



JNP GROUP
CONSULTING ENGINEERS

Phase II Geo-environmental Report

Project: 409 Leeds Road,
Huddersfield,
HD2 1XT

Client: Mattress Online Ltd.

Reference: B25657-JNP-XX-XX-RP-G-1002 P04

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DOCUMENT CONTROL SHEET

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EXECUTIVE SUMMARY

Site location	409 Leeds Road, Huddersfield, HD2 1XT	
Development scheme	The garage is to undergo a change of use to suit Mattress Online moving to the site.	
NGR	415444, 418068	
Current use	On-site: Garage	Off-site: Industrial, residential, commercial, and road infrastructure.
Geology (from GI)	<p>Made ground Asphalt and concrete over sandy clay and gravelly sand with deleterious material. Maximum depth 1.30 m bgl.</p> <p>Drift Mainly soft sandy clay and loose gravelly sand. Visual oily residue.</p>	
Groundwater	Groundwater levels were recorded to be at depths between 2.11 m and 4.37 m bgl. Groundwater contamination of various metals and PAHs exceeded threshold concentrations in groundwater.	
Foundation design	Design sulphate class DS-1 and ACEC class AC-1 is required for buried concrete with the natural soils encountered on this site.	
Contamination	Localised high Risk to human health as PAH and benzene contaminants identified above screening values. Groundwater contamination of various metals and PAHs exceeded threshold concentrations in groundwater.	
Ground gas	CS2 Classification.	
Recommendations	The tanks should be emptied and foam filled. Gas mitigation measures will be required.	

1 INTRODUCTION

1.1 General

1.1.1 JNP Group was instructed by the Mattress Online Ltd via Carter Towler to undertake a desk study investigation of:

409 Leeds Road
Huddersfield
HD2 1XT

hereinafter referred to as 'the site'. This report is subject to the limitations presented in **Appendix A**.

1.1.2 The existing building on site (used as a petrol station, vehicle repair, testing and servicing garage) is to undergo a change of use to a retail unit occupied by Mattress Online. It is understood that the site currently has two 2,700 litre underground fuel tanks, which the landlord is planning to safely decommission.

1.1.3 All comments given are based on the understanding that the proposed redevelopment will be as detailed above.

1.2 Objectives

1.2.1 The purpose of the investigation was to determine the geo-environmental ground conditions at the site and assess the implications of such relative to the proposed change of end use from light industrial to commercial. The scope of work comprised desk-based research including a site walkover.

1.3 Methodology

1.3.1 This report has been compiled in accordance with the on-line Land Contamination: Risk Management (LCRM) guidance produced by the Environment Agency (June 2019). This can be found on the UK government website: <https://www.gov.uk/guidance/land-contamination-how-to-manage-the-risks>.

1.3.2 With regard to geotechnical aspects, reference is also made to the requirements of BS EN 1997, Eurocode 7, Geotechnical Design, and associated standards.

2 SITE DESCRIPTION

- 2.1.1 The site is located off Leeds Road, in Huddersfield, West Yorkshire approximately 250 m east of the River Colne. The centre of the site is located at National Grid Reference SE 154 180. The site covers an area of approximately 0.07 hectares.
- 2.1.2 An engineer from JNP Group visited the site on 26th March 2024, the weather was cloudy and dry. Photographs of the site are included within **Appendix B**.
- 2.1.3 The site consisted of three buildings, which were connected together as one. Each building had a metal roof. There were three diesel/petroleum fuel pumps to the south of the garage building which could potentially be a source of contaminants. The site had vegetation growing up the northern wall of the garage building and some to the west side. There was no other substantial vegetation on site. On the western area of the site were parked vehicles.
- 2.1.4 The site was level and the site's ground coverage was 100 % hardstanding. The hardstanding consisted of tarmacadam which was in a good condition.
- 2.1.5 The buildings on-site seemed to be in good condition.
- 2.1.6 There were no trees on the site.
- 2.1.7 The site was generally clean and in a good condition, apart from the north side of the site where minor fly-tipping had occurred.
- 2.1.8 To the north of the site was a minor road and an industrial building surrounded by metal fencing. The industrial building had a car park to the south side of it. There was a line of vegetation along the western fence of the industrial building. Vegetation was also evident at each side of the minor road. Plastic rubbish and cardboard were spotted on the minor road to the north and alongside the metal fence with vegetation.
- 2.1.9 To the east of the site was a residential building and garden. The property was in a good condition and the garden seemed to be well maintained. There was no evidence of any contamination. No vegetation was evident apart from grass.
- 2.1.10 To the south of the site was Leeds Road. There was no evidence of contamination or vegetation.
- 2.1.11 To the west of the site was Red Doles Lane. There was no evidence of contamination or vegetation.
- 2.1.12 No invasive species were encountered during the walkover.
- 2.1.13 The surrounding land uses are summarised in Table 2.1 below.

Table 2.1 Surrounding Land Use

Direction	Land Use
North	Industrial properties. Huddersfield Broad Canal.
East	Residential properties.
South	Leeds Road, beyond which Commercial properties and River Colne.
West	Industrial properties. Huddersfield Broad Canal.

3 DESK STUDY SUMMARY

3.1 Introduction

3.1.1 The site has been subject to previous Phase I Desk Study by JNP Group (Report Ref: B25657-JNP-XX-XX-RP-G-1001 P01, dated November 2023). The findings of the desk study are summarised in the following sections.

3.2 Historical Site Use

3.2.1 The site was undeveloped agricultural land until approximately 1930, when the garage was constructed. The nearby area was subject to industrial development north of Leeds Road and mostly residential development on the south of Leeds Road.

3.2.2 A low UXO risk has been identified at the site.

3.3 Ground Conditions

3.3.1 The geological succession below the site comprises Alluvium overlying strata of the Pennine Lower Coal Measures Formation. Made ground is likely to be present on site due to the developed nature of the site.

3.4 Hydrogeology and Hydrology

3.4.1 The Aquifer Maps contained in the Groundsure Report indicates that the site's superficial stratum is classified as a Secondary-A Aquifer. The bedrock aquifer underlying the site is also a Secondary-A Aquifer. The aquifer status refers to the Alluvium Deposits and the Pennine Lower Coal Measures Formation.

3.4.2 The site does not lie within or in close proximity to a Source Protection Zone (SPZ).

3.4.3 The nearest surface water feature is an unnamed inland river located 238 m north-east of the site, which is possibly culverted and possibly flows into the River Colne. The River Colne is located 250 m (at its closest point) to the south of the site and flows to the north-east.

3.4.4 According to EA website, the site is in Flood Zone 2 and there is a risk of surface water flooding in the north-west of the site and surrounding roads.

3.5 Gas Conditions

3.5.1 Given the developed nature of the site, there is potential of made ground to be present on site. Ground gas is expected to be present on site.

3.6 Recommendations of Desk Study

- Chemical testing of made ground and natural soils beneath the site. This testing should concentrate on areas in proximity to underground fuel storage tanks and any petrol interceptors, as these locations are considered the most likely sources of contamination. The testing should comprise an extensive suite of hydrocarbon contaminants commonly associated with petrol stations and vehicle repair workshops, including asbestos, metals, Petroleum Hydrocarbons, Polycyclic Aromatic Hydrocarbons, benzene, toluene, ethylbenzene, xylene and MTBE. Selected samples should be analysed for, Volatile and Semi Volatile Organic Compounds (VOS and SVOC), Soil Organic Matter (SOM), total organic carbons (TOC) and pH. Groundwater sampling should also be undertaken with testing of a similar suite of contaminants;

- Determination of the depth of potential made ground on the site;
- Testing of the soils to identify volume change potential of any cohesive material, concrete classification, and design CBR values;
- The installation of gas and groundwater monitoring standpipes to enable gas monitoring to be undertaken.

5 SITE WORK AND MONITORING

5.1 Introduction

- 5.1.1 The intrusive site work was undertaken by JNP Group on 4th June 2024 and comprised five dynamic sampling boreholes. Sixgas and groundwater level monitoring visits have been undertaken during a period from 11th June to 24th July 2024.
- 5.1.2 All site work was completed under the instruction and supervision of JNP Group with the ground investigation procedures and sample descriptions given in the following publications:
- BS 5930 (2015). Code of Practice for Site Investigations;
 - BS 10175 (2001+A1:2013+A2:2017). Investigation of potentially contaminated sites - code of practice;
 - BS EN ISO 14688-1. "Soil - Identification and Description;
 - BS EN ISO 14688-2. Soil - Classification principles and quantification of descriptive characteristics;
 - BS 18400-104:2018. Soil Quality – Sampling. Part 104: Strategies;
 - BS 18400-202:2018. Soil Quality – Sampling. Part 202: Preliminary Investigations;
 - BS 18400-203: 2018. Soil Quality – Sampling. Part 203: Investigation of potentially contaminated sites;
 - BS 18400-205: 2018. Soil Quality – Sampling. Part 205: Guidance on the procedure for investigation of natural, near natural and cultivated sites;
- 5.1.3 For sites affected by asbestos impacted soils, the guidance given in the following publications has been followed:
- Industry Guidance on Interpretation for Managing & Working with Asbestos in Soil and Construction and Demolition Materials (CL:AIRE 2016);
 - Asbestos in Soil and made ground: a guide to understanding and managing risks (CIRIA C733 2014).
- 5.1.4 The design and installation of groundwater quality monitoring points has been undertaken following the guidance given in the Environment Agency science report:
- SC020093. Guidance on the design and installation of groundwater quality monitoring points. 2006.
- 5.1.5 The locations of the exploratory holes are shown in JNP Group drawing B25657-JNP-XX-XX-DR-G-2001. The exploratory hole records including strata and groundwater encountered, in-situ testing and samples taken are presented in **Appendix C**. The full details of the site work undertaken are summarised in the following sections.
- 5.1.6 The purpose of the intrusive sitework was to obtain data to determine the levels of contamination within the made ground and natural strata, and the levels of contamination in the groundwater beneath the site.
- 5.1.7 The site investigation strategy comprised judgemental (i.e. targeted) locations of the former fuel tanks, or locations considered to be sensitive as part of the development etc, with the

remainder of the positions providing a systemic distribution across the site. The following table shows the rationale for the location of each exploratory hole.

Table 5.1 Exploratory Hole Location Rationale

Exploratory Hole Reference	Rationale
WS01, WS02, WS04	To triangulate groundwater flow. General site coverage. To install groundwater and gas monitoring standpipes.
WS01-05	General site coverage. To take samples of the made ground and natural ground for contamination testing and geotechnical testing.
WS03, WS04	To target area sensitive to historic tanks and fuel pumps.

5.1.8 The general sampling strategy was to take representative soil samples from the ground to characterise the strata encountered and to provide suitable horizontal distribution, however, where visible contamination was present or suspected, targeted spot samples were taken.

5.2 Dynamic Sampling Boreholes

5.2.1 Five dynamic sampling boreholes, designated WS01 to WS05 (inclusive) were formed on 4th June 2024, to depths of between 3.00 m and 4.00 m below ground level (bgl) at various locations across the site.

5.2.2 The dynamic sampling technique uses a lightweight tracked rig to advance a borehole by 1 m intervals using 1 m long steel sampler tubes, at diameters of 100 mm, reducing to 70 mm. The soils are then recovered from each sample tube as continuous core samples, which are logged and sub-sampled on site. Environmental soil samples were generally taken from each made ground material, together with any materials suspected of containing elevated concentrations of contaminants, based on visual and olfactory evidence. The environmental samples comprised a small volatiles jar, and an amber glass jar. Bulk and small plastic tub samples were also taken from selected materials, for laboratory geotechnical testing. In situ Standard Penetration Tests (SPTs) were undertaken in accordance with BS 5930 (2015) at 1.0 m depth intervals in the boreholes in order to obtain in situ strength or relative density parameters for geotechnical design.

5.2.3 All exploratory boreholes commenced with service clearance by a specialist contractor, followed on with concrete coring through hardstanding to mitigate risks of encountering existing underground utilities.

5.2.4 Three boreholes (WS01, WS02 and WS04) were completed with 50 mm gas monitoring standpipe installations, with flush fitting steel covers set in concrete at ground level. The remaining boreholes were backfilled with arisings and the ground surface left in a safe and tidy manner.

5.2.5 Response zones within the installations were installed between depths of 0.5 m bgl to 3.70 m bgl in order to target the underlying water table and enable gas monitoring to be completed.

5.3 Monitoring

5.3.1 Monitoring of the installed standpipes/wells has been undertaken on six occasions at weekly intervals (between 11th June and 24th July 2024) after the completion of the site work.

5.3.2 Monitoring involved the measurement of the ground gas composition at each of the installations for methane (CH₄), carbon dioxide (CO₂) and oxygen (O₂) concentrations, together with atmospheric pressure, downhole pressure and flow rates, using a Gas Data GFM430 gas meter. After the measurement of gas concentrations, the depth to any groundwater within the standpipe was recorded. At least two of the monitoring visits were undertaken during periods of low and falling atmospheric pressure.

5.3.3 The frequency and duration of gas monitoring was selected based on the guidance given in the following publications:

- CIRIA C665. Assessing risks posed by hazardous gases to buildings. 2007;
- BS 8485. Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings. 2015;
- CL:AIRE RB 17. A Pragmatic Approach to Ground Gas Risk Assessment. 2012.

5.3.4 The following table justifies the response zones selected for each monitoring borehole.

Table 5.2 Response Zone Rationale

Exploratory Hole Reference	Response Zone (m bgl)	Rationale
WS01	0.50 – 3.70 m	To monitor perched groundwater and soil gas within made ground
WS02	0.50 – 3.50 m	To monitor perched groundwater and soil gas within made ground
WS04	0.50 – 3.50 m	To monitor perched groundwater and soil gas within made ground

5.3.5 It should be noted that long-term groundwater levels may vary from those reported due to seasonal fluctuation or weather events, such as droughts, significant rainfall, or recent flooding.

5.3.6 The monitoring results are presented in **Appendix D**.

5.3.7 It should be noted that once the groundwater monitoring boreholes are no longer required they need to be decommissioned following the guidance given in the EA science report SC020093 (EA 2008).

6 LABORATORY TESTING

6.1 Geotechnical

6.1.1 A programme of laboratory testing was scheduled by JNP Group to determine geotechnical properties of selected soil samples obtained from the investigation. The details of the geotechnical testing are summarised below:

Table 6.1 Scheduled Geotechnical Laboratory Tests

Test Description	Number of Tests
Atterberg limits	3
Moisture Content	3
Ground Aggressivity Suite (in accordance with BRE SD1)	3

6.1.2 Tests were undertaken in accordance with BS1377 (1990) "Methods of test for Soils for Civil Engineering purposes". The results of the geotechnical testing are presented in **Appendix E**.

6.2 Environmental

6.2.1 A programme of chemical laboratory testing was scheduled by JNP Group on selected soil samples taken from various depths in the made ground and natural ground recovered from the exploratory holes. Samples of any soils displaying visual or olfactory evidence of contamination were also collected and submitted for laboratory analyses. The samples were placed into suitable containers for the required chemical analyses.

6.2.2 All samples were transported, to i2 Analytical Testing Services in Watford which is accredited under UKAS and MCerts. The following table summarises the contaminants scheduled:

Table 6.2 Scheduled Soil Chemical Analyses

Determinant	No
Metals and semi-metals (arsenic, beryllium, boron, cadmium, chromium, copper, lead, mercury, nickel, selenium, vanadium and zinc)	6
Polycyclic Aromatic Hydrocarbons (PAH) 16 USEPA Speciated	5
TPH Criteria Working Group (TPH CWG)	14
Volatile Organic Compounds (VOC)	5
Phenols	3
Total Organic Carbon (TOC)	2
Soil Organic Matter (SOM) including pH	4
Asbestos screening	6

6.2.3 The results of the laboratory chemical testing are interpreted in Section 9 and are presented in full in **Appendix F**.

6.3 Groundwater

6.3.1 A programme of chemical laboratory testing was scheduled by JNP Group on selected groundwater samples taken from selected installations.

6.3.2 The following table summarises the contaminants scheduled:

Table 6.3 Scheduled Waters Chemical Analyses

Determinant	No
Metals and semi-metals (arsenic, beryllium, boron, cadmium, chromium, copper, lead, mercury, nickel, selenium, vanadium and zinc)	3
Polycyclic Aromatic Hydrocarbons (PAH) 16 USEPA Speciated	3
TPH Criteria Working Group (TPH CWG)	3
Benzene, toluene, ethylbenzene, xylene (BTEX)	3

- 6.3.3 The results of the laboratory chemical testing are interpreted in Section 9 and are presented in full in **Appendix F**.

7 GROUND AND GROUNDWATER CONDITIONS

7.1 Strata Encountered

7.1.1 The ground conditions encountered during the intrusive investigation were broadly consistent with the published geological map. A variable thickness of made ground was found to be underlain by both granular and cohesive Alluvium. The Alluvium alternated between soft and firm clay to loose and dense sands. The strength of the Alluvium increased with depth.

7.1.2 A summary of the stratigraphy encountered during the investigation is presented in the following table and described in the following sections, but for full details and descriptions, reference should be made to the exploratory hole records presented in **Appendix C**.

Table 7.1 Stratigraphy Encountered

Stratum	Depth to Top (m bgl)	Depth to Base (m bgl)	Thickness (m)
Made ground (including hardstanding) All exploratory holes	Ground level	1.00 – 1.30	1.00 – 1.30
Alluvium All exploratory holes	1.00 – 1.30	Not proven	Not proven

7.2 Made Ground

7.2.1 Asphalt hardstanding was encountered in all exploratory hole locations. Crushed brick and concrete hardcore was encountered beneath the hardstanding at all exploratory hole locations.

7.2.2 Made ground was encountered below the hardstanding to depths of 1.00 m – 1.30 m (bgl).

7.2.3 The made ground consisted of black to dark brown, clay, sand and gravel. The proportion of clay, sand and gravel varied between exploratory holes. The gravel fraction comprised flint, brick, concrete, asphalt, with rare coal.

7.3 Alluvium

7.3.1 Soils inferred to be Alluvium were encountered in all exploratory holes. The top of the lithological unit was encountered at depths of between 1.00 m and 1.30 m bgl, extending to depths of between 3.00 m and 4.00 m bgl, with a maximum thickness of 2.80 m encountered in WS02.

