug/l					<4	<10	<2
2,6-Dinitrotoluene	mg/kg					<0.008	<0.02	<0.004
	ug/l					<4	<10	<2

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

General Chemistry — Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS02	WS04				WS05A	
					Sample Depth (m bgl)	0.6-1.5	0.2-1.3	0.3-0.4	1.0-1.2	1.4-1.7	0.4-0.5	1.2-1.3
					Sample Date	21/02/24	21/02/24	20/02/24	20/02/24	21/02/24	21/02/24	21/02/24
Electrical conductivity	uS/cm		UK DWS	2,500		147	140	279	424	312	690	395
pH	pH units		UK DWS	6.50 / 10.0		8.44	8.57	8.92	8.31	8.42	8.12	8.09

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

Halogonated Hydrocarbons

Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS04		WS05A
					Sample Depth (m bgl)	1.0-1.2	1.4-1.7	0.4-0.5
					Sample Date	20/02/24	21/02/24	21/02/24
1,2-Dibromo-3-Chloropropane	mg/kg					<0.002	<0.02	<0.002
	ug/l		WHO 2017	1.00		<1	<10	<1
1,2-Dibromoethane	mg/kg					<0.002	<0.02	<0.002
	ug/l		WHO 2017	0.40		<1	<10	<1
Bromobenzene	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
Bromochloromethane	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
Bromodichloromethane	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
Bromoform	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
Bromomethane	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
Dibromochloromethane	mg/kg					<0.002	<0.02	<0.002
	ug/l		WHO 2017	100		<1	<10	<1
Dibromomethane	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
Dichlorodifluoromethane	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

Halogonated Hydrocarbons — Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS04		WS05A
					Sample Depth (m bgl)	1.0-1.2	1.4-1.7	0.4-0.5
					Sample Date	20/02/24	21/02/24	21/02/24
Trichlorofluoromethane	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

Inorganics — Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS02	WS04
					Sample Depth (m bgl)	0.6-1.5	0.2-1.3
					Sample Date	21/02/24	21/02/24
Chloride	mg/kg					33	94
	ug/l		UK DWS	250,000		3300	9400
Fluoride	mg/kg					<5	<5
	ug/l		UK DWS	1,500		<500	<500
Sulphate as SO4	mg/kg					24	62
	ug/l		UK DWS	250,000		2400	6200

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

Ketones

Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS04		WS05A
					Sample Depth (m bgl)	1.0-1.2	1.4-1.7	0.4-0.5
					Sample Date	20/02/24	21/02/24	21/02/24
Isophorone	mg/kg					<0.008	<0.02	<0.004
	ug/l					<4	<10	<2

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

Metals

Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS02	WS04
					Sample Depth (m bgl)	0.6-1.5	0.2-1.3
					Sample Date	21/02/24	21/02/24
Antimony	mg/kg					0.0246	0.0154
	ug/l		UK DWS	5.00		2.46	1.54
Arsenic	mg/kg					0.0556	0.081
	ug/l		UK DWS	10.0		5.56	8.1
Cadmium	mg/kg					<0.0008	<0.0008
	ug/l		UK DWS	5.00		<0.08	<0.08
Chromium	mg/kg					<0.01	0.0179
	ug/l		UK DWS	50.0		<1	1.79
Copper	mg/kg					0.0509	0.0528
	ug/l		UK DWS	2,000		5.09	5.28
Lead	mg/kg					0.00454	0.0146
	ug/l		UK DWS	10.0		0.454	1.46
Mercury	mg/kg					<0.0001	<0.0001
	ug/l		UK DWS	1.00		<0.01	<0.01
Molybdenum	mg/kg					0.0816	0.0323
	ug/l		WHO 2017	70.0		8.16	3.23
Nickel	mg/kg					0.0218	0.0222
	ug/l		UK DWS	20.0		2.18	2.22
Selenium	mg/kg					<0.01	0.0102
	ug/l		UK DWS	10.0		<1	1.02

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

Metals

Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS02	WS04
					Sample Depth (m bgl)	0.6-1.5	0.2-1.3
					Sample Date	21/02/24	21/02/24
Zinc	mg/kg					0.0193	0.126
	ug/l					1.93	12.6

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

Other

Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS02	WS04			WS05A
					Sample Depth (m bgl)	0.6-1.5	0.2-1.3	1.0-1.2	1.4-1.7	0.4-0.5
					Sample Date	21/02/24	21/02/24	20/02/24	21/02/24	21/02/24
2-Chloronaphthalene	mg/kg							<0.008	<0.02	<0.004
	ug/l							<4	<10	<2
4-Bromophenylphenyl ether	mg/kg							<0.008	<0.02	<0.004
	ug/l							<4	<10	<2
4-Chloroaniline	mg/kg							<0.008	<0.02	<0.004
	ug/l							<4	<10	<2
4-Chlorophenyl phenyl ether	mg/kg							<0.008	<0.02	<0.004
	ug/l							<4	<10	<2
Azobenzene	mg/kg							<0.008	<0.02	<0.004
	ug/l							<4	<10	<2
Bis (2-chloroethoxy) methane	mg/kg							<0.008	<0.02	<0.004
	ug/l							<4	<10	<2
Bis (2-chloroethyl) ether	mg/kg							<0.008	<0.02	<0.004
	ug/l							<4	<10	<2
Bis (2-chloroisopropyl) ether	mg/kg							<0.016	<0.04	<0.008
Carbazole	mg/kg							<0.008	<0.02	<0.004
	ug/l							<4	<10	<2
Carbon Disulphide	mg/kg							<0.002	<0.02	<0.002
	ug/l							<1	<10	<1
DOC	mg/kg					87	52.7			

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

Other — Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS02	WS04			WS05A
					Sample Depth (m bgl)	0.6-1.5	0.2-1.3	1.0-1.2	1.4-1.7	0.4-0.5
					Sample Date	21/02/24	21/02/24	20/02/24	21/02/24	21/02/24
DOC	ug/l					8700	5270			
Nitrobenzene	mg/kg							<0.008	<0.02	<0.004
	ug/l							<4	<10	<2
n-Nitrosodi-n-Propylamine	mg/kg							<0.008	<0.02	<0.004
	ug/l							<4	<10	<2
Styrene	mg/kg							<0.002	<0.02	<0.002
	ug/l		WHO 2017	20.0				<1	<10	<1

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

PAHs

Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS04			WS05A	
					Sample Depth (m bgl)	0.3-0.4	1.0-1.2	1.4-1.7	0.4-0.5	1.2-1.3
					Sample Date	20/02/24	20/02/24	21/02/24	21/02/24	21/02/24
2-Methylnaphthalene	mg/kg						<0.008	<0.02	<0.004	
	ug/l						<4	<10	<2	
Acenaphthene	mg/kg					0.00004	<0.008	<0.00002	0.004	<0.00002
	ug/l					0.02	<0.005	<0.01	2	<0.01
Acenaphthylene	mg/kg					<0.00002	<0.00001	<0.00002	<0.00002	<0.00002
	ug/l					<0.01	<0.005	<0.01	<0.01	<0.01
Anthracene	mg/kg					<0.00002	<0.00001	<0.00002	<0.00002	<0.00002
	ug/l					<0.01	<0.005	<0.01	<0.01	<0.01
Benzo (a) anthracene	mg/kg					<0.00002	<0.00001	<0.00002	<0.00002	<0.00002
	ug/l					<0.01	<0.005	<0.01	<0.01	<0.01
Benzo (a) pyrene	mg/kg					<0.000008	<0.000004	<0.000008	<0.004	<0.000008
	ug/l		UK DWS	0.010		<0.004	<0.002	<0.004	<0.004	<0.004
Benzo (b) fluoranthene	mg/kg					<0.00002	<0.00001	<0.00002	<0.00002	<0.00002
	ug/l					<0.01	<0.005	<0.01	<0.01	<0.01
Benzo (ghi) perylene	mg/kg					<0.00002	<0.00001	<0.00002	<0.00002	<0.00002
	ug/l					<0.01	<0.005	<0.01	<0.01	<0.01
Benzo (k) fluoranthene	mg/kg					<0.00002	<0.00001	<0.00002	<0.00002	<0.00002
	ug/l					<0.01	<0.005	<0.01	<0.01	<0.01
Chrysene	mg/kg					<0.00002	<0.00001	<0.00002	<0.00002	<0.00002
	ug/l					<0.01	<0.005	<0.01	<0.01	<0.01

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

PAHs — Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS04			WS05A	
					Sample Depth (m bgl)	0.3-0.4	1.0-1.2	1.4-1.7	0.4-0.5	1.2-1.3
					Sample Date	20/02/24	20/02/24	21/02/24	21/02/24	21/02/24
Dibenzo (ah) anthracene	mg/kg					<0.00002	<0.00001	<0.00002	<0.00002	<0.00002
	ug/l					<0.01	<0.005	<0.01	<0.01	<0.01
Fluoranthene	mg/kg					<0.00002	<0.00001	<0.00002	<0.00002	<0.00002
	ug/l					<0.01	<0.005	<0.01	<0.01	<0.01
Fluorene	mg/kg					<0.00002	<0.00001	<0.00002	<0.00002	<0.00002
	ug/l					<0.01	<0.005	<0.01	<0.01	<0.01
Indeno (1,2,3-cd) pyrene	mg/kg					<0.00002	<0.00001	<0.00002	<0.00002	<0.00002
	ug/l					<0.01	<0.005	<0.01	<0.01	<0.01
Naphthalene	mg/kg					0.00156	<0.00002	0.02	0.002	0.00014
	ug/l					0.78	<0.01	10	1	0.0698
PAH (Total)	mg/kg					0.0016	<0.000164	<0.000328	0.00168	<0.000328
	ug/l					0.8	<0.082	<0.164	0.839	<0.164
Phenanthrene	mg/kg					<0.00002	<0.00001	<0.00002	<0.00002	<0.00002
	ug/l					<0.01	<0.005	<0.01	<0.01	<0.01
Pyrene	mg/kg					<0.00002	<0.00001	<0.00002	<0.00002	<0.00002
	ug/l					<0.01	<0.005	<0.01	<0.01	<0.01

