



**EARTH ENVIRONMENTAL
& GEOTECHNICAL**
A Technics Group Company

Geo-Environmental Site Investigation Report

42 Ladybarn Road

Manchester

M14 6WW

Report Ref: B4971/25/SI

June 2025

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**GEO-ENVIRONMENTAL
SITE INVESTIGATION REPORT**

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JUNE 2025

Prepared on Behalf of:

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Version B.0

Date: 13th June 2025

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Definition of Version Code:

- D. Applied during initial drafting of the report before it has been reviewed.
- C. Applied after the report has been reviewed but before it has been approved by the Project Manager.
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- A. Applied to reports after external/internal review.

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1.0 EXECUTIVE SUMMARY

Appointment	A Geo-Environmental Investigation has been commissioned to examine ground conditions and retrieve soil samples for geotechnical and chemical testing for a proposed development in Manchester.
The Site	Site is located off Ladybarn Road in Manchester, NGR 385668 393837, postcode M14 6WW. Site is underlain by Glacial Till deposits overlying the Chester Formation (sandstone).
Environmental Considerations	<u>On Site</u> : 4 surface ground working records, 1 soil chemistry record, 9 historical industrial uses. <u>Within 250m of Site</u> : 34 surface ground workings, 87 historical industrial land uses, 8 historical energy features, 11 historical garages, 26 historical railway features, 6 recent industrial land uses, 5 potentially infilled land features, 8 waste exemptions.
Site History	Site was occupied by small buildings in 1891 and has remained largely unchanged until present day.
The Investigation	The investigation comprised window sample boreholes with associated sampling and in situ testing, laboratory geotechnical and contamination testing.
Ground Conditions Encountered	The exploratory holes encountered Variable Made Ground (up to 1.0m thickness) overlying soft to firm becoming stiff to very stiff sandy/gravelly clay. Groundwater was not encountered in any of the exploratory holes.
Foundation Assessment	Strip/pad foundations suitable. Design Sulphate Class for the site = DS-1 ACEC site classification = AC-1s. Design CBR = 2% (cohesive stratal), 5% (granular strata).
Soil Contamination Risk Assessment	Low potential risk from soil contamination to workers during construction. Low potential risk to future site users (providing no soft landscaped areas). Remediation of soils not required.
Soil Waste Assessment	All samples tested (5 nr) are classified as Non-Hazardous.
Land Gas Risk Assessment	Radon/Land Gas protection measures not required on site.
<i>This sheet is intended to provide a summary only of the report. It does not provide a definitive engineering analysis for the purposes of costing or construction and is subject to the limitation of the agreed brief.</i>	

2.0 INTRODUCTION

2.1 Background

A Geo-Environmental Site Investigation has been commissioned by Mode Architects, acting on behalf of Mr Dan Strain (the 'Client'), to examine ground conditions and retrieve soil samples for geotechnical and chemical testing for a proposed development in Manchester.

2.2 Terms of Reference

Earth Environmental and Geotechnical (Southern) Ltd (EEGSL) was commissioned by the Client to undertake a Geo-Environmental Site Investigation of the site in accordance with proposal 4971 dated 8th May 2025.

The objectives of this investigation are as follows:

- *Assessment of ground conditions for design of foundations and infrastructure associated with proposed development.*
- *Assess the presence and likely extent of any potential environmental hazards associated within the areas of the site investigated.*

2.3 Report References

Information supplied by the Mode Architects is as follows:

- Sladen Associates 'Phase 1 Geo-Environmental Report – Proposed Conversion and Extensions 42 Ladybarn Road Manchester, reference 24 2669, dated March 2024.

2.4 Report Scope

This report presents full factual records of the site work carried out, the ground conditions encountered in the exploratory holes, the in situ and laboratory test results. All information collected has been used to provide an interpretation of the ground conditions, with recommendations on geotechnical design and potential ground contamination risks for the proposed development.

For the purposes of this report the relevant information from the previous investigation will be included in the following sections.

2.5 Limitations of the Study

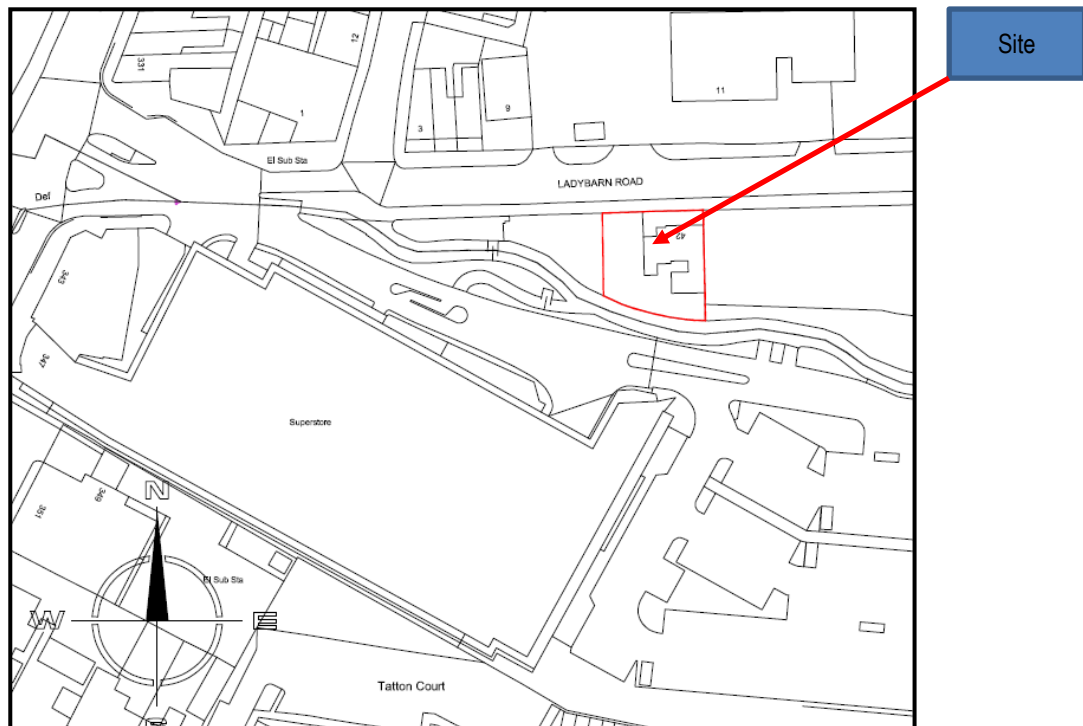
The report is written in the context of an agreed scope of work and budget and should not be used in a different context. New information, improved practices or changes in legislation may require a reinterpretation of the report in whole or in part. EEGSL reserve the right to amend either conclusions or recommendations in light of any further information that may become available. The report is provided for the sole use by the client and is confidential to them. Recommendations within this report are also based on exploratory records and examination of samples and, where applicable, laboratory tests. No liability can be accepted for conditions not revealed by the boreholes and trial pits, particularly at intervening locations. Whilst every effort is made to ensure accuracy of data supplied, all opinions expressed as to the spatial distribution of strata between sampling locations is for guidance only and no responsibility is accepted as to its accuracy.

3.0 THE SITE

3.1 Site Location & Description

The site is located immediately to the south of Ladybarn Road, approximately 4.5km to the south-east of Manchester city centre at approximate National Grid Reference 385668 393837, and with a postcode of M14 6WW. The site and surrounding area are shown in Figure 1 below.

Figure 1 – Site Location Plan



The site is located within an urban setting with a mixture of industrial, commercial and residential properties surrounding the site in all directions. The site is approximately 0.06ha and occupies a parcel of land which is irregular in shape.

The boundaries of the site can be described as follows:

Table 1 – Summary of Site Boundaries

Boundary	Security/Barrier	Adjacent Land Use
North	Brick wall / locked gate	Ladybarn Road with builders yard beyond.
East	Party wall	Timber yard
West	Hedgerow	Access road to supermarket
South	Retaining wall	Supermarket

The supermarket to the south is at a considerably lower elevation to the site with a retaining wall separating the two sites.

The area surrounding the site is slopes gently to the west.

The site is accessed directly off Ladybarn Road to the north.

Figure 2 below shows an aerial photograph of the site and surrounding area.

Figure 2 - Aerial Photograph of Site



General site photographs are presented in Figure 3 below.

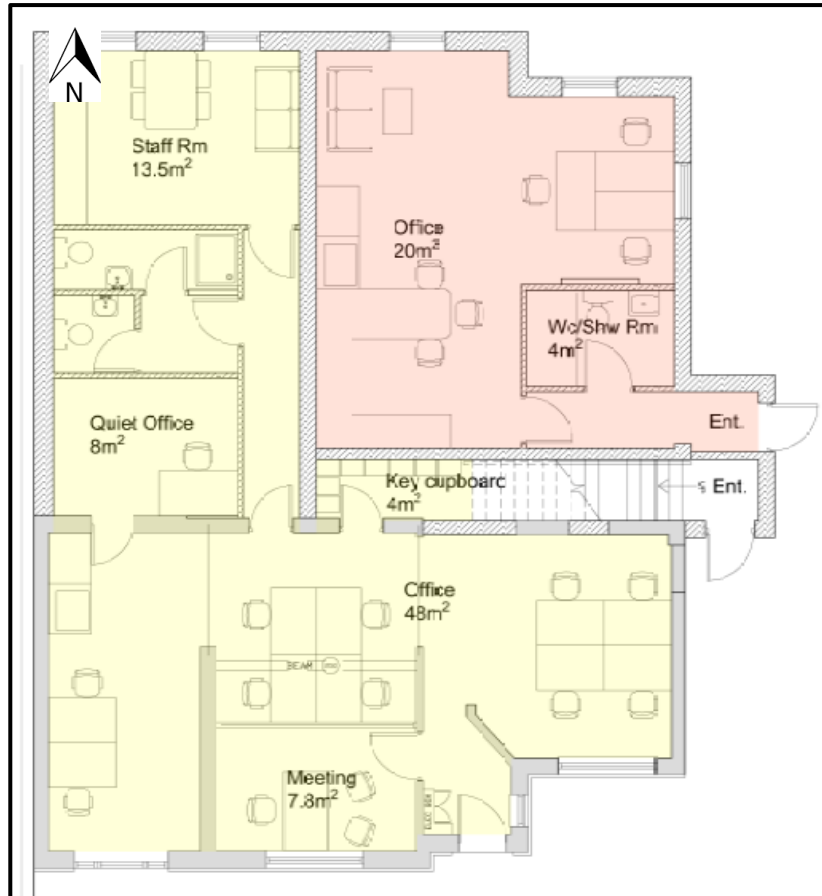
Figure 3 – General Site Photographs



3.2 Proposed Development

The proposed development comprises the redevelopment of the site for residential use with renovations and extensions to the existing building. The site will be completely covered in hardstanding. The proposed development plan can be seen in Figure 4 below.

Figure 4 – Proposed Development Details (Ground Floor)



4.0 REVIEW OF DESK STUDY INFORMATION

4.1 General

The following section are based on a review of the information included in the Sladen Associates Phase 1 Geo-Environmental Report, for the site (reference 24 2669, March 2024).

The following sections are generally limited to locations within 250m of the site boundary unless it is considered that installation or activities beyond that range could potentially have an impact on the site or be affected by the redevelopment of the site.

4.2 Geological Setting

4.2.1 Geology

The Groundsure Report and British Geological Survey (BGS) information indicates that the site is directly underlain by superficial deposits of Glacial Till overlying the Chester Formation of Triassic age.

Glacial Till is described as diamicton. This is a type of siliciclastic sediment and sedimentary rock. Sediments that are poorly sorted and contain a wide range of clast sizes can be given this root name. The strict descriptive definition relates to range of particle size and not to relative abundance of any or all size classes. These sediment types therefore traverse the boundary of siliciclastic rudaceous, arenaceous and argillaceous sediments. This is the unconsolidated equivalent of diamictite.

The Chester Formation is described as red-brown, very fine to medium-grained, commonly micaceous sandstones, which are generally cross-bedded, with some parallel lamination; mudstone clasts are locally common and subordinate thin beds of greenish grey sandstone occur. The formation has subordinate lenticular beds of reddish brown mudstone or siltstone throughout.

No geological faults are noted within 250m of the site.

There is a single historical BGS borehole record located 124m west of the site (BGS ref: SJ89SE8). The geological sequence is as follows:

0.00-0.30mbgl:	Topsoil.
0.30-4.27mbgl:	CLAY.
4.27-7.62mbgl:	SAND.
7.62-11.28mbgl:	SANDSTONE.

4.2.2 Natural Ground Subsidence

The site is located in an area where the hazard ratings for ground stability are as follows:

Shrink Swell Clays	Very Low
Running Sands	Low
Compressible Deposits	Negligible
Collapsible Deposits	Very Low
Landslides	Very Low
Ground Dissolution of Soluble Rocks	Negligible

4.2.3 Mining, Ground Workings and Natural Cavities

There are 38 records of surface ground workings located within 250m of the site boundary. Four of which are located on site, noted to be cuttings on historical mapping between 1955 and 1989. Off site surface ground workings include cuttings, ground workings, pits and heaps.

There are no underground workings, coal mining records, non-coal mining records or BritPits records within 250m of the assessment site.

The assessment site is not located within gypsum, tin, brine or clay mining areas.

4.2.4 Radon Potential

According to the he Radon Indicative Atlas the site is located within an area where less than 1% of properties are above the action level for radon protection. Therefore, radon protection measures are not required.

4.2.5 Soil Chemistry

There is a single estimated soil chemistry record on site, the results of the onsite records are shown in Table 2 below.

Table 2 – Soil Chemistry Records

Location	Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	15-25mg/kg	100-200mg/kg	60-120mg/kg	1.8 mg/kg	60-90 mg/kg	30-45 mg/kg

All the above chemicals: (arsenic, lead cadmium, chromium, nickel) have estimated concentrations on site that are below the recognised screening levels based on Defra C4SL Health Criteria Values^(March 2014) and LQM/CIEH Suitable 4 Use Levels⁽²⁰¹⁵⁾ for the relevant residential setting as shown in Table 3 below.

Table 3 – Soil Screening Levels

Determinand	C4SL/S4UL Levels (mg/kg)*
	Residential without Plant Uptake
Arsenic	40
Cadmium	149
Chromium	910
Lead	310
Nickel	180

4.2.6 Hydrogeology and Hydrology

The Glacial Till is classified by the Environment Agency (EA) as a Secondary Undifferentiated Aquifer. This is assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and nonaquifer. in different locations due to the variable characteristics of the rock type.

The Chester Formation is classified by the Environment Agency (EA) as a Principal Aquifer. This is geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers.

There are no groundwater, potable or surface water abstractions within 250m of the site.

The superficial aquifer had been classed as having a low vulnerability rating with a mixed flow mechanism.

The bedrock aquifer has been classed as having a low vulnerability rating with a mixed mechanism.

Fallowfield Brook is noted to be 42m north of the site. This is recorded as an inland river not influenced by normal tidal action.

There are no records from the EA on River Quality within 1.5km of the site.

4.3 Environmental Setting

4.3.1 Industrial Land Use Information

Historical and current industrial land usage on-site and within 250m of the site is summarised in Table 4 below.

Table 4 - Summary of Industrial Land Use

Description	On-Site	Records within 250m of site	Details of nearest Record
Historical Industrial Land Uses	9	87	<u>On Site</u> : Nurseries, Goods Yards & Cuttings (1905-1989) <u>Nearest off-site</u> : 3m SE Cuttings (1938)
Historical Tanks	0	0	-
Historical Energy Features	0	8	<u>Nearest off-site</u> : 36m W Electricity Substation (1996)
Historical Petrol Station	0	0	-
Historical Garage	0	11	<u>Nearest off-site</u> : 74m SW Garage (1957)
Historical Military Land	0	0	-
Historical Railway and Tunnel Features	0	26	<u>Nearest off-site</u> : 5m SE Railway (1907)
Historical Railways	0	3	<u>Nearest off-site</u> : 19m S Dismantled Railway
Recent Industrial Land Use	0	6	<u>Nearest off-site</u> : 32m NE HSS Hire.
Current/Recent Petrol Stations	0	0	-
Electricity Cables	0	0	-
Gas Pipelines	0	0	-
Current Railway Features	0	0	-

4.3.2 Waste and Landfill Sites

There are 5 records of potentially infilled features within 250m of the site based on historical mapping. The nearest is located 59m south of the site.

Neither active nor historical landfill sites are noted within 250m of the site. No waste sites are located within 250m of the site. No other waste treatment, transfer or disposal sites, or other waste sites are noted within 250m of the site boundary. 8 waste exemptions are noted within 250m of the site. The nearest is located 185m east of the site at 5 Ladybarn Lane relating to sorting and de-naturing of controlled drugs for disposal.

4.3.3 Environmental Permits, Incidents and Registers

There are no records of environmental permits, incidents and registers within 250m of the site.

4.3.4 Potential Flood Risks

Reference to Environment Agency records indicates that

- The site is located within a Zone 2 and Zone 3 floodplain.
- The site is not located within an area at risk of flooding from rivers and sea (RoFRaS).
- The BGS consider the site to be in an area at high risk of surface flooding from groundwater.
- The highest risk of surface water flooding on site is 1 in 30 years.

The site does not benefit from Environment Agency flood defences.

4.3.5 Environmentally Sensitive Sites

There are no records of sites of special scientific interest, conserved wetland sites, special areas of conservation, special protection areas, local or national nature reserves, or designated ancient woodlands within 250m of the assessment site. The site is not located in a nitrate sensitive area or in a nitrate vulnerable zone.

It should be noted that an ecological assessment of the site falls outside the brief of this report and that an ecological specialist should be consulted in this regard.

4.3.6 Visual and Cultural Designations

There are 4 records of listed buildings within 250m of the site with the nearest being Norton Place located 189m south-west of the site.

4.4 Site History

The historical development of the site has been determined by reference to historical plans and Google Earth imagery. The reviewed historical plans comprise only readily available records and may be limited; however, the information available to date indicates that additional searches are unlikely to add to our understanding of the site. The earliest available historical mapping covering the site is from 1848. The site history is summarised in Table 5 overleaf.

Table 5 - Summary of Site History

Date	Site	Surrounding Land Use (Within 250m of Site)
1891	A building is noted in the eastern area of the site, assumed to be a station house. A small outbuilding is also noted in the south of the site. A cutting is noted to encroach the site area in the south-east.	Ladybarn Road is noted adjacent to the north of the site. To the south of the site, the Fallowfield Loop railway line passed in cutting roughly E-W and the Fallowfield Station is shown just to the south-west with associated sidings and a goods shed. The surrounding area is largely residential, although the land adjacent to the west and east of the site is undeveloped.
1907	No significant change.	Nursery adjacent to the east of the site. No other significant changes.
1922-1932	No significant change.	An arm of the Thirlmere Aqueduct is noted to have been constructed along the route of Ladybarn Road. No other significant changes.
1956	No significant change.	A number of residential properties are noted on the land adjacent to the west of the site. The land to adjacent to the east, where the former nurseries were located is shown to feature a depot at the eastern end. No other significant changes.
1978	No significant change.	The buildings associated with the railway are no longer present.
1992	No significant change.	A timber yard now occupies the area adjacent to the east of the site. The railway is no longer present. No other significant changes.
2003	No significant change.	A supermarket now occupies the area to the south. Buildings to the west of the site have been demolished. No other significant changes.
Google Earth Imagery, 2000	Aerial photography dated at 2000 shows the onsite building and a hard covered yard area which appears to have been used for storage and vehicle parking until relatively recently. The storage garage to the south of the original building is also shown on the aerial photographs.	The supermarket to the south is shown to have been present in the 2000 aerial photography. Other land uses surrounding the site are not dissimilar to that of the 2003 historical mapping.