7.3.2 The base of the lithological unit has been determined due to SPT refusal during ground investigation.

7.3.3 The Alluvium consisted of soft to firm, dark greyish, green, light brown, sandy, gravelly clay, with frequent decayed roots, and an organic odour. The gravel fraction comprised weathered mudstone and sandstone.

Table 7.2 Alluvium – Geotechnical Laboratory Test Results Summary

Property	Number of Tests	Range	Mean	Assessment
Natural Moisture Content	3	16.4 – 23.9	19.3	Very low volume change potential.
% passing 425 sieve	3	44 - 100	67.33	
Liquid Limit %	3	27 - 34	31.3	

Property	Number of Tests	Range	Mean	Assessment
Plastic Limit %	3	Non-plastic -18	N/A	Low Plasticity Silts (ML).
Plasticity Index %	3	Non-plastic -16	N/A	
Modified Plasticity Index %	3	Non-plastic - 10	N/A	
SPT 'N' Values (granular)	16	4 - 50	28.3	Very loose to dense

7.3.4 The SPT N value / depth profile is presented as Figure 2 and a plasticity chart as Figure 3.

7.4 Groundwater

7.4.1 Details of groundwater entries recorded during the site work period, and levels recorded subsequently during the monitoring visits, are summarised in the table which follows.

Table 7.3 Summary of groundwater observations

Exploratory Location	Groundwater during site work		Groundwater during monitoring
	Strikes (m bgl)	Comments	Range
WS01	2.70	Wet returns	2.36 – 3.38
WS02	2.60	Wet returns	2.11 – 4.37
WS03	2.60	Wet returns	N/A
WS04	2.60	Wet returns	2.27 – 2.36
WS05	2.70	Wet returns	N/A

7.4.2 During the ground investigation groundwater was encountered within the Alluvium deposits.

7.5 Ground Contamination and Deleterious Material

7.5.1 Visual and olfactory evidence of contamination was observed in all exploratory holes comprising black oily soils with strong hydrocarbon odour, ranging in depths between 1.00 – 3.60 m bgl. Groundwater encountered within all exploratory holes was noted to have a slight sheen.

7.6 Ground Gas Conditions

7.6.1 During the monitoring visits, a maximum methane concentration of 10% was recorded, and a maximum concentration of carbon dioxide of 9.4% was recorded, with negligible flow rates. Full details of the gas concentrations and flow rates recorded during the monitoring period are presented in **Appendix D**.

8 HUMAN HEALTH DETAILED QUANTITATIVE RISK ASSESSMENT

8.1 Introduction

8.1.1 Qualitative assessment of risks may be sufficient in many cases to eliminate the possibility of significant pollutant linkages. However, quantitative risk assessment is formally required to determine whether there is a 'significant possibility of significant harm being caused'. Part IIA of the Environmental Protection Act 1990 recommends that 'authoritative and scientifically based guideline values for concentrations of the potential pollutants in or under the land' be used to quantify the risk posed by contamination.

8.1.2 Under the Planning Regime, a quantitative risk assessment can be used to decide whether the site is suitable for the proposed use. In addition, the National Planning Policy Framework (March 2012) also indicates that after remediation, as a minimum land should not be capable of being determined as contaminated land under Part IIA.

8.2 Current UK Screening Values

8.2.1 The UK technical guidance for assessing risks to human health is issued from various UK bodies, including the Environment Agency (EA), DEFRA, Contaminated Land: Applications in Real Environment (CL:AIRE), Chartered Institute of Environmental Health (CIEH), and Land Quality Management (LQM) Ltd (part of the University of Nottingham).

8.2.2 New and updated screening values in the form of provisional Category 4 Screening Levels (C4SL) (published in 2014), and Suitable for Use Levels (S4UL), (published 2015), have been produced by DEFRA and CIEH / LQM respectively using modified versions of the EA's Contaminated Land Exposure Assessment (CLEA) software.

C4SL

8.2.3 Provisional C4SL have been derived by CL:AIRE (project team for DEFRA's SP1010 project) following revised statutory guidance, and as a tool to assist in applying the Part IIA Category 1-4 classifications to a site. The purpose of the C4SL is to provide a simple test for deciding that land is suitable for use, and definitely not contaminated land under Part IIA. They describe a level of risk that is above minimal, but is still low.

8.2.4 In calculating provisional C4SL some of the exposure modelling scenarios and exposure parameters used in the CLEA software have been modified. These modifications are not discussed further, but reference should be made to the original CL:AIRE / DEFRA publications should further information or clarification be required. A list of the new publications is included in the references section at the end of this report.

8.2.1 To date, fourteen contaminants have been assigned provisional C4SL including arsenic, benzene, benzo[a]pyrene, cadmium; chromium VI, lead, mercury, naphthalene, and some chlorinated solvents for the standard land uses (residential with, and without plant uptake, allotments, commercial, and public open space (parks and residential)).

8.2.2 The C4SL are also considered suitable to be used under the planning regime, and DEFRA have confirmed this to all local authorities.

S4UL

8.2.3 The LQM / CIEH S4UL represent generic assessment criteria based on minimal or tolerable risk that are intended to be protective of human health. They have been derived in accordance

with current UK legislation using a modified version of the CLEA software, and are still based on many conservative assumptions. They represent values above which further assessment of the risks or remedial actions may be needed.

- 8.2.4 S4UL have been derived for a comprehensive list of metals, non-metals, petroleum hydrocarbons, polycyclic aromatic hydrocarbons, chlorinated hydrocarbons, phenolic compounds, explosives, and pesticides, for the standard land uses (residential with, and without plant uptake, allotments, commercial, and public open space (residential and park)).
- 8.2.5 For details of the exposure parameters and scenarios used to derive the S4UL the reader is reference to the original LQM / CIEH document “The LQM/CIEH S4UL for Human Health Risk Assessment” (2015).
- 8.2.6 Both sets of screening values can be used to undertake a generic risk assessment by comparing the data directly to the screening value which is considered a conservative approach or statistically to the screening value. Alternatively and if a sufficient dataset is available, a statistical assessment can be undertaken following the guidance given in the joint Chartered Institute of Environmental Health (CIEH) and the Contaminated Land: Applications in Real Environment (CL:AIRE) organisation publication “Guidance On Comparing Soil Contamination Data with a Critical Concentration” (CIEH / CL:AIRE May 2008).

8.3 Petroleum Hydrocarbons

- 8.3.1 JNP Group have followed the guidance given in the Environment Agency publication ‘The UK Approach for Evaluating Human Health Risks from Petroleum Hydrocarbons in Soils’ (Environment Agency, 2005). LQM S4UL values have been published based on carbon banded hydrocarbons with aliphatic and aromatic split, corresponding to the TPH CWG bands. JNP Group undertook carbon banded analysis using wider bands than used by TPH CWG without aliphatic and aromatic split.
- 8.3.2 JNP Group have compared the results of carbon-banded hydrocarbon analysis with the most sensitive LQM S4UL value within the band under scrutiny. Generally, the most sensitive band comprises the lightest aromatic fraction within the carbon band under scrutiny.
- 8.3.3 The Society of Brownfield Risk Assessment (SoBRA) have produced some Generic Assessment Criteria for assessing chronic risks from the inhalation of vapours arising from groundwater (GAC_{gwwap}) for a short list of 66 organic contaminants (SoBRA February 2017). These are designed to a defensible screening criteria to assist in evaluating this exposure pathway. They represent concentrations below which the chronic risks from vapour migration and inhalation can be considered low / tolerable. GAC_{gwwap} have been developed in line with current UK risk assessment guidance, and CLEA v1.07 software was used for residential and commercial land use scenarios.
- 8.3.4 Further details of the input parameters selected for use to generate the GAC_{gwwap} can be found in the SoBRA report, and have not been reproduced here. However, it should be noted that they have been derived using some conservative assumptions:
- Impacted ground / perched water is beneath the buildings;
 - An infinite source term is present;
 - There is no biodegradation;
 - Groundwater depth is 0.65m below ground;

- Use of a sand soil type (in line with SR3).

9 SOIL AND GROUNDWATER ASSESSMENT RESULTS

9.1 Soil Results

- 9.1.1 The results of chemical testing of seven samples of made ground and nine samples of natural soils have been compared with the C4SL and the LQM S4UL values for a 'commercial end use'. These comparisons are summarised in the following tables.
- 9.1.2 The following determinants were recorded at concentrations less than their respective limits of laboratory detection, and hence have not been included in this assessment: asbestos, mercury, selenium, unlisted VOCs and unlisted SOVs.
- 9.1.3 A SOM of 6% is applicable for the made ground deposits.
- 9.1.4 For conservatism, a SOM of 1% is applicable for the natural ground deposits.

Table 9.1 Comparison of Soil Chemical Test Results with Commercial Guideline Values (Made Ground)

Determinant	Maximum Measured Concentration (mg/kg)	Background Concentration (mg/kg)	LQM/CIEH Commercial (mg/kg)	No. of tests	No. of exceedances
Arsenic	300	35	640	6	0
Barium	900	-		6	0
Beryllium	4.8	-	12	6	0
Boron	1.9	-	290	6	0
Cadmium	1.7	1.8	190	6	0
Chromium (total or trivalent)*	28	180	8600	6	0
Copper	380	60.1	68000	6	0
Lead	230	200	2330**	6	0
Nickel	68	45	980	6	0
Selenium	2.3	0.86	12000	6	0
Vanadium	87	90.97	9000	6	0
Zinc	160	124.6	40000	6	0
			6%		
Benzene	2	-	90	7	0
Toluene	0.049	-	180000	7	0
Ethylbenzene	<0.005	-	27000	7	0
Xylene	14	-	30000	7	0
Phenol	0.0023	-	3200	7	0
Naphthalene	46	-	1100	7	0
Acenaphthylene	0.55	-	100000	7	0
Acenaphthene	90	-	100000	7	0
Fluorene	58	-	71000	7	0
Phenanthrene	480	-	23000	7	0
Anthracene	110	-	540000	7	0
Fluoranthene	520	-	23000	7	0
Pyrene	440	-	54000	7	0
Benzo(a)anthracene	240	-	180	7	WS01 0.80m
Chrysene	240	-	350	7	0
Benzo(b)fluoranthene	230	-	45	7	2
Benzo(k)fluoranthene	120	-	1200	7	0
Benzo(a)pyrene	210	-	36	7	WS01 0.80m WS03 0.50m

Determinant	Maximum Measured Concentration (mg/kg)	Background Concentration (mg/kg)	LQM/CIEH Commercial (mg/kg)	No. of tests	No. of exceedances
Indeno(1,2,3-c,d)pyrene	110	-	510	7	0
Dibenzo(a,h)anthracene	29	-	3.6	7	WS01 0.80m WS03 0.50m
Benzo(g,h,i)perylene	120	-	4000	7	0
2-Methylphenol	2.3	-	3200	4	0
4-Methylphenol	4.7	-	3200	4	0
2,4-Dimethylphenol	4	-	3200	4	0
2-Methylnaphthalene	31	-	1100	4	0
Dibenzofuran	43	-	240	4	0
Carbazole	55	-	90	4	0
Anthraquinone	30	-	90	4	0
TPH Aliphatic C10 – C12	4	-	47000	5	0
TPH Aliphatic C12 – C16	24	-	90000	5	0
TPH Aliphatic C16 – C21	46	-	160000	5	0
TPH Aliphatic C21 – C35	170	-		5	0
TPH Aromatic C5 – C7	2	-	86000	5	0
TPH Aromatic C8 – C10	2.7	-	17000	5	0
TPH Aromatic C10 – C12	15	-	34000	5	0
TPH Aromatic C12 – C16	150	-	38000	5	0
TPH Aromatic C16 – C21	1000	-	28000	5	0
TPH Aromatic C21 – C35	1500	-		5	0

* assumed all chromium on site is in trivalent form

** provisional C4SL

*** Most sensitive fraction within wider TPH band (specified)

Table 9.2 Comparison of Soil Chemical Test Results with Commercial Guideline Values (Natural Ground)

Determinant	Maximum Measured Concentration (mg/kg)	Background Concentration (mg/kg)	LQM/CIEH Commercial (mg/kg)	No. of tests	No. of exceedances
			1%		
Benzene	11	-	27	9	0
Toluene	0.068	-	56000	9	0
Ethylbenzene	0.069	-	5700	9	0
Xylene	0.21	-	5900	9	0
Naphthalene	0.53	-	190	1	0
Acenaphthylene	<0.05	-	83000	1	0
Acenaphthene	1.9	-	84000	1	0
Fluorene	9.2	-	63000	1	0
Phenanthrene	21	-	22000	1	0
Anthracene	<0.05	-	520000	1	0
Fluoranthene	1.9	-	23000	1	0
Pyrene	4.6	-	54000	1	0
Benzo(a)anthracene	0.48	-	170	1	0
Chrysene	1	-	350	1	0
Benzo(b)fluoranthene	0.47	-	44	1	0
Benzo(k)fluoranthene	0.16	-	1200	1	0
Benzo(a)pyrene	0.4	-	35	1	0

Determinant	Maximum Measured Concentration (mg/kg)	Background Concentration (mg/kg)	LQM/CIEH Commercial (mg/kg)	No. of tests	No. of exceedances
Indeno(1,2,3-c,d)pyrene	0.2	-	500	1	0
Dibenzo(a,h)anthracene	<0.05	-	3.5	1	0
Benzo(g,h,i)perylene	0.19	-	3900	1	0
2-Methylnaphthalene	28	-	190	1	0
TPH Aliphatic C16 – C21	800	-	160000	9	0
TPH Aliphatic C21 – C35	920	-		9	0
TPH Aromatic C10 – C12	190	-	16000	9	0
TPH Aromatic C12 – C16	2300	-	36000	9	0
TPH Aromatic C16 – C21	2600	-	28000	9	0
TPH Aromatic C21 – C35	390	-		9	0

* assumed all chromium on site is in trivalent form

** provisional C4SL

*** Most sensitive fraction within wider TPH band (specified)

9.2 Interpretation

9.2.1 The analyses recorded marginally elevated concentrations of some PAHs and SVOCs with respect to the selected screening values. These occurrences are discussed in the following sections.

Elevated PAH

9.2.2 Elevated concentrations of benzo(a)anthracene, benzo(b)fluoranthene, benzo(a)pyrene and dibenzo(a,h)anthracene were found within the made ground in WS01 at 0.80m bgl and WS03 at 0.50m bgl.

9.2.3 WS01 is located near to disused fuel pumps and buried tanks. The exploratory hole logs record made ground at 0.80m bgl with deleterious material comprising brick, concrete and asphalt. In addition, oily residue was observed within the arisings of the borehole. These are potential sources for hydrocarbon contamination.

9.2.4 The exploratory hole logs for WS03 at 0.50 m bgl record black made ground with deleterious material comprising brick concrete and asphalt. No further visual evidence of contamination was present in the borehole. It is likely that the hydrocarbon exceedances are as a result of the made ground within the borehole.

TPHs & SVOCs

9.2.5 Elevated concentrations of benzene were found within the made ground of WS02, WS03 and WS05 at 0.60 m, 0.50 m and 1.00m bgl respectively. The made ground at these depths recorded soil black in colour as well as deleterious material comprising brick, concrete and asphalt. WS02 also recorded a hydrocarbon odour.

9.2.6 Whilst screening values were not exceeded, the same samples of the made ground also contained elevated concentrations of petroleum hydrocarbons and some phenolic compounds.

9.2.7 Elevated concentrations of benzene were found within the natural ground of WS02 at 2.50 m bgl and WS05 at 1.40 m, 2.00 m and 2.40 m bgl. Visual oily residue was observed within the natural ground of WS02. Although no visual or olfactory evidence of contamination was noted

within the natural ground of WS05, the overlying made ground was observed to be black in colour and contain brick, coal, concrete and asphalt. Given the overlying made ground is black in colour and contains asphalt, concrete, coal and brick there is a potential for vertical migration of contaminants.

9.2.8 Again, whilst screening values were not exceeded, some samples of the natural ground also contained elevated concentrations of petroleum hydrocarbons and some phenolic compounds (WS01 at 1.6m, WS03 at 2.5m, WS05 at 1.4m and at 2.0m). Visual or olfactory evidence of hydrocarbons was not noted at these depths. There is no obvious source within the strata above the sample in WS01 and WS03 but in the latter the sample is close to the water table which may be the source of the contamination. Similarly, there is no obvious source noted in WS05 although made ground, black in colour containing asphalt is noted above the sample.

9.3 Water Supply Pipes

9.3.1 The GTC Water Threshold Values have been used to compare the chemical test results with a published set of guideline values for metal, organic and inorganic contaminants found in soil, that may have a detrimental effect upon plastic water supply pipes.

9.3.2 The screening values are exceeded for several contaminants and therefore should the potable water pipes supplying and / or crossing the site pass through contaminated ground, and be of a material that will allow contaminants to migrate through the pipe wall, there is a risk that the potable water quality could be tainted.

9.1 Groundwater Results and Assessment

9.1.1 JNP Group submitted three samples of groundwater from the boreholes drilled in June 2024, collected in July 2024.

9.1.2 The following determinants were recorded at concentrations less than the limit of laboratory detection and hence have not been included in this assessment: mercury, benzene, toluene, ethylbenzene etc.