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

Pesticides, Herbicides and Insecticides — Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS04		WS05A
					Sample Depth (m bgl)	1.0-1.2	1.4-1.7	0.4-0.5
					Sample Date	20/02/24	21/02/24	21/02/24
Hexachlorocyclopentadiene	mg/kg					<0.008	<0.02	<0.004
	ug/l					<4	<10	<2
Pentachlorophenol	mg/kg					<0.008	<0.02	<0.004
	ug/l		WHO 2017	9.00		<4	<10	<2

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

Pharmaceuticals — Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS04		WS05A
					Sample Depth (m bgl)	1.0-1.2	1.4-1.7	0.4-0.5
					Sample Date	20/02/24	21/02/24	21/02/24
2-Nitroaniline	mg/kg					<0.008	<0.02	<0.004
	ug/l					<4	<10	<2

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

Phenols

Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS02	WS04			WS05A
					Sample Depth (m bgl)	0.6-1.5	0.2-1.3	1.0-1.2	1.4-1.7	0.4-0.5
					Sample Date	21/02/24	21/02/24	20/02/24	21/02/24	21/02/24
2,4-Dimethylphenol	mg/kg							<0.008	<0.02	<0.004
	ug/l							<4	<10	<2
2-Methylphenol (o-Cresol)	mg/kg							<0.008	<0.02	<0.004
	ug/l							<4	<10	<2
2-Nitrophenol	mg/kg							<0.008	<0.02	<0.004
	ug/l							<4	<10	<2
4-Methylphenol	mg/kg							<0.008	<0.02	<0.004
	ug/l							<4	<10	<2
4-Nitrophenol	mg/kg							<0.008	<0.02	<0.004
	ug/l							<4	<10	<2
Phenol	mg/kg							<0.008	<0.02	<0.004
	ug/l							<4	<10	<2
Phenol (Monohydric)	mg/kg					<0.16	<0.16			
	ug/l					<16	<16			

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

Phthalates — Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS04		WS05A
					Sample Depth (m bgl)	1.0-1.2	1.4-1.7	0.4-0.5
					Sample Date	20/02/24	21/02/24	21/02/24
Bis (2-ethylhexyl) phthalate	ug/l		WHO 2017	8.00		<8	<20	<4
Butyl benzyl phthalate	mg/kg					<0.008	<0.02	<0.004
	ug/l					<4	<10	<2
Diethyl phthalate	mg/kg					<0.008	<0.02	<0.004
	ug/l					<4	<10	<2
Dimethyl phthalate	mg/kg					<0.008	<0.02	<0.004
	ug/l					<4	<10	<2
Di-n-butyl phthalate	mg/kg					<0.008	<0.02	<0.004
	ug/l					<4	<10	<2
Di-n-octyl phthalate	mg/kg					<0.04	<0.1	<0.02
	ug/l					<20	<50	<10

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

QA Standard **Aquifer: N/A**

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS04		WS05A
					Sample Depth (m bgl)	1.0-1.2	1.4-1.7	0.4-0.5
					Sample Date	20/02/24	21/02/24	21/02/24
4-Bromofluorobenzene	%					72.5	95.7	77.9
Dibromofluoromethane	%					109	106	109

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

TPH/EPH

Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS04			WS05A	
					Sample Depth (m bgl)	0.3-0.4	1.0-1.2	1.4-1.7	0.4-0.5	1.2-1.3
					Sample Date	20/02/24	20/02/24	21/02/24	21/02/24	21/02/24
GRO Surrogate	%					2	92	72	19	34
PRO (C5-C12)	mg/kg					<0.1	<0.1	<0.1	<0.1	<0.1
	ug/l					<50	<50	<50	<50	<50

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

VOCs — Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS04		WS05A
					Sample Depth (m bgl)	1.0-1.2	1.4-1.7	0.4-0.5
					Sample Date	20/02/24	21/02/24	21/02/24
4-Isopropyltoluene	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
iso-Propylbenzene	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
n-Butylbenzene	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
n-Propylbenzene	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
Sec-Butylbenzene	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
Tert-Butylbenzene	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

Barton Park

WATER

Site Area(s) selected:Whole Site
Event(s) selected:All events

QA Standard **Aquifer: N/A**

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS04		WS05A
					Response Zone Depth (m bgl)	1.0-1.2	1.4-1.7	0.4-0.5
					Sample Date	20/02/24	21/02/24	21/02/24
Toluene-d8 Surrogate	%					94.1	96.6	95.9

WATER

Site Area(s) selected:Whole Site
Event(s) selected:All events

Aliphatics and Aromatics — Aquifer: RT

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS06A	WS07
					Response Zone Depth (m bgl)	1.5-3.0	2.0-4.0
					Sample Date	08/03/24	08/03/24
Aliphatic C05-C06	ug/l	10.0	WHO 2008	15,000		<10	<10
Aliphatic C06-C08	ug/l	10.0	WHO 2008	15,000		<10	<10
Aliphatic C08-C10	ug/l	10.0	WHO 2008	300		<10	<10
Aliphatic C10-C12	ug/l	10.0	WHO 2008	300		<10	<10
Aliphatic C12-C16	ug/l	10.0	WHO 2008	300		<10	<10
Aliphatic C12-C35	ug/l	10.0				<10	<10
Aliphatic C16-C21	ug/l	10.0				<10	<10
Aliphatic C16-C35	ug/l	10.0				<10	<10
Aliphatic C21-C35	ug/l	10.0				<10	<10
Aromatic C06-C07	ug/l	10.0				<10	<10
Aromatic C07-C08	ug/l	10.0				<10	<10
Aromatic C08-C10	ug/l	10.0	WHO 2008	300		<10	<10
Aromatic C10-C12	ug/l	10.0	WHO 2008	90.0		<10	<10
Aromatic C12-C16	ug/l	10.0	WHO 2008	90.0		<10	<10
Aromatic C12-C35	ug/l	10.0				<10	<10
Aromatic C16-C21	ug/l	10.0	WHO 2008	90.0		<10	<10
Aromatic C21-C35	ug/l	10.0	WHO 2008	90.0		<10	<10
Total Aliphatics and Aromatics (C05-C35)	ug/l	10.0				<10	<10

WATER

Site Area(s) selected:Whole Site
Event(s) selected:All events

Alkali and Alkaline Earth Metals

Aquifer: RT

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS06A	WS07
					Response Zone Depth (m bgl)	1.5-3.0	2.0-4.0
					Sample Date	08/03/24	08/03/24
Barium	ug/l	0.20	WHO 2017	700		44.7	21.6
Beryllium	ug/l	0.10	WHO 2017	12.0		<0.1	<0.1

WATER

Site Area(s) selected:Whole Site
Event(s) selected:All events

BTEX and Fuel Additives — Aquifer: RT

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS06A	WS07
					Response Zone Depth (m bgl)	1.5-3.0	2.0-4.0
					Sample Date	08/03/24	08/03/24
1,2,4-Trimethylbenzene	ug/l	1.00				<1	<1
1,3,5-Trimethylbenzene	ug/l	1.00				<1	<1
Benzene	ug/l	1.00	UK DWS	1.00		<1	<1
Ethylbenzene	ug/l	1.00	WHO 2017	300		<1	<1
Methyl t-butylether (MTBE)	ug/l	1.00	WHO 2017	15.0		<1	<1
TAME	ug/l	1.00				<1	<1
Toluene	ug/l	1.00	WHO 2017	700		<1	<1
Xylene	ug/l	2.00	WHO 2017	500		<2	<2
Xylene - Total (Summed)	ug/l	-999				1	1
Xylene-m & p	ug/l	1.00				<1	<1
Xylene-o	ug/l	1.00				<1	<1

WATER

Site Area(s) selected:Whole Site
Event(s) selected:All events

Chlorinated Aliphatics — Aquifer: RT

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS06A	WS07
					Response Zone Depth (m bgl)	1.5-3.0	2.0-4.0
					Sample Date	08/03/24	08/03/24
1,1,1,2-Tetrachloroethane	ug/l	1.00				<1	<1
1,1,1-Trichloroethane	ug/l	1.00	WHO 2017	2,000		<1	<1
1,1,2,2-Tetrachloroethane	ug/l	1.00				<1	<1
1,1,2-Trichloroethane	ug/l	1.00				<1	<1
1,1-Dichloroethane	ug/l	1.00				<1	<1
1,1-Dichloroethene	ug/l	1.00	WHO 2017	140		<1	<1
1,1-Dichloropropene	ug/l	1.00	WHO 2017	20.0		<1	<1
1,2,3-Trichloropropane	ug/l	1.00				<1	<1
1,2-Dichloroethane	ug/l	1.00	UK DWS	3.00		<1	<1
1,2-Dichloropropane	ug/l	1.00	WHO 2017	40.0		<1	<1
1,3-Dichloropropane	ug/l	1.00				<1	<1
2,2-Dichloropropane	ug/l	1.00				<1	<1
Carbon tetrachloride	ug/l	1.00	UK DWS	3.00		<1	<1
Chloroethane	ug/l	1.00				<1	<1
Chloroform	ug/l	1.00				<1	<1
Chloromethane	ug/l	1.00				<1	<1
Cis 1,2-Dichloroethene	ug/l	1.00	WHO 2017	50.0		<1	<1
Cis 1,3-Dichloropropene	ug/l	1.00				<1	<1
Dichloromethane	ug/l	3.00	WHO 2017	20.0		<3	<3
Hexachlorobutadiene	ug/l	1.00	WHO 2017	0.60		<1	<1