5.0 PRELIMINARY CONTAMINATION RISK ASSESSMENT

5.1 Introduction

The following paragraphs outline a Preliminary Risk Assessment (PRA) for the site based on the above desk study information as defined by DEFRA and the EA Model Procedures for the Land Contamination Risk Management (LCRM)⁽²⁰²⁰⁾.

Table 8 provides a Preliminary Conceptual Model (PCM) which considers the source-pathway-receptor linkages present alongside the likelihood, severity and risk level as defined within Table 6 and Table 7 below. The assessment of probability, a modified risk table, and certain consequence definitions are based on CIRIA C552 and LCRM.

Table 5 considers whether a pollution linkage is potentially present and provides a preliminary qualitative assessment of risk based on the information currently available. Where a possible linkage is identified, it does not necessarily mean that a significant risk exists but indicates that further information is required through appropriate site investigation to substantiate the conceptual model.

The PCM/PRA is based on a residential end use.

Table 6 - Consequence, Probability and Risk

Probability	Consequence,	Risk
High Likelihood- There is a pollution linkage and an event either appears very likely in the short term and almost inevitable over the long term, or there is evidence at the receptor of harm or pollution	Very High – acute risk to the human health likely to result in significant harm. Risk of severe or irreversible effect on ground/surface water quality. Catastrophic damage to buildings / property.	Very High – there is a high potential that the source-pathway-receptor scenarios may give rise to harm to human health or the environment and remedial action is likely to be required.
Likely – there is a pollution linkage and all the elements are present, which means that it is probable an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term.	High – Severe or irreversible effect on human health. Temporary severe or irreversible effect on ground/surface water quality. Reduction of water quality rendering groundwater or surface water unfit to drink and/or substantial adverse impact on groundwater dependant environmental receptors.	High – it is likely that the source-pathway-receptor scenarios may give rise to an impact on human health or the environment, which may require remediation and/or control measures to mitigate risks
Low likelihood– there is a pollutant linkage and circumstances are possible for an event could occur. However, it is by no means certain that even over a longer period such event would take place, and is less likely in the shorter term	Moderate – Long term or short term moderate effect on human health. Moderate effect on ground/surface water quality, reversible with time. Reduced reliability of a supply at a groundwater or surface water abstraction source	Moderate – it is possible that the source-pathway-receptor scenarios may give rise to an impact on human health or the environment, however it is either relatively unlikely that such would be severe, or if any harm were to occur it is more likely that harm would be mild.
Unlikely – there is a pollution linkage, but circumstances are such that it is doubtful that an event would occur even in the very long term.	Low – Non-permanent health effects to human health (easily prevented by means such as personal protective clothing etc.) Slight effect on ground/surface water quality, reversible with time. Marginal reduced reliability of a supply at a groundwater or surface water abstraction source.	Low – it is possible that harm could arise at the source, however it is likely that they would at worst be mild.
		Very Low – it is unlikely that the source-pathway-receptor scenarios will give rise to an impact on human health or the environment.

Table 7 - Estimation of Level of Risk by Comparison of Consequence and Probability

		Consequence			
		High	Moderate	Low	Very low
Probability	High Likelihood	Very High	High risk	Moderate risk	Moderate to low risk
	Likely	High risk	Moderate risk	Moderate to low risk	Low risk
	Low Likelihood	Moderate risk	Moderate to low risk	Low risk	Very low risk
	Unlikely	Moderate to low risk	Low risk	Very low risk	Very low risk

5.2 Potential Sources

The following potential sources have been considered for the assessment site.

- Made Ground associated with the historical development of the site.
- Historical railway infrastructure to the south of the site.
- Active Timer and builders adjacent to the site.

5.3 Potential Receptors

The following receptors have been considered as part of this assessment.

- Current land users.
- Adjacent land users.
- Future land users.
- Controlled waters
- Construction workers during site development works.

5.4 Potential Pathways

The following pathways have been considered as part of this assessment.

- Direct / dermal contact, ingestion, inhalation pathways of potentially contaminated soils.
- Vertical or lateral migration of contamination on and off site.

Table 8 - Preliminary Conceptual Model

Source	Pathway	Receptor	Probability	Consequence	Risk	Comment
Contamination of the ground beneath site due to current and historical use	Dermal contact, ingestion and inhalation of soils dust	Current Site Users	Low Likelihood	Low	Low	The risk to current site users from potential contamination within the ground beneath site is considered LOW based on a lack of historical usage/development.
		Future Site users	Low Likelihood	Low	Low	The risk to future site users via direct exposure is considered to be LOW given the lack of proposed hard cover on the site.
		Construction Workers	Unlikely	Low	Very Low	The risk to construction workers via direct exposure is considered to be VERY LOW given the lack of historical use of the site.
	Vertical or lateral migration of contamination (including ground gas) on and off site.	Current Site Users	Low Likelihood	Low	Low	Based on the lack of sources the risk to current users from migrating contamination at the assessment site is considered as LOW .
		Adjacent land users	Unlikely	Low	Very Low	The risk to adjacent site users from migrating contamination at the assessment site is considered VERY LOW .
		Future land users	Low Likelihood	Low	Low	Based on the lack of sources the risk to current users from migrating contamination (ground gas) at the assessment site is considered LOW .
		Controlled Waters	Low Likelihood	Low	Low	The current risk to controlled waters from contamination at the assessment site is considered LOW . There are no abstractions within 250m of the site.
		Construction Workers	Unlikely	Low	Very Low	Based on anticipated ground conditions beneath the site the risk to construction workers from migrating contamination (ground gas) at the assessment site is considered VERY LOW in the absence of monitoring information. The risk to construction workers from mobile contamination and ground gas is considered VERY LOW in the absence of ground investigation data.

5.5 Preliminary Risk Assessment

From review of historical and current day information, a building appears to have occupied the site from 1891. As a result, there is a lack of contamination sources on site or in the surrounding area which has been largely residential. The proposed development is understood to be entirely hardstanding.

Based on the above information the site has an overall risk rating of **LOW**.

6.0 SITE INVESTIGATION

6.1 Exploratory Fieldwork

The fieldwork was carried out by EEGSL on 22nd May 2025 and comprised:

- 5 No. window sample boreholes (designated WS01 to WS05 inclusive) were sunk to depths of between 0.05m and 3.70m below existing ground level. Window sampler boring is carried out with a small, track-mounted rig, which uses a chain-driven trip hammer to drive sampling tubes or penetrometers into the ground. These tools are coupled to the anvil of the hammer by solid drill rods. Sampling tubes comprise “windowless samplers”, which are plain sampler tubes in which a continuous disturbed sample is recovered within a semi-rigid plastic liner. In order to reduce friction within the borehole, sampling tubes of progressively smaller diameter are used as the borehole depth increases. Sampler diameters generally range from between approximately 90mm to 50mm. Groundwater observations were noted where possible. These observations relate to the time of the investigation only, and do not necessarily reflect seasonal or tidal fluctuations. Logsheets are included in Appendix 1. The boreholes were backfilled with arisings on completion.
- Dynamic probe tests were carried out generally in accordance with BS EN ISO 22476-2, at each WS location from ground level to depths of up to 3.9m below ground level. The results of these tests are shown in the Appendix 2. Dynamic probe tests are conducted with a window sampler type rig, which uses a chain-driven trip hammer to drive a cone-tipped, solid steel penetrometer into the ground. The “super heavy” test (DPSH) uses a 50.5mm diameter cone, and a 63.5kg hammer, falling over a distance of 750mm. The resistance of the ground to the dynamic penetration is given by the number of blows required to drive the cone over depth increments of 100mm (DPN₁₀₀).

Each exploratory location was scanned using a Cable Avoidance Tool (CAT) in order to locate unrecorded underground services, and the exploratory locations were repositioned if necessary. On completion, all samples recovered from the site were taken to a specialist laboratory for testing.

All site investigation work was supervised full time by a representative of EEGSL. The logging of soils and rocks has been carried out in accordance with BS5930⁽²⁰¹⁵⁾ except where superseded by the soil and rock description methodology in BS EN14688-1⁽²⁰⁰²⁾, BS EN 14688-2⁽²⁰⁰⁴⁾ and BS EN 14689-1⁽²⁰⁰³⁾.

A summary of exploratory holes undertaken is presented in Table 9 overleaf.

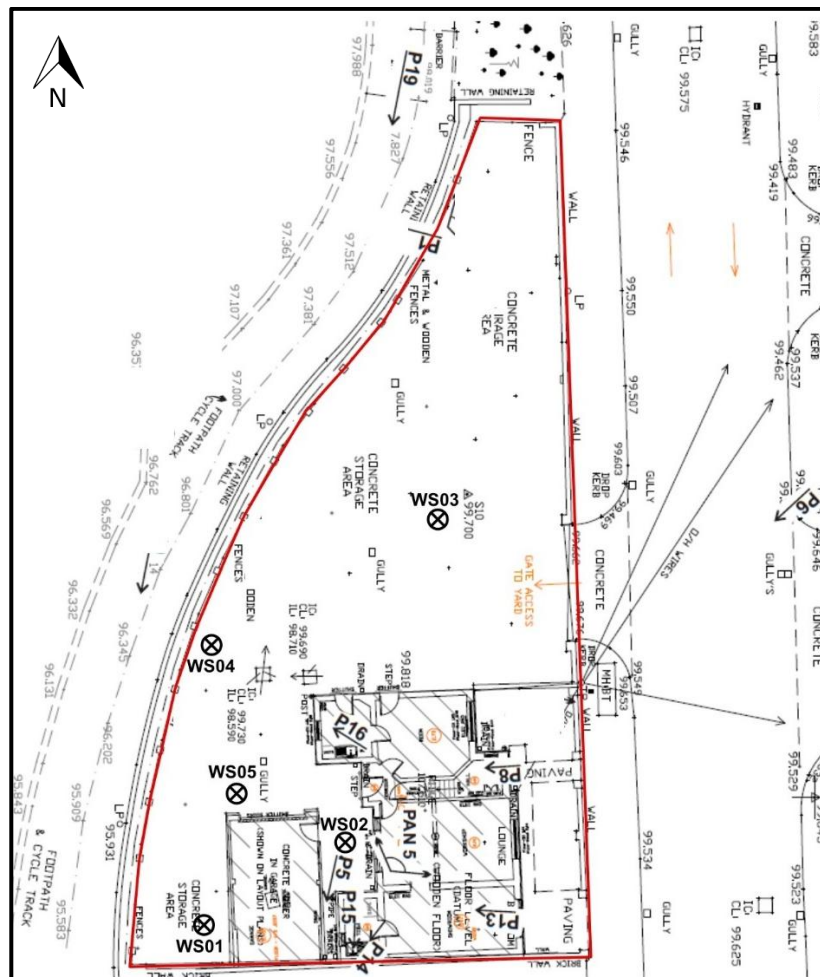
Table 9 – Summary of Exploratory Holes Undertaken

Hole	Type*	Depth (m)	Date Started	Date Finished	Location		Backfill Details**
					Easting (m)	Northing (m)	
WS01	WS	3.70	22/05/2025	22/05/2025	385685	393830	A
DPWS01	DP	3.80	22/05/2025	22/05/2025	385685	393830	-
WS02	WS	3.00	22/05/2025	22/05/2025	385683	393839	A
DPWS02	DP	3.70	22/05/2025	22/05/2025	385683	393839	-
WS03	WS	3.00	22/05/2025	22/05/2025	385664	393842	A
DPWS03	DP	3.90	22/05/2025	22/05/2025	385664	393842	-
WS04	WS	0.05	22/05/2025	22/05/2025	385670	393833	A
WS05	WS	3.00	22/05/2025	22/05/2025	385679	393833	A
DPWS05	DP	3.70	22/05/2025	22/05/2025	385679	393833	-

*WS = Window Sample, DP = Dynamic probe,
**A = Arisings

The fieldwork was carried out generally in accordance with BS 5930:2015 Code of Practice for Site Investigations, Eurocode 7, unless otherwise stated. The exploratory hole locations are shown approximately on the Exploratory Hole Location Plan below.

Figure 5 - Exploratory Hole Location Plan



6.2 Laboratory Testing Programme

6.2.1 Geotechnical Testing

A programme of laboratory testing was carried out on samples taken from the various strata to assist in classification and determine the engineering properties of the materials underlying the site. The testing was scheduled by EEGSL and carried out by GSTL. The test procedures used were generally in accordance with the methods described in BS1377:1990. Details of the specific tests used in each case are given in Table 10 below.

Table 10 - Summary of Geotechnical Laboratory Tests Undertaken

TEST	STANDARD	No.
Moisture Content	BS1377:1990 Part 2, Clause 3.2	5
Liquid Limit, Plastic Limit, Plasticity Index	BS1377:1990 Part 2, Clause 4/5	5
Sulphate content of 2:1 soil:water extract	BS1377:1990 Part 3, Clause 5	5
pH value	BS1377:1990 Part 3, Clause 9	5

The results of the laboratory geotechnical tests are included in Appendix 3.

6.2.2 Environmental Testing

The environmental chemistry of the ground was investigated by specialist chemical analysis of selected samples, scheduled by EEGSL and carried out by Envirolab.

Chemical analyses were carried out on 5 soil samples and were submitted for the following suite of determinants:

Asbestos Screen, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Selenium, Vanadium, Zinc, Cyanide, Sulphate (SO₄), Sulphide, pH, Soil Organic Matter, Phenol, speciated Total Petroleum Hydrocarbons (TPH) and speciated Polyaromatic Hydrocarbons (PAH).

The results of the laboratory contamination tests are included in Appendix 3.

The range of potentially hazardous contaminants present on the site can be wide and varied, and the suite has been chosen to reflect both commonly found contaminants and others indicated by research to have a significant risk of being present. It is, however, possible that others may exist for which analyses have not been carried out. It is also possible that contaminants exist on the site but were not present at any of the exploratory hole locations.

7.0 GROUND CONDITIONS ENCOUNTERED

7.1 Soil Profile Encountered

The sequence of strata encountered beneath the site was as follows:

- **Made Ground** – Variable Made Ground was encountered in all the exploratory holes, comprising:
 - Concrete surfacing.
 - Gravelly sand Sub-Base.
 - Sandy/gravelly clay with brick, ash, clinker, porcelain.
- **Glacial Till Deposits** were encountered in all the boreholes except WS04 and comprised:
 - Gravelly silty CLAY with chert and sandstone gravel.

The depths of the various materials encountered in each of the exploratory holes are summarised in Table 11 below.

Table 11 - Summary of Ground Conditions Encountered

Hole	Depth to Stratum (m)				GROUNDWATER
	MADE GROUND			GLACIAL TILL DEPOSITS	
	CONCRETE	Gravelly sand sub base	Sandy/gravelly clay with brick, ash, clinker, porcelain	Gravelly silty CLAY with chert and sandstone gravel	
WS01	GL-0.18	0.18-0.35	0.35-0.80	0.80-3.70	Dry
WS02	GL-0.17		0.17-0.90	0.90-3.00	Dry
WS03	GL-0.17	0.17-0.45	0.45-0.85	0.85-3.00	Dry
WS04	GL-0.05				Dry
WS05	GL-0.17	0.17-0.35	0.35-1.00	1.00-3.00	Dry

7.2 Obstructions

Underground man-made obstructions were not encountered during the investigation. WS04 was unable to penetrate strong concrete at surface.

7.3 Groundwater

Groundwater was not encountered during the investigation.

7.4 Visual / Olfactory Evidence of Contamination

Evidence of contamination encountered in the exploratory holes is as follows:

WS03 Made Ground 0.45m-0.85m faint hydrocarbon odour.

8.0 ENGINEERING PROPERTIES OF STRATA ENCOUNTERED

8.1 General

This section discusses the engineering properties of the strata encountered based on results of in situ testing and laboratory testing obtained during the investigation.

Table 12 below summarises results of laboratory testing.

Table 12 - Summary of Laboratory Geotechnical Test Results

Location	Depth (m)	Strata*	CLASSIFICATION				CHEMICAL	
			Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Water Soluble Sulphate (mg/l)	pH Value
WS01	0.40-0.60	MG					110	9.0
WS01	0.90-1.00	GTD	26.3	54	20	34	23	7.7
WS01	2.00-2.10	GTD	17.5	36	14	22	58	7.3
WS02	0.20-0.40	MG					100	9.2
WS02	0.60-0.80	MG					40	7.5
WS02	1.60-1.80	GTD	23.0	41	15	26	28	7.2
WS03	0.20-0.40	MG					110	11.3
WS03	1.00-1.10	GTD	30.5	47	21	26	<10	7.4
WS05	0.40-0.60	MG					120	9.1
WS05	1.00-1.10	GTD	25.1	45	17	28	<10	7.3

MG = Made Ground, GTD = Glacial Till Deposits

8.3 Made Ground

Laboratory tests have given values of **water soluble sulphate** in the range 40mg/l to 120mg/l, together with **pH Values** in the range 7.5 to 11.3.

8.2 Glacial Till Deposits (Clay)

Atterberg Limit tests have given values of **liquid limit** in the range 36% to 54% and **plastic limit** values in the range 14% to 21%, resulting in values of **plasticity index** in the range 22% to 34%. These results suggest the samples tested are a clay intermediate to high plasticity as shown on the Plasticity Chart included in the Appendices. For design purposes, a value of plasticity index = 28% is recommended, based on the upper quartile value of the results.

In accordance with NHBC Chapter 4.2 Building Near Trees⁽²⁰⁰³⁾ soils can be classified in terms of **volume change potential**, using the relationship:

$$I_p' = I_p \times \frac{\% \text{ less than } 425\mu\text{m}}{100\%}$$

....where I_p' = modified plasticity index, I_p = plasticity index.

Based on the laboratory test results, the above relationship and Table 1 of NHBC Chapter 4.2, the samples tested are shown to have **medium volume change potential**.

SPT N values range from 6 to >50, as can be seen from the DP results in Appendix 2. These results suggest the clay is soft to firm becoming stiff to very stiff with depth.

Details of N Value results and derived design values are summarised in Table 13 below.

Table 13 - Summary of SPT Results and Design Values (Clay)

Depth	Range of N Values	Design N value*	Shear Strength**	Coefficient of Volume Compressibility**
1.0m	6	6	29kN/m ²	0.37m ² /MN
1.5m	6-11	6	29kN/m ²	0.37m ² /MN
2.0m	7-12	11	53kN/m ²	0.20m ² /MN
2.5m	16-27	20	96kN/m ²	0.11m ² /MN
3.0m	21-40	26	125kN/m ²	0.09m ² /MN
3.5m	31->50	50	240kN/m ²	0.04m ² /MN
*based on lower quartile value.				
**based on design N Value and correlations by Stroud & Butler ⁽¹⁹⁷⁵⁾ .				

Effective stress strength parameters may also be obtained from correlations with plasticity index. For a plasticity index of 28%:

- BS8002⁽¹⁹⁹⁴⁾, Table 2 gives $\phi'_{crit} \approx 26^\circ$;
- Gibson⁽¹⁹⁵³⁾, gives $\phi_d = 26.9^\circ$.

Based on all the above, design values of $\phi' = 26^\circ$ and $c' = 0\text{kN/m}^2$ are recommended.

Laboratory tests have given values of **water soluble sulphate** in the range <10mg/l to 58mg/l, together with **pH Values** in the range 7.2 to 7.7.

9.0 GEOTECHNICAL ASSESSMENT

9.1 Proposed Development

The proposed development comprises the redevelopment of the site for residential use with renovations and extensions to the existing building. At the time of writing this report, anticipated structural loadings were not known.