Table 9.3 Comparison of Groundwater Chemical Test Results with Guideline Values (where available)

Determinant	Maximum Measured Concentration (µg/l)	Drinking Water Standard (µg/l)	Freshwater Environmental Quality Standard (µg/l)	No. of tests undertaken	No. of exceedances
Arsenic	6.75	10	50	3	0
Barium	530	100	n/a	3	3
Boron	300	1000	2000	3	0
Cadmium	0.04	5	5	3	0
Chromium (total)	1	50	5-50*	3	0
Copper	0.5	2000	1**	3	0
Lead	22	25	1.2**	3	1
Mercury	<0.05	1	1	3	0

Determinant	Maximum Measured Concentration (µg/l)	Drinking Water Standard (µg/l)	Freshwater Environmental Quality Standard (µg/l)	No. of tests undertaken	No. of exceedances
Selenium	1.8	10	n/a	3	0
Vanadium	2.1	n/a	20 – 60*	3	0
Zinc	1.8	3000	10.9**	3	0
Benzene	63.2	1	30	3	1
Toluene	<3.0	n/a	74	3	0
Ethylbenzene	<3.0	n/a	20	3	0
O-Xylene	84	n/a	30	3	1
Polycyclic Aromatic Hydrocarbons					
Naphthalene	<0.40	n/a	2	3	0
Fluoranthene	75	n/a	0.0063	3	3
Benzo(a)pyrene	5.2	0.01	0.05	3	3
Anthracene	46	n/a	0.1	3	3
Benzo(b)flouranthene, Benzo(k)flouranthene, Benzo(ghi)perylene and Indeno(123- cd)pyrene	7.8 3.9 5.2 1.5	0.1 (sum of all four)	0.03 (sum of both) 0.2 0.002	3	3
Petroleum Hydrocarbons:				3	
TPH - Aliphatic >EC5 - EC6	2700			3	
TPH - Aliphatic >EC6 - EC8	11000			3	
TPH - Aliphatic >EC8 - EC10	20000			3	
TPH - Aliphatic >EC10 - EC12	110000			3	
TPH - Aliphatic >EC12 - EC16	300000	10	n/a	3	3
TPH - Aliphatic >EC16 - EC21	310000			3	
TPH - Aliphatic >EC21 - EC35	160000			3	
TPH - Aliphatic >EC5 - EC35	890000			3	
TPH - Aromatic >EC5 - EC7	93			3	
TPH - Aromatic >EC7 - EC8	<1.0			3	

Determinant	Maximum Measured Concentration (µg/l)	Drinking Water Standard (µg/l)	Freshwater Environmental Quality Standard (µg/l)	No. of tests undertaken	No. of exceedances
TPH - Aromatic >EC8 - EC10	<1.0			3	
TPH - Aromatic >EC10 - EC12	56000			3	
TPH - Aromatic >EC12 - EC16	210000			3	
TPH - Aromatic >EC16 - EC21	110000			3	
TPH - Aromatic >EC21 - EC35	17000			3	
TPH - Aromatic >EC5 - EC35	380000			3	

* dependent on hardness, salmonid receptor-

** bioavailable EQS UK TAG

9.2 Interpretation – Groundwater Chemistry

9.2.1 Exceedances of the DWS and / or EQS were noted in samples from all three boreholes for barium, fluoranthene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(ghi)perylene, indeno(123-cd)pyrene, anthracene and nearly all hydrocarbon fractions. Exceedances in one of the boreholes were recorded for lead, benzene and o-xylene.

9.2.2 The most likely source of the groundwater contamination is from underground tanks that may have at some point leaked.

9.3 Soil and Groundwater Results Summary

9.3.1 On the basis of the chemical testing undertaken, JNP Group considers that a viable risk to human health exists from elevated concentrations of PAH and benzene in near-surface soils in the area associated with buried fuel tanks. There is also evidence that wider contamination of the site from hydrocarbons has occurred in both the made and natural ground, whilst not at concentrations posing a risk to human health for the proposed end use.

9.3.2 The proposed change of use should not pose an increased risk to human health from contact with contaminated soils unless below ground works are undertaken.

9.3.3 On the basis of the groundwater assessment undertaken, JNP Group considers that a risk to controlled waters is present from elevated concentrations of lead, PAHs and petroleum hydrocarbons.

9.3.4 Based on the above, source removal (tank) at the site is considered the best approach to reduce further contamination migration. It is proposed that the underground tanks are emptied, cleaned and foam filled thus removing the main source of contamination.

10 GROUND GAS ASSESSMENT

10.1 Methodology

10.1.1 JNP Group has used the guidance given in the following document to assess the risks from ground gases or landfill gases:

- CIRIA C665. Assessing risks posed by hazardous gases to buildings. 2007;
- BS 8485. Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings. 2015 +A1 2019;
- CL:AIRE RB 17. A Pragmatic Approach to Ground Gas Risk Assessment. 2012;
- NHBC. Hazardous Ground Gas – An Essential Guide for Housebuilders. NF94. April 2023.

10.1.2 JNP Group has used multiple lines of evidence when assessing the risks from ground gases:

- Nature, type and thickness of made ground and natural ground;
- Organic content of stratum (review of SOM);
- Review of data set to date including: size, anomalous results, changes in atmospheric pressure and groundwater level;
- Location so buildings in relation to gas monitoring installations
- Initial review of maximum gas and flow concentrations against reference values prescribed within BS 8485 (2015);
- Calculation of appropriate gas screening value (GSV) to suit dataset to determine the site characteristic for the site. The GSV is calculated using the following equation, with the resulting number compared to those given in Table 2 of BS: 8584 (2015 +A1 2019)
 - $\text{gas concentration (\%)} \times \text{borehole flow rate (l/h)}$

10.2 Results and Assessment

10.2.1 A total of six rounds of monitoring data were obtained between 11th June and 24th July 2024.

10.2.2 The maximum carbon dioxide and methane concentrations, the maximum flow rate, and the screening values for each borehole during the monitoring period to date, are summarised in the following table.

10.2.3 The raw and collated results of the ground gas monitoring undertaken to date are presented in **Appendix D**.

10.2.4 In addition, this includes a graph showing the atmospheric pressure trend throughout the monitoring period.

10.2.5 Methane concentrations above 1 % were recorded on a number of occasions with a maximum concentration recorded of 10.0 % in WS02 on 15th July 2024. The exploratory hole logs record oily residue within the natural ground. Additionally, exceedances and elevated concentrations of hydrocarbon contaminants were recorded within several of the boreholes. This is a potential source of the elevated gas concentration.

10.2.6 Carbon dioxide concentrations above 5 % were recorded on three occasions within WS01 and four occasions within WS04, between 5.9 % and 7.7 %, and 5.1 % and 9.4% respectively. WS01

exploratory hole logs record made ground as well as oily residue and hydrocarbon concentration exceedances. These are potential sources of gas generation in the borehole. Made ground is recorded in WS04 from ground level to 1.30 m bgl, however no visual or olfactory evidence of contamination was encountered. In addition, no exceedances in hydrocarbon contaminants were recorded in the borehole.

10.2.7 Elevated flow rates above 70 l/hr were not recorded.

10.2.8 Given the small dataset (six visits) to date, gas screening values have been calculated using maximum gas concentrations and worst-case flow rates.

Table 10.1 Calculated Gas Screening Values

Location	Maximum CH ₄ Concentration (% v/v)	Maximum CO ₂ Concentration (% v/v)	Maximum / Selected Flow Rate (l/hr)	GSV (l/hr)
WS01	1.8	7.7	0.0	0.00095
WS02	10	2.3	0.0	0.00123
WS04	0.2	9.4	0.0	0.00096

10.2.9 Those values highlighted either exceed the initial assessment values or exceed the characteristic gas screening values given in Table 2 of BS: 8584 (2015 +A1 2019).

10.2.10 Despite the GSV of each of the boreholes being below <0.07 l/h, the site characteristic is CS2 due to a methane concentration greater than 1% in WS01 and WS02 and a carbon dioxide concentration greater than 5 % in WS01 and WS02. Some form of gas mitigation is required based on the above.

11 REVISED CONCEPTUAL SITE MODEL AND OVERALL ENVIRONMENTAL RISK

11.1 Summary

11.1.1 Following the ground investigation and subsequent assessment undertaken, the conceptual site model and overall environmental risk assessment have been updated as detailed in the following table.

Table 11.1 Updated Conceptual Model and Risk Assessment

Issue	Risk	Justification
HUMAN HEALTH	LOW - MEDIUM	<p>Unacceptable concentration of PAH and benzene are present within the made ground in localised parts of the site associated with areas where tanks are buried and disused fuel pumps are present. However, as only a change of use is proposed at the site, people are unlikely to come into contact with the soils.</p> <p>Elevated concentrations of carbon dioxide and methane have been recorded at the site. Characteristic Situation is determined to be CS2.</p> <p>There is a risk of contaminants migrating into the potable water pipes. This will partly depend on the type of pipe; given the age of the site, these are likely to be metal which will be more resistant to this than newer plastic pipes.</p>
GROUNDWATER	HIGH	<p>Mobile species of hydrocarbons are present within the made ground as well as longer chain TPH compounds and phenolic compounds.</p> <p>The site is located on Secondary-A aquifers but is not within a SPZ.</p> <p>Concentrations of various metals, PAHs and petroleum hydrocarbons have contaminated groundwater.</p>
SURFACE WATER	MEDIUM	<p>Mobile species of hydrocarbons are present within the made ground as well as longer chain TPH compounds and phenolic compounds.</p> <p>The surrounding urban area has been developed which will restrict groundwater flow paths between the site and surface water receptors.</p>
PROPERTY & INFRASTRUCTURE	HIGH	<p>Elevated concentrations of carbon dioxide and methane have been recorded at the site. Characteristic Situation classification is determined to be CS2.</p> <p>Highly mobile hydrocarbons have been recorded at the site.</p>
ECOLOGY	NONE	<p>Based on the assumption that there are no sensitive/ protected species on site (subject to any ecological survey undertaken)</p>

- 11.1.2 Metals, hydrocarbon (PAHs and TPH) and some SVOCs contamination has been noted at the site from visual observation, concentrations in soil and groundwater samples exceeding screening values and elevated concentrations of methane and carbon dioxide have been noted.
- 11.1.3 Based on the current results, the risk to the future occupants of the building is assessed as low based on the assumption that below ground works will not be undertaken. However, there remains gas risk to the building and building occupants from hydrocarbon vapours, carbon dioxide and methane.
- 11.1.4 There is groundwater pollution beneath the site mainly from petroleum hydrocarbons. The source of is assumed to be the tanks and associated pipework on the site. It should be noted that polluting groundwater is an offence, irrespective of whether the groundwater is used
- 11.1.5 It therefore appears to be a site contamination issue related to the former site usage including the underground tanks and possibly former use as a garage.

11.2 Recommendations

- 11.2.1 The type of water pipe is determined; the landlord will need to be contacted to see if he has information on whether the potable pipes have been replaced recently. Potable water testing could also be undertaken to assess if the supply is being contaminated.
- 11.2.2 The underground tanks should be opened, the amount of product in the tanks noted and any remaining product should be removed from the tanks.
- 11.2.3 It is recommended that the landlord is notified of the results and that remediation at the site may be necessary.

12 GEOTECHNICAL ENGINEERING ASSESSMENT

12.1 Proposed Development / Redevelopment

12.1.1 The existing building on site (used as a petrol station, vehicle repair, testing and servicing garage) is to undergo a change of use to a retail unit occupied by Mattress Online. It is understood that the site currently has two 2,700 litre underground fuel tanks, which the landlord is planning to safely decommission.

12.2 Summary of Ground and Groundwater Conditions

12.2.1 The ground conditions encountered during the intrusive investigation were broadly consistent with the published geological map. A variable thickness of made ground was found to be underlain by both granular and cohesive Alluvium. The alluvium alternated between soft and firm clay to loose and dense sands. The strength of the alluvium increased with depth.

12.3 Ground Aggressivity to Buried Concrete

12.3.1 Chemical analyses of three samples have been undertaken in accordance with BRE SD1 2005 “Concrete in aggressive ground” to determine their concrete classification.

Table 12.1 Concrete Classification Assessment

Strata	Details	Range	Concrete Class
Alluvium	Number of Tests	3	DS1 – AC1s
	Water Soluble Sulphates (mg/l)	9.59 – 34.4	
	pH	7.2 – 8.2	
	Total Potential Sulphate %	0.008 – 0.078	

12.3.2 On the basis of the above assessment, and in accordance with BRE SD1 (2005) “Concrete in aggressive ground”, a Design Sulphate Class of DS1, with an ACEC of AC-1s, would apply for all buried concrete.

13 CONCLUSIONS AND RECOMMENDATIONS

13.1 Conclusions

13.1.1 JNP Group has determined through desk-based research, intrusive investigation, laboratory testing, monitoring, and assessment that:

- Ground conditions at the site comprise a variable thickness of made ground was found to be underlain by both granular and cohesive Alluvium.
- A risk to future residential end users and controlled waters is present from hydrocarbon and SVOCs contaminants in made ground and natural ground deposits;
- Gas risk mitigation will be required.
- Remediation of the underground tanks should be undertaken with the removal of remaining fuel and then foam filling.
- There is potential for underground service cables and supply pipework to be adversely affected by contaminated soils or aggressive materials within the ground. Plastic-based water pipes in particular are vulnerable to attack or penetration by residual hydrocarbons.

13.2 Recommendations

13.2.1 In line with the guidelines given LCRM and consequent to the ground investigation conclusions; JNP Group recommends that:

- The underground tanks should be opened, the amount of product in the tanks noted and any remaining product should be removed from the tanks. The tanks should be cleaned and foam filled. This strategy should be agreed with the EA.
- The type of water supply pipe is determined.
- Potable water testing could also be undertaken to assess if the supply is being contaminated.
- A copy of this report is submitted to the Regulatory Authorities for their approval before any further work is undertaken at the site.

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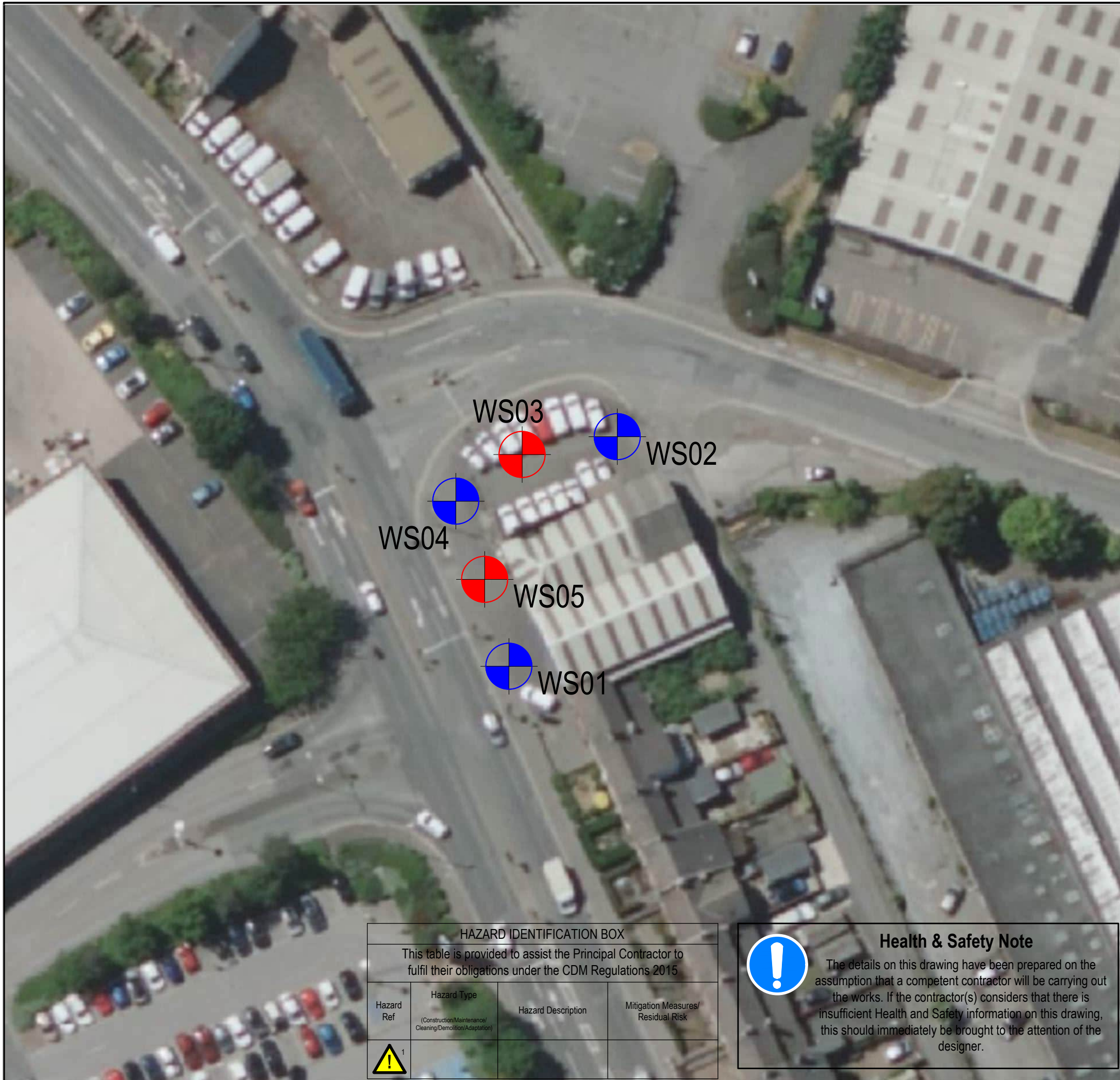
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FIGURES / DRAWINGS



P01	03/07/2024	First Issue	CG/LK/SLL
Rev.	Date	Description	Dm / Chk'd / App'd

Suitability:
S2 - Suitable for Information



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Client:
Mattress Online

Job:
Leeds Road, Huddersfield

Title:
Exploratory Hole Location Plan

HAZARD IDENTIFICATION BOX			
This table is provided to assist the Principal Contractor to fulfil their obligations under the CDM Regulations 2015			
Hazard Ref	Hazard Type (Construction/Maintenance/ Cleaning/Demolition/Adaptation)	Hazard Description	Mitigation Measures/ Residual Risk
1			



Health & Safety Note

The details on this drawing have been prepared on the assumption that a competent contractor will be carrying out the works. If the contractor(s) considers that there is insufficient Health and Safety information on this drawing, this should immediately be brought to the attention of the designer.