WATER

Site Area(s) selected:Whole Site
Event(s) selected:All events

Chlorinated Aliphatics — Aquifer: RT

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS06A	WS07
					Response Zone Depth (m bgl)	1.5-3.0	2.0-4.0
					Sample Date	08/03/24	08/03/24
Hexachloroethane	ug/l	4.00 - 10.0				<10	<4
PCE	ug/l	1.00				<1	<1
Trans-1,2-Dichloroethene	ug/l	1.00	WHO 2017	50.0		<1	<1
Trans-1,3-Dichloropropene	ug/l	1.00				<1	<1
Trichloroethene (TCE)	ug/l	1.00				<1	<1
Vinyl chloride	ug/l	1.00	UK DWS	0.50		<1	<1

WATER

Site Area(s) selected:Whole Site
Event(s) selected:All events

Chlorinated Aromatics — Aquifer: RT

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS06A	WS07
					Response Zone Depth (m bgl)	1.5-3.0	2.0-4.0
					Sample Date	08/03/24	08/03/24
1,2,3-Trichlorobenzene	ug/l	1.00				<1	<1
1,2,4-Trichlorobenzene	ug/l	1.00				<1	<1
1,2-Dichlorobenzene	ug/l	1.00	WHO 2017	1,000		<1	<1
1,3,5-Trichlorobenzene	ug/l	1.00				<1	<1
1,3-Dichlorobenzene	ug/l	1.00				<1	<1
1,4-Dichlorobenzene	ug/l	1.00	WHO 2017	300		<1	<1
2-Chlorotoluene	ug/l	1.00				<1	<1
4-Chlorotoluene	ug/l	1.00				<1	<1
Chlorobenzene	ug/l	1.00	WHO 2017	300		<1	<1
Hexachlorobenzene	ug/l	4.00 - 10.0				<10	<4

WATER

Site Area(s) selected:Whole Site
Event(s) selected:All events

Chlorinated Phenols — Aquifer: RT

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS06A	WS07
					Response Zone Depth (m bgl)	1.5-3.0	2.0-4.0
					Sample Date	08/03/24	08/03/24
2,4,5-Trichlorophenol	ug/l	4.00 - 10.0				<10	<4
2,4,6-Trichlorophenol	ug/l	4.00 - 10.0	WHO 2017	200		<10	<4
2,4-Dichlorophenol	ug/l	4.00 - 10.0				<10	<4
2-Chlorophenol	ug/l	4.00 - 10.0				<10	<4
4-Chloro-3-Methlphenol	ug/l	4.00 - 10.0				<10	<4
Chlorophenols - Total (Summed Isomers)	ug/l	-999				10	4

WATER

Site Area(s) selected:Whole Site
Event(s) selected:All events

Dioxins and Furans — Aquifer: RT

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS06A	WS07
					Response Zone Depth (m bgl)	1.5-3.0	2.0-4.0
					Sample Date	08/03/24	08/03/24
Dibenzofuran	ug/l	4.00 - 10.0				<10	<4

WATER

Site Area(s) selected:Whole Site
Event(s) selected:All events

Dyes — Aquifer: RT

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS06A	WS07
					Response Zone Depth (m bgl)	1.5-3.0	2.0-4.0
					Sample Date	08/03/24	08/03/24
3-Nitroaniline	ug/l	4.00 - 10.0				<10	<4
4-Nitroaniline	ug/l	4.00 - 10.0				<10	<4

WATER

Site Area(s) selected:Whole Site
Event(s) selected:All events

Explosives — Aquifer: RT

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS06A	WS07
					Response Zone Depth (m bgl)	1.5-3.0	2.0-4.0
					Sample Date	08/03/24	08/03/24
2,4-Dinitrotoluene	ug/l	4.00 - 10.0				<10	<4
2,6-Dinitrotoluene	ug/l	4.00 - 10.0				<10	<4

WATER

Site Area(s) selected:Whole Site
Event(s) selected:All events

Halogonated Hydrocarbons — Aquifer: RT

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS06A	WS07
					Response Zone Depth (m bgl)	1.5-3.0	2.0-4.0
					Sample Date	08/03/24	08/03/24
1,2-Dibromo-3-Chloropropane	ug/l	1.00	WHO 2017	1.00		<1	<1
1,2-Dibromoethane	ug/l	1.00	WHO 2017	0.40		<1	<1
Bromobenzene	ug/l	1.00				<1	<1
Bromochloromethane	ug/l	1.00				<1	<1
Bromodichloromethane	ug/l	1.00				<1	<1
Bromoform	ug/l	1.00				<1	<1.5
Bromomethane	ug/l	1.00				<1	<1
Dibromochloromethane	ug/l	1.00	WHO 2017	100		<1	<1
Dibromomethane	ug/l	1.00				<1	<1
Dichlorodifluoromethane	ug/l	1.00				<1	<1
Trichlorofluoromethane	ug/l	1.00				<1	<1

WATER

Site Area(s) selected:Whole Site
Event(s) selected:All events

INSITU — Aquifer: RT

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID: WS06A	PointID: WS07
					Response Zone Depth (m bgl): 1.5-3.0	Response Zone Depth (m bgl): 2.0-4.0
					Sample Date: 08/03/24	Sample Date: 08/03/24
Dissolved Oxygen	mg/l				0.99	3.47
Electrical Conductivity	uS/cm		UK DWS	2,500	951	506
pH	pH Units		UK DWS	6.50 / 10.0	7.04	7.31
Redox Potential	mV				145	139
Temperature	DegC				10.4	10.9

WATER

Site Area(s) selected:Whole Site
Event(s) selected:All events

Ketones — Aquifer: RT

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS06A	WS07
					Response Zone Depth (m bgl)	1.5-3.0	2.0-4.0
					Sample Date	08/03/24	08/03/24
Isophorone	ug/l	4.00 - 10.0				<10	<4

WATER

Site Area(s) selected:Whole Site
Event(s) selected:All events

Metals — Aquifer: RT

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID: WS06A	PointID: WS07
					Response Zone Depth (m bgl): 1.5-3.0	Response Zone Depth (m bgl): 2.0-4.0
					Sample Date: 08/03/24	Sample Date: 08/03/24
Arsenic	ug/l	0.50	UK DWS	10.0	5.4	<0.5
Boron	ug/l	10.0	UK DWS	1,000	168	34.4
Cadmium	ug/l	0.080	UK DWS	5.00	<0.08	<0.08
Chromium	ug/l	1.00	UK DWS	50.0	<1	<1
Copper	ug/l	0.30	UK DWS	2,000	1.18	0.901
Hexavalent Chromium	ug/l	30.0			<30	<30
Lead	ug/l	0.20	UK DWS	10.0	0.567	<0.2
Mercury	ug/l	0.010	UK DWS	1.00	<0.01	<0.01
Nickel	ug/l	0.40	UK DWS	20.0	14.3	1.33
Selenium	ug/l	1.00	UK DWS	10.0	<1	<1
Vanadium	ug/l	1.00			<1	<1
Zinc	ug/l	1.00			21.3	13.7

WATER

Site Area(s) selected:Whole Site
Event(s) selected:All events

Other — Aquifer: RT

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID: WS06A	PointID: WS07
					Response Zone Depth (m bgl): 1.5-3.0	Response Zone Depth (m bgl): 2.0-4.0
					Sample Date: 08/03/24	Sample Date: 08/03/24
2-Chloronaphthalene	ug/l	4.00 - 10.0			<10	<4
4-Bromophenylphenyl ether	ug/l	4.00 - 10.0			<10	<4
4-Chloroaniline	ug/l	4.00 - 10.0			<10	<4
4-Chlorophenyl phenyl ether	ug/l	4.00 - 10.0			<10	<4
Azobenzene	ug/l	4.00 - 10.0			<10	<4
Bis (2-chloroethoxy) methane	ug/l	4.00 - 10.0			<10	<4
Bis (2-chloroethyl) ether	ug/l	4.00 - 10.0			<10	<4
Carbazole	ug/l	4.00 - 10.0			<10	<4
Carbon Disulphide	ug/l	1.00			<1	<1
Nitrobenzene	ug/l	4.00 - 10.0			<10	<4
n-Nitrosodi-n-Propylamine	ug/l	4.00 - 10.0			<10	<4
Styrene	ug/l	1.00	WHO 2017	20.0	<1	<1