9.2 Ground Conditions Encountered

The exploratory holes encountered Variable Made Ground (up to 1.0m thickness) overlying soft to firm becoming stiff to very stiff sandy/gravelly clay. Groundwater was not encountered in any of the exploratory holes.

9.3 Foundations

Based on the ground conditions encountered, conventional shallow depth strip/pad foundations will be suitable at this site, taken down a minimum 1.0m depth into the natural sandy/gravelly clay. If any Made Ground or particularly loose or soft material is encountered at foundation level it should be excavated and replaced by suitable granular fill, or the foundation extended to suitable strata.

Table 14 below summarises anticipated allowable bearing pressures for strip/pad foundations placed at different depths. The bearing capacities are calculated based on Hansen's⁽¹⁹⁷⁸⁾ method and assuming a factor of safety against bearing capacity failure of 3. Ground water is assumed to be at foundation level to provide a worse-case scenario.

Table 14 - Summary of Allowable Bearing Pressures

Foundation Depth	Strata	Design Value (Section 8)	Foundation Type	Foundation Size	Allowable Bearing Pressure
1.0m	CLAY	$c_u=29\text{kN/m}^2$	Strip	0.4m wide	75kN/m ²
				1.0m wide	65kN/m ²
			Pad	1.0m x 1.0m	80kN/m ²
				2.0m x 2.0m	70kN/m ²
1.5m	CLAY	$c_u=29\text{kN/m}^2$	Strip	0.4m wide	80kN/m ²
				1.0m wide	70kN/m ²
			Pad	1.0m x 1.0m	85kN/m ²
				2.0m x 2.0m	75kN/m ²
2.0m	CLAY	$c_u=53\text{kN/m}^2$	Strip	0.4m wide	145kN/m ²
				1.0m wide	135kN/m ²
			Pad	1.0m x 1.0m	160kN/m ²
				2.0m x 2.0m	145kN/m ²
2.5m	CLAY	$c_u=96\text{kN/m}^2$	Strip	0.4m wide	260kN/m ²
				1.0m wide	250kN/m ²
			Pad	1.0m x 1.0m	295kN/m ²
				2.0m x 2.0m	275kN/m ²

Table 15 below summarises anticipated settlements of the above foundations, using design parameters based on results in Section 8. For the purposes of the calculations, the strata within the zone of influence of the foundation is assumed the same. The structural loading has been assumed as equal to the allowable bearing pressure above to give a worst case scenario.

Table 15 - Summary of Anticipated Settlements

Foundation Depth	Strata	Foundation Type	Foundation Size	Foundation Loading	Average Settlement (mm)
1.0m	CLAY	Strip	0.4m wide	75kN/m ²	10-15
			1.0m wide	65kN/m ²	15-20
		Pad	1.0m x 1.0m	80kN/m ²	15-20
			2.0m x 2.0m	70kN/m ²	20-25
1.5m	CLAY	Strip	0.4m wide	80kN/m ²	5-10
			1.0m wide	70kN/m ²	10-15
		Pad	1.0m x 1.0m	85kN/m ²	15-20
			2.0m x 2.0m	75kN/m ²	15-20
2.0m	CLAY	Strip	0.4m wide	145kN/m ²	10-15
			1.0m wide	135kN/m ²	15-20
		Pad	1.0m x 1.0m	160kN/m ²	15-20
			2.0m x 2.0m	145kN/m ²	20-25
2.5m	CLAY	Strip	0.4m wide	260kN/m ²	10-15
			1.0m wide	250kN/m ²	15-20
		Pad	1.0m x 1.0m	295kN/m ²	20-25
			2.0m x 2.0m	275kN/m ²	25-30

Settlements for other bearing pressures may be estimated on a pro-rata basis but bearing pressures should not exceed the allowable net bearing pressure based on ultimate bearing capacity.

Floor slabs should be designed as suspended where Made Ground is greater than 600mm thickness or the slab is within the zone of influence of a tree. Floor slabs may be designed as ground bearing where the slab is not located within the zone of influence of a tree.

All foundation excavations should be inspected by a suitable qualified engineer to prove that the founding strata is suitable and uniform along the length of the foundation, and capable of taking the anticipated structural loadings.

If trees are close to the proposed buildings, or new trees are planned as part of the development, in order to avoid possible excessive settlement due to water removal by trees during dry periods or ground heave due to tree removal, the recommendations of the National House Building Council Practice Standard "Building Near Trees", although not strictly applicable, should be closely followed. In this context clays beneath the site should be considered as having medium volume change potential.

9.4 Pavement Design

Based on the ground conditions encountered, it is recommended for preliminary design purposes a CBR value = 2% is adopted for all near surface cohesive materials and 5% for near surface granular materials.

Consideration should also be given to the use of geotextiles to allow reduction of capping thickness. The advice of a suitable contractor should be sought as to the most appropriate type of geotextile to use in the ground conditions encountered at this site.

It should be noted the type of construction will depend on proposed finished pavement levels across the site and it is recommended the pavement design is reviewed once these levels are known. In this context, it is essential further in situ CBR testing is carried out once formation levels are known to confirm design CBR values.

All formation excavations should be examined by a suitably experienced engineer or inspector to check for soft or unsuitable material, which should be removed and replaced with compacted granular fill. Also, to ensure good compaction and remove unevenness, the formation should be compacted with equipment suitable for use in the ground conditions encountered. Careful inspection of this work will also help identify any soft spots at or just below formation level.

9.5 Chemical Attack on Buried Concrete

Chemical tests (see Appendices) show low levels of water soluble sulphates and near neutral to alkaline conditions. Based on these conditions, it is recommended that for foundations the Design Sulphate Class for the site, as defined in BRE Special Digest 1⁽²⁰⁰⁵⁾, be taken as DS-1, and the Aggressive Chemical Environment for Concrete (ACEC) site classification be taken as AC-1s. The recommendations of BRE Special Digest 1 should be followed for concrete foundations and ground bearing floor slabs.

9.6 Suitability of Excavated Materials

Acceptability criteria and testing, and methods of compaction/placement will depend on the type of contract and specification used for the construction of the proposed development and it is recommended that earthworks specifications are reviewed by a suitably qualified engineer, once these have been prepared by the relevant parties.

Concrete hardstanding and demolition rubble, could be suitable for re-use subject to processing (i.e. crushing) and providing it is not contaminated.

The cohesive Made Ground and near surface soft natural clay is unlikely to be suitable for reuse as structural fill and should be used for landscaping purposes only, providing they are not contaminated.

Granular Made Ground could be suitable for re-use as structural fill, providing it is not contaminated and does not contain excessive amounts of clay and providing moisture contents are controlled during placement. The control of moisture contents will be important as the cohesive content of this stratum is likely to be sensitive to moisture content changes.

The firm to stiff natural clay should be suitable for re-use.

9.7 Temporary Works

Formations will be susceptible to damage both by weather and trafficking, and should be protected immediately on exposure, particularly in areas where construction plant will access the site.

Excavations in the Made Ground are likely to be unstable and should be battered back to an angle of 1 in 2, or a system of close sheeting and shoring adopted to ensure stability, and in

particular where personnel are required to enter excavations. Vertically sided excavations in clay should be stable in the short term.

All excavations should be adequately supported where personnel are required to enter.

Groundwater seepages could be encountered in excavations, particularly during the wetter periods of the year. If required pumping of excavations from a suitable located sump should be adequate to keep excavations dry.

All natural soils on site should be capable of being excavated using conventional excavating machinery. Hardstanding will require the use of a pneumatic breaker.

10.0 SOIL CONTAMINATION RISK ASSESSMENT

10.1 General

The following sections provide a Human Health Soil Assessment for groundworkers during development and future site users.

10.2 Tier I Human Health Soil Risk Assessment – Groundworkers During Development

To assess the risk of soil contamination to construction and ground workers during development, guidelines from the HSE Document 'Protection of workers and the general public during development of contaminated land'⁽¹⁹⁹¹⁾ are used. The document assesses soil contamination test results and classifies the site as being uncontaminated or contaminated with varying degrees of contamination from 'slight' to 'unusually heavy'.

The guideline values and laboratory test results are summarised in the following table:

Table 16 - Summary of Guideline Values for Protection of Workers and the General Public During Development of Contaminated Land

Contaminant	Typical Values* for:					Test Results	Class
	Uncontaminated Soils	Slight Contamination	Contaminated	Heavy Contamination	Unusually Heavy Contamination		
	Class A	Class B	Class C	Class D	Class E		
pH (alkaline)	7 - 8	8 - 9	9 - 10	10 - 12	12	7.5-11.3	A-D
Arsenic	0 - 30	30 - 50	50 - 100	100 - 500	500	5-14	A
Cadmium	0 - 1	1 - 3	3 - 10	10 - 50	50	<0.5-0.8	A
Chromium	0 - 100	100 - 200	200 - 500	500 - 2500	2500	12-16	A
Copper	0 - 100	100 - 200	200 - 500	500 - 2500	2500	29-61	A
Lead	0 - 500	500 - 1000	1000 - 2000	2000 - 1%	1.0%	87-313	A
Mercury	0 - 1	1 - 3	3 - 10	10 - 50	50	<0.17-0.38	A
Nickel	0 - 20	20 - 50	50 - 200	200 - 1000	1000	10-19	A
Zinc	0 - 250	250 - 500	500 - 1000	1000 - 5000	5000	60-89	A
Boron	0 - 2	2 - 5	5 - 50	50 - 250	250	<1.0	A
Selenium	0 - 1	1 - 3	3 - 10	10 - 50	50	<1	A
Barium	0-500	500-1000	1000-2000	2000-1.0%	1.0%	79-113	A
Beryllium	0 - 5	5 - 10	10 - 20	20 - 50	50	0.7-1.1	A
Vanadium	0 - 100	100 - 200	200 - 500	500 - 2500	2500	18-29	A
Sulphate	0 - 2000	2000 - 5000	5000 - 1%	1% - 5%	5.05%	<200-2100	A-B
Sulphide	0 - 10	10 - 20	20 - 100	100 - 500	500	<5	A
Cyanide (free)	0 - 1	1 - 5	5 - 50	50 - 100	100	<1	A
Coal Tar	0-500	500-1000	1000-2000	2000-1.0%	1.0%	94-824	A-B
Phenol	0 - 2	2 - 5	5 - 50	50 - 250	250	<0.2	A

Based on the above results there is a low potential risk from soil contamination to construction workers, ground workers and members of the public, and appropriate measures, such as PPE, site health plans, appropriate disposal of material arisings will mitigate this risk.

10.3 Tier I Human Health Soil Risk Assessment – Future Site Users

As part of the contamination assessment, the chemical results obtained by EEGSL have been screened against accepted compliance criteria, namely:

- Defra C4SL Health Criteria Values^(March 2014), where available;
- CL:AIRE Category 4 Screening Levels: Naphthalene⁽²⁰²⁴⁾;
- Tier 1 assessment values - based on LQM/CIEH Suitable 4 Use Levels⁽²⁰¹⁵⁾ (S4ULs).

As a preliminary screening assessment, all results have been compared to residential end use criteria.

The comparison of results is summarised in Tables 17-19 below.

Table 17 - Soil Results Comparison with C4SL/S4UL Levels (Metals)

Determinand	C4SL/S4UL Levels (mg/kg)*		WS01 0.4-0.6m	WS02 0.2-0.4m	WS02 0.6-0.8m	WS03 0.2-0.4m	WS05 0.4-0.6m	No. of Exceedences
	Residential with homegrown produce	Residential without homegrown produce						
Arsenic	37	40	5	12	12	14	7	0
Beryllium	1.7	1.7	0.7	0.9	0.7	1.1	0.8	0
Boron	290	11000	<1.0	<1.0	<1.0	<1.0	<1.0	0
Cadmium	26	149	<0.5	0.6	<0.5	0.8	<0.5	0
Chromium	910	910	13	13	12	16	12	0
Chromium VI	21	21	<1	<1	<1	<1	<1	0
Copper	2400	7100	29	61	50	58	38	0
Lead	200	310	87	202	164	313	127	2
Mercury	1.2	1.2	0.18	0.38	0.34	<0.17	<0.17	0
Nickel	180	180	10	16	13	19	14	0
Selenium	250	430	<1	<1	<1	<1	<1	0
Vanadium	410	1200	18	22	18	29	23	0
Zinc	3700	4000	68	89	60	83	73	0

Table 18 - Soil Results Comparison with C4SL/S4UL Levels (Petroleum Hydrocarbons)

Determinand		C4SL/S4UL Levels (mg/kg)*						WS01 0.4-0.6m	WS02 0.2-0.4m	WS02 0.6-0.8m	WS03 0.2-0.4m	WS05 0.4-0.6m	No. of Exceedences
		Residential with homegrown produce			Residential without homegrown produce								
SOM (%)		1.0	2.5	6.0	1.0	2.5	6.0	3.64	8.16	8.57	15.8	8.75	-
Benzene		0.87	17	0.37	3.3	0.70	1.4	<0.01	<0.01	<0.01	<0.01	<0.01	0
Toluene		130	290	660	880	1900	3900	<0.01	<0.01	<0.01	<0.01	<0.01	0
Ethylbenzene		47	110	260	83	190	440	<0.01	<0.01	<0.01	<0.01	<0.01	0
o-xylenes		60	140	330	88	210	480	<0.01	<0.01	<0.01	<0.01	<0.01	0
m-xylenes		59	140	320	82	190	450	<0.01	<0.01	<0.01	<0.01	<0.01	0
p-xylenes		56	130	310	79	180	430	<0.01	<0.01	<0.01	<0.01	<0.01	0
Aliphatic (EC)	5-6	42	78	160	42	78	160	<0.01	<0.01	<0.01	<0.01	<0.01	0
	>6-8	100	230	530	100	230	530	<0.01	<0.01	<0.01	<0.01	<0.01	0
	>8-10	27	65	150	27	65	150	<1	<1	<1	<10	<1	0
	>10-12	130	330	760	130	330	770	<12	1	<1	<10	1	0
	>12-16	1100	24000	4300	1100	24000	4400	9	16	9	24	6	0
	>16-35	65000	92000	110000	65000	92000	110000	44	78	77	323	59	0
Aromatic (EC)	5-7	70	78	300	370	690	1400	<0.01	<0.01	<0.01	<0.01	<0.01	0
	>7-8	130	230	660	860	1800	3900	<0.01	<0.01	<0.01	<0.01	<0.01	0
	>8-10	34	65	190	47	110	270	<1	2	<1	<10	1	0
	>10-12	74	330	380	250	590	1200	<1	1	<1	<10	1	0
	>12-16	140	24000	660	1800	2300	2500	9	16	9	24	6	0
	>16-21	280	92000	930	1900	1900	1900	14	21	25	73	15	0
	>21-35	1100	92000	1700	1900	1900	1900	30	57	52	250	44	0

**Table 19 - Soil Results Comparison with C4SL/S4UL Levels
(Polycyclic Aromatic Hydrocarbons & Phenols)**

Determinand	C4SL/S4UL Levels (mg/kg)*						WS01 0.4-0.6m	WS02 0.2-0.4m	WS02 0.6-0.8m	WS03 0.2-0.4m	WS05 0.4-0.6m	No. of Exceedences
	Residential with homegrown produce			Residential without homegrown produce								
Polycyclic Aromatic Hydrocarbons												
SOM (%)	1.0	2.5	6.0	1.0	2.5	6.0	3.64	8.16	8.57	15.8	8.75	-
Naphthalene	15	36	85	15	36	85	<0.03	<0.03	0.03	2.99	0.08	0
Acenaphthylene	170	420	920	2900	4600	6000	<0.01	<0.01	<0.01	0.43	0.03	0
Acenaphthene	210	510	1100	3000	4700	6000	0.06	0.05	0.23	0.91	0.17	0
Fluorene	170	400	860	2800	3800	4500	0.03	0.02	0.10	1.33	0.12	0
Phenanthrene	95	220	440	1300	1500	1500	0.33	0.27	1.06	8.44	1.13	0
Anthracene	2400	5400	11000	31000	35000	37000	0.07	0.05	0.13	2.12	0.20	0
Fluoranthene	280	560	890	1500	1600	1600	0.48	0.52	1.02	10.1	1.73	0
Pyrene	620	1200	2000	3700	3800	3800	0.45	0.53	0.99	10.1	1.70	0
Benzo(a)anthracene	7.2	11	13	11	14	15	0.25	0.29	0.44	4.86	0.86	0
Chrysene	15	22	27	30	31	32	0.29	0.34	0.52	4.26	0.95	0
Benzo(a)pyrene	5.0	2.7	3.0	5.3	3.2	3.2	0.23	0.25	0.35	3.17	0.67	0
Benzo(b)fluoranthene	2.6	3.3	3.7	3.9	4.0	4.0	0.25	0.29	0.44	2.90	0.74	0
Benzo(k)fluoranthene	77	93	100	110	110	110	<0.07	0.08	0.14	0.96	0.23	0
Indeno(1,2,3-cd)pyrene	27	36	41	45	46	46	0.18	0.19	0.20	1.90	0.47	0
Dibenz(a,h)anthracene	0.24	0.28	0.3	0.31	0.31	0.32	<0.04	<0.04	0.04	0.48	0.09	0
Benzo(ghi)perylene	320	340	350	360	360	360	0.16	0.16	0.17	1.63	0.43	0
Phenols												
Phenol	280	550	1100	750	1300	2300	<0.2	<0.2	<0.2	<0.2	<0.2	0

From the above tables it can be the samples have levels of contamination below the guidance levels for residential end use, with the exception of the following:

- Samples from WS02 and WS03 have elevated levels of **lead** in excess of the recommended guidelines for residential end use with and without homegrown produce.

Asbestos has not been encountered in any of the samples tested.

10.4 Soil Waste Assessment

Environment Agency Technical Guidance WM3.1: Hazardous Waste; "Guidance on the classification and assessment of waste", May 2018, published by Environment Agency of England and Wales, SEPA, NIEA and Natural Resources Wales has been used to characterise soil materials.

HazWasteOnline™ a cloud-based software application for the management, analysis and reporting of hazardous waste materials has been used to make this assessment.

The Hazardous Waste Assessment (included in Appendix 4) confirms that the samples tested can be classified as **Non-Hazardous**.

11.0 GROUNDWATER & LAND GAS RISK ASSESSMENT

Groundwater was not encountered in any of the exploratory holes. Based on the underlying strata (Glacial Till) which is predominantly clay and will have low permeability characteristics, and the results of contamination testing, it is considered the risk of contamination to groundwater is low.

Another potential source of contamination is land gas. Land gas is largely generated by the decomposition of organic matter, both in natural soils such as peat, and manmade materials such as landfill or other fill materials. The gases that are normally associated with these materials, which can pose a risk to health, include methane (which is toxic and potentially explosive) and carbon dioxide (which is toxic). Oxygen depletion is also a consequence of the generation of these other gases. Based the ground conditions encountered it is considered the risk posed by land gas is low.

Based on information included in the Groundsure report, protection against the ingress of radon gas into the new building is not required.

12.0 REVIEW OF PRELIMINARY CONTAMINATION RISK ASSESSMENT

The following table provides a review of the Preliminary Conceptual Model/Contamination Risk Assessment included in Section 5.0, based on the findings of the Phase II investigation, and laboratory testing.