Classification: FI_60_20				
Scale @ A3: As Shown	Supplier No: 00026			

Project - Originator - Volume/System - Level/Location - Type - Discipline - Number
B25657-JNP-XX-XX-DR-G-2001 P01

Document/Drawing Number

Figure 2

SPT / Depth Relationship

Project:

409 Leeds Road



Project No:

B25657

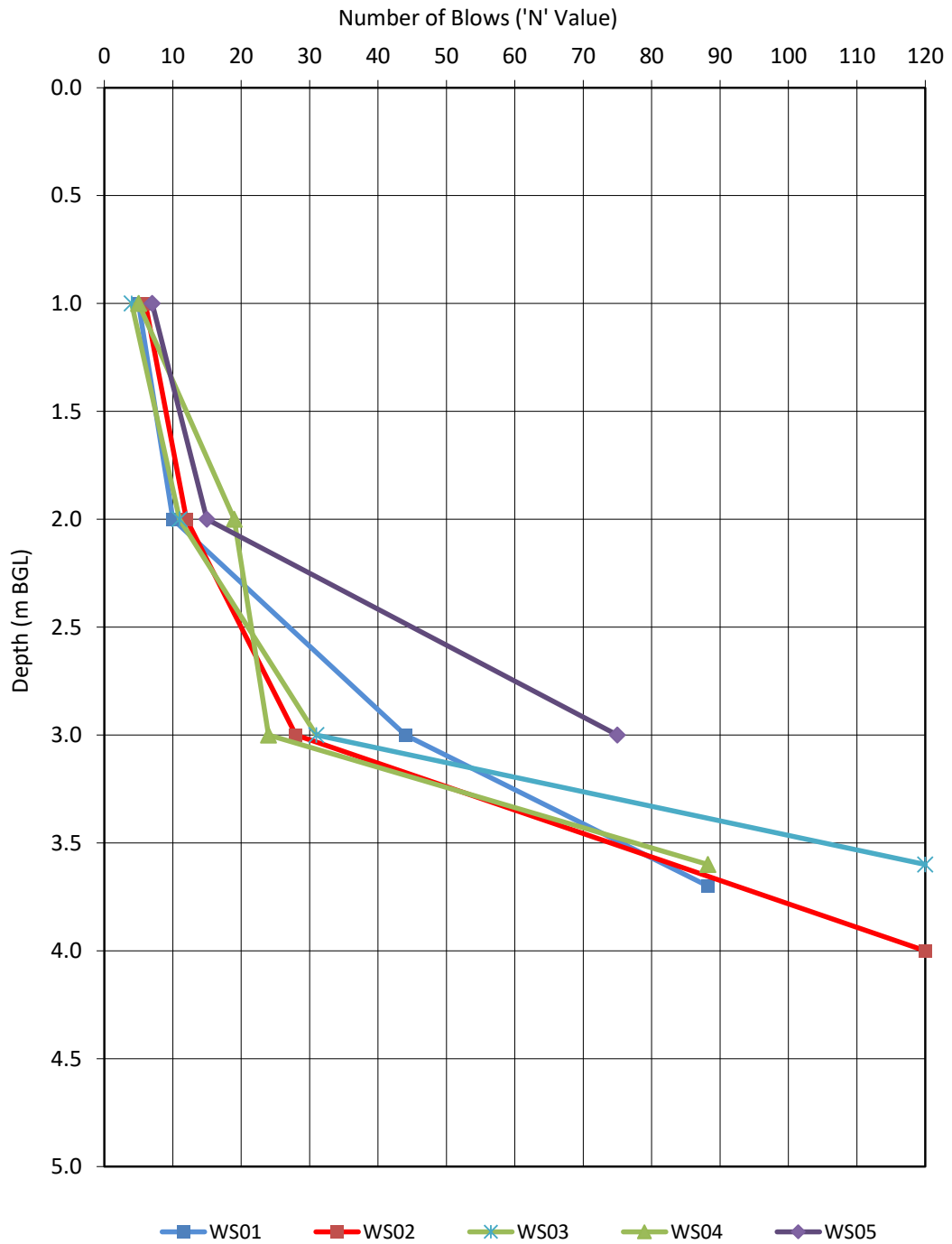


Figure 3

Plasticity Index Chart

Project:

409 Leeds Road

Project No:

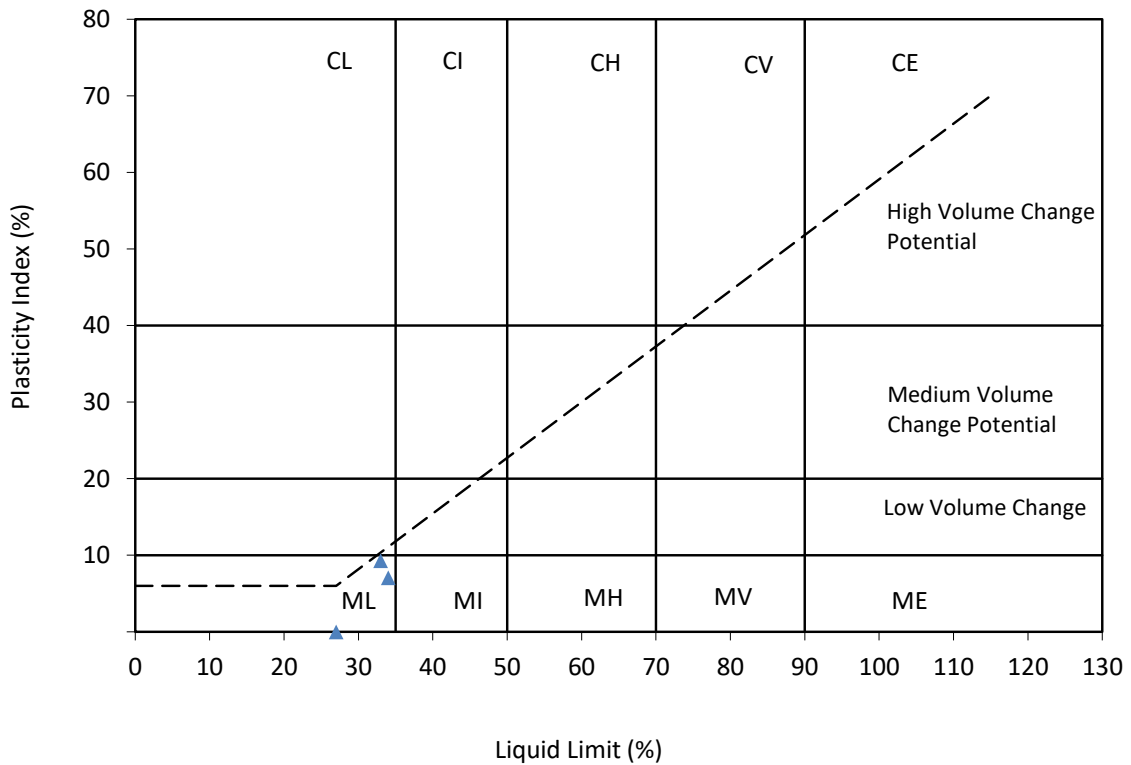
B25657



Key:

C Clay M Silt

- L Low plasticity
- I Intermediate plasticity
- H High plasticity
- V Very high plasticity
- E Extremely high plasticity



▲ Alluvium

--- A Line

Figure 4

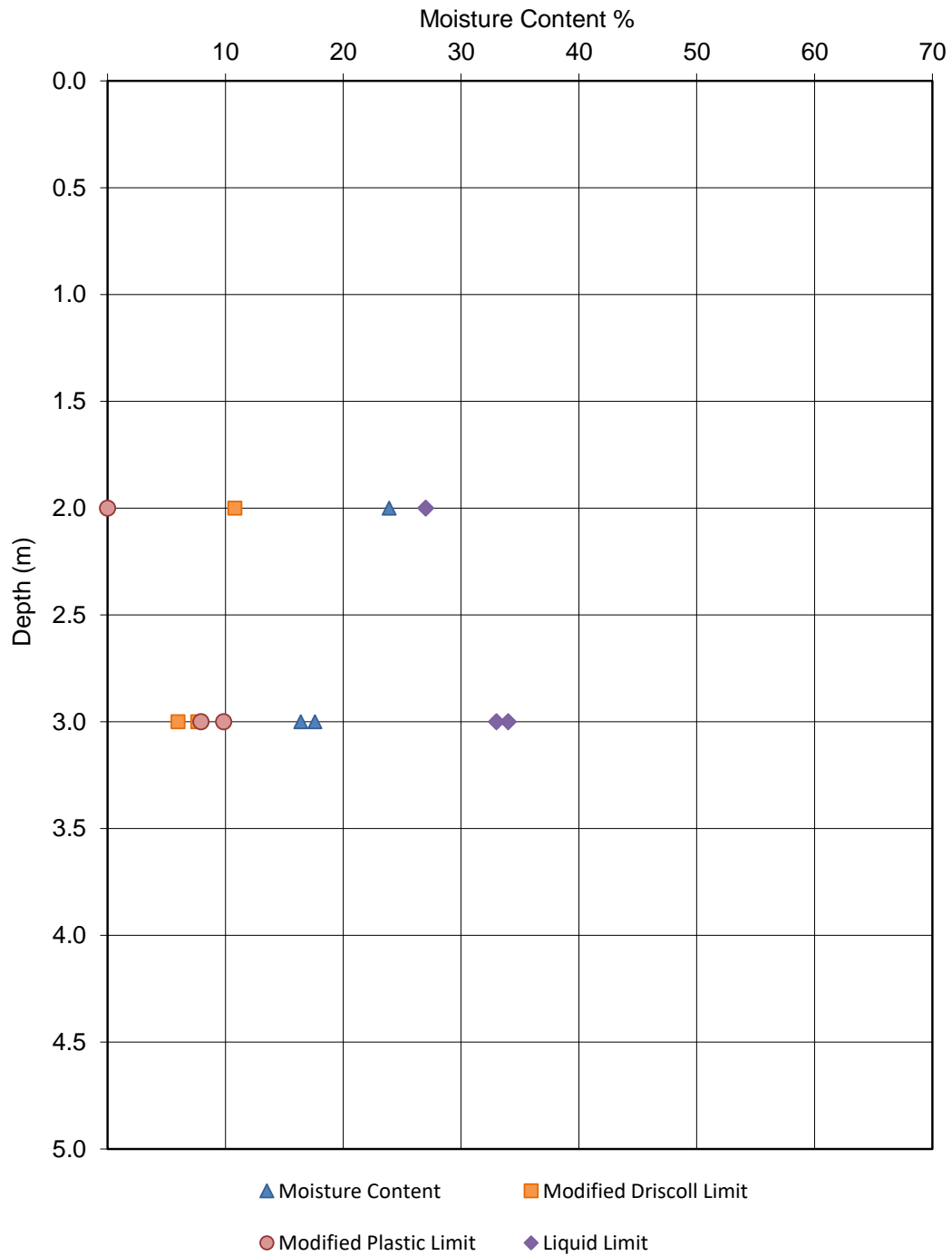
Moisture Content / Depth Relationship

Project:

409 Leeds Road

Project No:

B25657



APPENDIX A: LIMITATIONS

INTRODUCTION

This report is confidential and has been prepared solely for the benefit of the client and those parties with whom a warranty agreement has been executed, or with whom an assignment has been agreed. Should any third party wish to use or rely upon the contents of the report, written approval must be sought from JNP Group; a charge may be levied against such approval. JNP Group accepts no responsibility or liability for the consequences of this document being used for any purpose or project other than for which it was commissioned, and: this document to any third party with whom and agreement has not been executed.

Any comments given within this report are based on the understanding that the proposed works to be undertaken will be as described in the introduction and the information referred to and provided by others and will be assumed to be correct and will not have been checked by JNP Group and JNP Group will not accept any liability or responsibility for any inaccuracy in such information.

Any deviation from the recommendations or conclusions contained in this report should be referred to JNP Group in writing for comment and JNP Group reserve the right to reconsider their recommendations and conclusions contained within. JNP Group will not accept any liability or responsibility for any changes or deviations from the recommendations noted in this report without prior consultation and our full approval.

The details contained within this report reflect the site conditions prevailing at the time of investigation. JNP Group warrants the accuracy of this report up to and including that date. Additional information, improved practice or changes in legislation may necessitate this report having to be reviewed in whole or in part after that date. If necessary, this report should be referred back to JNP Group for re-assessment and, if necessary, re-appraisal.

This report is only valid when used in its entirety. Any information or advice included in the report should not be relied upon until considered in the context of the whole report. Whilst this report and the opinion made herein are correct to the best of JNP Group' belief, JNP Group cannot guarantee the accuracy or completeness of any information provided by third parties.

The report represents the finding and opinions of experience geotechnical and geo-environmental engineers. JNP Group does not provide legal advice and the advice of lawyers may also be required.

It should be noted that the following were not included as part of the agreed scope of works with the client: detailed ecological surveys and assessment

JNP Group has provided advice and made recommendations based on the findings of the work undertaken, however this is subject to the approval / acceptance by the relevant Regulatory Authorities.

Objectives

The work undertaken to provide the basis of this report comprised a study of available documented information from a variety of sources (including the Client), together with (where appropriate) a brief walk over inspection of the site. The opinions given in this report have been dictated by the finite data on which they are based and are relevant only to the purpose for which the report was commissioned. The information reviewed should not be considered exhaustive and has been accepted in good faith as providing true and representative data pertaining to site conditions. Should additional information become available which may affect the opinions expressed in this report, JNP Group reserves the right to review such information and, if warranted, to modify the opinions accordingly. It should be noted

that any risks identified in this report are perceived risks based on the information reviewed; actual risks can only be assessed following a physical investigation of the site.

Phase II Intrusive Investigations

The investigation of the site has been carried out to provide sufficient information concerning the type and degree of contamination, and ground and groundwater conditions to allow a reasonable risk assessment to be made.

Where intrusive investigations have been undertaken, they have been designed to provide a reasonable level of assurance on the conditions. Given the discrete nature sampling, no investigation technique is capable of identifying all conditions present in all areas. The number of sampling points and the methods of sampling and testing do not preclude the existence of localised “hotspots” of contamination where concentrations may be significantly higher than those actually encountered. The risk assessment and opinions provided, inter alia, take into consideration currently available guidance relating to acceptable contamination concentrations; no liability can be accepted for the retrospective effects of any future changes or amendments to these values.

The objectives of the investigation have been linked to establishing the risks associated with potential human targets, building materials, the environment (including adjacent land), and to surface and ground water. The amount of exploratory work and chemical testing undertaken has necessarily been restricted by the short timescale available, and the locations of exploratory holes have been restricted to areas unoccupied by the building(s) on the site and by buried services.

Gas and groundwater levels may vary from those reported due to seasonal, or other effects.

Although preliminary comment has have been provided by JNP Group regarding UXO and Invasive Species, JNP Group not experts in these and as such specialist advice should be sought regarding the presence of UXO and invasive species at the site.

APPENDIX B: PHOTO DOCUMENT

Site investigation – Window Sample Recovery







APPENDIX C: EXPLORATORY HOLE RECORDS

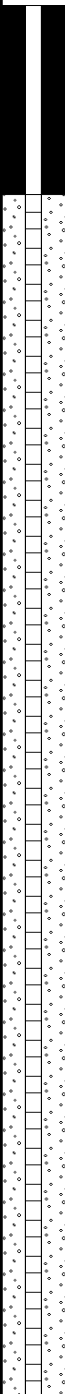

Borehole Log

Borehole No.

WS01

Sheet 1 of 1

Project Name: 409 Leeds Road	Project No. B25657	Co-ords: 415468.90 - 418064.75	Hole Type WS
Location: Huddersfield		Level: 58.68	Scale 1:20
Client: Mattress Online Ltd		Dates: 04/06/2024 - 04/06/2024	Logged By LK

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.11	58.57	Asphalt. ASPHALT		
					0.20	58.48	Concrete. CONCRETE		
								Soft, dark blackish brown, sandy CLAY, with fine brick and coal fragments. MADE GROUND	
						0.55	58.13	Medium dense, dark brown gravelly SAND. Gravel consists of fine to coarse, angular, brick, concrete, and asphalt. MADE GROUND	
			0.75 - 0.80	ES		0.85	57.83	Soft light reddish brown, slightly clayey SAND. MADE GROUND	
			1.00		N=5 (1,0/1,1,1,2)	1.00	57.68	Soft, light yellowish, grey, brown CLAY. ALLUVIUM	1
			1.55 - 1.60	ES		1.40	57.28	Soft, dark orange, brown, slightly sandy CLAY. ALLUVIUM	
			1.95 - 2.00 2.00 2.05 - 2.10	D ES	N=10 (0,0/0,1,3,6)	1.80	56.88	Loose, black, ashy, contaminated gravelly SAND. ALLUVIUM	2
			2.30			2.30	56.38	Soft, light yellowish grey, brown CLAY. ALLUVIUM	
			2.95 - 3.00 3.00	D	N=44 (4,6/9,15,12,8)	3.00	55.68	Firm, dark greyish mottled yellow brown, contaminated CLAY. ALLUVIUM	3
	3.45 - 3.50	ES		3.20	55.48	Dense, grey, oily GRAVEL. Gravel is fine to coarse, angular weathered mudstone. ALLUVIUM			
	3.70		N=50 (25 for 105mm/50 for 170mm)	3.70	54.98	End of borehole at 3.70 m	4		

Remarks

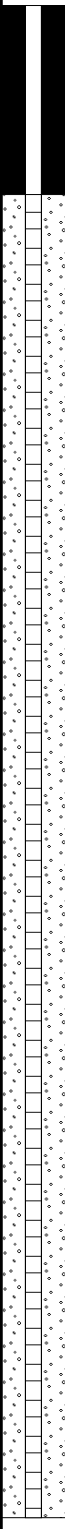
Borehole Log

Borehole No.

WS02

Sheet 1 of 2

Project Name: 409 Leeds Road	Project No. B25657	Co-ords: 415441.42 - 418073.21	Hole Type WS
Location: Huddersfield		Level: 58.54	Scale 1:20
Client: Mattress Online Ltd		Dates: 04/06/2024 - 04/06/2024	Logged By LK

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
				0.10	58.44	Asphalt. ASPHALT			
							Concrete. CONCRETE		
				0.37	58.17	Dense, black SAND. Oily smell from returns. MADE GROUND			
		0.55 - 0.60	ES						
		1.00		N=6 (0,0/2,1,1,2)	0.90	57.64	Soft, black, slightly sandy CLAY. Contamination noted at 1.0m. MADE GROUND		1
		1.15 - 1.20	ES						
		1.55 - 1.60	ES						
		1.95 - 2.00 2.00	D	N=12 (2,2/2,2,4,4)	1.20	57.34	Very soft, light greenish grey, slightly sandy CLAY. Contamination noted at 2.5m and 3.0m. ALLUVIUM		2
	2.45 - 2.50	ES							
	2.95 - 3.00 3.00	D	N=28 (1,2/6,6,8,8)					3	
	3.45 - 3.50	ES							
				3.50	55.04	Medium dense, dark grey, sandy, clayey, GRAVEL. Gravel consists of fine to coarse, angular to rounded, sandstone and weathered mudstone. Contamination noted throughout. ALLUVIUM			
				4.00	54.54			4	

Continued on next sheet

Remarks

Borehole Log

Borehole No.