WATER

Site Area(s) selected:Whole Site
Event(s) selected:All events

PAHs — Aquifer: RT

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS06A	WS07
					Response Zone Depth (m bgl)	1.5-3.0	2.0-4.0
					Sample Date	08/03/24	08/03/24
2-Methylnaphthalene	ug/l	4.00 - 10.0				<10	<4
Acenaphthene	ug/l	4.00 - 10.0				<10	<4
Acenaphthylene	ug/l	4.00 - 10.0				<10	<4
Anthracene	ug/l	4.00 - 10.0				<10	<4
Benzo (a) anthracene	ug/l	4.00 - 10.0				<10	<4
Benzo (a) pyrene	ug/l	4.00 - 10.0	UK DWS	0.010		<10	<4
Benzo (b) fluoranthene	ug/l	4.00 - 10.0				<10	<4
Benzo (ghi) perylene	ug/l	4.00 - 10.0				<10	<4
Benzo (k) fluoranthene	ug/l	4.00 - 10.0				<10	<4
Chrysene	ug/l	4.00 - 10.0				<10	<4
Dibenzo (ah) anthracene	ug/l	4.00 - 10.0				<10	<4
Fluoranthene	ug/l	4.00 - 10.0				<10	<4
Fluorene	ug/l	4.00 - 10.0				<10	<4
Indeno (1,2,3-cd) pyrene	ug/l	4.00 - 10.0				<10	<4
Naphthalene	ug/l	1.00				<1	<1
PAH (Total)	ug/l	0.082 - 0.16				6.2	0.508
Phenanthrene	ug/l	4.00 - 10.0				<10	<4
Pyrene	ug/l	4.00 - 10.0				<10	<4

WATER

Site Area(s) selected:Whole Site
Event(s) selected:All events

Pesticides, Herbicides and Insecticides — Aquifer: RT

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID: WS06A	PointID: WS07
					Response Zone Depth (m bgl): 1.5-3.0	Response Zone Depth (m bgl): 2.0-4.0
					Sample Date: 08/03/24	Sample Date: 08/03/24
Hexachlorocyclopentadiene	ug/l	4.00 - 10.0			<10	<4
Pentachlorophenol	ug/l	4.00 - 10.0	WHO 2017	9.00	<10	<4

WATER

Site Area(s) selected:Whole Site
Event(s) selected:All events

Pharmaceuticals — Aquifer: RT

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS06A	WS07
					Response Zone Depth (m bgl)	1.5-3.0	2.0-4.0
					Sample Date	08/03/24	08/03/24
2-Nitroaniline	ug/l	4.00 - 10.0				<10	<4

WATER

Site Area(s) selected:Whole Site
Event(s) selected:All events

Phenols — Aquifer: RT

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS06A	WS07
					Response Zone Depth (m bgl)	1.5-3.0	2.0-4.0
					Sample Date	08/03/24	08/03/24
2,4-Dimethylphenol	ug/l	4.00 - 10.0				<10	<4
2-Methylphenol (o-Cresol)	ug/l	4.00 - 10.0				<10	<4
2-Nitrophenol	ug/l	4.00 - 10.0				<10	<4
4-Methylphenol	ug/l	4.00 - 10.0				<10	<4
4-Nitrophenol	ug/l	4.00 - 10.0				<10	<4
Cresols	ug/l	6.00				<6	<6
Methylphenols Total (Summed	ug/l	-999				10	4
Phenol	ug/l	2.00				<2	<2
Phenol (Monohydric)	ug/l	16.0				<16	<16
Xylenols	ug/l	8.00				<8	<8

WATER

Site Area(s) selected:Whole Site
Event(s) selected:All events

Phthalates — Aquifer: RT

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS06A	WS07
					Response Zone Depth (m bgl)	1.5-3.0	2.0-4.0
					Sample Date	08/03/24	08/03/24
Bis (2-ethylhexyl) phthalate	ug/l	8.00 - 20.0	WHO 2017	8.00		<20	<8
Butyl benzyl phthalate	ug/l	4.00 - 10.0				<10	<4
Diethyl phthalate	ug/l	4.00 - 10.0				<10	<4
Dimethyl phthalate	ug/l	4.00 - 10.0				<10	<4
Di-n-butyl phthalate	ug/l	4.00 - 10.0				<10	<4
Di-n-octyl phthalate	ug/l	20.0 - 50.0				<50	<20

WATER

Site Area(s) selected:Whole Site
Event(s) selected:All events

QA Standard **Aquifer: RT**

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS06A	WS07
					Response Zone Depth (m bgl)	1.5-3.0	2.0-4.0
					Sample Date	08/03/24	08/03/24
4-Bromofluorobenzene	%					95.3	100
Dibromofluoromethane	%					106	103
Toluene-d8 Surrogate	%					99.8	103

WATER

Site Area(s) selected:Whole Site
Event(s) selected:All events

TPH/EPH

Aquifer: RT

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS06A	WS07
					Response Zone Depth (m bgl)	1.5-3.0	2.0-4.0
					Sample Date	08/03/24	08/03/24
GRO Surrogate	%					110	106
PRO (C5-C12)	ug/l	50.0				<50	<50

WATER

Site Area(s) selected:Whole Site
Event(s) selected:All events

VOCs — Aquifer: RT

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS06A	WS07
					Response Zone Depth (m bgl)	1.5-3.0	2.0-4.0
					Sample Date	08/03/24	08/03/24
4-Isopropyltoluene	ug/l	1.00				<1	<1
iso-Propylbenzene	ug/l	1.00				<1	<1
n-Butylbenzene	ug/l	1.00				<1	<1
n-Propylbenzene	ug/l	1.00				<1	<1
Sec-Butylbenzene	ug/l	1.00				<1	<1
Tert-Butylbenzene	ug/l	1.00				<1	<1

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

Aliphatics and Aromatics — Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS04			WS05A	
					Sample Depth (m bgl)	0.3-0.4	1.0-1.2	1.4-1.7	0.4-0.5	1.2-1.3
					Sample Date	20/02/24	20/02/24	21/02/24	21/02/24	21/02/24
Aliphatic C05-C06	mg/kg					<0.02	<0.02	<0.02	<0.02	<0.02
	ug/l					<10	<10	<10	<10	<10
Aliphatic C06-C08	mg/kg					<0.02	<0.02	<0.02	<0.02	<0.02
	ug/l					<10	<10	<10	<10	<10
Aliphatic C08-C10	mg/kg					<0.02	<0.02	<0.02	<0.02	<0.02
	ug/l					<10	<10	<10	<10	<10
Aliphatic C10-C12	mg/kg					<0.02	<0.02	<0.02	<0.02	<0.02
	ug/l					<10	<10	<10	<10	<10
Aromatic C06-C07	mg/kg					<0.02	<0.02	<0.02	<0.02	<0.02
	ug/l		CL:AIRE 2017	10.0		<10	<10	<10	<10	<10
Aromatic C07-C08	mg/kg					<0.02	<0.02	<0.02	<0.02	<0.02
	ug/l		CL:AIRE 2017	74.0		<10	<10	<10	<10	<10
Aromatic C08-C10	mg/kg					<0.02	<0.02	<0.02	<0.02	<0.02
	ug/l		CL:AIRE 2017	20.0		<10	<10	<10	<10	<10
Aromatic C10-C12	mg/kg					<0.02	<0.02	<0.02	<0.02	<0.02
	ug/l		CL:AIRE 2017	2.00		<10	<10	<10	<10	<10

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

Alkali and Alkaline Earth Metals — Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS02	WS04
					Sample Depth (m bgl)	0.6-1.5	0.2-1.3
					Sample Date	21/02/24	21/02/24
Barium	mg/kg					0.167	0.0615
	ug/l					16.7	6.15

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

BTEX and Fuel Additives

Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS04			WS05A	
					Sample Depth (m bgl)	0.3-0.4	1.0-1.2	1.4-1.7	0.4-0.5	1.2-1.3
					Sample Date	20/02/24	20/02/24	21/02/24	21/02/24	21/02/24
1,2,4-Trimethylbenzene	mg/kg						<0.002	<0.02	<0.002	
	ug/l						<1	<10	<1	
1,3,5-Trimethylbenzene	mg/kg						<0.002	<0.02	<0.002	
	ug/l						<1	<10	<1	
Benzene	mg/kg					<0.2	<0.002	<0.02	<0.002	<0.02
	ug/l		EQS 2015	10.0		<100	<1	<10	<1	<10
BTEX	mg/kg					<1	<0.01	<0.1	<0.01	<0.1
	ug/l					<500	<5	<50	<5	<50
Ethylbenzene	mg/kg					<0.2	<0.002	<0.02	<0.002	<0.02
	ug/l		Proposed EQS	20.0		<100	<1	<10	<1	<10
Methyl t-butylether (MTBE)	mg/kg					<0.2	<0.002	<0.02	<0.002	<0.02
	ug/l					<100	<1	<10	<1	<10
TAME	mg/kg						<0.002	<0.02	<0.002	
	ug/l						<1	<10	<1	
Toluene	mg/kg					<0.2	<0.002	<0.02	<0.002	<0.02
	ug/l		EQS 2015	74.0		<100	<1	<10	<1	<10
Xylene	mg/kg					<0.4	<0.004	<0.04	<0.004	<0.04
	ug/l		CL:AIRE 2017	30.0		<200	<2	<20	<2	<20
Xylene-m & p	mg/kg					<0.2	<0.002	<0.02	<0.002	<0.02
	ug/l					<100	<1	<10	<1	<10

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

BTEX and Fuel Additives — Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS04			WS05A	
					Sample Depth (m bgl)	0.3-0.4	1.0-1.2	1.4-1.7	0.4-0.5	1.2-1.3
					Sample Date	20/02/24	20/02/24	21/02/24	21/02/24	21/02/24
Xylene-o	mg/kg					<0.2	<0.002	<0.02	<0.002	<0.02
	ug/l					<100	<1	<10	<1	<10

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

Chlorinated Aliphatics

Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS04		WS05A
					Sample Depth (m bgl)	1.0-1.2	1.4-1.7	0.4-0.5
					Sample Date	20/02/24	21/02/24	21/02/24
1,1,1,2-Tetrachloroethane	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
1,1,1-Trichloroethane	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
1,1,2,2-Tetrachloroethane	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
1,1,2-Trichloroethane	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
1,1-Dichloroethane	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
1,1-Dichloroethene	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
1,1-Dichloropropene	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
1,2,3-Trichloropropane	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
1,2-Dichloroethane	mg/kg					<0.002	<0.02	<0.002
	ug/l		EQS 2015	10.0		<1	<10	<1
1,2-Dichloropropane	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