Table 20 - Revised Conceptual Model

Source	Pathway	Receptor	Risk
Contamination of the ground beneath site due to current and historical use	Dermal contact, ingestion and inhalation of soils, dust	Current Site Users	LOW
		Future Site users	LOW
		Construction Workers	LOW
	Vertical or lateral migration of contamination (including ground gas) on and off site.	Current Site Users	LOW
		Adjacent land users	LOW
		Future land users	LOW
		Controlled Waters	LOW
		Construction Workers	LOW

13.0 GROUND CONTAMINATION CONCLUSIONS AND RECOMMENDATIONS

13.1 Soil Contamination

Based on available soil contamination test results there is a low potential risk from soil contamination to construction workers and ground workers during development and appropriate measures such as PPE, site health plans, appropriate disposal of material arisings will mitigate any risk. The groundworks contractor must provide a soil management plan including methods of dealing with unanticipated soil contamination encountered during groundworks.

As discussed in the above sections, the contamination tests indicate generally low concentrations of the potential contaminants, with the exception of 2 locations, (WS02 and WS03) which have elevated levels of lead in excess of the recommended guideline values for residential end use with and without home grown produce.

The proposed development does not contain any soft landscaped areas and areas of proposed hardcover development will not require any remediation as these areas effectively seal contamination beneath and break any potential source-pathway-pollutant linkage.

13.2 Soil Disposal

Soils should be disposed of at a suitable site, registered to take the levels of contamination encountered. All samples tested have been classified as Non-Hazardous in accordance with Environment Agency guidance WM3.1.

13.3 Asbestos

Asbestos has not been encountered in any of the samples tested. It is therefore considered the risk of asbestos being present in the ground is low.

Given the age of existing buildings on site, these could contain asbestos containing materials. It is recommended an asbestos survey is undertaken prior to any demolition/redevelopment.

13.4 Land Gas Protection Measures

Based on the ground conditions encountered it is considered protection against the ingress of land gas will not be required.

Radon protection measures are not required.

13.5 Risk to Groundwater and Surface Waters

Based on the ground and groundwater conditions encountered and results of laboratory testing it is considered the risk from contamination to groundwater and surface waters is low.

13.6 Risk to Buried (Water) Services

Based on the results of laboratory testing it is considered non-standard materials may be required for new water pipes. The advice of the local water company should be sought.

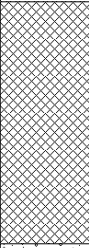
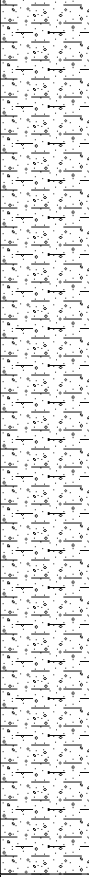
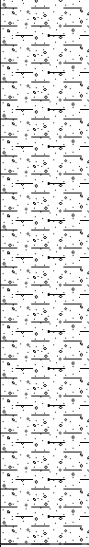
13.7 Site Personnel & Other Matters

As with all construction sites, personnel working on the site during the construction period should be encouraged to maintain a high standard of personal hygiene and on-site washing facilities should be available.

Due diligence is required during the construction period, and should any further evidence of contamination be found, appropriate investigation and / or action should be taken. The significance of any contamination not discovered by this investigation is outside the scope of this report.

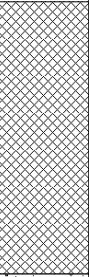
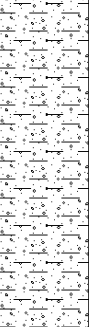
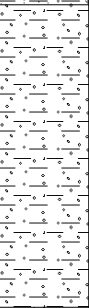
APPENDIX 1

EXPLORATORY HOLE LOGS

 EARTH ENVIRONMENTAL & GEOTECHNICAL A Technics Group Company		Window Sample Log									
Project Name: 42 Ladybarn Road, Manchester				Client: Mode Architects				Date: 22/05/2025			
Location: 42 Ladybarn Road, Manchester				Contractor: PM				Co-ords: E385685.00 N393830.00			
Project No. : B4971				Crew Name: JD				Drilling Equipment: Archway Dart			
Borehole Number WS01		Hole Type WS		Level 99.70m AoD		Logged By DJ		Scale 1:25		Page Number Sheet 1 of 1	
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
		Depth (m)	Type	Results							
		0.40 - 0.60	ES		0.18	99.52		MADE GROUND: Grey medium strong CONCRETE			
					0.35	99.35		MADE GROUND: Brown very gravelly sand. Gravel is angular and medium to coarse with weak sandstone			
								MADE GROUND: Firm brown gravelly slightly sandy clay. Gravel is subangular and fine to medium with brick, ashy fragments and clinker			
		0.90 - 1.00	D		0.80	98.90		Firm orangish brown mottled grey slightly gravelly silty CLAY. Gravel is rounded and fine with chert and relict rootlets [TILL]			
								...Stiff from 1.3 m			
2.00 - 2.10	D		1.90	97.80		Stiff dark orangish brown mottled dark grey slightly gravelly silty CLAY. Gravel is subrounded and fine with chert and sandstone fragments [TILL]					
			3.70	96.00		...Calcareous nodules present from 3.6m End of Borehole at 3.700m					
Hole Diameter Depth Base (m) Diameter (mm) Casing Diameter Depth Base (m) Diameter (mm) Chiselling Depth Top Depth Base Duration Tool Inclination and Orientation Depth Top Depth Base Inclination Orientation											
Remarks Exploratory hole location was scanned using a Cable Avoidance Tool prior to excavation. Hand dug pit was undertaken to 1.0m. Works were monitored by an EEGSL engineer throughout. Hole terminated at 3.70mbgl due to refusal. Hole was backfilled with arisings									 EARTH ENVIRONMENTAL & GEOTECHNICAL A Technics Group Company		

Window Sample Log

Project Name: 42 Ladybarn Road, Manchester		Client: Mode Architects		Date: 22/05/2025	
Location: 42 Ladybarn Road, Manchester		Contractor: PM		Co-ords: E385683.00 N393839.00	
Project No. : B4971		Crew Name: JD		Drilling Equipment: Archway Dart	
Borehole Number WS02	Hole Type WS	Level 99.70m AoD	Logged By DJ	Scale 1:25	Page Number Sheet 1 of 1

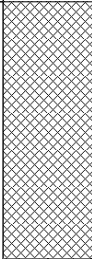
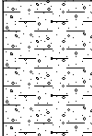
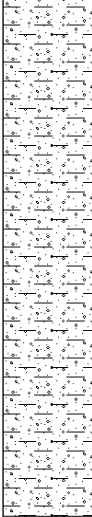
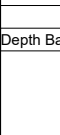
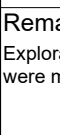
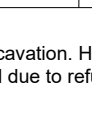
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20 - 0.40	ES		0.17	99.53		MADE GROUND: Grey medium strong CONCRETE	1
								MADE GROUND: Firm brown gravelly slightly sandy clay. Gravel is angular and fine to coarse with brick, chert and rare clinker	
		0.60 - 0.80	ES		0.55	99.15		MADE GROUND: Firm orangish brown mottled dark grey gravelly sandy clay. Gravel is rounded and subangular and fine to medium with chert and brick fragments	
					0.90	98.80		<u>...Porcelain fragments from 0.65m</u> Firm orangish brown mottled grey slightly gravelly silty CLAY. Gravel is subrounded and fine to medium with chert and relict rootlets [TILL]	
		1.60 - 1.80	D					<u>...Slightly sandy from 1.6m</u>	
					2.00	97.70		Stiff dark brown slightly gravelly CLAY. Gravel is rounded and fine to medium with chert [TILL]	2
		2.50 - 2.60	D					<u>...Calcareous nodules present from 2.6m</u>	3
					3.00	96.70		End of Borehole at 3.000m	
									4
									5

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base (m)	Diameter (mm)	Depth Base (m)	Diameter (mm)	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks Exploratory hole location was scanned using a Cable Avoidance Tool prior to excavation. Hand dug pit was undertaken to 1.0m. Works were monitored by an EEGSL engineer throughout. Hole terminated at 3.00mbgl due to refusal. Hole was backfilled with arisings										 EARTH ENVIRONMENTAL & GEOTECHNICAL A Technics Group Company
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Window Sample Log

Project Name: 42 Ladybarn Road, Manchester		Client: Mode Architects		Date: 22/05/2025	
Location: 42 Ladybarn Road, Manchester		Contractor: PM		Co-ords: E385664.00 N393842.00	
Project No. : B4971		Crew Name: JD		Drilling Equipment: Archway Dart	
Borehole Number WS03	Hole Type WS	Level 99.70m AoD	Logged By DJ	Scale 1:25	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20 - 0.40	ES		0.17	99.53		MADE GROUND: Grey medium strong CONCRETE	1
								MADE GROUND: Dark grey gravelly sand. Gravel is angular and fine to medium with brick, quartzite, type 1 and ashy fragments	
		0.50 - 0.70	ES		0.45	99.25		MADE GROUND: Dark grey gravelly sandy clay with faint hydrocarbon odour. Gravel is angular and fine to medium with brick and ashy fragments	
					0.85	98.85		Firm orangish brown mottled grey slightly gravelly sandy CLAY. Gravel is rounded and fine with chert [TILL]	
		1.00 - 1.10	D		1.30	98.40		Stiff reddish brown mottled grey slightly gravelly silty CLAY. Gravel is rounded and fine with chert and sandstone fragments [TILL]	
								... <i>Calcareous nodule</i> at 2.2m	2
					3.00	96.70		End of Borehole at 3.000m	3
									4
									5

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base (m)	Diameter (mm)	Depth Base (m)	Diameter (mm)	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks Exploratory hole location was scanned using a Cable Avoidance Tool prior to excavation. Hand dug pit was undertaken to 1.0m. Works were monitored by an EEGSL engineer throughout. Hole terminated at 3.00mbgl due to refusal. Hole was backfilled with arisings										 EARTH ENVIRONMENTAL & GEOTECHNICAL A Technics Group Company
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**EARTH ENVIRONMENTAL
& GEOTECHNICAL**
A Technics Group Company

Window Sample Log

Project Name: 42 Ladybarn Road, Manchester		Client: Mode Architects		Date: 22/05/2025	
Location: 42 Ladybarn Road, Manchester		Contractor: PM		Co-ords: E385679.00 N393833.00	
Project No. : B4971		Crew Name: JD		Drilling Equipment: Archway Dart	
Borehole Number WS05	Hole Type WS	Level 99.70m AoD	Logged By DJ	Scale 1:25	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.40 - 0.60	ES		0.17	99.53		MADE GROUND: Bluish grey medium strong CONCRETE	
					0.35	99.35		MADE GROUND: Brown gravelly sand. Gravel is angular and fine to medium with brick fragments	
								MADE GROUND: Dark grey gravelly slightly sandy clay. Gravel is subangular to subrounded and fine to medium with chert and brick fragments	
		1.00 - 1.10	D		1.00	98.70		Firm orangish brown mottled grey slightly gravelly silty CLAY. Gravel is rounded and fine to medium with chert and rare calcareous nodules [TILL]	1
					2.00	97.70		Stiff reddish brown mottled grey slightly gravelly silty CLAY. Gravel is rounded and fine to medium with chert [TILL]	2
					3.00	96.70		End of Borehole at 3.000m	3
									4
									5

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base (m)	Diameter (mm)	Depth Base (m)	Diameter (mm)	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks Exploratory hole location was scanned using a Cable Avoidance Tool prior to excavation. Hand dug pit was undertaken to 1.0m. Works were monitored by an EEGSL engineer throughout. Hole terminated at 3.00mbgl due to refusal. Hole was backfilled with arisings										 EARTH ENVIRONMENTAL & GEOTECHNICAL A Technics Group Company
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APPENDIX 2

IN SITU TEST RESULTS

Dynamic Probe Test Results Sheet

Site: LADYBARN ROAD, MANCHESTER

Date: 22-May-25



Job Number: B4971

Test Type: DPSH

Client: Mode Architects

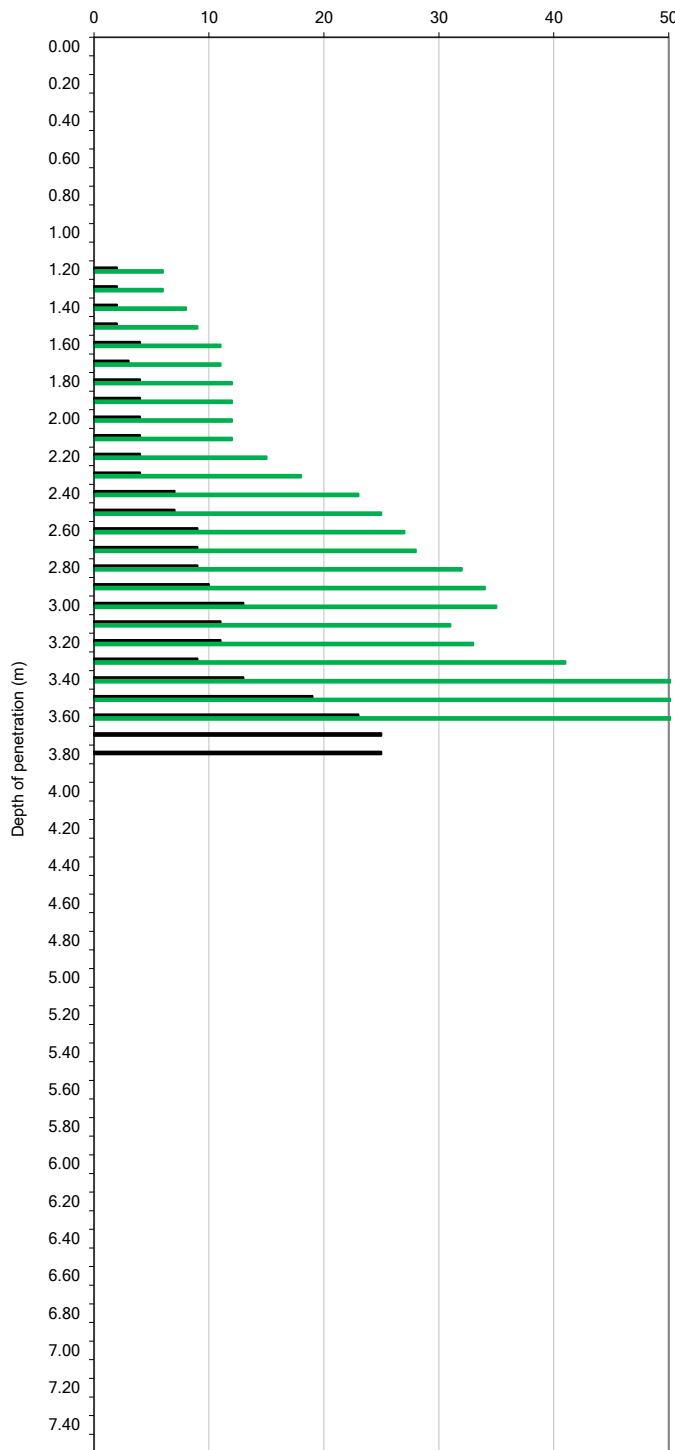
Final Depth: 3.80

Rig Type: Archway Dart

Sheet 1 of 1

DP No: WS01

Depth (m)	DPN ₁₀₀	DPN ₃₀₀	SPT N *
0.00			
0.10			
0.20			
0.30			
0.40			
0.50			
0.60			
0.70			
0.80			
0.90			
1.00			
1.10			
1.20	2	6	6
1.30	2	6	6
1.40	2	8	8
1.50	2	9	9
1.60	4	11	11
1.70	3	11	11
1.80	4	12	12
1.90	4	12	12
2.00	4	12	12
2.10	4	12	12
2.20	4	15	15
2.30	4	18	18
2.40	7	23	23
2.50	7	25	25
2.60	9	27	27
2.70	9	28	28
2.80	9	32	32
2.90	10	34	34
3.00	13	35	35
3.10	11	31	31
3.20	11	33	33
3.30	9	41	41
3.40	13	55	55
3.50	19	67	67
3.60	23	73	73
3.70	25		
3.80	25		
3.90			
4.00			
4.10			
4.20			
4.30			
4.40			
4.50			
4.60			
4.70			
4.80			
4.90			
5.00			
5.10			
5.20			
5.30			
5.40			
5.50			
5.60			
5.70			
5.80			
5.90			
6.00			
6.10			
6.20			
6.30			
6.40			
6.50			
6.60			
6.70			
6.80			
6.90			
7.00			
7.10			
7.20			
7.30			
7.40			
7.50			



General Remarks:

DPN₁₀₀ = Dynamic penetration resistance for 100mm penetration.
 DPN₃₀₀ = Dynamic penetration resistance for 300mm penetration (ie: sum of 3 consecutive DPN₁₀₀ values), starting at the depth given.
 * Equivalent SPT N-values (for 300mm penetration) assumed to approximate the DPN₃₀₀ values for dynamic probe "super-heavy" test (DPSH).
 For dynamic probe "heavy" test (DPH), equivalent SPT N-values estimated using the theoretical relationship DPN₃₀₀ = 1.5 SPT-N. [see Card, G.B., Roche, D.P. & Herbert, S.M., in Geol. Soc. Special Publication No 6, *Field Testing in Engineering Geology* (1990)]. SPT values are estimated and are for general guidance only.

Dynamic Probe Test Results Sheet

Site: **LADYBARN ROAD, MANCHESTER**

Date: **22-May-25**



Job Number: **B4971**

Test Type: **DPSH**

Client: **Mode Architects**

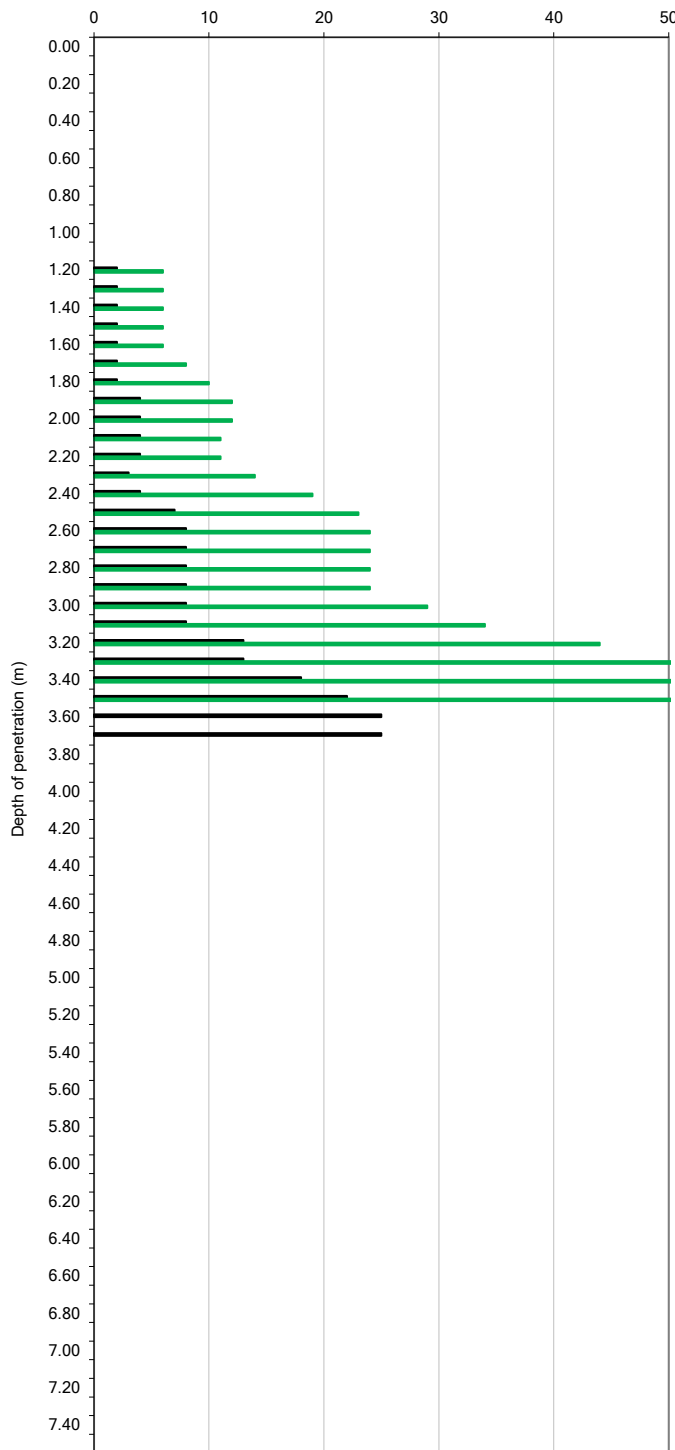
Final Depth: **3.70**

Rig Type: **Archway Dart**

Sheet 1 of 1

DP No: **WS02**

Depth (m)	DPN ₁₀₀	DPN ₃₀₀	SPT N *
0.00			
0.10			
0.20			
0.30			
0.40			
0.50			
0.60			
0.70			
0.80			
0.90			
1.00			
1.10			
1.20	2	6	6
1.30	2	6	6
1.40	2	6	6
1.50	2	6	6
1.60	2	6	6
1.70	2	8	8
1.80	2	10	10
1.90	4	12	12
2.00	4	12	12
2.10	4	11	11
2.20	4	11	11
2.30	3	14	14
2.40	4	19	19
2.50	7	23	23
2.60	8	24	24
2.70	8	24	24
2.80	8	24	24
2.90	8	24	24
3.00	8	29	29
3.10	8	34	34
3.20	13	44	44
3.30	13	53	53
3.40	18	65	65
3.50	22	72	72
3.60	25		
3.70	25		
3.80			
3.90			
4.00			
4.10			
4.20			
4.30			
4.40			
4.50			
4.60			
4.70			
4.80			
4.90			
5.00			
5.10			
5.20			
5.30			
5.40			
5.50			
5.60			
5.70			
5.80			
5.90			
6.00			
6.10			
6.20			
6.30			
6.40			
6.50			
6.60			
6.70			
6.80			
6.90			
7.00			
7.10			
7.20			
7.30			
7.40			
7.50			



DPN₁₀₀ values (shorter bars) & equivalent SPT values (longer bars)

General Remarks:

DPN₁₀₀ = Dynamic penetration resistance for 100mm penetration.