WS03

Sheet 1 of 1

Project Name: 409 Leeds Road

Project No.
B25657

Co-ords: 415443.59 - 418061.14

Hole Type
WS

Location: Huddersfield

Level: 58.68

Scale
1:20

Client: Mattress Online Ltd

Dates: 04/06/2024 - 04/06/2024

Logged By
LK

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
Well					0.13	58.55		Asphalt. ASPHALT		
								Concrete. CONCRETE		
			0.45 - 0.50	ES		0.39	58.29		Medium dense, black, sandy GRAVEL. Gravel consists, fine to coarse, angular, concrete, brick, and asphalt. MADE GROUND	
			0.85 - 0.90	ES		0.60	58.08		Soft, light greenish grey, sandy CLAY with occasional fine brick fragments. MADE GROUND	
			0.95 - 1.00 1.00	D	N=4 (1,0/0,1,1,2)	1.00	57.68		Soft to firm, light greenish grey, slightly sandy, rarely gravelly CLAY. Gravel consists of fine to coarse, rounded to sub-rounded, sandstone. ALLUVIUM	1
			1.45 - 1.50	ES						
			1.95 - 2.00 2.00	D	N=11 (2,2/3,3,2,3)					2
			2.45 - 2.50	ES						
	▼	2.95 - 3.00 3.00	D	N=31 (5,6/8,8,7,8)					3	
		3.55 - 3.60 3.60	ES	N=50 (25 for 70mm/50 for 135mm)	3.60	55.08		End of borehole at 3.60 m	4	

Remarks

Borehole Log

Borehole No.

WS04

Sheet 1 of 1

Project Name: 409 Leeds Road

Project No.
B25657

Co-ords: 415448.90 - 418055.32

Hole Type
WS

Location: Huddersfield

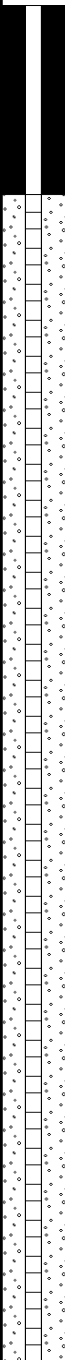
Level: 58.68

Scale
1:20

Client: Mattress Online Ltd

Dates: 04/06/2024 - 04/06/2024

Logged By
LK

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.08 - 0.08			0.08	58.60	Asphalt. ASPHALT		
		0.08 - 0.26			0.26	58.42	Concrete. CONCRETE		
		0.26 - 0.65					Loose, black, sandy GRAVEL. Gravel consists of fine to coarse, angular, brick and sandstone. MADE GROUND		
		0.65 - 0.70	ES		0.80	57.88			
		0.70 - 0.95					Soft, dark greenish grey, very sandy, gravelly, CLAY. Gravels are fine to coarse, angular, brick, sandstone, and coal. MADE GROUND	1	
		0.95 - 1.00	ES	N=5 (0,0/0,2,1,2)					
		1.00 - 1.30			1.30	57.38	Soft, light greenish grey, sandy CLAY. ALLUVIUM		
		1.30 - 1.55	ES						
		1.55 - 1.75	ES						
		1.75 - 1.95							
	1.95 - 2.00	D	N=19 (4,6/6,5,4,4)	2.00	56.68	Light yellowy, greenish grey, clayey SAND. ALLUVIUM	2		
	2.00 - 2.55								
	2.55 - 2.60	ES							
	2.60 - 2.95								
	2.95 - 3.00	D	N=24 (1,1/2,6,6,10)	3.00	55.68	Soft to firm, light greyish green, sandy GRAVEL. Gravel consists of fine to coarse, sub-rounded sandstone and weathered mudstone. ALLUVIUM	3		
	3.00 - 3.45								
	3.45 - 3.50	ES							
	3.50 - 3.60								
	3.60		N=50 (25 for 50mm/50 for 170mm)	3.60	55.08	End of borehole at 3.60 m	4		

Remarks

Borehole Log

Borehole No.

WS05

Sheet 1 of 1

Project Name: 409 Leeds Road

Project No.
B25657

Co-ords: 415459.56 - 418060.77

Hole Type
WS

Location: Huddersfield

Level: 58.70

Scale
1:20

Client: Mattress Online Ltd

Dates: 04/06/2024 - 04/06/2024

Logged By
LK

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
Well	▼	0.05			0.05	58.65		Asphalt. ASPHALT	1 2 3 4	
		0.20			0.20	58.50		Concrete. CONCRETE		
		0.45 - 0.50	ES							Medium dense, black gravelly SAND. Gravels consist of fine to coarse, angular, brick, coal, concrete, and asphalt. MADE GROUND
		0.95 - 1.00 1.00	ES	N=7 (1,1/1,2,2,2)	1.00	57.70		Soft, black, sandy, slightly gravelly, CLAY. Gravels consist of fine to coarse, angular, brick and coal. MADE GROUND		
		1.35 - 1.40	ES		1.30	57.40		Soft, light greenish grey, very sandy CLAY. ALLUVIUM		
		1.95 - 2.00 2.00	ES	N=15 (2,1/2,2,3,8)						
		2.35 - 2.40	ES							
		3.00		N=50 (5,7/50 for 200mm)	3.00	55.70		Dense, yellow, clayey, gravelly SAND. Gravels consists of medium to coarse, sub-angular to sub-rounded sandstone. ALLUVIUM		
End of borehole at 3.00 m										

Remarks

APPENDIX D: MONITORING RESULTS

GAS MONITORING DATA

Site:	Leeds Road, Huddersfield		
Project:	B25657	Date:	11/06/2024

Operator:	BR
Weather:	



Monitoring Location	Standpipe diameter (mm)	Standpipe Depth (m bg)	Water Level (m bg)	Atmos. Pressure (mb)	Initial Flow Rate (litres/hr)	Average Flow Rate (litres/hr)	Temp (°C)	Reading Duration (s)	CH ₄ (% v/v)	CO ₂ (% v/v)	O ₂ (% v/v)	PID	Notes
WS01	55	3.38	2.36	1013	0.0	0.0		15	0.8	4.3	10.6		
								30	1.6	4.5	9.5		
								60	1.7	4.6	9.4		
								90	1.7	4.6	9.3		
								120	1.8	4.6	9.2		
								180	1.8	4.6	9.2		
								240	1.8	4.7	9.2		
								300	1.7	4.7	9.2		
WS02	55	4.37	2.05	1013	0.0	0.0		15	0.0	0.0	6.0		
								30	0.1	0.0	6.1		
								60	0.1	0.0	6.1		
								90	0.2	0.0	6.1		
								120	0.1	0.0	6.1		
								180	0.1	0.0	6.0		
								240	0.1	0.0	6.2		
								300	0.1	0.0	6.2		
WS04	55	3.38	2.36	1013	0.0	0.0		15	0.2	0.4	12.4		
								30	0.0	0.4	12.4		
								60	0.0	0.4	12.3		
								90	0.0	0.3	12.3		
								120	0.0	0.4	12.3		
								180	0.0	0.4	12.3		
								240	0.0	0.5	12.3		
								300	0.0	0.6	12.3		
0	55	0.00						15					
								30					
								60					
								90					
								120					
								180					
								240					
								300					
0	55	0.00						15					
								30					
								60					
								90					
								120					
								180					
								240					
								300					
0	55	0.00						15					
								30					
								60					
								90					
								120					
								180					
								240					
								300					
0	55	0.00						15					
								30					
								60					
								90					
								120					
								180					
								240					
								300					

GAS MONITORING DATA

Site:	Leeds Road, Huddersfield		
Project:	B25657	Date:	21/06/2024

Operator:	BR
Weather:	Sunny



Monitoring Location	Standpipe diameter (mm)	Standpipe Depth (m bg)	Water Level (m bg)	Atmos. Pressure (mb)	Initial Flow Rate (litres/hr)	Average Flow Rate (litres/hr)	Temp (°C)	Reading Duration (s)	CH ₄ (% v/v)	CO ₂ (% v/v)	O ₂ (% v/v)	PID	Notes
WS01	55	3.38	2.44	1010	0.0	0.0	19	15	0.0	3.3	14.1		
								30	0.0	4.6	11.0		
								60	0.0	4.8	10.3		
								90	0.0	4.9	10.1		
								120	0.0	4.9	10.1		
								180	0.0	4.8	10.4		
								240	0.0	4.7	10.9		
							300	0.0	4.5	11.5			
WS02	55	4.37	2.07	1010	0.0	0.0	19	15	0.0	0.0	7.0		
								30	0.0	0.0	5.6		
								60	0.0	0.0	5.0		
								90	0.0	0.0	4.7		
								120	0.0	0.0	4.2		
								180	0.0	0.0	4.2		
								240	0.0	0.0	4.9		
							300	0.0	0.0	5.8			
WS04	55	3.38	2.27	1010	0.0	0.0	19	15	0.0	4.4	12.2		
								30	0.0	4.7	11.6		
								60	0.0	4.8	11.4		
								90	0.0	4.0	11.2		
								120	0.0	4.9	11.1		
								180	0.0	4.9	10.9		
								240	0.0	5.0	10.9		
							300	0.0	5.1	10.8			
0	55	0.00						15					
								30					
								60					
								90					
								120					
								180					
								240					
							300						
0	55	0.00						15					
								30					
								60					
								90					
								120					
								180					
								240					
							300						
0	55	0.00						15					
								30					
								60					
								90					
								120					
								180					
								240					
							300						
0	55	0.00						15					
								30					
								60					
								90					
								120					
								180					
								240					
							300						

GAS MONITORING DATA

Site:	Leeds Road, Huddersfield		
Project:	B25657	Date:	26/06/2024

Operator:	BR
Weather:	Sunny



Monitoring Location	Standpipe diameter (mm)	Standpipe Depth (m bg)	Water Level (m bg)	Atmos. Pressure (mb)	Initial Flow Rate (litres/hr)	Average Flow Rate (litres/hr)	Temp (°C)	Reading Duration (s)	CH ₄ (% v/v)	CO ₂ (% v/v)	O ₂ (% v/v)	PID	Notes
WS01	55	3.38	2.48	1006	0.0	0.0	20	15	0.0	4.9	12.1		
								30	0.0	5.7	10.5		
								60	0.0	5.9	10.1		
								90	0.0	5.9	10.1		
								120	0.0	5.9	10.0		
								180	0.0	5.9	10.0		
								240	0.0	5.9	10.1		
							300	0.0	5.8	10.2			
WS02	55	4.37	Dry	1006			20	15	0.0	0.1	1.6		
								30	0.2	0.1	1.2		
								60	0.3	0.1	0.8		
								90	0.4	0.1	0.3		
								120	0.4	0.1	0.1		
								180	0.4	0.1	0.1		
								240	0.4	0.1	0.0		
							300	0.5	0.1	0.0			
WS04	55	3.38	2.32	1006			20	15	0.0	5.3	11.6		
								30	0.0	5.5	11.3		
								60	0.0	5.8	11.0		
								90	0.0	5.9	10.7		
								120	0.0	6.1	10.5		
								180	0.0	6.3	10.3		
								240	0.0	6.4	10.2		
							300	0.0	6.4	10.1			
0	55	0.00						15					
								30					
								60					
								90					
								120					
								180					
								240					
							300						
0	55	0.00						15					
								30					
								60					
								90					
								120					
								180					
								240					
							300						
0	55	0.00						15					
								30					
								60					
								90					
								120					
								180					
								240					
							300						
0	55	0.00						15					
								30					
								60					
								90					
								120					
								180					
								240					
							300						

GAS MONITORING DATA



Site:	409 Leeds Road, Huddersfield		
Project:	B25657	Date:	08/07/2024

Operator:	BR
Weather:	Sunny

Monitoring Location	Standpipe diameter (mm)	Standpipe Depth (m bgl)	Water Level (m bgl)	Atmos. Pressure (mb)	Initial Flow Rate (litres/hr)	Average Flow Rate (litres/hr)	Temp (°C)	Reading Duration (s)	CH ₄ (% v/v)	CO ₂ (% v/v)	O ₂ (% v/v)	PID	Notes
WS01	55	0.5 - 3.70	2.59	1013	0.0	0.0	15	15	0.0	4.1	15.0		
								30	0.0	4.4	13.9		
								60	0.0	4.4	13.8		
								90	0.0	4.4	13.7		
								120	0.0	4.4	13.7		
								180	0.0	4.4	13.7		
								240	0.0	4.3	13.8		
300	0.0	4.2	14.0										
WS02	55	0.5 - 4.00	2.29	1013	0.0	0.0	15	15	4.6	0.5	1.3		
								30	5.6	0.5	0.7		
								60	5.6	0.5	0.7		
								90	5.6	0.5	0.6		
								120	5.6	0.5	0.6		
								120	5.7	0.5	0.6		
								144	5.7	0.5	0.6		
								168	5.7	0.6	0.6		
								192	5.8	0.6	0.6		
								216	5.8	0.6	0.6		
								240	5.9	0.7	0.6		
264	5.9	0.7	0.6										
288	5.9	0.7	0.6										
WS04	55	0.5 - 3.60	2.52	1013	0.0	0.0	15	15	0.0	2.3	17.8		
								30	0.0	2.7	17.2		
								60	0.0	3.0	16.8		
								90	0.0	3.2	16.5		
								120	0.0	3.6	16.1		
								180	0.0	4.0	15.5		
								240	0.0	4.2	15.3		
300	0.0	4.2	15.3										
0	55	0.00						15					
								30					
								60					
								90					
								120					
								180					
								240					
300													
0	55	0.00						15					
								30					
								60					
								90					
								120					
								180					
								240					
300													
0	55	0.00						15					
								30					
								60					
								90					
								120					
								180					
								240					
300													
0	55	0.00						15					
								30					
								60					
								90					
								120					
								180					
								240					
300													
0	55	0.00						15					
								30					
								60					
								90					
								120					
								180					
								240					
300													

GAS MONITORING DATA



Site:	409 Leeds Road, Huddersfield		
Project:	B25657	Date:	15/07/2024

Operator:	LS
Weather:	Sunny/ Warm/ Dry

Monitoring Location	Standpipe diameter (mm)	Standpipe Depth (m bgl)	Water Level (m bgl)	Atmos. Pressure (mb)	Initial Flow Rate (litres/hr)	Average Flow Rate (litres/hr)	Temp (°C)	Reading Duration (s)	CH ₄ (% v/v)	CO ₂ (% v/v)	O ₂ (% v/v)	PID	Notes
WS01	55	0.5 - 3.70	2.54	1008	0.0	0.0		15	0.0	6.7	8.4	1 to 38	PID constantly fluctuating
								30	0.0	6.7	8.2		
								60	0.1	6.7	8.2		
								90	0.0	6.7	8.2		
								120	0.0	6.7	8.1		
								180	0.1	6.7	8.1		
								240	0.1	6.7	8.1		
							300	0.2	6.8	8.1			
WS02	55	0.5 - 4.00	2.28	1008	0.0	0.0		15	8.5	1.5	1.6	3.7 to 14	PID constantly fluctuating
								30	9.7	1.5	0.3		
								60	9.8	1.5	0.1		
								90	9.9	1.5	0.1		
								120	9.9	1.5	0.0		
								180	9.9	1.6	0.0		
								240	9.9	1.6	0.0		
							300	10.0	1.7	0.0			
WS04	55	0.5 - 3.60	2.42	1088	0.0	0.0		15	0.0	6.2	9.0		PID constantly fluctuating
								30	0.0	5.9	9.2		
								60	0.0	5.1	9.4		
								90	0.0	4.2	10.7		
								120	0.0	3.9	11.5		
								180	0.0	3.1	13.2		
								240	0.0	2.3	14.7		
							300	0.0	2.1	15.4			
0	55	0.00						15					
								30					
								60					
								90					
								120					
								180					
								240					
							300						
0	55	0.00						15					
								30					
								60					
								90					
								120					
								180					
								240					
							300						
0	55	0.00						15					
								30					
								60					
								90					
								120					
								180					
								240					
							300						
0	55	0.00						15					
								30					
								60					
								90					
								120					
								180					
								240					
							300						