Chlorinated Aliphatics — Aquifer: N/A

Result > Assessment Criteria
Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS04		WS05A
					Sample Depth (m bgl)	1.0-1.2	1.4-1.7	0.4-0.5
					Sample Date	20/02/24	21/02/24	21/02/24
1,3-Dichloropropane	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
2,2-Dichloropropane	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
Carbon tetrachloride	mg/kg					<0.002	<0.02	<0.002
	ug/l		EQS 2015	12.0		<1	<10	<1
Chloroethane	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
Chloroform	mg/kg					<0.002	<0.02	<0.002
	ug/l		EQS 2015	2.50		<1	<10	<1
Chloromethane	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
Cis 1,2-Dichloroethene	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
Cis 1,3-Dichloropropene	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
Dichloromethane	mg/kg					<0.006	<0.06	<0.006
	ug/l		EQS 2015	20.0		<3	<30	<3
Hexachlorobutadiene	mg/kg					<0.002	<0.02	<0.002
	ug/l		EQS 2015 MAC	0.60		<1	<10	<1

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

Chlorinated Aliphatics — Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS04		WS05A
					Sample Depth (m bgl)	1.0-1.2	1.4-1.7	0.4-0.5
					Sample Date	20/02/24	21/02/24	21/02/24
Hexachloroethane	mg/kg					<0.008	<0.02	<0.004
	ug/l					<4	<10	<2
PCE	mg/kg					<0.002	<0.02	<0.002
	ug/l		EQS 2015	10.0		<1	<10	<1
Trans-1,2-Dichloroethene	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
Trans-1,3-Dichloropropene	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
Trichloroethene (TCE)	mg/kg					<0.002	<0.02	<0.002
	ug/l		EQS 2015	10.0		<1	<10	<1
Vinyl chloride	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

Chlorinated Aromatics

Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS04		WS05A
					Sample Depth (m bgl)	1.0-1.2	1.4-1.7	0.4-0.5
					Sample Date	20/02/24	21/02/24	21/02/24
1,2,3-Trichlorobenzene	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
1,2,4-Trichlorobenzene	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
1,2-Dichlorobenzene	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
1,3,5-Trichlorobenzene	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
1,3-Dichlorobenzene	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
1,4-Dichlorobenzene	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
2-Chlorotoluene	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
4-Chlorotoluene	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
Chlorobenzene	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
Hexachlorobenzene	mg/kg					<0.008	<0.02	<0.004
	ug/l		EQS 2015 MAC	0.050		<4	<10	<2

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

Chlorinated Phenols — Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS04		WS05A
					Sample Depth (m bgl)	1.0-1.2	1.4-1.7	0.4-0.5
					Sample Date	20/02/24	21/02/24	21/02/24
2,4,5-Trichlorophenol	mg/kg					<0.008	<0.02	<0.004
	ug/l					<4	<10	<2
2,4,6-Trichlorophenol	mg/kg					<0.008	<0.02	<0.004
	ug/l					<4	<10	<2
2,4-Dichlorophenol	mg/kg					<0.008	<0.02	<0.004
	ug/l		EQS 2015	4.20		<4	<10	<2
2-Chlorophenol	mg/kg					<0.008	<0.02	<0.004
	ug/l					<4	<10	<2
4-Chloro-3-Methlphenol	mg/kg					<0.008	<0.02	<0.004
	ug/l					<4	<10	<2

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

Dioxins and Furans — Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS04		WS05A
					Sample Depth (m bgl)	1.0-1.2	1.4-1.7	0.4-0.5
					Sample Date	20/02/24	21/02/24	21/02/24
Dibenzofuran	mg/kg					<0.008	<0.02	<0.004
	ug/l					<4	<10	<2

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

Dyes — Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS04		WS05A
					Sample Depth (m bgl)	1.0-1.2	1.4-1.7	0.4-0.5
					Sample Date	20/02/24	21/02/24	21/02/24
3-Nitroaniline	mg/kg					<0.008	<0.02	<0.004
	ug/l					<4	<10	<2
4-Nitroaniline	mg/kg					<0.008	<0.02	<0.004
	ug/l					<4	<10	<2

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

Explosives — Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS04		WS05A
					Sample Depth (m bgl)	1.0-1.2	1.4-1.7	0.4-0.5
					Sample Date	20/02/24	21/02/24	21/02/24
2,4-Dinitrotoluene	mg/kg					<0.008	<0.02	<0.004
	ug/l					<4	<10	<2
2,6-Dinitrotoluene	mg/kg					<0.008	<0.02	<0.004
	ug/l					<4	<10	<2

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

General Chemistry — Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS02	WS04				WS05A	
					Sample Depth (m bgl)	0.6-1.5	0.2-1.3	0.3-0.4	1.0-1.2	1.4-1.7	0.4-0.5	1.2-1.3
					Sample Date	21/02/24	21/02/24	20/02/24	20/02/24	21/02/24	21/02/24	21/02/24
Electrical conductivity	uS/cm					147	140	279	424	312	690	395
pH	pH units		EQS 2015	6.00 / 9.00		8.44	8.57	8.92	8.31	8.42	8.12	8.09

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

Halogonated Hydrocarbons

Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS04		WS05A
					Sample Depth (m bgl)	1.0-1.2	1.4-1.7	0.4-0.5
					Sample Date	20/02/24	21/02/24	21/02/24
1,2-Dibromo-3-Chloropropane	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
1,2-Dibromoethane	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
Bromobenzene	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
Bromochloromethane	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
Bromodichloromethane	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
Bromoform	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
Bromomethane	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
Dibromochloromethane	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
Dibromomethane	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
Dichlorodifluoromethane	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

Halogonated Hydrocarbons — Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS04		WS05A
					Sample Depth (m bgl)	1.0-1.2	1.4-1.7	0.4-0.5
					Sample Date	20/02/24	21/02/24	21/02/24
Trichlorofluoromethane	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

Inorganics — Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS02	WS04
					Sample Depth (m bgl)	0.6-1.5	0.2-1.3
					Sample Date	21/02/24	21/02/24
Chloride	mg/kg					33	94
	ug/l					3300	9400
Fluoride	mg/kg					<5	<5
	ug/l					<500	<500
Sulphate as SO4	mg/kg					24	62
	ug/l					2400	6200

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

Ketones

Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS04		WS05A
					Sample Depth (m bgl)	1.0-1.2	1.4-1.7	0.4-0.5
					Sample Date	20/02/24	21/02/24	21/02/24
Isophorone	mg/kg					<0.008	<0.02	<0.004
	ug/l					<4	<10	<2

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

Metals

Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS02	WS04
					Sample Depth (m bgl)	0.6-1.5	0.2-1.3
					Sample Date	21/02/24	21/02/24
Antimony	mg/kg					0.0246	0.0154
	ug/l					2.46	1.54
Arsenic	mg/kg					0.0556	0.081
	ug/l		EQS 2015	50.0		5.56	8.1
Cadmium	mg/kg					<0.0008	<0.0008
	ug/l		EQS 2015	0.080		<0.08	<0.08
Chromium	mg/kg					<0.01	0.0179
	ug/l		EQS 2015	4.70		<1	1.79
Copper	mg/kg					0.0509	0.0528
	ug/l		EQS 2015 - Bioavailable	1.00		5.09	5.28
Lead	mg/kg					0.00454	0.0146
	ug/l		EQS 2015 - Bioavailable	1.20		0.454	1.46
Mercury	mg/kg					<0.0001	<0.0001
	ug/l		EQS 2015 MAC	0.070		<0.01	<0.01
Molybdenum	mg/kg					0.0816	0.0323
	ug/l					8.16	3.23
Nickel	mg/kg					0.0218	0.0222
	ug/l		EQS 2015 - Bioavailable	4.00		2.18	2.22
Selenium	mg/kg					<0.01	0.0102
	ug/l					<1	1.02

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

Metals

Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS02	WS04
					Sample Depth (m bgl)	0.6-1.5	0.2-1.3
					Sample Date	21/02/24	21/02/24
Zinc	mg/kg					0.0193	0.126
	ug/l		EQS 2015 - Bioavailable	10.9		1.93	12.6

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

Other

Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS02	WS04			WS05A
					Sample Depth (m bgl)	0.6-1.5	0.2-1.3	1.0-1.2	1.4-1.7	0.4-0.5
					Sample Date	21/02/24	21/02/24	20/02/24	21/02/24	21/02/24
2-Chloronaphthalene	mg/kg							<0.008	<0.02	<0.004
	ug/l							<4	<10	<2
4-Bromophenylphenyl ether	mg/kg							<0.008	<0.02	<0.004
	ug/l							<4	<10	<2
4-Chloroaniline	mg/kg							<0.008	<0.02	<0.004
	ug/l							<4	<10	<2
4-Chlorophenyl phenyl ether	mg/kg							<0.008	<0.02	<0.004
	ug/l							<4	<10	<2
Azobenzene	mg/kg							<0.008	<0.02	<0.004
	ug/l							<4	<10	<2
Bis (2-chloroethoxy) methane	mg/kg							<0.008	<0.02	<0.004
	ug/l							<4	<10	<2
Bis (2-chloroethyl) ether	mg/kg							<0.008	<0.02	<0.004
	ug/l							<4	<10	<2
Bis (2-chloroisopropyl) ether	mg/kg							<0.016	<0.04	<0.008
Carbazole	mg/kg							<0.008	<0.02	<0.004
	ug/l							<4	<10	<2
Carbon Disulphide	mg/kg							<0.002	<0.02	<0.002
	ug/l							<1	<10	<1
DOC	mg/kg					87	52.7			