DPN₃₀₀ = Dynamic penetration resistance for 300mm penetration (ie: sum of 3 consecutive DPN₁₀₀ values), starting at the depth given.

* Equivalent SPT N-values (for 300mm penetration) assumed to approximate the DPN₃₀₀ values for dynamic probe "super-heavy" test (DPSH).

For dynamic probe "heavy" test (DPH), equivalent SPT N-values estimated using the theoretical relationship DPN₃₀₀ = 1.5 SPT-N. [see Card, G.B., Roche, D.P. & Herbert, S.M., in Geol. Soc. Special Publication No 6, *Field Testing in Engineering Geology* (1990)]. SPT values are estimated and are for general guidance only.

Dynamic Probe Test Results Sheet

Site: **LADYBARN ROAD, MANCHESTER**

Date: **22-May-25**



Job Number: **B4971**

Test Type: **DPSH**

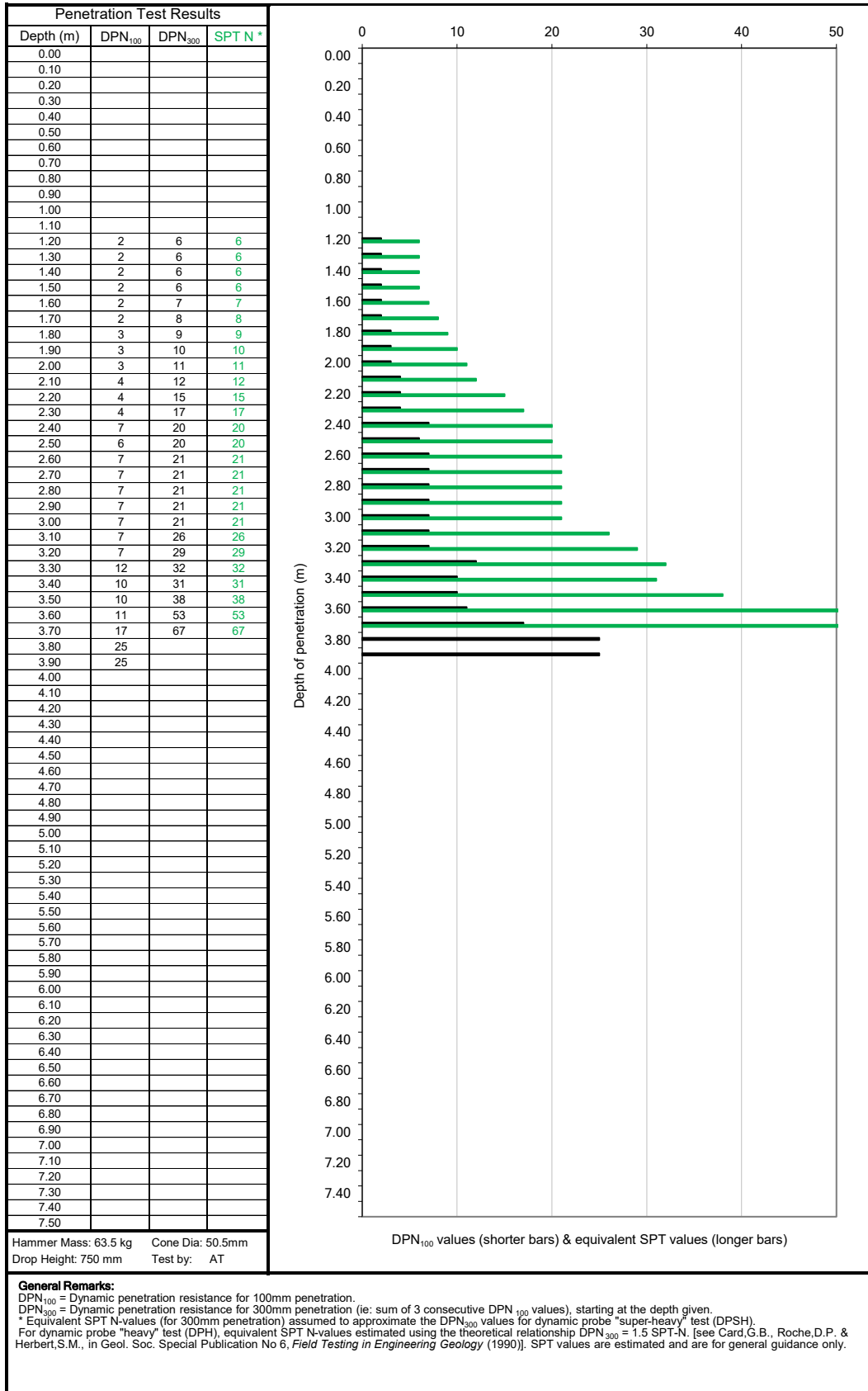
Client: **Mode Architects**

Final Depth: **3.90**

Rig Type: **Archway Dart**

Sheet 1 of 1

DP No: **WS03**



Dynamic Probe Test Results Sheet

Site: **LADYBARN ROAD, MANCHESTER**

Date: **22-May-25**



Job Number: **B4971**

Test Type: **DPSH**

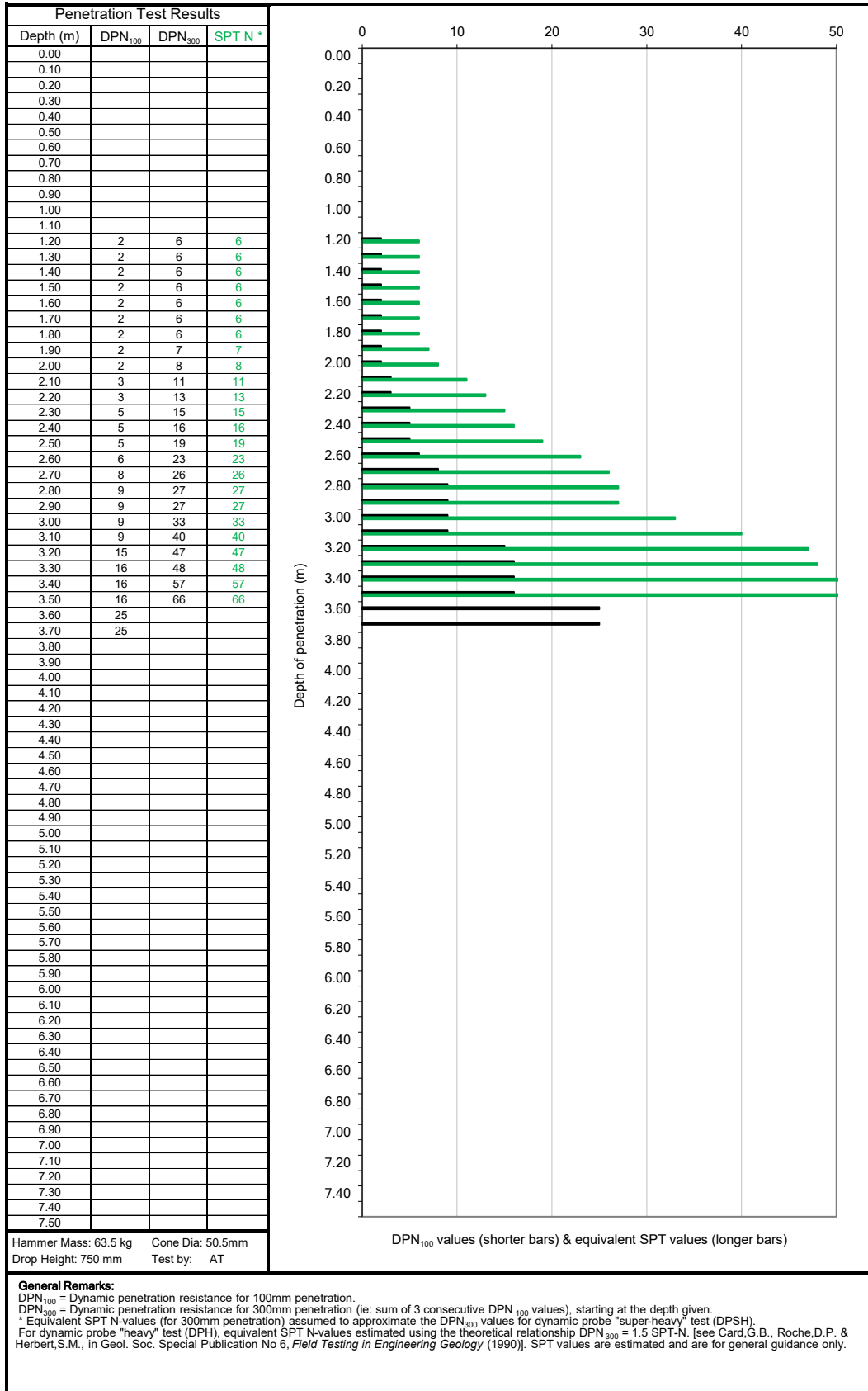
Client: **Mode Architects**

Final Depth: **3.70**

Rig Type: **Archway Dart**

Sheet 1 of 1

DP No: **WS05**



APPENDIX 3

LABORATORY TEST RESULTS



Laboratory Report



Contract Number: 78908

Client Ref: **B4971**

Date Received: **29-05-2025**

Client PO: **B4971/DJ/23052025**

Date Completed: **13-06-2025**

Report Date: **13-06-2025**

Client: **Earth Environmental & Geotechnical**

This report has been checked and approved by:

Contract Title: **Ladybarn Road, Manchester**

For the attention of: **Daniel Joel**

Shaun Jones
Laboratory manager

Description	Qty
Determination of water content BS EN ISO 17892-1:2014 - @ Non Accredited Test	5
4 Point Liquid & Plastic Limit.. BS EN ISO 17892-12 - * UKAS	5
Water Soluble Sulphate 2:1 extract Sub-contracted Test In-house method#	5
pH value of soil Sub-contracted Test - In-house method#	5

Notes: Observations and Interpretations are outside the UKAS Accreditation

* - denotes test included in laboratory scope of accreditation

- denotes test carried out by approved contractor

@ - denotes non accredited tests

This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This test report/certificate shall not be reproduced except in full, without the approval of GEO Site & Testing Services Ltd. Any opinions or interpretations stated - within this report/certificate are excluded from the laboratories UKAS accreditation.

Approved Signatories:

Brendan Evans (Senior Office Administrator) - Darren Bourne (Quality Senior Technician) - Paul Evans (Director)

Richard John (Quality/Technical Manager) - Shaun Jones (Laboratory manager) - Shaun Thomas (Site Manager)

Wayne Honey (HR & HSE Manager)



Contract Number	78908	
Project Name	Ladybarn Road, Manchester	
Date Tested	10/06/2025	
	DESCRIPTIONS	

[illegible]

Operator
Aaron Hodge

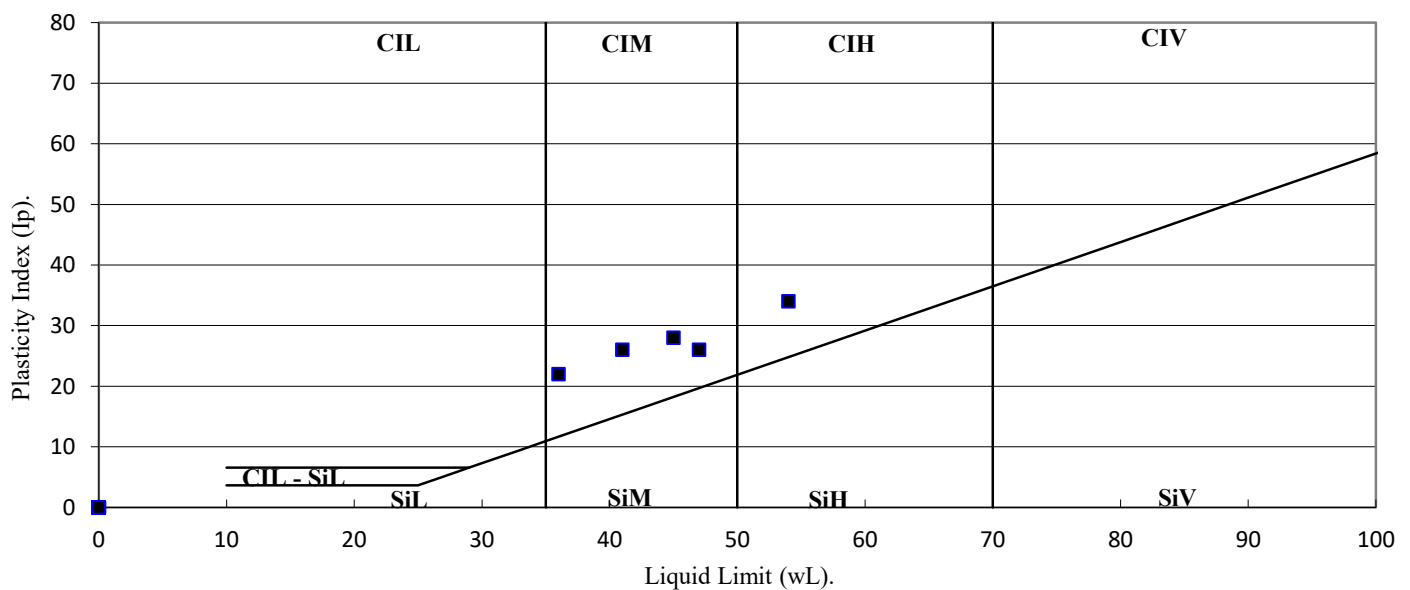
Contract Number	78908	
Project Name	Ladybarn Road, Manchester	
Date Tested	10/06/2025	
Test Comments	80g/30° Fall cone used with increasing water content	

[illegible]

SYMBOLS : NP = Non Plastic NB: All liquid limits are 4 point and wet sieved

PLASTICITY CHART

BS EN ISO 14688-2:2018 Clause 4.4



***For sample descriptions please see sample descriptions sheet**

Operator
Aaron Hodge



GSTL

Unit 3-4 Heol Aur
Dafen Ind Estate
Dafen
SA14 8QN

Analytical Test Report: L25/05602/GSL - 25-68321

Your Project Reference:	Ladybarn Road, Manchester B4971		
Your Order Number:	78908	Samples Received / Instructed:	03/06/2025 / 03/06/2025
Report Issue Number:	1	Sample Tested:	03/06 to 12/06/2025
Samples Analysed:	5 sample(s)	Report issued:	12/06/2025

Signed



James Gane
Analytical Services Manager
CTS

Notes:

General

Please refer to Methodologies page for details pertaining to the analytical methods undertaken.

Samples will be retained for 14 days after issue of this report unless otherwise requested.

Moisture Content was determined in accordance with CTS method statement MS - CL - Sample Prep, oven dried at <30°C.

Moisture Content is reported as a percentage of the dry mass of soil, this calculation is in accordance with BS1377, Part 2, 1990, Clause 3.2

Where specification limits are included these are for guidance only. Where a measured value has been highlighted this is not implying acceptance or failure and certainty of measurement values have not been taken into account.

Uncertainty of measurement values are available on request.

Samples were supplied by customer, results apply to the samples as received.

Deviating Samples

On receipt samples are compared against our sample holding and handling protocols, where any deviations have been noted these are reported on our deviating sample page (if present)

Accreditation Key

This report shall not be reproduce except in full

UKAS = UKAS Accreditation, MCERTS = MCERTS Accreditation, u = Unaccredited, subUKAS - Subcontracted to a laboratory UKAS accredited for this test, subMCERTS - Subcontracted to a laboratory MCERTS accredited for this test

MCERTS Accreditation only covers the SAND, CLAY and LOAM matrices

UKAS accreditation on waters only covers the Ground water and Surface water matrices

Date of Issue: 21.05.25

Issued by: J. Gane

Issue No: 4

Rev No: 27



L25/05602/GSL - 25-68321

Project Reference - Ladybarn Road, Manchester

B4971

Analytical Test Results - Chemical Analysis

Lab Reference			520191	520192	520193	520194	520195
Client Sample ID			-	-	-	-	-
Client Sample Location			WS01	WS01	WS02	WS03	WS05
Client Sample Type			D	D	D	D	D
Client Sample Number			-	-	-	-	-
Depth - Top (m)			0.90	2.00	1.60	1.00	1.00
Depth - Bottom (m)			1.00	2.10	1.80	1.10	1.10
Date of Sampling			-	-	-	-	-
Time of Sampling			-	-	-	-	-
Sample Matrix			Clay	Clay	Clay	Clay	Clay
Determinant	Units	Accreditation					
Water soluble sulphate (as SO ₄)	(mg/l)	u	23	58	28	< 10	< 10
pH Value	pH Units	MCERTS	7.7	7.3	7.2	7.4	7.3



L25/05602/GSL - 25-68321

Project Reference - Ladybarn Road, Manchester B4971

Sample Descriptions

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Description	Moisture Content (%)	Stone Content (%)	Passing 2mm test sieve (%)
520191	-	WS01	D	-	Greyish brown slightly sandy silty clay with rare rootlets	-	-	100
520192	-	WS01	D	-	Dark brown slightly gravelly slightly sandy silty clay	-	-	100
520193	-	WS02	D	-	Mottled light brown slightly gravelly slightly sandy silty clay with rare rootlets	-	-	100
520194	-	WS03	D	-	Greyish brown silty clay	-	-	100
520195	-	WS05	D	-	Dark brown slightly gravelly silty clay	-	-	100



L25/05602/GSL - 25-68321

Project Reference - Ladybarn Road, Manchester B4971

Sample Comments

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Comments
520191	-	WS01	D	-	
520192	-	WS01	D	-	
520193	-	WS02	D	-	
520194	-	WS03	D	-	
520195	-	WS05	D	-	



7 - 11 Harding Street
Leicester
LE1 4DH

L25/05602/GSL - 25-68321

Project Reference - Ladybarn Road, Manchester B4971

Analysis Methodologies

Test Code	Test Name / Reference	Sample condition for analysis	Sample Preparation	Test Details
ANIONSS	MS - CL - Anions by Aquakem (2:1Extract)	Oven dried	Passing 2mm test sieve	Determination of Anions (inc Sulphate, chloride etc.) in soils by Aquakem. Analysis is based on a 2:1 water to soil extraction ratio
PHS	MS - CL - pH in Soils	As received	Passing 10mm test sieve	Determination of pH in soils using a pH probe (using a 1:3 soil to water extraction)
SAMPLEPREP	MS - CL - Sample Preparation	-	-	Preparation of samples (including determination of moisture content) to allow for subsequent analysis



7 - 11 Harding Street
Leicester
LE1 4DH

L25/05602/GSL - 25-68321

Project Reference - Ladybarn Road, Manchester B4971

Sample Deviations

Deviations are listed below against each sample and associated test method, where deviation(s) are noted it means data may not be representative of the sample at the time of sampling and it is possible that results provided may be compromised.