GAS MONITORING DATA

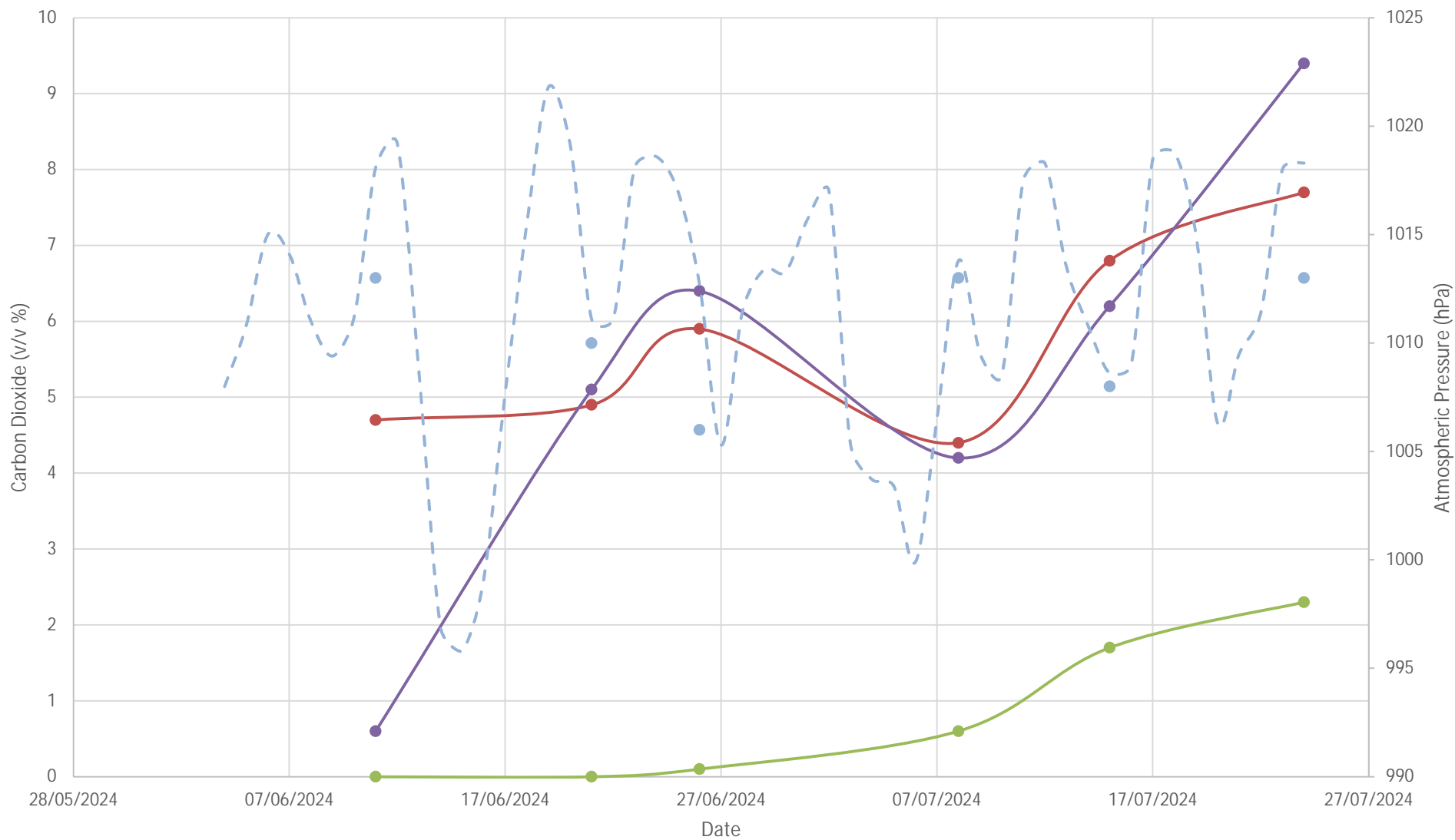


Site:	409 Leeds Road, Huddersfield		
Project:	B25657	Date:	24/07/2024

Operator:	LS
Weather:	Warm/ Sunny/ Dry

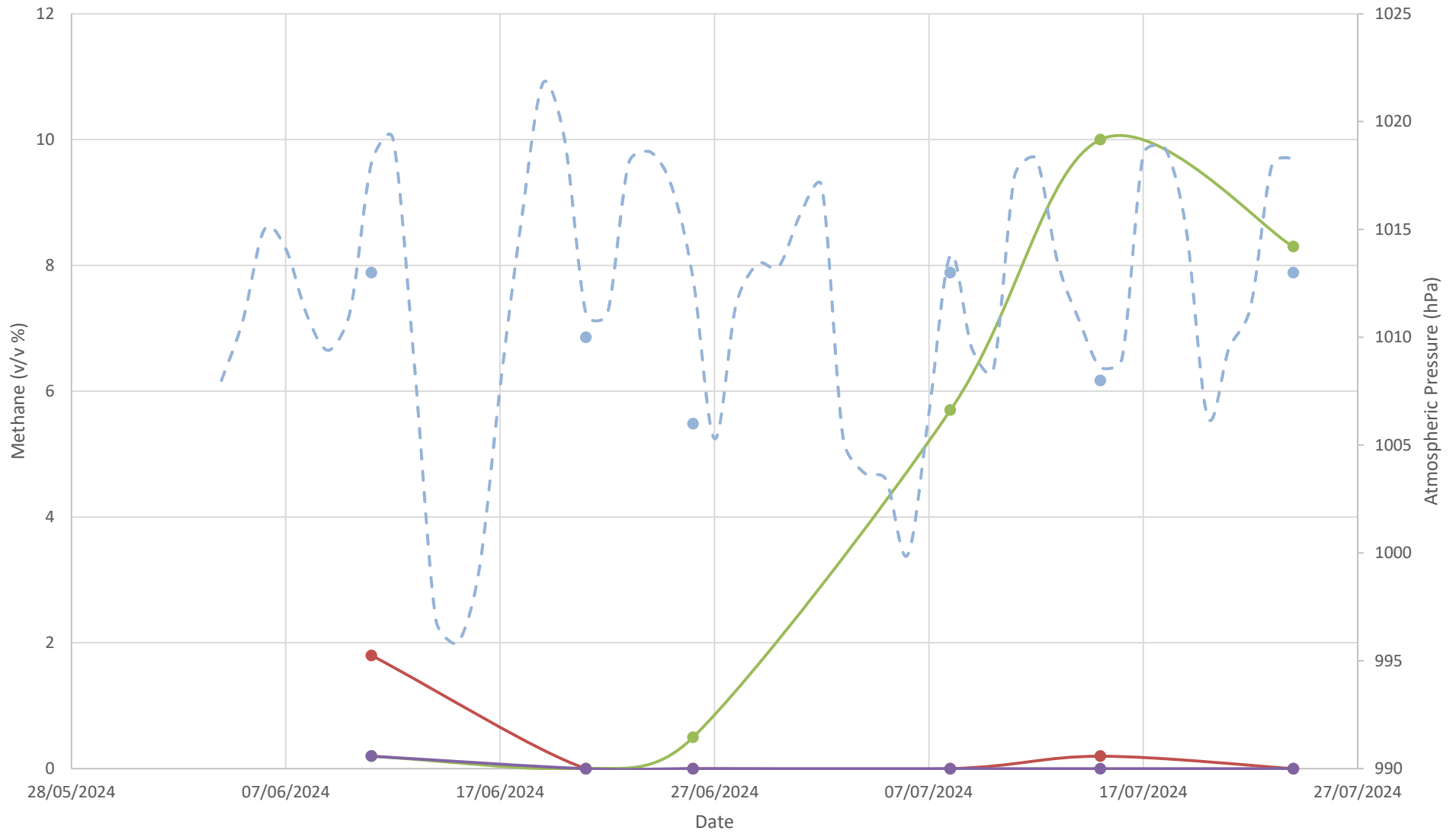
Monitoring Location	Standpipe diameter (mm)	Standpipe Depth (m bgl)	Water Level (m bgl)	Atmos. Pressure (mb)	Initial Flow Rate (litres/hr)	Average Flow Rate (litres/hr)	Temp (°C)	Reading Duration (s)	CH ₄ (% v/v)	CO ₂ (% v/v)	O ₂ (% v/v)	PID	Notes
WS01	55	0.5 - 3.70	2.61	1013	0.0	0.0	20	15	0.0	7.0	8.4	1 - 20.4	Fluctuating PID
								30	0.0	7.2	8.4		Strong Hydrocarbon smell
								60	0.0	7.4	8.2		
								90	0.0	7.4	8.1		
								120	0.0	7.6	7.9		
								180	0.0	7.7	7.8		
								240	0.0	7.7	7.8		
300	0.0	7.7	7.8										
WS02	55	0.5 - 4.00	2.38	1013	0.0	0.0	20	15	6.8	2.2	1.2	1-7.8	Fluctuating PID
								30	7.3	2.3	0.5		Strong Hydrocarbon Smell
								60	8.0	2.3	0.1		
								90	8.1	2.3	0.0		
								120	8.2	2.3	0.0		
								180	8.2	2.3	0.0		
								240	8.3	2.3	0.0		
300	8.3	2.3	0.0										
WS04	55	0.5 - 3.60	2.52	1013	0.0	0.0	20	15	0.0	7.6	8.4	1-9.8	Fluctuating PID
								30	0.0	8.9	6.3		Strong hydrocarbon smell
								60	0.0	9.2	5.8		
								90	0.0	9.4	5.4		
								120	0.0	9.4	5.3		
								180	0.0	9.4	5.3		
								240	0.0	9.3	5.3		
300	0.0	9.3	5.3										
0	55	0.00						15					
								30					
								60					
								90					
								120					
								180					
								240					
300													
0	55	0.00						15					
								30					
								60					
								90					
								120					
								180					
								240					
300													
0	55	0.00						15					
								30					
								60					
								90					
								120					
								180					
								240					
300													
0	55	0.00						15					
								30					
								60					
								90					
								120					
								180					
								240					
300													

Carbon Dioxide Monitoring Trend



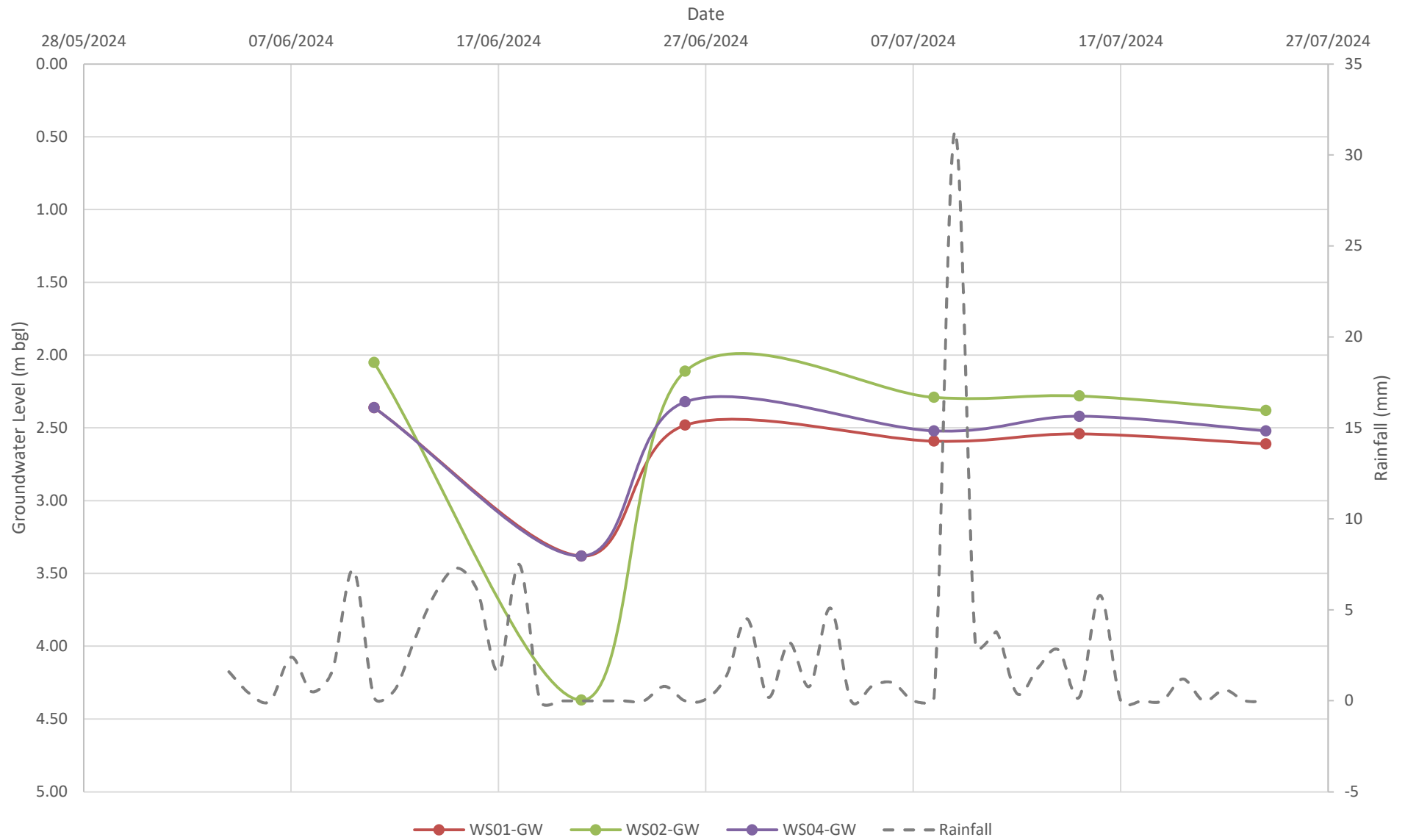
—●— WS01 —●— WS02 —●— WS04 - - - Air Pressure ● Air Pressure at Visit Date

Methane Monitoring Trend



—●— WS01 —●— WS02 —●— WS04 - - - Air Pressure ● Air Pressure at Visit Date

Groundwater Monitoring Trend



APPENDIX E: GEOTECHNICAL RESULTS



TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
 Tested in Accordance with: BS EN ISO 17892-12:2018+A2:2022,
 cl 5.3 and 5.5, Fall Cone Method, 4 Pt Test, BS 1377-2:2022,
 cl 5.2 and 6

i2 Analytical Ltd
 Unit 8 Harrowden Road
 Brackmills Industrial Estate
 Northampton NN4 7EB



4041

Client: JNP Midlands LLP
 Client Address: 3rd Floor, Marlborough House,
 48 Holly Walk, Leamington Spa,
 CV32 4XP
 Contact: Louis Keane
 Site Address: Leeds Road

Client Reference: B25657
 Job Number: 24-023161-1
 Date Sampled: Not Given
 Date Received: 05/06/2024
 Date Tested: 12/06/2024
 Sampled By: Client - LK

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

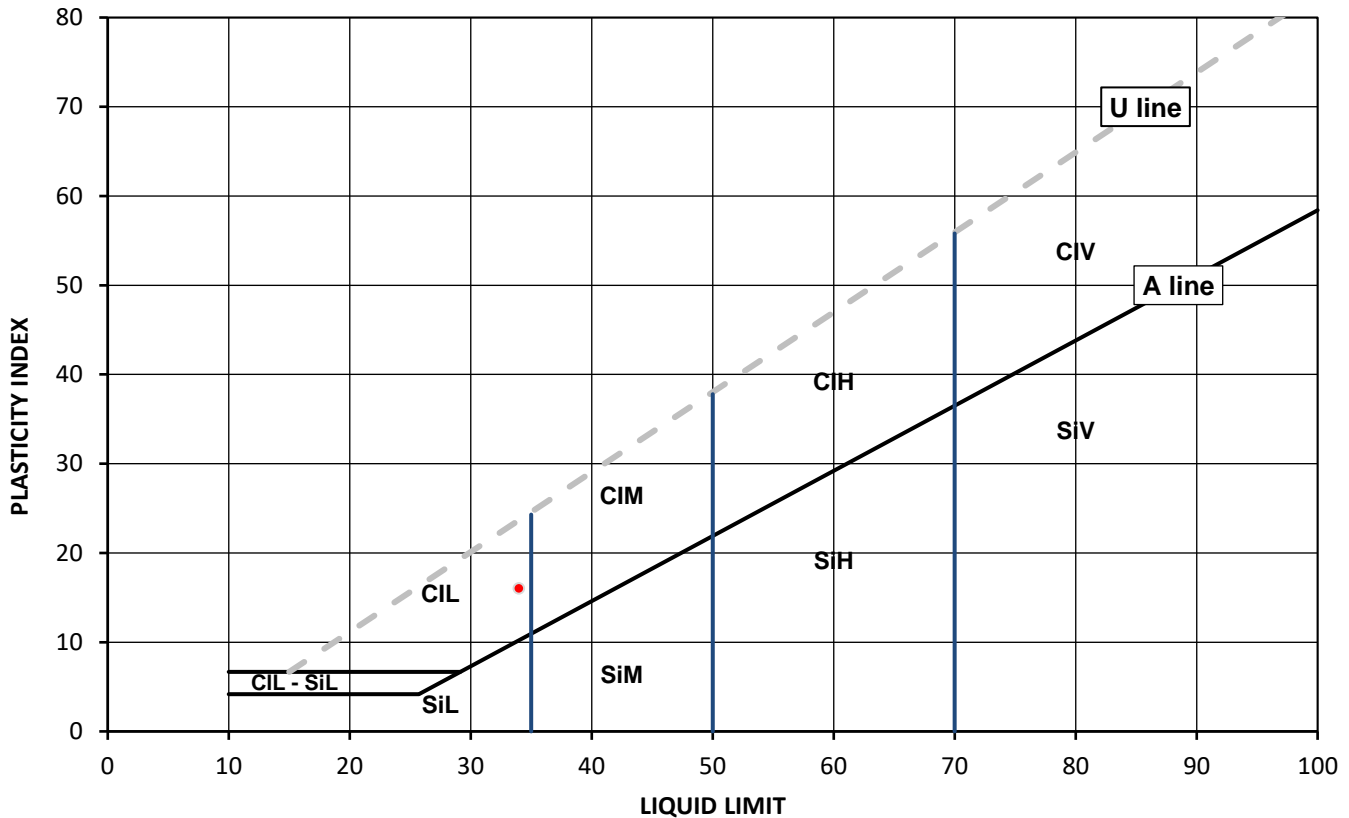
Test Results:

Laboratory Reference: 217435
 Hole No.: WS01
 Sample Reference: 2
 Sample Description: Grey gravelly very sandy CLAY

Depth Top [m]: 3.00
 Depth Base [m]: Not Given
 Sample Type: D

Sample Preparation: Tested after washing to remove >0.425mm; The water content in the sample was increased
 Cone Type: 80g/30deg

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity Index [IL] % #	Consistency Index [IC] % #	% Passing 425µm BS Test Sieve
16.4	34	18	16	-0.13	1.13	44



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

Cl	Clay	Plasticity	L	Low	Liquid Limit	below 35
Si	Silt	M	Medium	35 to 50		
		H	High	50 to 70		
		V	Very high	exceeding 70		
		O	Organic	append to classification for organic material (eg ClHO)		

Note: Water Content by BS EN 17892-1: 2014; # Non accredited

Remarks:

Signed:

Monika Siewior

Monika Siewior
 Reporting Specialist
 for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
 Tested in Accordance with: BS EN ISO 17892-12:2018+A2:2022,
 cl 5.3 and 5.5, Fall Cone Method, 4 Pt Test, BS 1377-2:2022,
 cl 5.2 and 6

i2 Analytical Ltd
 Unit 8 Harrowden Road
 Brackmills Industrial Estate
 Northampton NN4 7EB



4041

Client: JNP Midlands LLP
 Client Address: 3rd Floor, Marlborough House,
 48 Holly Walk, Leamington Spa,
 CV32 4XP
 Contact: Louis Keane
 Site Address: Leeds Road

Client Reference: B25657
 Job Number: 24-023161-1
 Date Sampled: Not Given
 Date Received: 05/06/2024
 Date Tested: 12/06/2024
 Sampled By: Client - LK