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

Other — **Aquifer: N/A**

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS02	WS04			WS05A
					Sample Depth (m bgl)	0.6-1.5	0.2-1.3	1.0-1.2	1.4-1.7	0.4-0.5
					Sample Date	21/02/24	21/02/24	20/02/24	21/02/24	21/02/24
DOC	ug/l					8700	5270			
Nitrobenzene	mg/kg							<0.008	<0.02	<0.004
	ug/l							<4	<10	<2
n-Nitrosodi-n-Propylamine	mg/kg							<0.008	<0.02	<0.004
	ug/l							<4	<10	<2
Styrene	mg/kg							<0.002	<0.02	<0.002
	ug/l							<1	<10	<1

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

PAHs

Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS04			WS05A	
					Sample Depth (m bgl)	0.3-0.4	1.0-1.2	1.4-1.7	0.4-0.5	1.2-1.3
					Sample Date	20/02/24	20/02/24	21/02/24	21/02/24	21/02/24
2-Methylnaphthalene	mg/kg						<0.008	<0.02	<0.004	
	ug/l						<4	<10	<2	
Acenaphthene	mg/kg					0.00004	<0.008	<0.00002	0.004	<0.00002
	ug/l					0.02	<0.005	<0.01	2	<0.01
Acenaphthylene	mg/kg					<0.00002	<0.00001	<0.00002	<0.00002	<0.00002
	ug/l					<0.01	<0.005	<0.01	<0.01	<0.01
Anthracene	mg/kg					<0.00002	<0.00001	<0.00002	<0.00002	<0.00002
	ug/l		EQS 2015	0.10		<0.01	<0.005	<0.01	<0.01	<0.01
Benzo (a) anthracene	mg/kg					<0.00002	<0.00001	<0.00002	<0.00002	<0.00002
	ug/l					<0.01	<0.005	<0.01	<0.01	<0.01
Benzo (a) pyrene	mg/kg					<0.000008	<0.000004	<0.000008	<0.004	<0.000008
	ug/l		EQS 2015	0.0002		<0.004	<0.002	<0.004	<0.004	<0.004
Benzo (b) fluoranthene	mg/kg					<0.00002	<0.00001	<0.00002	<0.00002	<0.00002
	ug/l					<0.01	<0.005	<0.01	<0.01	<0.01
Benzo (ghi) perylene	mg/kg					<0.00002	<0.00001	<0.00002	<0.00002	<0.00002
	ug/l					<0.01	<0.005	<0.01	<0.01	<0.01
Benzo (k) fluoranthene	mg/kg					<0.00002	<0.00001	<0.00002	<0.00002	<0.00002
	ug/l					<0.01	<0.005	<0.01	<0.01	<0.01
Chrysene	mg/kg					<0.00002	<0.00001	<0.00002	<0.00002	<0.00002
	ug/l					<0.01	<0.005	<0.01	<0.01	<0.01

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

PAHs — Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS04			WS05A	
					Sample Depth (m bgl)	0.3-0.4	1.0-1.2	1.4-1.7	0.4-0.5	1.2-1.3
					Sample Date	20/02/24	20/02/24	21/02/24	21/02/24	21/02/24
Dibenzo (ah) anthracene	mg/kg					<0.00002	<0.00001	<0.00002	<0.00002	<0.00002
	ug/l					<0.01	<0.005	<0.01	<0.01	<0.01
Fluoranthene	mg/kg					<0.00002	<0.00001	<0.00002	<0.00002	<0.00002
	ug/l		EQS 2015	0.006		<0.01	<0.005	<0.01	<0.01	<0.01
Fluorene	mg/kg					<0.00002	<0.00001	<0.00002	<0.00002	<0.00002
	ug/l					<0.01	<0.005	<0.01	<0.01	<0.01
Indeno (1,2,3-cd) pyrene	mg/kg					<0.00002	<0.00001	<0.00002	<0.00002	<0.00002
	ug/l					<0.01	<0.005	<0.01	<0.01	<0.01
Naphthalene	mg/kg					0.00156	<0.00002	0.02	0.002	0.00014
	ug/l		EQS 2015	2.00		0.78	<0.01	10	1	0.0698
PAH (Total)	mg/kg					0.0016	<0.000164	<0.000328	0.00168	<0.000328
	ug/l					0.8	<0.082	<0.164	0.839	<0.164
Phenanthrene	mg/kg					<0.00002	<0.00001	<0.00002	<0.00002	<0.00002
	ug/l					<0.01	<0.005	<0.01	<0.01	<0.01
Pyrene	mg/kg					<0.00002	<0.00001	<0.00002	<0.00002	<0.00002
	ug/l					<0.01	<0.005	<0.01	<0.01	<0.01

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

Pesticides, Herbicides and Insecticides — Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS04		WS05A
					Sample Depth (m bgl)	1.0-1.2	1.4-1.7	0.4-0.5
					Sample Date	20/02/24	21/02/24	21/02/24
Hexachlorocyclopentadiene	mg/kg					<0.008	<0.02	<0.004
	ug/l					<4	<10	<2
Pentachlorophenol	mg/kg					<0.008	<0.02	<0.004
	ug/l		EQS 2015	0.40		<4	<10	<2

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

Pharmaceuticals — Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS04		WS05A
					Sample Depth (m bgl)	1.0-1.2	1.4-1.7	0.4-0.5
					Sample Date	20/02/24	21/02/24	21/02/24
2-Nitroaniline	mg/kg					<0.008	<0.02	<0.004
	ug/l					<4	<10	<2

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

Phenols

Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS02	WS04			WS05A
					Sample Depth (m bgl)	0.6-1.5	0.2-1.3	1.0-1.2	1.4-1.7	0.4-0.5
					Sample Date	21/02/24	21/02/24	20/02/24	21/02/24	21/02/24
2,4-Dimethylphenol	mg/kg							<0.008	<0.02	<0.004
	ug/l							<4	<10	<2
2-Methylphenol (o-Cresol)	mg/kg							<0.008	<0.02	<0.004
	ug/l							<4	<10	<2
2-Nitrophenol	mg/kg							<0.008	<0.02	<0.004
	ug/l							<4	<10	<2
4-Methylphenol	mg/kg							<0.008	<0.02	<0.004
	ug/l							<4	<10	<2
4-Nitrophenol	mg/kg							<0.008	<0.02	<0.004
	ug/l							<4	<10	<2
Phenol	mg/kg							<0.008	<0.02	<0.004
	ug/l		EQS 2015	7.70				<4	<10	<2
Phenol (Monohydric)	mg/kg					<0.16	<0.16			
	ug/l					<16	<16			

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

Phthalates — Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS04		WS05A
					Sample Depth (m bgl)	1.0-1.2	1.4-1.7	0.4-0.5
					Sample Date	20/02/24	21/02/24	21/02/24
Bis (2-ethylhexyl) phthalate	ug/l		EQS 2015	1.30		<8	<20	<4
Butyl benzyl phthalate	mg/kg					<0.008	<0.02	<0.004
	ug/l		EQS 2015	7.50		<4	<10	<2
Diethyl phthalate	mg/kg					<0.008	<0.02	<0.004
	ug/l					<4	<10	<2
Dimethyl phthalate	mg/kg					<0.008	<0.02	<0.004
	ug/l					<4	<10	<2
Di-n-butyl phthalate	mg/kg					<0.008	<0.02	<0.004
	ug/l					<4	<10	<2
Di-n-octyl phthalate	mg/kg					<0.04	<0.1	<0.02
	ug/l					<20	<50	<10

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

QA Standard **Aquifer: N/A**

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS04		WS05A
					Sample Depth (m bgl)	1.0-1.2	1.4-1.7	0.4-0.5
					Sample Date	20/02/24	21/02/24	21/02/24
4-Bromofluorobenzene	%					72.5	95.7	77.9
Dibromofluoromethane	%					109	106	109

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

TPH/EPH

Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS04			WS05A	
					Sample Depth (m bgl)	0.3-0.4	1.0-1.2	1.4-1.7	0.4-0.5	1.2-1.3
					Sample Date	20/02/24	20/02/24	21/02/24	21/02/24	21/02/24
GRO Surrogate	%					2	92	72	19	34
PRO (C5-C12)	mg/kg					<0.1	<0.1	<0.1	<0.1	<0.1
	ug/l					<50	<50	<50	<50	<50

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

VOCs

Aquifer: N/A

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS04		WS05A
					Sample Depth (m bgl)	1.0-1.2	1.4-1.7	0.4-0.5
					Sample Date	20/02/24	21/02/24	21/02/24
4-Isopropyltoluene	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
iso-Propylbenzene	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
n-Butylbenzene	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
n-Propylbenzene	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
Sec-Butylbenzene	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1
Tert-Butylbenzene	mg/kg					<0.002	<0.02	<0.002
	ug/l					<1	<10	<1

LEACHATE

Site Area(s) selected:Whole Site
Event(s) selected:All events

Barton Park

WATER

Site Area(s) selected:Whole Site
Event(s) selected:All events

QA Standard **Aquifer: N/A**

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS04		WS05A
					Response Zone Depth (m bgl)	1.0-1.2	1.4-1.7	0.4-0.5
					Sample Date	20/02/24	21/02/24	21/02/24
Toluene-d8 Surrogate	%					94.1	96.6	95.9