Observations on receipt

A - No date of sampling provided

W - No time of sampling provided for water sample

C - Received in inappropriate container

H - Contains headspace

T - Temperature on receipt exceeds storage temperature

R - Sample(s) received with less than 96 hours for testing to commence/complete, any result formally classed as deviating will be marked with an X against the applicable test (i.e. RX)

Observations whilst in laboratory

X - Exceeds sampling to extraction or analysis timescales

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Test	Deviations
520191	-	WS01	D	-		A
520192	-	WS01	D	-		A
520193	-	WS02	D	-		A
520194	-	WS03	D	-		A
520195	-	WS05	D	-		A

FINAL ANALYTICAL TEST REPORT

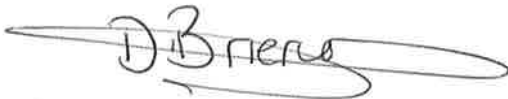
Envirolab Job Number: 25/05528
Issue Number: 1

Date: 09 June, 2025

Client: Earth Environmental & Geotechnical Ltd (Bath)
Studio 3 Tollbridge Studios,
Bath
BA1 7DE

Project Manager: Daniel Joel/Simon Leat
Project Name: Ladybarn Road, Manchester
Project Ref: B4971
Order No: B4971/DJ/23052025
Date Samples Received: 27/05/25
Date Instructions Received: 28/05/25
Date Analysis Completed: 09/06/25

Approved by:



Danielle Brierley
Client Services Supervisor

Envirolab Job Number: 25/05528

Client Project Name: Ladybarn Road, Manchester

Client Project Ref: B4971

Lab Sample ID	25/05528/1	25/05528/2	25/05528/3	25/05528/4	25/05528/6			Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS01	WS02	WS02	WS03	WS05					
Depth to Top	0.40	0.20	0.60	0.20	0.40					
Depth To Bottom	0.60	0.40	0.80	0.40	0.60					
Date Sampled	22-May-25	22-May-25	22-May-25	22-May-25	22-May-25					
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES					
Sample Matrix Code	5ABE	5ABE	6AB	4AB	4AB					
% Moisture at <40C _A	13.4	14.6	15.2	8.4	14.0			% w/w	0.1	A-T-044
% Stones >10mm _A	<0.1	<0.1	11.1	<0.1	<0.1			% w/w	0.1	A-T-044
pH _D ^{M#}	9.06	9.23	7.53	11.25	9.05			pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	0.11	0.10	0.04	0.11	0.12			g/l	0.01	A-T-026s
Sulphate (acid soluble) _D ^{M#}	560	860	<200	2100	570			mg/kg	200	A-T-028s
Cyanide (free) _A ^{M#}	<1	<1	<1	<1	<1			mg/kg	1	A-T-042sFCN
Cyanide (complex/WAD) ^{M#}	<1	<1	<1	<1	<1			mg/kg	1	Calc
Cyanide (total) _A ^{M#}	<1	<1	<1	<1	<1			mg/kg	1	A-T-042sTCN
Phenols - Total by HPLC _A	<0.2	<0.2	<0.2	<0.2	<0.2			mg/kg	0.2	A-T-050s
Sulphide _A	<5	<5	<5	<5	<5			mg/kg	5	A-T-043-s
Organic Matter _D ^{M#}	3.64	8.16	8.57	15.8	8.75			% w/w	0.14	A-T-032s
Arsenic _D ^{M#}	5	12	12	14	7			mg/kg	1	A-T-024s
Barium _D [#]	79	113	84	103	86			mg/kg	3	A-T-024s
Beryllium _D	0.7	0.9	0.7	1.1	0.8			mg/kg	0.5	A-T-024s
Boron (water soluble) _D ^{M#}	<1.0	<1.0	<1.0	<1.0	<1.0			mg/kg	1	A-T-027s
Cadmium _D ^{M#}	<0.5	0.6	<0.5	0.8	<0.5			mg/kg	0.5	A-T-024s
Copper _D ^{M#}	29	61	50	58	38			mg/kg	1	A-T-024s
Chromium _D ^{M#}	13	13	12	16	12			mg/kg	1	A-T-024s
Chromium (hexavalent) _D	<1	<1	<1	<1	<1			mg/kg	1	A-T-040s
Lead _D ^{M#}	87	202	164	313	127			mg/kg	1	A-T-024s
Mercury _D	0.18	0.38	0.34	<0.17	<0.17			mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	10	16	13	19	14			mg/kg	1	A-T-024s
Selenium _D ^{M#}	<1	<1	<1	<1	<1			mg/kg	1	A-T-024s
Vanadium _D ^{M#}	18	22	18	29	23			mg/kg	1	A-T-024s
Zinc _D ^{M#}	68	89	60	83	73			mg/kg	1	A-T-024s

Envirolab Job Number: 25/05528

Client Project Name: Ladybarn Road, Manchester

Client Project Ref: B4971

Lab Sample ID	25/05528/1	25/05528/2	25/05528/3	25/05528/4	25/05528/6			Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS01	WS02	WS02	WS03	WS05					
Depth to Top	0.40	0.20	0.60	0.20	0.40					
Depth To Bottom	0.60	0.40	0.80	0.40	0.60					
Date Sampled	22-May-25	22-May-25	22-May-25	22-May-25	22-May-25					
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES					
Sample Matrix Code	5ABE	5ABE	6AB	4AB	4AB					
Asbestos in Soil (inc. matrix)										
Asbestos in soil _D [#]	NAD	NAD	NAD	NAD	NAD					A-T-045
Asbestos Matrix (visual) _D	-	-	-	-	-					A-T-045
Asbestos Matrix (microscope) _D	-	-	-	-	-					A-T-045
Asbestos ACM - Suitable for Water Absorption Test? _D	N/A	N/A	N/A	N/A	N/A					A-T-045

Envirolab Job Number: 25/05528

Client Project Name: Ladybarn Road, Manchester

Client Project Ref: B4971

Lab Sample ID	25/05528/1	25/05528/2	25/05528/3	25/05528/4	25/05528/6			Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS01	WS02	WS02	WS03	WS05					
Depth to Top	0.40	0.20	0.60	0.20	0.40					
Depth To Bottom	0.60	0.40	0.80	0.40	0.60					
Date Sampled	22-May-25	22-May-25	22-May-25	22-May-25	22-May-25					
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES					
Sample Matrix Code	5ABE	5ABE	6AB	4AB	4AB					
PAH-16MS										
Acenaphthene _A ^{M#}	0.06	0.05	0.23	0.91	0.17			mg/kg	0.01	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	<0.01	<0.01	0.43	0.03			mg/kg	0.01	A-T-019s
Anthracene _A ^{M#}	0.07	0.05	0.13	2.12	0.20			mg/kg	0.02	A-T-019s
Benzo(a)anthracene _A ^{M#}	0.25	0.29	0.44	4.86	0.86			mg/kg	0.04	A-T-019s
Benzo(a)pyrene _A ^{M#}	0.23	0.25	0.35	3.17	0.67			mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	0.25	0.29	0.44	2.90	0.74			mg/kg	0.05	A-T-019s
Benzo(ghi)perylene _A ^{M#}	0.16	0.16	0.17	1.63	0.43			mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07	0.08	0.14	0.96	0.23			mg/kg	0.07	A-T-019s
Chrysene _A ^{M#}	0.29	0.34	0.52	4.26	0.95			mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	<0.04	0.04	0.48	0.09			mg/kg	0.04	A-T-019s
Fluoranthene _A ^{M#}	0.48	0.52	1.02	10.1	1.73			mg/kg	0.08	A-T-019s
Fluorene _A ^{M#}	0.03	0.02	0.10	1.33	0.12			mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	0.18	0.19	0.20	1.90	0.47			mg/kg	0.03	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03	0.03	2.99	0.08			mg/kg	0.03	A-T-019s
Phenanthrene _A ^{M#}	0.33	0.27	1.06	8.44	1.13			mg/kg	0.03	A-T-019s
Pyrene _A ^{M#}	0.45	0.53	0.99	10.1	1.70			mg/kg	0.07	A-T-019s
Total PAH-16MS_A^{M#}	2.78	3.04	5.86	56.6	9.60			mg/kg	0.01	A-T-019s

Envirolab Job Number: 25/05528

Client Project Name: Ladybarn Road, Manchester

Client Project Ref: B4971

Lab Sample ID	25/05528/1	25/05528/2	25/05528/3	25/05528/4	25/05528/6			Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS01	WS02	WS02	WS03	WS05					
Depth to Top	0.40	0.20	0.60	0.20	0.40					
Depth To Bottom	0.60	0.40	0.80	0.40	0.60					
Date Sampled	22-May-25	22-May-25	22-May-25	22-May-25	22-May-25					
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES					
Sample Matrix Code	5ABE	5ABE	6AB	4AB	4AB					
TPH CWG with Clean Up										
Ali >C5-C6 _A	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
Ali >C6-C8 _A	0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
Ali >C8-C10 _A	<1	<1	<1	<10	<1			mg/kg	1	A-T-055s
Ali >C10-C12 _A ^{M#}	<1	<1	<1	<10	<1			mg/kg	1	A-T-055s
Ali >C12-C16 _A ^{M#}	2	2	<1	12	2			mg/kg	1	A-T-055s
Ali >C16-C21 _A ^{M#}	8	9	<1	36	7			mg/kg	1	A-T-055s
Ali >C21-C35 _A ^{M#}	172	282	7	429	137			mg/kg	1	A-T-055s
Total Aliphatics _A	182	294	7	477	147			mg/kg	1	Calc-As Recd
Aro >C5-C7 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
Aro >C8-C10 _A	<1	2	<1	<10	<1			mg/kg	1	A-T-055s
Aro >C10-C12 _A	<1	1	<1	<10	1			mg/kg	1	A-T-055s
Aro >C12-C16 _A	9	16	9	24	6			mg/kg	1	A-T-055s
Aro >C16-C21 _A ^{M#}	14	21	25	73	15			mg/kg	1	A-T-055s
Aro >C21-C35 _A ^{M#}	30	57	52	250	44			mg/kg	1	A-T-055s
Total Aromatics _A	53	98	87	347	66			mg/kg	1	Calc-As Recd
TPH (Ali & Aro >C5-C35) _A	236	392	94	824	213			mg/kg	1	Calc-As Recd
BTEX - Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
MTBE _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s

Report Notes

General

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

Key

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

Asbestos

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

Assigned Matrix Codes

1	SAND	6	CLAY/LOAM	A	Contains Stones
2	LOAM	7	OTHER	B	Contains Construction Rubble
3	CLAY	8	Asbestos Bulk (Only Asbestos ID accredited)	C	Contains visible hydrocarbons
4	LOAM/SAND	9	Incinerator Ash (some Metals accredited)	D	Contains glass / metal
5	SAND/CLAY			E	Contains roots / twigs

Note: 7,8,9 matrices are not covered by our ISO 17025 or MCertS accreditation, unless stated above.

Soil Chemical Analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any “A” subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any “D” subscripts.

TPH by method A-T-007:

For waters, free and visible oils are excluded from the sample used for analysis, so the reported result represents the dissolved phase only.
Results “with Clean up” indicates samples cleaned up with Silica during extraction.

EPH CWG (method A-T-055) from TPH CWG:

EPH CWG results have humics mathematically subtracted through instrument calculation.

Where these humic substances have been identified in any IDs from “TPH CWG with clean up” please note that the concentration is **NOT** included in the quantified results but present in the ID for information.

Electrical Conductivity of water by method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

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

Envirolab Deviating Samples Report

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

Client: Earth Environmental & Geotechnical Ltd (Bath), Studio 3 Tollbridge Studios,
Bath, BA1 7DE

Project: Ladybarn Road, Manchester
Clients Project No: B4971

Project No: 25/05528

Date Received: 28/05/2025 (am)

Cool Box Temperatures (°C): 14.8

NO DEVIATIONS IDENTIFIED

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

Envirolab Analysis Dates

Lab Sample ID	25/05528/1	25/05528/2	25/05528/3	25/05528/4	25/05528/6
Client Sample No					
Client Sample ID/Depth	WS01 0.40-0.60m	WS02 0.20-0.40m	WS02 0.60-0.80m	WS03 0.20-0.40m	WS05 0.40-0.60m
Date Sampled	22/05/25	22/05/25	22/05/25	22/05/25	22/05/25
A-T-019s	09/06/2025	09/06/2025	09/06/2025	09/06/2025	09/06/2025
A-T-022s	30/05/2025	30/05/2025	30/05/2025	30/05/2025	30/05/2025
A-T-024s	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
A-T-026s	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
A-T-027s	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
A-T-028s	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
A-T-031s	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
A-T-032s	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
A-T-040s	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
A-T-042sFCN	02/06/2025	02/06/2025	02/06/2025	02/06/2025	02/06/2025
A-T-042sTCN	02/06/2025	02/06/2025	02/06/2025	02/06/2025	02/06/2025
A-T-043-s	02/06/2025	02/06/2025	02/06/2025	02/06/2025	02/06/2025
A-T-044	03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
A-T-045	03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
A-T-050s	30/05/2025	30/05/2025	30/05/2025	30/05/2025	30/05/2025
A-T-055s	02/06/2025	02/06/2025	02/06/2025	03/06/2025	02/06/2025
Calc	02/06/2025	02/06/2025	02/06/2025	02/06/2025	02/06/2025
Calc-As Recd	02/06/2025	02/06/2025	02/06/2025	03/06/2025	02/06/2025

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

End of Report

APPENDIX 4

WASTE CLASSIFICATION REPORT

Waste Classification Report

HazWasteOnline™ classifies waste as either **hazardous** or **non-hazardous** based on its chemical composition, related legislation and the rules and data defined in the current UK or EU technical guidance (Appendix C) (note that HP 9 Infectious is not assessed). It is the responsibility of the classifier named below to:

- understand the origin of the waste
- select the correct List of Waste code(s)
- confirm that the list of determinands, results and sampling plan are fit for purpose
- select and justify the chosen metal species (Appendix B)
- correctly apply moisture correction and other available corrections
- add the meta data for their user-defined substances (Appendix A)
- check that the classification engine is suitable with respect to the national destination of the waste (Appendix C)



CNSXN-YD00G-9K9QG

To aid the reviewer, the laboratory results, assumptions and justifications managed by the classifier are highlighted in **pale yellow**.

Report is invalid if pages are removed.

Job name

Ladybarn Road, Manchester

Description/Comments

Project

B4971

Site

Classified by

Name: **Simon Leat**
Date: **13 Jun 2025 13:20 GMT**
Telephone: **0161 975 6088**
Company: **Earth Environmental & Geotechnical Ltd**
Houldsworth Mill Business & Arts Centre
Houldsworth Street
Stockport
SK5 6DA

HazWasteOnline™ provides a two day, hazardous waste classification course that covers the use of the software and both basic and advanced waste classification techniques. Certification has to be renewed every 3 years.

HazWasteOnline™ Certification:

Course	Date
Hazardous Waste Classification	-

Purpose of classification

2 - Material Characterisation

Address of the waste

Ladybarn Road, Manchester **Post Code** **M14 6WW**

SIC for the process giving rise to the waste

41202 Construction of domestic buildings

Description of industry/producer giving rise to the waste

Private Developer

Description of the specific process, sub-process and/or activity that created the waste

Groundworks

Description of the waste

Made Ground, clay



Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	WS01	0.4	Non Hazardous		3
2	WS02	0.2	Non Hazardous		6
3	WS02[2]	0.6	Non Hazardous		9
4	WS03	0.2	Non Hazardous		12
5	WS05	0.4	Non Hazardous		15

Related documents

#	Name	Description
1	Example worst case waste stream template: 17 05 04 or 17 05 03 *	waste stream template used to create this Job

Report

Created by: Simon Leat

Created date: 13 Jun 2025 13:20 GMT

Appendices	Page
Appendix A: Classifier defined and non GB MCL determinands	18
Appendix B: Rationale for selection of metal species	19
Appendix C: Version	20

Classification of sample: WS01

✓ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	WS01	LoW Code:	
Sample Depth:	0.4 m	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:	13.4%	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
(wet weight correction)			

Hazard properties

None identified

Determinands

Moisture content: 13.4% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
1	arsenic { arsenic acid and its salts with the exception of those specified elsewhere in this Annex }				5 mg/kg	1.895	8.203 mg/kg	0.00082 %	✓	
	033-005-00-1									
2	barium { barium carbonate }				79 mg/kg	1.437	98.309 mg/kg	0.00983 %	✓	
	056-003-00-2	208-167-3	513-77-9							
3	beryllium { beryllium compounds with the exception of aluminium beryllium silicates, and with those specified elsewhere in this Annex }				0.7 mg/kg	8.868	5.376 mg/kg	0.000538 %	✓	
	004-002-00-2									
4	boron { boric acid; [1] boric acid; [2] }				<1 mg/kg	5.719	<5.719 mg/kg	<0.000572 %		<LOD
	005-007-00-2	233-139-2 [1] 234-343-4 [2]	10043-35-3 [1] 11113-50-1 [2]							
5	cadmium { cadmium sulfate }				<0.5 mg/kg	1.855	<0.927 mg/kg	<0.0000927 %		<LOD
	048-009-00-9	233-331-6	10124-36-4							
6	chromium in Cr(III) compounds { chromium(III) oxide (worst case) }				13 mg/kg	1.462	16.454 mg/kg	0.00165 %	✓	
		215-160-9	1308-38-9							
7	copper { copper sulphate pentahydrate }				29 mg/kg	3.929	98.674 mg/kg	0.00987 %	✓	
	029-023-00-4	231-847-6	7758-99-8							
8	lead { lead chromate }			1	87 mg/kg	1.56	117.52 mg/kg	0.00753 %	✓	
	082-004-00-2	231-846-0	7758-97-6							
9	mercury { mercury dichloride }				0.18 mg/kg	1.353	0.211 mg/kg	0.0000211 %	✓	
	080-010-00-X	231-299-8	7487-94-7							
10	nickel { nickel dibromate }				10 mg/kg	5.358	46.403 mg/kg	0.00464 %	✓	
	028-053-00-5	238-596-1	14550-87-9							
11	selenium { nickel selenate }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
	028-031-00-5	239-125-2	15060-62-5							
12	vanadium { divanadium pentaoxide; vanadium pentoxide }				18 mg/kg	1.785	27.827 mg/kg	0.00278 %	✓	
	023-001-00-8	215-239-8	1314-62-1							
13	zinc { zinc chromate }				68 mg/kg	2.774	163.364 mg/kg	0.0163 %	✓	
	024-007-00-3	236-878-9	13530-65-9							
14	TPH (C6 to C40) petroleum group				236 mg/kg		204.376 mg/kg	0.0204 %	✓	
			TPH							