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

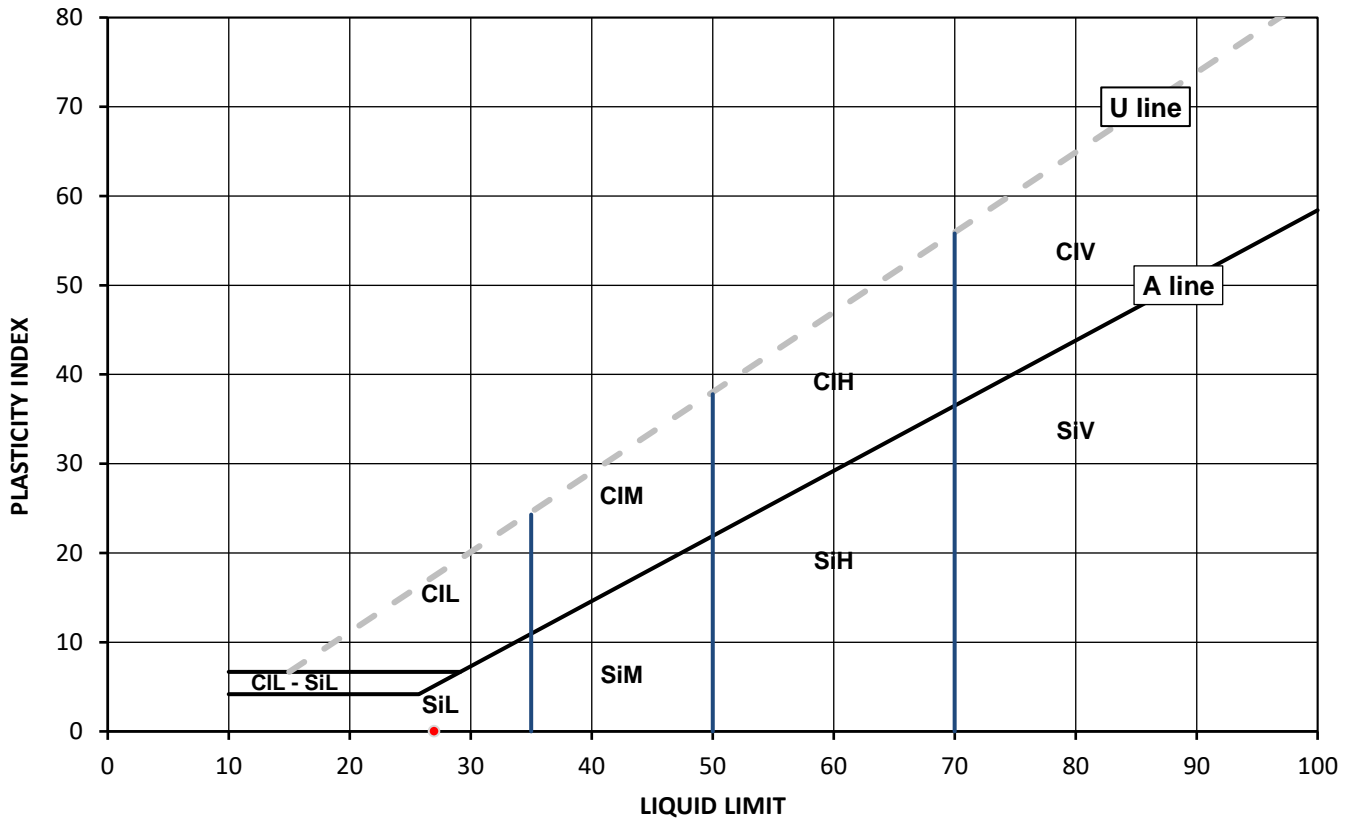
Test Results:

Laboratory Reference: 217438
 Hole No.: WS03
 Sample Reference: 6
 Sample Description: Grey slightly clayey SAND

Depth Top [m]: 2.00
 Depth Base [m]: Not Given
 Sample Type: D

Sample Preparation: Tested in natural condition; The water content in the sample was increased
 Cone Type: 80g/30deg

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity Index [IL] % #	Consistency Index [IC] % #	% Passing 425µm BS Test Sieve
23.9	27	NP	NP	N/A	N/A	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

Cl	Clay	Plasticity	L	Low	Liquid Limit	below 35
Si	Silt		M	Medium		35 to 50
			H	High		50 to 70
			V	Very high		exceeding 70
			O	Organic		append to classification for organic material (eg ClHO)

Note: Water Content by BS EN 17892-1: 2014; # Non accredited

Remarks: NP - non plastic.

Signed:

Monika Siewior

Monika Siewior
 Reporting Specialist
 for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
 Tested in Accordance with: BS EN ISO 17892-12:2018+A2:2022,
 cl 5.3 and 5.5, Fall Cone Method, 4 Pt Test, BS 1377-2:2022,
 cl 5.2 and 6

i2 Analytical Ltd
 Unit 8 Harrowden Road
 Brackmills Industrial Estate
 Northampton NN4 7EB



4041

Client: JNP Midlands LLP
 Client Address: 3rd Floor, Marlborough House,
 48 Holly Walk, Leamington Spa,
 CV32 4XP
 Contact: Louis Keane
 Site Address: Leeds Road

Client Reference: B25657
 Job Number: 24-023161-1
 Date Sampled: Not Given
 Date Received: 05/06/2024
 Date Tested: 12/06/2024
 Sampled By: Client - LK

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

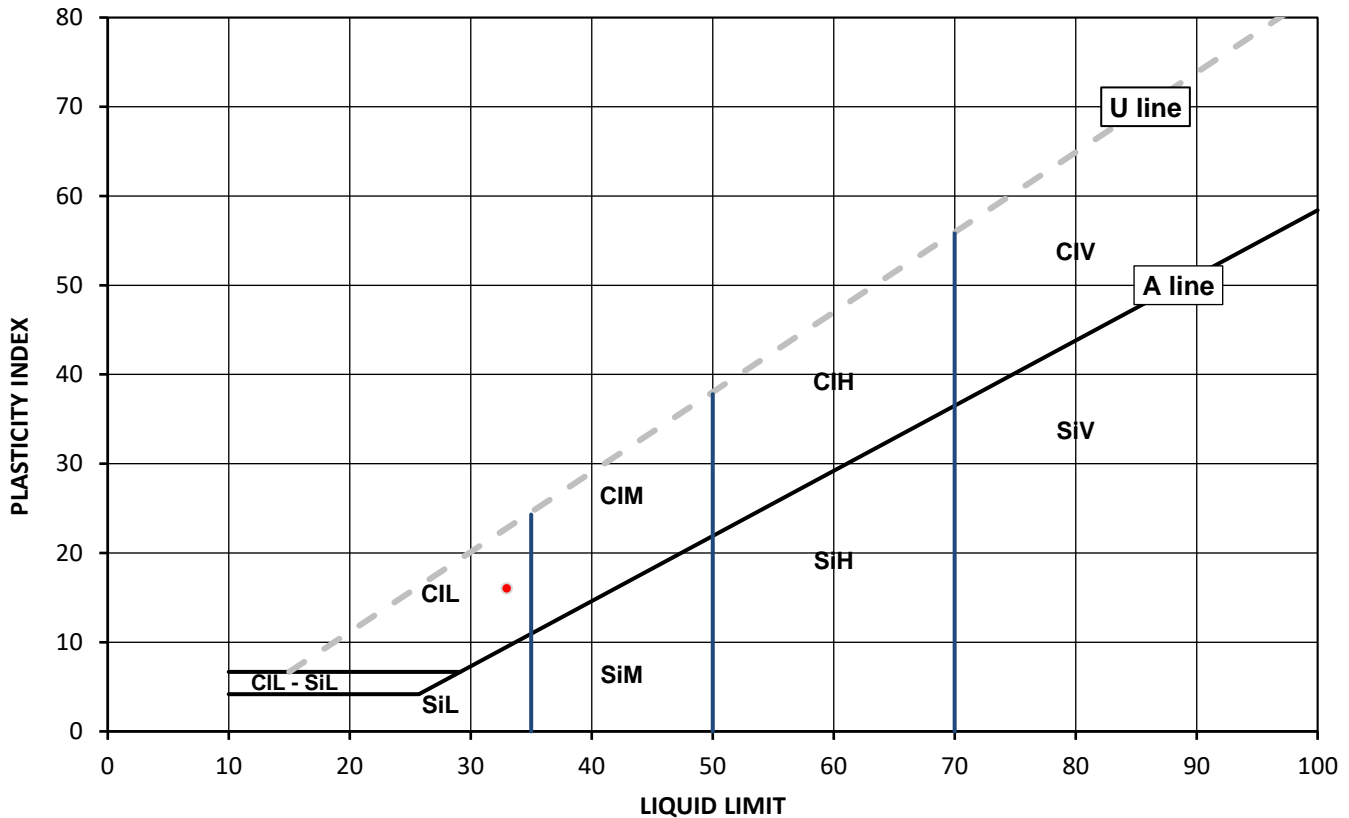
Test Results:

Laboratory Reference: 217439
 Hole No.: WS04
 Sample Reference: 9
 Sample Description: Brown gravelly very sandy CLAY

Depth Top [m]: 3.00
 Depth Base [m]: Not Given
 Sample Type: D

Sample Preparation: Tested after washing to remove >0.425mm; The water content in the sample was increased
 Cone Type: 80g/30deg

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity Index [IL] % #	Consistency Index [IC] % #	% Passing 425µm BS Test Sieve
17.6	33	17	16	0.06	0.94	58



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

Cl	Clay	Plasticity	L	Low	Liquid Limit	below 35
Si	Silt		M	Medium		35 to 50
			H	High		50 to 70
			V	Very high		exceeding 70
			O	Organic		append to classification for organic material (eg ClHO)

Note: Water Content by BS EN 17892-1: 2014; # Non accredited

Remarks:

Signed:

Monika Siewior

Monika Siewior
 Reporting Specialist
 for and on behalf of i2 Analytical Ltd

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SUMMARY REPORT

SUMMARY OF CLASSIFICATION TEST RESULTS

Tested in Accordance with:

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

4041

Client: JNP Midlands LLP
Client Address: 3rd Floor, Marlborough House,
48 Holly Walk, Leamington Spa,
CV32 4XP

Contact: Louis Keane
Site Address: Leeds Road

BS EN ISO 17892-12:2018+A2:2022 cl 5.3 and 5.5, Fall Cone Method, 4 Pt
Test, BS 1377-2:2022, cl 5.2 and 6. W by BS EN ISO 17892-1:2014+A1:2022.

Client Reference: B25657
Job Number: 24-023161-1
Date Sampled: Not Given
Date Received: 05/06/2024
Date Tested: 12/06/2024
Sampled By: Client - LK

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	W	Liquid & Plastic Limit							Density		
		Reference	Depth Top m	Depth Base m	Type				% Passing 425um %	WL* %	Correlation Factor	Wp %	Ip %	Cone type	Sample Preparation	bulk Mg/m3	dry Mg/m3	PD Mg/m3
217434	WS01	1	2.00	Not Given	D	Black CLAY		32.8										
217435	WS01	2	3.00	Not Given	D	Grey gravelly very sandy CLAY	Atterberg 4 Point	16.4	44	34	-	18	16	80g/30 deg	W / I			
217436	WS02	4	3.00	Not Given	D	Grey gravelly clayey silty SAND		19.4										
217437	WS03	5	1.00	Not Given	D	Grey clayey SAND		13.2										
217438	WS03	6	2.00	Not Given	D	Grey slightly clayey SAND	Atterberg 4 Point	23.9	100	27	-	NP	NP	80g/30 deg	N / I			
217439	WS04	9	3.00	Not Given	D	Brown gravelly very sandy CLAY	Atterberg 4 Point	17.6	58	33	-	17	16	80g/30 deg	W / I			

Note: # Non accredited; NP - Non plastic; N - Tested in natural condition, R - Tested after >0,425mm removed by hand, W - Tested after washing to remove >425mm; I - The water content in the sample was increased , D - The water content in the sample was decreased; * - One point liquid limit corrected as per the report Correlation Factor by Clayton C.R.I and Jukes A.W (1978)

Comments:

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Signed:

Monika Siewior

Monika Siewior
Reporting Specialist

for and on behalf of i2 Analytical Ltd



JNP Midlands LLP
3rd Floor
Marlborough House
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7 Woodshots Meadow,
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WD18 8YS

e: louis.keane@jnpgroup.co.uk

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 24-023164

Project / Site name:	Leeds Road	Samples received on:	05/06/2024
Your job number:	B25657	Samples instructed on/ Analysis started on:	05/06/2024
Your order number:	GO3177	Analysis completed by:	14/06/2024
Report Issue Number:	1	Report issued on:	14/06/2024
Samples Analysed:	3 soil samples		

Signed: _____

Anna Goc
PL Head of Reporting Team
For & on behalf of i2 Analytical Ltd.

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

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

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

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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

Analytical Report Number: 24-023164

Project / Site name: Leeds Road

Your Order No: GO3177

Lab Sample Number				217450	217451	217452
Sample Reference				WS02	WS03	WS04
Sample Number				3	7	8
Depth (m)				2.00	3.00	2.00
Date Sampled				04/06/2024	04/06/2024	04/06/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status			

Stone Content	%	0.1	NONE	< 0.1	28.7	< 0.1
Moisture Content	%	0.01	NONE	17	11	24
Total mass of sample received	kg	0.1	NONE	0.5	0.5	0.5

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	7.8	7.2	8.2
Total Sulphate as SO ₄	%	0.005	MCERTS	0.013	0.008	0.078
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	69	19	66
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	34.4	9.59	33.2
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	4.1	4.9	14
Total Sulphur	mg/kg	50	MCERTS	130	140	680
Total Sulphur	%	0.005	MCERTS	0.013	0.014	0.068
Water Soluble Nitrate (2:1) as N	mg/kg	2	NONE	< 2.0	< 2.0	3.1
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	< 2.0	< 2.0

Heavy Metals / Metalloids

Magnesium (leachate equivalent)	mg/l	2.5	NONE	< 2.5	< 2.5	5.1
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 24-023164

Project / Site name: Leeds Road

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
217450	WS02	3	2	Brown sandy clay
217451	WS03	7	3	Brown sandy clay with gravel and stones
217452	WS04	8	2	Brown clay and sand

Analytical Report Number : 24-023164

Project / Site name: Leeds Road

Water matrix abbreviations:

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES	In-house method based on TRL 447	L038B	D	NONE
Total sulphate (as SO ₄ in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES	In-house method	L038B	D	MCERTS
Water Soluble Nitrate (2:1) as N in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction	L078B	W	NONE
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser	In-house method	L082B	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution

APPENDIX F: CHEMICAL TEST RESULTS



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Analytical Report Number : 24-023164

Project / Site name:	Leeds Road	Samples received on:	05/06/2024
Your job number:	B25657	Samples instructed on/ Analysis started on:	05/06/2024
Your order number:	GO3177	Analysis completed by:	14/06/2024
Report Issue Number:	1	Report issued on:	14/06/2024
Samples Analysed:	3 soil samples		

Signed: _____

Anna Goc
PL Head of Reporting Team
For & on behalf of i2 Analytical Ltd.

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

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soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Analytical Report Number: 24-023164

Project / Site name: Leeds Road

Your Order No: GO3177

Lab Sample Number				217450	217451	217452
Sample Reference				WS02	WS03	WS04
Sample Number				3	7	8
Depth (m)				2.00	3.00	2.00
Date Sampled				04/06/2024	04/06/2024	04/06/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status			

Stone Content	%	0.1	NONE	< 0.1	28.7	< 0.1
Moisture Content	%	0.01	NONE	17	11	24
Total mass of sample received	kg	0.1	NONE	0.5	0.5	0.5

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	7.8	7.2	8.2
Total Sulphate as SO ₄	%	0.005	MCERTS	0.013	0.008	0.078
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	69	19	66
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Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	4.1	4.9	14
Total Sulphur	mg/kg	50	MCERTS	130	140	680
Total Sulphur	%	0.005	MCERTS	0.013	0.014	0.068
Water Soluble Nitrate (2:1) as N	mg/kg	2	NONE	< 2.0	< 2.0	3.1
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	< 2.0	< 2.0

Heavy Metals / Metalloids

Magnesium (leachate equivalent)	mg/l	2.5	NONE	< 2.5	< 2.5	5.1
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 24-023164

Project / Site name: Leeds Road

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Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
217450	WS02	3	2	Brown sandy clay
217451	WS03	7	3	Brown sandy clay with gravel and stones
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Analytical Report Number : 24-023164

Project / Site name: Leeds Road

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES	In-house method based on TRL 447	L038B	D	NONE
Total sulphate (as SO ₄ in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES	In-house method	L038B	D	MCERTS
Water Soluble Nitrate (2:1) as N in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction	L078B	W	NONE
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser	In-house method	L082B	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

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The result for sum should be interpreted with caution



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Analytical Report Number : 24-023381

Project / Site name:	Leeds Road	Samples received on:	05/06/2024
Your job number:	B25657	Samples instructed on/ Analysis started on:	05/06/2024
Your order number:	GO3177	Analysis completed by:	17/06/2024
Report Issue Number:	1	Report issued on:	17/06/2024
Samples Analysed:	17 soil samples		

Signed:

Adam Fenwick
Technical Reviewer
For & on behalf of i2 Analytical Ltd.