WATER

Site Area(s) selected:Whole Site
Event(s) selected:All events

Aliphatics and Aromatics

Aquifer: RT

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS06A	WS07
					Response Zone Depth (m bgl)	1.5-3.0	2.0-4.0
					Sample Date	08/03/24	08/03/24
Aliphatic C05-C06	ug/l	10.0				<10	<10
Aliphatic C06-C08	ug/l	10.0				<10	<10
Aliphatic C08-C10	ug/l	10.0				<10	<10
Aliphatic C10-C12	ug/l	10.0				<10	<10
Aliphatic C12-C16	ug/l	10.0				<10	<10
Aliphatic C12-C35	ug/l	10.0				<10	<10
Aliphatic C16-C21	ug/l	10.0				<10	<10
Aliphatic C16-C35	ug/l	10.0				<10	<10
Aliphatic C21-C35	ug/l	10.0				<10	<10
Aromatic C06-C07	ug/l	10.0	CL:AIRE 2017	10.0		<10	<10
Aromatic C07-C08	ug/l	10.0	CL:AIRE 2017	74.0		<10	<10
Aromatic C08-C10	ug/l	10.0	CL:AIRE 2017	20.0		<10	<10
Aromatic C10-C12	ug/l	10.0	CL:AIRE 2017	2.00		<10	<10
Aromatic C12-C16	ug/l	10.0	CL:AIRE 2017	2.00		<10	<10
Aromatic C12-C35	ug/l	10.0				<10	<10
Aromatic C16-C21	ug/l	10.0	CL:AIRE 2017	0.10		<10	<10
Aromatic C21-C35	ug/l	10.0	CL:AIRE 2017	0.0002		<10	<10
Total Aliphatics and Aromatics (C05-C35)	ug/l	10.0				<10	<10

WATER

Site Area(s) selected:Whole Site
Event(s) selected:All events

Alkali and Alkaline Earth Metals — Aquifer: RT

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS06A	WS07
					Response Zone Depth (m bgl)	1.5-3.0	2.0-4.0
					Sample Date	08/03/24	08/03/24
Barium	ug/l	0.20				44.7	21.6
Beryllium	ug/l	0.10				<0.1	<0.1

WATER

Site Area(s) selected:Whole Site
Event(s) selected:All events

BTEX and Fuel Additives — Aquifer: RT

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS06A	WS07
					Response Zone Depth (m bgl)	1.5-3.0	2.0-4.0
					Sample Date	08/03/24	08/03/24
1,2,4-Trimethylbenzene	ug/l	1.00				<1	<1
1,3,5-Trimethylbenzene	ug/l	1.00				<1	<1
Benzene	ug/l	1.00	EQS 2015	10.0		<1	<1
Ethylbenzene	ug/l	1.00	Proposed EQS	20.0		<1	<1
Methyl t-butylether (MTBE)	ug/l	1.00				<1	<1
TAME	ug/l	1.00				<1	<1
Toluene	ug/l	1.00	EQS 2015	74.0		<1	<1
Xylene	ug/l	2.00	CL:AIRE 2017	30.0		<2	<2
Xylene - Total (Summed)	ug/l	-999				1	1
Xylene-m & p	ug/l	1.00				<1	<1
Xylene-o	ug/l	1.00				<1	<1

WATER

Site Area(s) selected:Whole Site
Event(s) selected:All events

Chlorinated Aliphatics — Aquifer: RT

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS06A	WS07
					Response Zone Depth (m bgl)	1.5-3.0	2.0-4.0
					Sample Date	08/03/24	08/03/24
1,1,1,2-Tetrachloroethane	ug/l	1.00				<1	<1
1,1,1-Trichloroethane	ug/l	1.00				<1	<1
1,1,2,2-Tetrachloroethane	ug/l	1.00				<1	<1
1,1,2-Trichloroethane	ug/l	1.00				<1	<1
1,1-Dichloroethane	ug/l	1.00				<1	<1
1,1-Dichloroethene	ug/l	1.00				<1	<1
1,1-Dichloropropene	ug/l	1.00				<1	<1
1,2,3-Trichloropropane	ug/l	1.00				<1	<1
1,2-Dichloroethane	ug/l	1.00	EQS 2015	10.0		<1	<1
1,2-Dichloropropane	ug/l	1.00				<1	<1
1,3-Dichloropropane	ug/l	1.00				<1	<1
2,2-Dichloropropane	ug/l	1.00				<1	<1
Carbon tetrachloride	ug/l	1.00	EQS 2015	12.0		<1	<1
Chloroethane	ug/l	1.00				<1	<1
Chloroform	ug/l	1.00	EQS 2015	2.50		<1	<1
Chloromethane	ug/l	1.00				<1	<1
Cis 1,2-Dichloroethene	ug/l	1.00				<1	<1
Cis 1,3-Dichloropropene	ug/l	1.00				<1	<1
Dichloromethane	ug/l	3.00	EQS 2015	20.0		<3	<3
Hexachlorobutadiene	ug/l	1.00	EQS 2015 MAC	0.60		<1	<1

WATER

Site Area(s) selected:Whole Site
Event(s) selected:All events

Chlorinated Aliphatics — Aquifer: RT

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS06A	WS07
					Response Zone Depth (m bgl)	1.5-3.0	2.0-4.0
					Sample Date	08/03/24	08/03/24
Hexachloroethane	ug/l	4.00 - 10.0				<10	<4
PCE	ug/l	1.00	EQS 2015	10.0		<1	<1
Trans-1,2-Dichloroethene	ug/l	1.00				<1	<1
Trans-1,3-Dichloropropene	ug/l	1.00				<1	<1
Trichloroethene (TCE)	ug/l	1.00	EQS 2015	10.0		<1	<1
Vinyl chloride	ug/l	1.00				<1	<1

WATER

Site Area(s) selected:Whole Site
Event(s) selected:All events

Chlorinated Aromatics — Aquifer: RT

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS06A	WS07
					Response Zone Depth (m bgl)	1.5-3.0	2.0-4.0
					Sample Date	08/03/24	08/03/24
1,2,3-Trichlorobenzene	ug/l	1.00				<1	<1
1,2,4-Trichlorobenzene	ug/l	1.00				<1	<1
1,2-Dichlorobenzene	ug/l	1.00				<1	<1
1,3,5-Trichlorobenzene	ug/l	1.00				<1	<1
1,3-Dichlorobenzene	ug/l	1.00				<1	<1
1,4-Dichlorobenzene	ug/l	1.00				<1	<1
2-Chlorotoluene	ug/l	1.00				<1	<1
4-Chlorotoluene	ug/l	1.00				<1	<1
Chlorobenzene	ug/l	1.00				<1	<1
Hexachlorobenzene	ug/l	4.00 - 10.0	EQS 2015 MAC	0.050		<10	<4

WATER

Site Area(s) selected:Whole Site
Event(s) selected:All events

Chlorinated Phenols — Aquifer: RT

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID: WS06A	PointID: WS07
					Response Zone Depth (m bgl): 1.5-3.0	Response Zone Depth (m bgl): 2.0-4.0
					Sample Date: 08/03/24	Sample Date: 08/03/24
2,4,5-Trichlorophenol	ug/l	4.00 - 10.0			<10	<4
2,4,6-Trichlorophenol	ug/l	4.00 - 10.0			<10	<4
2,4-Dichlorophenol	ug/l	4.00 - 10.0	EQS 2015	4.20	<10	<4
2-Chlorophenol	ug/l	4.00 - 10.0			<10	<4
4-Chloro-3-Methlphenol	ug/l	4.00 - 10.0			<10	<4
Chlorophenols - Total (Summed Isomers)	ug/l	-999			10	4

WATER

Site Area(s) selected:Whole Site
Event(s) selected:All events

Dioxins and Furans — Aquifer: RT

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS06A	WS07
					Response Zone Depth (m bgl)	1.5-3.0	2.0-4.0
					Sample Date	08/03/24	08/03/24
Dibenzofuran	ug/l	4.00 - 10.0				<10	<4

WATER

Site Area(s) selected:Whole Site
Event(s) selected:All events

Dyes — Aquifer: RT

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS06A	WS07
					Response Zone Depth (m bgl)	1.5-3.0	2.0-4.0
					Sample Date	08/03/24	08/03/24
3-Nitroaniline	ug/l	4.00 - 10.0				<10	<4
4-Nitroaniline	ug/l	4.00 - 10.0				<10	<4

WATER

Site Area(s) selected:Whole Site
Event(s) selected:All events

Explosives — Aquifer: RT

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS06A	WS07
					Response Zone Depth (m bgl)	1.5-3.0	2.0-4.0
					Sample Date	08/03/24	08/03/24
2,4-Dinitrotoluene	ug/l	4.00 - 10.0				<10	<4
2,6-Dinitrotoluene	ug/l	4.00 - 10.0				<10	<4

WATER

Site Area(s) selected:Whole Site
Event(s) selected:All events

Halogonated Hydrocarbons — Aquifer: RT

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS06A	WS07
					Response Zone Depth (m bgl)	1.5-3.0	2.0-4.0
					Sample Date	08/03/24	08/03/24
1,2-Dibromo-3-Chloropropane	ug/l	1.00				<1	<1
1,2-Dibromoethane	ug/l	1.00				<1	<1
Bromobenzene	ug/l	1.00				<1	<1
Bromochloromethane	ug/l	1.00				<1	<1
Bromodichloromethane	ug/l	1.00				<1	<1
Bromoform	ug/l	1.00				<1	<1.5
Bromomethane	ug/l	1.00				<1	<1
Dibromochloromethane	ug/l	1.00				<1	<1
Dibromomethane	ug/l	1.00				<1	<1
Dichlorodifluoromethane	ug/l	1.00				<1	<1
Trichlorofluoromethane	ug/l	1.00				<1	<1