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
15	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane 603-181-00-X	216-653-1	1634-04-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
16	benzene 601-020-00-8	200-753-7	71-43-2		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
17	toluene 601-021-00-3	203-625-9	108-88-3		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
18	ethylbenzene 601-023-00-4	202-849-4	100-41-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
19	xylene 601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
20	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } 006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %			<LOD
21	pH		PH		9.06 pH		9.06 pH	9.06 pH			
22	naphthalene 601-052-00-2	202-049-5	91-20-3		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
23	acenaphthylene 205-917-1	208-96-8			<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
24	acenaphthene 201-469-6	83-32-9			0.06 mg/kg		0.052 mg/kg	0.0000052 %	✓		
25	fluorene 201-695-5	86-73-7			0.03 mg/kg		0.026 mg/kg	0.0000026 %	✓		
26	phenanthrene 201-581-5	85-01-8			0.33 mg/kg		0.286 mg/kg	0.0000286 %	✓		
27	anthracene 204-371-1	120-12-7			0.07 mg/kg		0.0606 mg/kg	0.00000606 %	✓		
28	fluoranthene 205-912-4	206-44-0			0.48 mg/kg		0.416 mg/kg	0.0000416 %	✓		
29	pyrene 204-927-3	129-00-0			0.45 mg/kg		0.39 mg/kg	0.000039 %	✓		
30	benzo[a]anthracene 601-033-00-9	200-280-6	56-55-3		0.25 mg/kg		0.217 mg/kg	0.0000217 %	✓		
31	chrysene 601-048-00-0	205-923-4	218-01-9		0.29 mg/kg		0.251 mg/kg	0.0000251 %	✓		
32	benzo[b]fluoranthene 601-034-00-4	205-911-9	205-99-2		0.25 mg/kg		0.217 mg/kg	0.0000217 %	✓		
33	benzo[k]fluoranthene 601-036-00-5	205-916-6	207-08-9		<0.07 mg/kg		<0.07 mg/kg	<0.000007 %			<LOD
34	benzo[a]pyrene; benzo[def]chrysene 601-032-00-3	200-028-5	50-32-8		0.23 mg/kg		0.199 mg/kg	0.0000199 %	✓		
35	indeno[123-cd]pyrene 205-893-2	193-39-5			0.18 mg/kg		0.156 mg/kg	0.0000156 %	✓		
36	dibenz[a,h]anthracene 601-041-00-2	200-181-8	53-70-3		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
37	benzo[ghi]perylene 205-883-8	191-24-2			0.16 mg/kg		0.139 mg/kg	0.0000139 %	✓		
38	phenol 604-001-00-2	203-632-7	108-95-2		<0.2 mg/kg		<0.2 mg/kg	<0.00002 %			<LOD
Total:									0.0747 %		



Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60 °C or waste gas oil, diesel and light heating oils having a flash point > 55 °C and <= 75 °C"

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 800 mg/kg (0.08%)
because: No free phase present

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.0204%)

Classification of sample: WS02

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	WS02	LoW Code:	
Sample Depth:	0.2 m	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:	14.6%	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
(wet weight correction)			

Hazard properties

None identified

Determinands

Moisture content: 14.6% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number									
1	arsenic { arsenic acid and its salts with the exception of those specified elsewhere in this Annex }				12	mg/kg	1.895	19.415	mg/kg	0.00194 %	✓	
	033-005-00-1											
2	barium { barium carbonate }				113	mg/kg	1.437	138.671	mg/kg	0.0139 %	✓	
	056-003-00-2	208-167-3	513-77-9									
3	beryllium { beryllium compounds with the exception of aluminium beryllium silicates, and with those specified elsewhere in this Annex }				0.9	mg/kg	8.868	6.816	mg/kg	0.000682 %	✓	
	004-002-00-2											
4	boron { boric acid; [1] boric acid; [2] }				<1	mg/kg	5.719	<5.719	mg/kg	<0.000572 %		<LOD
	005-007-00-2	233-139-2 [1] 234-343-4 [2]	10043-35-3 [1] 11113-50-1 [2]									
5	cadmium { cadmium sulfate }				0.6	mg/kg	1.855	0.95	mg/kg	0.000095 %	✓	
	048-009-00-9	233-331-6	10124-36-4									
6	chromium in Cr(III) compounds { chromium(III) oxide (worst case) }				13	mg/kg	1.462	16.226	mg/kg	0.00162 %	✓	
		215-160-9	1308-38-9									
7	copper { copper sulphate pentahydrate }				61	mg/kg	3.929	204.68	mg/kg	0.0205 %	✓	
	029-023-00-4	231-847-6	7758-99-8									
8	lead { lead chromate }			1	202	mg/kg	1.56	269.081	mg/kg	0.0173 %	✓	
	082-004-00-2	231-846-0	7758-97-6									
9	mercury { mercury dichloride }				0.38	mg/kg	1.353	0.439	mg/kg	0.0000439 %	✓	
	080-010-00-X	231-299-8	7487-94-7									
10	nickel { nickel dibromate }				16	mg/kg	5.358	73.216	mg/kg	0.00732 %	✓	
	028-053-00-5	238-596-1	14550-87-9									
11	selenium { nickel selenate }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
	028-031-00-5	239-125-2	15060-62-5									
12	vanadium { divanadium pentaoxide; vanadium pentoxide }				22	mg/kg	1.785	33.54	mg/kg	0.00335 %	✓	
	023-001-00-8	215-239-8	1314-62-1									
13	zinc { zinc chromate }				89	mg/kg	2.774	210.852	mg/kg	0.0211 %	✓	
	024-007-00-3	236-878-9	13530-65-9									
14	TPH (C6 to C40) petroleum group				392	mg/kg		334.768	mg/kg	0.0335 %	✓	
			TPH									



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
15	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	603-181-00-X	216-653-1	1634-04-4								
16	benzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	601-020-00-8	200-753-7	71-43-2								
17	toluene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
18	ethylbenzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
19	xylene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
20	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %			<LOD
	006-007-00-5										
21	pH		PH		9.23 pH		9.23 pH	9.23 pH			
22	naphthalene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
23	acenaphthylene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
		205-917-1	208-96-8								
24	acenaphthene				0.05 mg/kg		0.0427 mg/kg	0.00000427 %		✓	
		201-469-6	83-32-9								
25	fluorene				0.02 mg/kg		0.0171 mg/kg	0.00000171 %		✓	
		201-695-5	86-73-7								
26	phenanthrene				0.27 mg/kg		0.231 mg/kg	0.0000231 %		✓	
		201-581-5	85-01-8								
27	anthracene				0.05 mg/kg		0.0427 mg/kg	0.00000427 %		✓	
		204-371-1	120-12-7								
28	fluoranthene				0.52 mg/kg		0.444 mg/kg	0.0000444 %		✓	
		205-912-4	206-44-0								
29	pyrene				0.53 mg/kg		0.453 mg/kg	0.0000453 %		✓	
		204-927-3	129-00-0								
30	benzo[a]anthracene				0.29 mg/kg		0.248 mg/kg	0.0000248 %		✓	
	601-033-00-9	200-280-6	56-55-3								
31	chrysene				0.34 mg/kg		0.29 mg/kg	0.000029 %		✓	
	601-048-00-0	205-923-4	218-01-9								
32	benzo[b]fluoranthene				0.29 mg/kg		0.248 mg/kg	0.0000248 %		✓	
	601-034-00-4	205-911-9	205-99-2								
33	benzo[k]fluoranthene				0.08 mg/kg		0.0683 mg/kg	0.00000683 %		✓	
	601-036-00-5	205-916-6	207-08-9								
34	benzo[a]pyrene; benzo[def]chrysene				0.25 mg/kg		0.214 mg/kg	0.0000214 %		✓	
	601-032-00-3	200-028-5	50-32-8								
35	indeno[123-cd]pyrene				0.19 mg/kg		0.162 mg/kg	0.0000162 %		✓	
		205-893-2	193-39-5								
36	dibenz[a,h]anthracene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
	601-041-00-2	200-181-8	53-70-3								
37	benzo[ghi]perylene				0.16 mg/kg		0.137 mg/kg	0.0000137 %		✓	
		205-883-8	191-24-2								
38	phenol				<0.2 mg/kg		<0.2 mg/kg	<0.00002 %			<LOD
	604-001-00-2	203-632-7	108-95-2								
Total:									0.121 %		



Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
■	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60 °C or waste gas oil, diesel and light heating oils having a flash point > 55 °C and ≤ 75 °C"

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 800 mg/kg (0.08%)
because: No free phase present

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.0335%)

Classification of sample: WS02[2]

✓ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	WS02[2]	LoW Code:	
Sample Depth:	0.6 m	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:	15.2%	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
	(wet weight correction)		

Hazard properties

None identified

Determinands

Moisture content: 15.2% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number									
1	arsenic { arsenic acid and its salts with the exception of those specified elsewhere in this Annex }				12	mg/kg	1.895	19.279	mg/kg	0.00193 %	✓	
	033-005-00-1											
2	barium { barium carbonate }				84	mg/kg	1.437	102.359	mg/kg	0.0102 %	✓	
	056-003-00-2	208-167-3	513-77-9									
3	beryllium { beryllium compounds with the exception of aluminium beryllium silicates, and with those specified elsewhere in this Annex }				0.7	mg/kg	8.868	5.264	mg/kg	0.000526 %	✓	
	004-002-00-2											
4	boron { boric acid; [1] boric acid; [2] }				<1	mg/kg	5.719	<5.719	mg/kg	<0.000572 %		<LOD
	005-007-00-2	233-139-2 [1] 234-343-4 [2]	10043-35-3 [1] 11113-50-1 [2]									
5	cadmium { cadmium sulfate }				<0.5	mg/kg	1.855	<0.927	mg/kg	<0.0000927 %		<LOD
	048-009-00-9	233-331-6	10124-36-4									
6	chromium in Cr(III) compounds { chromium(III) oxide (worst case) }				12	mg/kg	1.462	14.873	mg/kg	0.00149 %	✓	
		215-160-9	1308-38-9									
7	copper { copper sulphate pentahydrate }				50	mg/kg	3.929	166.592	mg/kg	0.0167 %	✓	
	029-023-00-4	231-847-6	7758-99-8									
8	lead { lead chromate }			1	164	mg/kg	1.56	216.927	mg/kg	0.0139 %	✓	
	082-004-00-2	231-846-0	7758-97-6									
9	mercury { mercury dichloride }				0.34	mg/kg	1.353	0.39	mg/kg	0.000039 %	✓	
	080-010-00-X	231-299-8	7487-94-7									
10	nickel { nickel dibromate }				13	mg/kg	5.358	59.07	mg/kg	0.00591 %	✓	
	028-053-00-5	238-596-1	14550-87-9									
11	selenium { nickel selenate }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
	028-031-00-5	239-125-2	15060-62-5									
12	vanadium { divanadium pentaoxide; vanadium pentoxide }				18	mg/kg	1.785	27.249	mg/kg	0.00272 %	✓	
	023-001-00-8	215-239-8	1314-62-1									
13	zinc { zinc chromate }				60	mg/kg	2.774	141.149	mg/kg	0.0141 %	✓	
	024-007-00-3	236-878-9	13530-65-9									
14	TPH (C6 to C40) petroleum group				94	mg/kg		79.712	mg/kg	0.00797 %	✓	
			TPH									



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
15	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane 603-181-00-X	216-653-1	1634-04-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
16	benzene 601-020-00-8	200-753-7	71-43-2		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
17	toluene 601-021-00-3	203-625-9	108-88-3		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
18	ethylbenzene 601-023-00-4	202-849-4	100-41-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
19	xylene 601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
20	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } 006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %			<LOD
21	pH		PH		7.53 pH		7.53 pH	7.53 pH			
22	naphthalene 601-052-00-2	202-049-5	91-20-3		0.03 mg/kg		0.0254 mg/kg	0.00000254 %		✓	
23	acenaphthylene 205-917-1	208-96-8			<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
24	acenaphthene 201-469-6	83-32-9			0.23 mg/kg		0.195 mg/kg	0.0000195 %		✓	
25	fluorene 201-695-5	86-73-7			0.1 mg/kg		0.0848 mg/kg	0.00000848 %		✓	
26	phenanthrene 201-581-5	85-01-8			1.06 mg/kg		0.899 mg/kg	0.0000899 %		✓	
27	anthracene 204-371-1	120-12-7			0.13 mg/kg		0.11 mg/kg	0.000011 %		✓	
28	fluoranthene 205-912-4	206-44-0			1.02 mg/kg		0.865 mg/kg	0.0000865 %		✓	
29	pyrene 204-927-3	129-00-0			0.99 mg/kg		0.84 mg/kg	0.000084 %		✓	
30	benzo[a]anthracene 601-033-00-9	200-280-6	56-55-3		0.44 mg/kg		0.373 mg/kg	0.0000373 %		✓	
31	chrysene 601-048-00-0	205-923-4	218-01-9		0.52 mg/kg		0.441 mg/kg	0.0000441 %		✓	
32	benzo[b]fluoranthene 601-034-00-4	205-911-9	205-99-2		0.44 mg/kg		0.373 mg/kg	0.0000373 %		✓	
33	benzo[k]fluoranthene 601-036-00-5	205-916-6	207-08-9		0.14 mg/kg		0.119 mg/kg	0.0000119 %		✓	
34	benzo[a]pyrene; benzo[def]chrysene 601-032-00-3	200-028-5	50-32-8		0.35 mg/kg		0.297 mg/kg	0.0000297 %		✓	
35	indeno[123-cd]pyrene 205-893-2	193-39-5			0.2 mg/kg		0.17 mg/kg	0.000017 %		✓	
36	dibenz[a,h]anthracene 601-041-00-2	200-181-8	53-70-3		0.04 mg/kg		0.0339 mg/kg	0.00000339 %		✓	
37	benzo[ghi]perylene 205-883-8	191-24-2			0.17 mg/kg		0.144 mg/kg	0.0000144 %		✓	
38	phenol 604-001-00-2	203-632-7	108-95-2		<0.2 mg/kg		<0.2 mg/kg	<0.00002 %			<LOD
Total:									0.076 %		



Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
■	Determinand defined or amended by HazWasteOnline (see Appendix A)
■	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60 °C or waste gas oil, diesel and light heating oils having a flash point > 55 °C and <= 75 °C"

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 800 mg/kg (0.08%)
because: No free phase present

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.00797%)

Classification of sample: WS03

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	WS03	LoW Code:	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	0.2 m	Entry:		17 05 04 (Soil and stones other than those mentioned in 17 05 03)
Moisture content:	8.4%			
(wet weight correction)				

Hazard properties

None identified

Determinands

Moisture content: 8.4% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number									
1	arsenic { arsenic acid and its salts with the exception of those specified elsewhere in this Annex }				14	mg/kg	1.895	24.295	mg/kg	0.00243 %	✓	
	033-005-00-1											
2	barium { barium carbonate }				103	mg/kg	1.437	135.576	mg/kg	0.0136 %	✓	
	056-003-00-2	208-167-3	513-77-9									
3	beryllium { beryllium compounds with the exception of aluminium beryllium silicates, and with those specified elsewhere in this Annex }				1.1	mg/kg	8.868	8.935	mg/kg	0.000894 %	✓	
	004-002-00-2											
4	boron { boric acid; [1] boric acid; [2] }				<1	mg/kg	5.719	<5.719	mg/kg	<0.000572 %		<LOD
	005-007-00-2	233-139-2 [1] 234-343-4 [2]	10043-35-3 [1] 11113-50-1 [2]									
5	cadmium { cadmium sulfate }				0.8	mg/kg	1.855	1.359	mg/kg	0.000136 %	✓	
	048-009-00-9	233-331-6	10124-36-4									
6	chromium in Cr(III) compounds { chromium(III) oxide (worst case) }				16	mg/kg	1.462	21.421	mg/kg	0.00214 %	✓	
		215-160-9	1308-38-9									
7	copper { copper sulphate pentahydrate }				58	mg/kg	3.929	208.743	mg/kg	0.0209 %	✓	
	029-023-00-4	231-847-6	7758-99-8									
8	lead { lead chromate }			1	313	mg/kg	1.56	447.211	mg/kg	0.0287 %	✓	
	082-004-00-2	231-846-0	7758-97-6									
9	mercury { mercury dichloride }				<0.17	mg/kg	1.353	<0.23	mg/kg	<0.000023 %		<LOD
	080-010-00-X	231-299-8	7487-94-7									
10	nickel { nickel dibromate }				19	mg/kg	5.358	93.256	mg/kg	0.00933 %	✓	
	028-053-00-5	238-596-1	14550-87-9									
11	selenium { nickel selenate }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
	028-031-00-5	239-125-2	15060-62-5									
12	vanadium { divanadium pentaoxide; vanadium pentoxide }				29	mg/kg	1.785	47.422	mg/kg	0.00474 %	✓	
	023-001-00-8	215-239-8	1314-62-1									
13	zinc { zinc chromate }				83	mg/kg	2.774	210.913	mg/kg	0.0211 %	✓	
	024-007-00-3	236-878-9	13530-65-9									
14	TPH (C6 to C40) petroleum group				824	mg/kg		754.784	mg/kg	0.0755 %	✓	
			TPH									



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
15	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	603-181-00-X	216-653-1	1634-04-4								
16	benzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	601-020-00-8	200-753-7	71-43-2								
17	toluene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
18	ethylbenzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
19	xylene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
20	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %			<LOD
	006-007-00-5										
21	pH		PH		11.25 pH		11.25 pH	11.25 pH			
22	naphthalene				2.99 mg/kg		2.739 mg/kg	0.000274 %		✓	
	601-052-00-2	202-049-5	91-20-3								
23	acenaphthylene				0.43 mg/kg		0.394 mg/kg	0.0000394 %		✓	
		205-917-1	208-96-8								
24	acenaphthene				0.91 mg/kg		0.834 mg/kg	0.0000834 %		✓	
		201-469-6	83-32-9								
25	fluorene				1.33 mg/kg		1.218 mg/kg	0.000122 %		✓	
		201-695-5	86-73-7								
26	phenanthrene				7.44 mg/kg		6.815 mg/kg	0.000682 %		✓	
		201-581-5	85-01-8								
27	anthracene				2.12 mg/kg		1.942 mg/kg	0.000194 %		✓	
		204-371-1	120-12-7								
28	fluoranthene				10.1 mg/kg		9.252 mg/kg	0.000925 %		✓	
		205-912-4	206-44-0								
29	pyrene				10.1 mg/kg		9.252 mg/kg	0.000925 %		✓	
		204-927-3	129-00-0								
30	benzo[a]anthracene				2.9 mg/kg		2.656 mg/kg	0.000266 %		✓	
	601-033-00-9	200-280-6	56-55-3								
31	chrysene				4.26 mg/kg		3.902 mg/kg	0.00039 %		✓	
	601-048-00-0	205-923-4	218-01-9								
32	benzo[b]fluoranthene				2.9 mg/kg		2.656 mg/kg	0.000266 %		✓	
	601-034-00-4	205-911-9	205-99-2								
33	benzo[k]fluoranthene				0.96 mg/kg		0.879 mg/kg	0.0000879 %		✓	
	601-036-00-5	205-916-6	207-08-9								
34	benzo[a]pyrene; benzo[def]chrysene				3.17 mg/kg		2.904 mg/kg	0.00029 %		✓	
	601-032-00-3	200-028-5	50-32-8								
35	indeno[123-cd]pyrene				1.9 mg/kg		1.74 mg/kg	0.000174 %		✓	
		205-893-2	193-39-5								
36	dibenz[a,h]anthracene				0.48 mg/kg		0.44 mg/kg	0.000044 %		✓	
	601-041-00-2	200-181-8	53-70-3								
37	benzo[ghi]perylene				1.63 mg/kg		1.493 mg/kg	0.000149 %		✓	
		205-883-8	191-24-2								
38	phenol				<0.2 mg/kg		<0.2 mg/kg	<0.00002 %			<LOD
	604-001-00-2	203-632-7	108-95-2								
Total:									0.184 %		



Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
■	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60 °C or waste gas oil, diesel and light heating oils having a flash point > 55 °C and <= 75 °C"

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 800 mg/kg (0.08%)
because: No free phase present

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.0755%)

Classification of sample: WS05

✓ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	WS05	LoW Code:	
Sample Depth:	0.4 m	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:	14%	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
(wet weight correction)			

Hazard properties

None identified

Determinands

Moisture content: 14% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number									
1	arsenic { arsenic acid and its salts with the exception of those specified elsewhere in this Annex }				7	mg/kg	1.895	11.405	mg/kg	0.00114 %	✓	
	033-005-00-1											
2	barium { barium carbonate }				86	mg/kg	1.437	106.279	mg/kg	0.0106 %	✓	
	056-003-00-2	208-167-3	513-77-9									
3	beryllium { beryllium compounds with the exception of aluminium beryllium silicates, and with those specified elsewhere in this Annex }				0.8	mg/kg	8.868	6.101	mg/kg	0.00061 %	✓	
	004-002-00-2											
4	boron { boric acid; [1] boric acid; [2] }				<1	mg/kg	5.719	<5.719	mg/kg	<0.000572 %		<LOD
	005-007-00-2	233-139-2 [1] 234-343-4 [2]	10043-35-3 [1] 11113-50-1 [2]									
5	cadmium { cadmium sulfate }				<0.5	mg/kg	1.855	<0.927	mg/kg	<0.0000927 %		<LOD
	048-009-00-9	233-331-6	10124-36-4									
6	chromium in Cr(III) compounds { chromium(III) oxide (worst case) }				12	mg/kg	1.462	15.083	mg/kg	0.00151 %	✓	
		215-160-9	1308-38-9									
7	copper { copper sulphate pentahydrate }				38	mg/kg	3.929	128.401	mg/kg	0.0128 %	✓	
	029-023-00-4	231-847-6	7758-99-8									
8	lead { lead chromate }			1	127	mg/kg	1.56	170.363	mg/kg	0.0109 %	✓	
	082-004-00-2	231-846-0	7758-97-6									
9	mercury { mercury dichloride }				<0.17	mg/kg	1.353	<0.23	mg/kg	<0.000023 %		<LOD
	080-010-00-X	231-299-8	7487-94-7									
10	nickel { nickel dibromate }				14	mg/kg	5.358	64.514	mg/kg	0.00645 %	✓	
	028-053-00-5	238-596-1	14550-87-9									
11	selenium { nickel selenate }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
	028-031-00-5	239-125-2	15060-62-5									
12	vanadium { divanadium pentaoxide; vanadium pentoxide }				23	mg/kg	1.785	35.311	mg/kg	0.00353 %	✓	
	023-001-00-8	215-239-8	1314-62-1									
13	zinc { zinc chromate }				73	mg/kg	2.774	174.161	mg/kg	0.0174 %	✓	
	024-007-00-3	236-878-9	13530-65-9									
14	TPH (C6 to C40) petroleum group				213	mg/kg		183.18	mg/kg	0.0183 %	✓	
			TPH									



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
15	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane 603-181-00-X	216-653-1	1634-04-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
16	benzene 601-020-00-8	200-753-7	71-43-2		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
17	toluene 601-021-00-3	203-625-9	108-88-3		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
18	ethylbenzene 601-023-00-4	202-849-4	100-41-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
19	xylene 601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
20	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } 006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %			<LOD
21	pH PH				9.05 pH		9.05 pH	9.05 pH			
22	naphthalene 601-052-00-2	202-049-5	91-20-3		0.08 mg/kg		0.0688 mg/kg	0.00000688 %		✓	
23	acenaphthylene 205-917-1	208-96-8			0.03 mg/kg		0.0258 mg/kg	0.00000258 %		✓	
24	acenaphthene 201-469-6	83-32-9			0.17 mg/kg		0.146 mg/kg	0.0000146 %		✓	
25	fluorene 201-695-5	86-73-7			0.12 mg/kg		0.103 mg/kg	0.0000103 %		✓	
26	phenanthrene 201-581-5	85-01-8			1.13 mg/kg		0.972 mg/kg	0.0000972 %		✓	
27	anthracene 204-371-1	120-12-7			0.2 mg/kg		0.172 mg/kg	0.0000172 %		✓	
28	fluoranthene 205-912-4	206-44-0			1.73 mg/kg		1.488 mg/kg	0.000149 %		✓	
29	pyrene 204-927-3	129-00-0			1.7 mg/kg		1.462 mg/kg	0.000146 %		✓	
30	benzo[a]anthracene 601-033-00-9	200-280-6	56-55-3		0.74 mg/kg		0.636 mg/kg	0.0000636 %		✓	
31	chrysene 601-048-00-0	205-923-4	218-01-9		0.95 mg/kg		0.817 mg/kg	0.0000817 %		✓	
32	benzo[b]fluoranthene 601-034-00-4	205-911-9	205-99-2		0.74 mg/kg		0.636 mg/kg	0.0000636 %		✓	
33	benzo[k]fluoranthene 601-036-00-5	205-916-6	207-08-9		0.23 mg/kg		0.198 mg/kg	0.0000198 %		✓	
34	benzo[a]pyrene; benzo[def]chrysene 601-032-00-3	200-028-5	50-32-8		0.67 mg/kg		0.576 mg/kg	0.0000576 %		✓	
35	indeno[123-cd]pyrene 205-893-2	193-39-5			0.47 mg/kg		0.404 mg/kg	0.0000404 %		✓	
36	dibenz[a,h]anthracene 601-041-00-2	200-181-8	53-70-3		0.09 mg/kg		0.0774 mg/kg	0.00000774 %		✓	
37	benzo[ghi]perylene 205-883-8	191-24-2			0.43 mg/kg		0.37 mg/kg	0.000037 %		✓	
38	phenol 604-001-00-2	203-632-7	108-95-2		<0.2 mg/kg		<0.2 mg/kg	<0.00002 %			<LOD
Total:									0.0842 %		



Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
■	Determinand defined or amended by HazWasteOnline (see Appendix A)
■	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60 °C or waste gas oil, diesel and light heating oils having a flash point > 55 °C and <= 75 °C"

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 800 mg/kg (0.08%)
because: No free phase present

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.0183%)

Appendix A: Classifier defined and non GB MCL determinands

■ **chromium(III) oxide (worst case)** (EC Number: 215-160-9, CAS Number: 1308-38-9)

Description/Comments: Data from C&L Inventory Database

Data source: <https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/33806>

Data source date: 17 Jul 2015

Hazard Statements: Acute Tox. 4; H332, Acute Tox. 4; H302, Eye Irrit. 2; H319, STOT SE 3; H335, Skin Irrit. 2; H315, Resp. Sens. 1; H334, Skin Sens. 1; H317, Repr. 1B; H360FD, Aquatic Acute 1; H400, Aquatic Chronic 1; H410

■ **TPH (C6 to C40) petroleum group** (CAS Number: TPH)

Description/Comments: Unknown Oil

Hazard statements taken from WM3 1st Edition 2015

Data source: WM3 1st Edition 2015

Data source date: 25 May 2015

Hazard Statements: Flam. Liq. 3; H226, Asp. Tox. 1; H304, STOT RE 2; H373, Muta. 1B; H340, Carc. 1B; H350, Repr. 2; H361d, Aquatic Chronic 2; H411

■ **ethylbenzene** (EC Number: 202-849-4, CAS Number: 100-41-4)

GB MCL index number: 601-023-00-4

Description/Comments:

Additional Hazard Statement(s): Carc. 2; H351

Reason for additional Hazards Statement(s):

20 Nov 2021 - Carc. 2; H351 hazard statement sourced from: IARC Group 2B (77) 2000

■ **salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex**

GB MCL index number: 006-007-00-5

Description/Comments: Conversion factor based on a worst case compound: sodium cyanide

Additional Hazard Statement(s): EUH032 >= 0.2 %

Reason for additional Hazards Statement(s):

20 Nov 2021 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

■ **pH** (CAS Number: PH)

Description/Comments: Appendix C4

Data source: WM3 1st Edition 2015

Data source date: 25 May 2015

Hazard Statements: None.

■ **acenaphthylene** (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

Hazard Statements: Acute Tox. 4; H302, Acute Tox. 1; H330, Acute Tox. 1; H310, Eye Irrit. 2; H319, STOT SE 3; H335, Skin Irrit. 2; H315

■ **acenaphthene** (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

Hazard Statements: Eye Irrit. 2; H319, STOT SE 3; H335, Skin Irrit. 2; H315, Aquatic Acute 1; H400, Aquatic Chronic 1; H410, Aquatic Chronic 2; H411

■ **fluorene** (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 06 Aug 2015

Hazard Statements: Aquatic Acute 1; H400, Aquatic Chronic 1; H410

■ **phenanthrene** (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 06 Aug 2015

Hazard Statements: Acute Tox. 4; H302, Eye Irrit. 2; H319, STOT SE 3; H335, Carc. 2; H351, Skin Sens. 1; H317, Aquatic Acute 1; H400, Aquatic Chronic 1; H410, Skin Irrit. 2; H315

■ **anthracene** (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

Hazard Statements: Eye Irrit. 2; H319, STOT SE 3; H335, Skin Irrit. 2; H315, Skin Sens. 1; H317, Aquatic Acute 1; H400, Aquatic Chronic 1; H410

■ **fluoranthene** (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 21 Aug 2015

Hazard Statements: Acute Tox. 4; H302, Aquatic Acute 1; H400, Aquatic Chronic 1; H410

■ **pyrene** (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 21 Aug 2015

Hazard Statements: Skin Irrit. 2; H315, Eye Irrit. 2; H319, STOT SE 3; H335, Aquatic Acute 1; H400, Aquatic Chronic 1; H410

■ **indeno[123-cd]pyrene** (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 06 Aug 2015

Hazard Statements: Carc. 2; H351

■ **benzo[ghi]perylene** (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 23 Jul 2015

Hazard Statements: Aquatic Acute 1; H400, Aquatic Chronic 1; H410

Appendix B: Rationale for selection of metal species

arsenic {arsenic acid and its salts with the exception of those specified elsewhere in this Annex}

Worst case CLP species based on hazard statements/molecular weight and conversion factor for arsenic acid H₃AsO₄. (edit as required)

barium {barium carbonate}

Based on previous/current site usage

beryllium {beryllium compounds with the exception of aluminium beryllium silicates, and with those specified elsewhere in this Annex}

Worst case CLP species based on hazard statements/molecular weight and conversion factor for beryllium chloride. (edit as required)

boron {boric acid; [1] boric acid; [2]}

Reasonable worst case CLP species based on hazard statements/molecular weight and assuming water is or has been present. (edit as required)

cadmium {cadmium sulfate}

Worst case CLP species based on hazard statements/molecular weight. (edit as required)

chromium in Cr(III) compounds {chromium(III) oxide (worst case)}

Based on previous/current site usage

copper {copper sulphate pentahydrate}

Worst case CLP species based on hazard statements/molecular weight. (edit as required)

lead {lead chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

mercury {mercury dichloride}

Reasonable worst case CLP species based on hazard statements/molecular weight and assuming no evidence for the use of explosives. (edit as required)

nickel {nickel dibromate}

Worst case CLP species based on hazard statements/molecular weight. (edit as required)

selenium {nickel selenate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)



vanadium {divanadium pentaoxide; vanadium pentoxide}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

zinc {zinc chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

cyanides {salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex}

Harmonised group entry used as most reasonable case as complex cyanides and those specified elsewhere in the annex are not likely to be present in this soil: [Note conversion factor based on a worst case compound: sodium cyanide] (edit as required)

Appendix C: Version

HazWasteOnline Classification Engine: **WM3 1st Edition v1.2.GB - Oct 2021**

HazWasteOnline Classification Engine Version: 2025.156.6656.12103 (05 Jun 2025)

HazWasteOnline Database: 2025.156.6656.12103 (05 Jun 2025)

This classification utilises the following guidance and legislation:

WM3 v1.2.GB - Waste Classification - 1st Edition v1.2.GB - Oct 2021

CLP Regulation - Regulation 1272/2008/EC of 16 December 2008

1st ATP - Regulation 790/2009/EC of 10 August 2009

2nd ATP - Regulation 286/2011/EC of 10 March 2011

3rd ATP - Regulation 618/2012/EU of 10 July 2012

4th ATP - Regulation 487/2013/EU of 8 May 2013

Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013

5th ATP - Regulation 944/2013/EU of 2 October 2013

6th ATP - Regulation 605/2014/EU of 5 June 2014

WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014

Revised List of Waste 2014 - Decision 2014/955/EU of 18 December 2014

7th ATP - Regulation 2015/1221/EU of 24 July 2015

8th ATP - Regulation (EU) 2016/918 of 19 May 2016

9th ATP - Regulation (EU) 2016/1179 of 19 July 2016

10th ATP - Regulation (EU) 2017/776 of 4 May 2017

HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017

13th ATP - Regulation (EU) 2018/1480 of 4 October 2018

14th ATP - Regulation (EU) 2020/217 of 4 October 2019

15th ATP - Regulation (EU) 2020/1182 of 19 May 2020

The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit)

Regulations 2020 - UK: 2020 No. 1567 of 16th December 2020

The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 - UK:

2020 No. 1540 of 16th December 2020

GB MCL List - version 1.1 of 09 June 2021

GB MCL List v2.0 - version 2.0 of 20th October 2023

GB MCL List v3.0 - version 3.0 of 11th January 2024

GB MCL List v4.0 - version 4.0 of 2nd March 2024

GB MCL List v5.0 - version 5.0 of 26th June 2024

GB MCL List v6.0 - version 6.0 of 15th February 2025

APPENDIX 5

REPORT LIMITATIONS

REPORT LIMITATIONS

This contract was completed by Earth Environmental & Geotechnical Ltd on the basis of a defined programme and scope of works and terms and conditions agreed with the client. This report was compiled with all reasonable skill, and care, bearing in mind the project objectives, the agreed scope of works, the prevailing site conditions, the budget and staff resources allocated to the project.

Other than that expressly contained in the above paragraph, Earth Environmental & Geotechnical Ltd provides no other representation or warranty whether express or implied, is made in relation to the services. Unless otherwise agreed this report has been prepared exclusively for the use and reliance of the client in accordance with generally accepted consulting practices and for the intended purposes as stated in the agreement under which this work was completed. This report may not be relied upon, or transferred to, by any other party without the written agreement of a Director of Earth Environmental & Geotechnical Ltd.

If a third party relies on this report, it does so wholly at its own and sole risk and Earth Environmental & Geotechnical Ltd disclaims any liability to such parties.

It is Earth Environmental & Geotechnical Ltd understanding that this report is to be used for the purpose described in the introduction to the report. That purpose was an important factor in determining the scope and level of the services. Should the purpose for which the report is used, or the proposed use of the site change, this report will no longer be valid and any further use of, or reliance upon the report in those circumstances by the client without Earth Environmental & Geotechnical Ltd review and advice shall be at the client's sole and own risk.

The report was written in 2025 and should be read in light of any subsequent changes in legislation, statutory requirements and industry best practices. Ground conditions can also change over time and further investigations or assessment should be made if there is any significant delay in acting on the findings of this report. The passage of time may result in changes in site conditions, regulatory or other legal provisions, technology or economic conditions which could render the report inaccurate or unreliable. The information and conclusions contained in this report should not be relied upon in the future without the written advice of Earth Environmental & Geotechnical Ltd. In the absence of such written advice of Earth Environmental & Geotechnical Ltd, reliance on the report in the future shall be at the client's own and sole risk. Should Earth Environmental & Geotechnical Ltd be requested to review the report in the future, Earth Environmental & Geotechnical Ltd shall be entitled to additional payment at the then existing rate or such other terms as may be agreed between Earth Environmental & Geotechnical Ltd and the client.

The observations and conclusions described in this report are based solely upon the services that were provided pursuant to the agreement between the client and Earth Environmental & Geotechnical Ltd. Earth Environmental & Geotechnical Ltd has not performed any observations, investigations, studies or testing not specifically set out or mentioned within this report.

Earth Environmental & Geotechnical Ltd is not liable for the existence of any condition, the discovery of which would require performance of services not otherwise contained in the services. For the avoidance of doubt, unless otherwise expressly referred to in the introduction to this report, Earth Environmental & Geotechnical Ltd did not seek to evaluate the presence on or off the site of electromagnetic fields, lead paint, radon gas or other radioactive materials.

The services are based upon Earth Environmental & Geotechnical Ltd observations of existing physical conditions at the site gained from a walkover survey of the site together with Earth

Environmental & Geotechnical Ltd interpretation of information including documentation, obtained from third parties and from the client on the history and usage of the site. The findings and recommendations contained in this report are based in part upon information provided by third parties, and whilst Earth Environmental & Geotechnical Ltd have no reason to doubt the accuracy and that it has been provided in full from those it was requested from, the items relied on have not been verified.

No responsibility can be accepted for errors within third party items presented in this report. Further Earth Environmental & Geotechnical Ltd was not authorised and did not attempt to independently verify the accuracy or completeness of information, documentation or materials received from the client or third parties, including laboratories and information services, during the performance of the services. Earth Environmental & Geotechnical Ltd is not liable for any inaccurate information, misrepresentation of data or conclusions, the discovery of which inaccuracies required the doing of any act including the gathering of any information which was not reasonably available to Earth Environmental & Geotechnical Ltd and including the doing of any independent investigation of the information provided to Earth Environmental & Geotechnical Ltd save as otherwise provided in the terms of the contract between the client and Earth Environmental & Geotechnical Ltd.

Where field investigations have been carried out these have been restricted to a level of detail required to achieve the stated objectives of the work. Ground conditions can also be variable and as investigation excavations only allow examination of the ground at discrete locations. The potential exists for ground conditions to be encountered which are different to those considered in this report. The extent of the limited area depends on the soil and groundwater conditions, together with the position of any current structures and underground facilities and natural and other activities on site. In addition, chemical analysis was carried out for a limited number of parameters [as stipulated in the contract between the client and Earth Environmental & Geotechnical Ltd] based on an understanding of the available operational and historical information, and it should not be inferred that other chemical species are not present.

The groundwater conditions entered on the exploratory hole records are those observed at the time of investigation. The normal speed of investigation usually does not permit the recording of an equilibrium water level for any one water strike. Moreover, groundwater levels are subject to seasonal variation or changes in local drainage conditions and higher groundwater levels may occur at other times of the year than were recorded during this investigation.

Any site drawing(s) provided in this report is (are) not meant to be an accurate base plan, but is (are) used to present the general relative locations of features on, and surrounding, the site.