WATER

Site Area(s) selected:Whole Site
Event(s) selected:All events

INSITU — Aquifer: RT

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID: WS06A	PointID: WS07
					Response Zone Depth (m bgl): 1.5-3.0	Response Zone Depth (m bgl): 2.0-4.0
					Sample Date: 08/03/24	Sample Date: 08/03/24
Dissolved Oxygen	mg/l				0.99	3.47
Electrical Conductivity	uS/cm				951	506
pH	pH Units		EQS 2015	6.00 / 9.00	7.04	7.31
Redox Potential	mV				145	139
Temperature	DegC				10.4	10.9

WATER

Site Area(s) selected:Whole Site
Event(s) selected:All events

Ketones — Aquifer: RT

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS06A	WS07
					Response Zone Depth (m bgl)	1.5-3.0	2.0-4.0
					Sample Date	08/03/24	08/03/24
Isophorone	ug/l	4.00 - 10.0				<10	<4

WATER

Site Area(s) selected:Whole Site
Event(s) selected:All events

Metals — Aquifer: RT

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS06A	WS07
					Response Zone Depth (m bgl)	1.5-3.0	2.0-4.0
					Sample Date	08/03/24	08/03/24
Arsenic	ug/l	0.50	EQS 2015	50.0		5.4	<0.5
Boron	ug/l	10.0				168	34.4
Cadmium	ug/l	0.080	EQS 2015	0.080		<0.08	<0.08
Chromium	ug/l	1.00	EQS 2015	4.70		<1	<1
Copper	ug/l	0.30	EQS 2015 - Bioavailable	1.00		1.18	0.901
Hexavalent Chromium	ug/l	30.0	EQS 2015	3.40		<30	<30
Lead	ug/l	0.20	EQS 2015 - Bioavailable	1.20		0.567	<0.2
Mercury	ug/l	0.010	EQS 2015 MAC	0.070		<0.01	<0.01
Nickel	ug/l	0.40	EQS 2015 - Bioavailable	4.00		14.3	1.33
Selenium	ug/l	1.00				<1	<1
Vanadium	ug/l	1.00				<1	<1
Zinc	ug/l	1.00	EQS 2015 - Bioavailable	10.9		21.3	13.7

WATER

Site Area(s) selected:Whole Site
Event(s) selected:All events

Other — Aquifer: RT

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS06A	WS07
					Response Zone Depth (m bgl)	1.5-3.0	2.0-4.0
					Sample Date	08/03/24	08/03/24
2-Chloronaphthalene	ug/l	4.00 - 10.0				<10	<4
4-Bromophenylphenyl ether	ug/l	4.00 - 10.0				<10	<4
4-Chloroaniline	ug/l	4.00 - 10.0				<10	<4
4-Chlorophenyl phenyl ether	ug/l	4.00 - 10.0				<10	<4
Azobenzene	ug/l	4.00 - 10.0				<10	<4
Bis (2-chloroethoxy) methane	ug/l	4.00 - 10.0				<10	<4
Bis (2-chloroethyl) ether	ug/l	4.00 - 10.0				<10	<4
Carbazole	ug/l	4.00 - 10.0				<10	<4
Carbon Disulphide	ug/l	1.00				<1	<1
Nitrobenzene	ug/l	4.00 - 10.0				<10	<4
n-Nitrosodi-n-Propylamine	ug/l	4.00 - 10.0				<10	<4
Styrene	ug/l	1.00				<1	<1

WATER

Site Area(s) selected:Whole Site
Event(s) selected:All events

PAHs — Aquifer: RT

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS06A	WS07
					Response Zone Depth (m bgl)	1.5-3.0	2.0-4.0
					Sample Date	08/03/24	08/03/24
2-Methylnaphthalene	ug/l	4.00 - 10.0				<10	<4
Acenaphthene	ug/l	4.00 - 10.0				<10	<4
Acenaphthylene	ug/l	4.00 - 10.0				<10	<4
Anthracene	ug/l	4.00 - 10.0	EQS 2015	0.10		<10	<4
Benzo (a) anthracene	ug/l	4.00 - 10.0				<10	<4
Benzo (a) pyrene	ug/l	4.00 - 10.0	EQS 2015	0.0002		<10	<4
Benzo (b) fluoranthene	ug/l	4.00 - 10.0				<10	<4
Benzo (ghi) perylene	ug/l	4.00 - 10.0				<10	<4
Benzo (k) fluoranthene	ug/l	4.00 - 10.0				<10	<4
Chrysene	ug/l	4.00 - 10.0				<10	<4
Dibenzo (ah) anthracene	ug/l	4.00 - 10.0				<10	<4
Fluoranthene	ug/l	4.00 - 10.0	EQS 2015	0.006		<10	<4
Fluorene	ug/l	4.00 - 10.0				<10	<4
Indeno (1,2,3-cd) pyrene	ug/l	4.00 - 10.0				<10	<4
Naphthalene	ug/l	1.00	EQS 2015	2.00		<1	<1
PAH (Total)	ug/l	0.082 - 0.16				6.2	0.508
Phenanthrene	ug/l	4.00 - 10.0				<10	<4
Pyrene	ug/l	4.00 - 10.0				<10	<4

WATER

Site Area(s) selected:Whole Site
Event(s) selected:All events

Pesticides, Herbicides and Insecticides — Aquifer: RT

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS06A	WS07
					Response Zone Depth (m bgl)	1.5-3.0	2.0-4.0
					Sample Date	08/03/24	08/03/24
Hexachlorocyclopentadiene	ug/l	4.00 - 10.0				<10	<4
Pentachlorophenol	ug/l	4.00 - 10.0	EQS 2015	0.40		<10	<4

WATER

Site Area(s) selected:Whole Site
Event(s) selected:All events

Pharmaceuticals — Aquifer: RT

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS06A	WS07
					Response Zone Depth (m bgl)	1.5-3.0	2.0-4.0
					Sample Date	08/03/24	08/03/24
2-Nitroaniline	ug/l	4.00 - 10.0				<10	<4

WATER

Site Area(s) selected:Whole Site
Event(s) selected:All events

Phenols — Aquifer: RT

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS06A	WS07
					Response Zone Depth (m bgl)	1.5-3.0	2.0-4.0
					Sample Date	08/03/24	08/03/24
2,4-Dimethylphenol	ug/l	4.00 - 10.0				<10	<4
2-Methylphenol (o-Cresol)	ug/l	4.00 - 10.0				<10	<4
2-Nitrophenol	ug/l	4.00 - 10.0				<10	<4
4-Methylphenol	ug/l	4.00 - 10.0				<10	<4
4-Nitrophenol	ug/l	4.00 - 10.0				<10	<4
Cresols	ug/l	6.00				<6	<6
Methylphenols Total (Summed	ug/l	-999				10	4
Phenol	ug/l	2.00	EQS 2015	7.70		<2	<2
Phenol (Monohydric)	ug/l	16.0				<16	<16
Xylenols	ug/l	8.00				<8	<8

WATER

Site Area(s) selected:Whole Site
Event(s) selected:All events

Phthalates — Aquifer: RT

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS06A	WS07
					Response Zone Depth (m bgl)	1.5-3.0	2.0-4.0
					Sample Date	08/03/24	08/03/24
Bis (2-ethylhexyl) phthalate	ug/l	8.00 - 20.0	EQS 2015	1.30		<20	<8
Butyl benzyl phthalate	ug/l	4.00 - 10.0	EQS 2015	7.50		<10	<4
Diethyl phthalate	ug/l	4.00 - 10.0				<10	<4
Dimethyl phthalate	ug/l	4.00 - 10.0				<10	<4
Di-n-butyl phthalate	ug/l	4.00 - 10.0				<10	<4
Di-n-octyl phthalate	ug/l	20.0 - 50.0				<50	<20

WATER

Site Area(s) selected:Whole Site
Event(s) selected:All events

QA Standard **Aquifer: RT**

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS06A	WS07
					Response Zone Depth (m bgl)	1.5-3.0	2.0-4.0
					Sample Date	08/03/24	08/03/24
4-Bromofluorobenzene	%					95.3	100
Dibromofluoromethane	%					106	103
Toluene-d8 Surrogate	%					99.8	103

WATER

Site Area(s) selected:Whole Site
Event(s) selected:All events

TPH/EPH

Aquifer: RT

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS06A	WS07
					Response Zone Depth (m bgl)	1.5-3.0	2.0-4.0
					Sample Date	08/03/24	08/03/24
GRO Surrogate	%					110	106
PRO (C5-C12)	ug/l	50.0				<50	<50

WATER

Site Area(s) selected:Whole Site
Event(s) selected:All events

VOCs — Aquifer: RT

Result > Assessment Criteria

Limit of detection > Assessment Criteria

Analyte	Units	LOD	Reference	GAC	PointID	WS06A	WS07
					Response Zone Depth (m bgl)	1.5-3.0	2.0-4.0
					Sample Date	08/03/24	08/03/24
4-Isopropyltoluene	ug/l	1.00				<1	<1
iso-Propylbenzene	ug/l	1.00				<1	<1
n-Butylbenzene	ug/l	1.00				<1	<1
n-Propylbenzene	ug/l	1.00				<1	<1
Sec-Butylbenzene	ug/l	1.00				<1	<1
Tert-Butylbenzene	ug/l	1.00				<1	<1

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