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

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leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
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Analytical Report Number: 24-023381
 Project / Site name: Leeds Road
 Your Order No: GO3177

Lab Sample Number	218471			218472			218473			218474			218475		
Sample Reference	WS01			WS01			WS01			WS02			WS02		
Sample Number	1			2			4			5			8		
Depth (m)	0.80			1.60			3.50			0.60			2.50		
Date Sampled	04/06/2024			04/06/2024			04/06/2024			04/06/2024			04/06/2024		
Time Taken	None Supplied			None Supplied			None Supplied			None Supplied			None Supplied		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status												

Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	16	22	12	13	18
Total mass of sample received	kg	0.1	NONE	0.4	0.3	0.4	0.3	0.4

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	-	-	Not-detected	-
Asbestos Analyst ID	N/A	N/A	N/A	DSA	-	-	DSA	-

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	7.7	-	-	7.9	7.6
MBAS	mg/kg	0.2	NONE	0.35	-	-	-	-
Organic Matter (automated)	%	0.1	MCERTS	6.4	-	-	6.5	0.9
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	-	-	-	-	-

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	-	-	-	-
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	46	-	-	1.9	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.17	-
Acenaphthene	mg/kg	0.05	MCERTS	90	-	-	4.7	-
Fluorene	mg/kg	0.05	MCERTS	58	-	-	3.3	-
Phenanthrene	mg/kg	0.05	MCERTS	480	-	-	27	-
Anthracene	mg/kg	0.05	MCERTS	110	-	-	7.6	-
Fluoranthene	mg/kg	0.05	MCERTS	520	-	-	49	-
Pyrene	mg/kg	0.05	MCERTS	440	-	-	48	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	240	-	-	24	-
Chrysene	mg/kg	0.05	MCERTS	240	-	-	26	-
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	230	-	-	30	-
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	120	-	-	8.5	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	210	-	-	23	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	110	-	-	12	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	29	-	-	2.5	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	120	-	-	13	-

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	3040	-	-	281	-
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Analytical Report Number: 24-023381
 Project / Site name: Leeds Road
 Your Order No: GO3177

Lab Sample Number	218471	218472	218473	218474	218475
Sample Reference	WS01	WS01	WS01	WS02	WS02
Sample Number	1	2	4	5	8
Depth (m)	0.80	1.60	3.50	0.60	2.50
Date Sampled	04/06/2024	04/06/2024	04/06/2024	04/06/2024	04/06/2024
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Heavy Metals / Metalloids

Element	mg/kg	1	MCERTS	300	-	-	31	-
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	300	-	-	31	-
Barium (aqua regia extractable)	mg/kg	1	MCERTS	900	-	-	150	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	4	-	-	2.7	-
Boron (water soluble)	mg/kg	0.2	MCERTS	0.8	-	-	1.9	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	-	-	1.7	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	28	-	-	28	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	180	-	-	260	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	170	-	-	120	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	60	-	-	34	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	-	-	1.2	-
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	86	-	-	62	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	110	-	-	160	-

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 HS_1D_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	0.73 ^{&&+}	<0.100 ^{&&+}	0.17 ^{&&+}
TPHCWG - Aliphatic >EC6 - EC8 HS_1D_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	1.2 ^{&&+}	<0.100 ^{&&+}	0.63 ^{&&+}
TPHCWG - Aliphatic >EC8 - EC10 HS_1D_AL	mg/kg	0.05	NONE	< 0.050	< 0.050	0.36 ^{&&+}	<0.250 ^{&&+}	1.8 ^{&&+}
TPHCWG - Aliphatic >EC10 - EC12 EH_CU_1D_AL	mg/kg	1	MCERTS	< 1.0	< 1.0	15	< 1.0	23
TPHCWG - Aliphatic >EC12 - EC16 EH_CU_1D_AL	mg/kg	2	MCERTS	12	2.9	460	10	480
TPHCWG - Aliphatic >C16 - C21 EH_CU_1D_AL	mg/kg	8	MCERTS	32	< 8.0	800	14	660
TPHCWG - Aliphatic >C21 - C35 EH_CU_1D_AL	mg/kg	8	MCERTS	170	< 8.0	290	62	170
TPHCWG - Aliphatic >C5 - C35 EH_CU+HS_1D_AL	mg/kg	10	NONE	220	< 10	1600 ^{&&+}	86 ^{&&+}	1300 ^{&&+}

TPHCWG - Aromatic >EC5 - EC7 HS_ID_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	<0.050 ^{&&+}	0.15 ^{&&+}	1.1 ^{&&+}
TPHCWG - Aromatic >EC7 - EC8 HS_ID_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	<0.050 ^{&&+}	<0.050 ^{&&+}	<0.050 ^{&&+}
TPHCWG - Aromatic >EC8 - EC10 HS_ID_AR	mg/kg	0.05	NONE	< 0.050	< 0.050	0.77 ^{&&+}	<0.250 ^{&&+}	<0.250 ^{&&+}
TPHCWG - Aromatic >EC10 - EC12 EH_CU_ID_AR	mg/kg	1	MCERTS	15	< 1.0	9.6	1.2	12
TPHCWG - Aromatic >EC12 - EC16 EH_CU_ID_AR	mg/kg	2	MCERTS	150	< 2.0	300	27	340
TPHCWG - Aromatic >EC16 - EC21 EH_CU_ID_AR	mg/kg	10	MCERTS	1000	< 10	550	280	410
TPHCWG - Aromatic >EC21 - EC35 EH_CU_ID_AR	mg/kg	10	MCERTS	1500	< 10	120	470	78
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_ID_AR	mg/kg	10	NONE	2600	< 10	980 ^{&&+}	780 ^{&&+}	830 ^{&&+}

Analytical Report Number: 24-023381
 Project / Site name: Leeds Road
 Your Order No: GO3177

Lab Sample Number	218471			218472			218473			218474			218475		
Sample Reference	WS01			WS01			WS01			WS02			WS02		
Sample Number	1			2			4			5			8		
Depth (m)	0.80			1.60			3.50			0.60			2.50		
Date Sampled	04/06/2024			04/06/2024			04/06/2024			04/06/2024			04/06/2024		
Time Taken	None Supplied			None Supplied			None Supplied			None Supplied			None Supplied		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status												

VOCs

Compound	Units	Limit of detection	Accreditation Status	218471	218472	218473	218474	218475
Chloromethane	µg/kg	5	ISO 17025	< 5.0 #	-	-	-	-
Chloroethane	µg/kg	5	NONE	< 5.0	-	-	-	-
Bromomethane	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
Vinyl Chloride	µg/kg	5	NONE	< 5.0	-	-	-	-
Trichlorofluoromethane	µg/kg	5	NONE	< 5.0	-	-	-	-
1,1-Dichloroethane	µg/kg	5	NONE	< 5.0	-	-	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	< 5.0	-	-	-	-
Trans 1,2-dichloroethylene	µg/kg	5	NONE	< 5.0	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	<25.0 ⁸⁸⁺	<25.0 ⁸⁸⁺	<25.0 ⁸⁸⁺
1,1-Dichloroethane	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
2,2-Dichloropropane	µg/kg	5	NONE	< 5.0	-	-	-	-
Chloroform	µg/kg	5	ISO 17025	< 5.0 ^{##}	-	-	-	-
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	< 5.0 ^{##}	-	-	-	-
1,2-Dichloroethane	µg/kg	5	ISO 17025	< 5.0 ^{##}	-	-	-	-
1,1-Dichloropropene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	<25.0 ⁺	140 ⁺	1100 ⁺
Carbontetrachloride	µg/kg	5	NONE	< 5.0 ^{###}	-	-	-	-
1,2-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
Trichloroethene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
Dibromomethane	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
Bromodichloromethane	µg/kg	5	ISO 17025	< 5.0 ^{##}	-	-	-	-
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	<25.0 ⁺	<25.0 ⁺	<25.0 ⁺
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
1,3-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
Dibromochloromethane	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
Tetrachloroethene	µg/kg	5	NONE	< 5.0	-	-	-	-
1,2-Dibromoethane	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
Chlorobenzene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	< 5.0 ^{##}	-	-	-	-
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	<25.0 ⁺	<25.0 ⁺	<25.0 ⁺
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	42 ⁺	<25.0 ⁺	<25.0 ⁺
Styrene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
Bromoform	µg/kg	5	NONE	< 5.0	-	-	-	-
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	<25.0 ⁺	<25.0 ⁺	<25.0 ⁺
Isopropylbenzene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	< 5.0	-	-	-	-
Bromobenzene	µg/kg	5	NONE	< 5.0	-	-	-	-
n-Propylbenzene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
2-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
4-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
tert-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
sec-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
1,3-Dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
p-Isopropyltoluene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
1,4-Dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
1,2-Dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-

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Lab Sample Number	218471	218472	218473	218474	218475			
Sample Reference	WS01	WS01	WS01	WS02	WS02			
Sample Number	1	2	4	5	8			
Depth (m)	0.80	1.60	3.50	0.60	2.50			
Date Sampled	04/06/2024	04/06/2024	04/06/2024	04/06/2024	04/06/2024			
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Butylbenzene	µg/kg	5	NONE	< 5.0	-	-	-	-
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
Hexachlorobutadiene	µg/kg	5	NONE	< 5.0	-	-	-	-
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-

SVOCs

Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Aniline	mg/kg	0.1	NONE	< 0.1	-	-	-	-
Phenol	mg/kg	0.2	ISO 17025	2.3	-	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	2.3	-	-	-	-
Hexachloroethane	mg/kg	0.05	ISO 17025	< 0.05	-	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	4.7	-	-	-	-
Isophorone	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
2-Nitrophenol	mg/kg	0.3	NONE	< 0.3	-	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	4	-	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	-	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	< 0.1	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	< 0.2	-	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	31	-	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	NONE	< 0.1	-	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	NONE	< 0.2	-	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	43	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
4-Nitroaniline	mg/kg	0.2	NONE	< 0.2	-	-	-	-
Azobenzene	mg/kg	0.3	NONE	< 0.3	-	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.30	-	-	-	-
Carbazole	mg/kg	0.3	MCERTS	55	-	-	-	-
Dibutyl phthalate	mg/kg	0.2	NONE	< 0.2	-	-	-	-
Anthraquinone	mg/kg	0.3	NONE	30	-	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	NONE	< 0.3	-	-	-	-

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

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Lab Sample Number	218476			218477			218478			218479			218480		
Sample Reference	WS03			WS03			WS03			WS04			WS04		
Sample Number	10			11			13			15			16		
Depth (m)	0.50			0.90			2.50			0.70			1.00		
Date Sampled	04/06/2024			04/06/2024			04/06/2024			04/06/2024			04/06/2024		
Time Taken	None Supplied			None Supplied			None Supplied			None Supplied			None Supplied		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status												

Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	12	11	15	13	23
Total mass of sample received	kg	0.1	NONE	0.3	0.4	0.4	0.3	0.3

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	-	-	Not-detected	-
Asbestos Analyst ID	N/A	N/A	N/A	DSA	-	-	DSA	-

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8.2	-	-	-	-
MBAS	mg/kg	0.2	NONE	-	0.26	0.48	-	-
Organic Matter (automated)	%	0.1	MCERTS	6.7	-	-	-	-
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	-	0.3	-	1.2	-

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	25	< 0.05	0.53	0.46	-
Acenaphthylene	mg/kg	0.05	MCERTS	0.55	< 0.05	< 0.05	< 0.05	-
Acenaphthene	mg/kg	0.05	MCERTS	32	0.06	1.9	1.3	-
Fluorene	mg/kg	0.05	MCERTS	26	0.07	9.2	0.89	-
Phenanthrene	mg/kg	0.05	MCERTS	120	0.36	21	8.6	-
Anthracene	mg/kg	0.05	MCERTS	28	0.07	< 0.05	2	-
Fluoranthene	mg/kg	0.05	MCERTS	140	0.35	1.9	12	-
Pyrene	mg/kg	0.05	MCERTS	120	0.32	4.6	11	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	60	0.15	0.48	6.1	-
Chrysene	mg/kg	0.05	MCERTS	67	0.15	1	6.2	-
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	63	0.19	0.47	6.3	-
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	33	< 0.05	0.16	2.3	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	64	0.14	0.4	4.9	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	28	0.07	0.2	2.5	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	8.6	< 0.05	< 0.05	0.74	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	33	0.08	0.19	2.6	-

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	843	-	-	68.4	-
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Lab Sample Number	218476	218477	218478	218479	218480
Sample Reference	WS03	WS03	WS03	WS04	WS04
Sample Number	10	11	13	15	16
Depth (m)	0.50	0.90	2.50	0.70	1.00
Date Sampled	04/06/2024	04/06/2024	04/06/2024	04/06/2024	04/06/2024
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Heavy Metals / Metalloids

Element	mg/kg	Limit of detection	Accreditation Status	218476	218477	218478	218479	218480
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	17	-	-	31	24
Barium (aqua regia extractable)	mg/kg	1	MCERTS	150	-	-	310	200
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	2.8	-	-	4.8	3.4
Boron (water soluble)	mg/kg	0.2	MCERTS	1.9	-	-	0.8	0.7
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	1.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	20	-	-	27	24
Copper (aqua regia extractable)	mg/kg	1	MCERTS	110	-	-	380	99
Lead (aqua regia extractable)	mg/kg	1	MCERTS	170	-	-	230	160
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	26	-	-	68	24
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	-	-	1.7	1.3
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	44	-	-	87	53
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	59	-	-	94	130

Petroleum Hydrocarbons

Parameter	mg/kg	Limit of detection	Accreditation Status	218476	218477	218478	218479	218480
TPHCWG - Aliphatic >EC5 - EC6 HS_1D_AL	mg/kg	0.02	NONE	<0.100 ^{8&8+}	-	<0.100 ^{8&8}	< 0.020	-
TPHCWG - Aliphatic >EC6 - EC8 HS_1D_AL	mg/kg	0.02	NONE	0.1 ^{8&8+}	-	2 ^{8&8}	< 0.020	-
TPHCWG - Aliphatic >EC8 - EC10 HS_1D_AL	mg/kg	0.05	NONE	<0.250 ^{8&8+}	-	33 ^{8&8 5+}	< 0.050	-
TPHCWG - Aliphatic >EC10 - EC12 EH_CU_1D_AL	mg/kg	1	MCERTS	4	-	280	3.7	-
TPHCWG - Aliphatic >EC12 - EC16 EH_CU_1D_AL	mg/kg	2	MCERTS	24	-	2500	11	-
TPHCWG - Aliphatic >C16 - C21 EH_CU_1D_AL	mg/kg	8	MCERTS	46	-	3000	16	-
TPHCWG - Aliphatic >C21 - C35 EH_CU_1D_AL	mg/kg	8	MCERTS	140	-	920	43	-
TPHCWG - Aliphatic >C5 - C35 EH_CU+HS_1D_AL	mg/kg	10	NONE	210 ^{8&8+}	-	6700 ^{8&8}	73	-

Parameter	mg/kg	Limit of detection	Accreditation Status	218476	218477	218478	218479	218480
TPHCWG - Aromatic >EC5 - EC7 HS_ID_AR	mg/kg	0.01	NONE	2 ^{8&8+}	-	<0.050 ^{8&8}	< 0.010	-
TPHCWG - Aromatic >EC7 - EC8 HS_ID_AR	mg/kg	0.01	NONE	0.063 ^{8&8+}	-	<0.050 ^{8&8}	< 0.010	-
TPHCWG - Aromatic >EC8 - EC10 HS_ID_AR	mg/kg	0.05	NONE	2.7 ^{8&8+}	-	6.6 ^{8&8}	< 0.050	-
TPHCWG - Aromatic >EC10 - EC12 EH_CU_ID_AR	mg/kg	1	MCERTS	5.9	-	190	< 1.0	-
TPHCWG - Aromatic >EC12 - EC16 EH_CU_ID_AR	mg/kg	2	MCERTS	78	-	2300	7.4	-
TPHCWG - Aromatic >EC16 - EC21 EH_CU_ID_AR	mg/kg	10	MCERTS	490	-	2600	54	-
TPHCWG - Aromatic >EC21 - EC35 EH_CU_ID_AR	mg/kg	10	MCERTS	670	-	390	58	-
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_ID_AR	mg/kg	10	NONE	1200 ^{8&8+}	-	5500 ^{8&8}	120	-

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Lab Sample Number	218476	218477	218478	218479	218480
Sample Reference	WS03	WS03	WS03	WS04	WS04
Sample Number	10	11	13	15	16
Depth (m)	0.50	0.90	2.50	0.70	1.00
Date Sampled	04/06/2024	04/06/2024	04/06/2024	04/06/2024	04/06/2024
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

VOCs

Compound	Units	Limit of detection	Accreditation Status	218476	218477	218478	218479	218480
Chloromethane	µg/kg	5	ISO 17025	-	< 5.0 ⁺	<25.0 [Ⓚ]	-	-
Chloroethane	µg/kg	5	NONE	-	< 5.0	<25.0 ^{ⓀⓀ}	-	-
Bromomethane	µg/kg	5	ISO 17025	-	< 5.0	<25.0 [Ⓚ]	-	-
Vinyl Chloride	µg/kg	5	NONE	-	< 5.0	<25.0 ^{ⓀⓀ}	-	-
Trichlorofluoromethane	µg/kg	5	NONE	-	< 5.0	<25.0 ^{ⓀⓀ}	-	-
1,1-Dichloroethane	µg/kg	5	NONE	-	< 5.0	<25.0 ^{ⓀⓀ}	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	-	< 5.0	<25.0 ^{ⓀⓀ}	-	-
Trans 1,2-dichloroethylene	µg/kg	5	NONE	-	< 5.0	<25.0 ^{ⓀⓀ}	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	<25.0 ^{ⓀⓀ+}	< 5.0	<25.0 ^{ⓀⓀ}	< 5.0	-
1,1-Dichloroethane	µg/kg	5	ISO 17025	-	< 5.0	<25.0 [Ⓚ]	-	-
2,2-Dichloropropane	µg/kg	5	NONE	-	< 5.0	<25.0 ^{ⓀⓀ}	-	-
Chloroform	µg/kg	5	ISO 17025	-	< 5.0 ^{##}	<25.0 ^{## Ⓚ}	-	-
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	-	< 5.0 ^{##}	<25.0 ^{## Ⓚ}	-	-
1,2-Dichloroethane	µg/kg	5	ISO 17025	-	< 5.0 ^{##}	<25.0 ^{## Ⓚ}	-	-
1,1-Dichloropropene	µg/kg	5	ISO 17025	-	< 5.0	<25.0 [Ⓚ]	-	-
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	-	< 5.0	<25.0 [Ⓚ]	-	-
Benzene	µg/kg	5	MCERTS	2000 ⁺	56	<25.0 [Ⓚ]	< 5.0	-
Carbontetrachloride	µg/kg	5	NONE	-	< 5.0 ^{###}	<25.0 ^{### ⓀⓀ}	-	-
1,2-Dichloropropane	µg/kg	5	ISO 17025	-	< 5.0	<25.0 [Ⓚ]	-	-
Trichloroethene	µg/kg	5	ISO 17025	-	< 5.0	<25.0 [Ⓚ]	-	-
Dibromomethane	µg/kg	5	ISO 17025	-	< 5.0	<25.0 [Ⓚ]	-	-
Bromodichloromethane	µg/kg	5	ISO 17025	-	< 5.0 ^{##}	<25.0 ^{## Ⓚ}	-	-
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	-	< 5.0	<25.0 [Ⓚ]	-	-
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	-	< 5.0	<25.0 [Ⓚ]	-	-
Toluene	µg/kg	5	MCERTS	49 ⁺	< 5.0	<25.0 [Ⓚ]	< 5.0	-
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	-	< 5.0	<25.0 [Ⓚ]	-	-
1,3-Dichloropropane	µg/kg	5	ISO 17025	-	< 5.0	<25.0 [Ⓚ]	-	-
Dibromochloromethane	µg/kg	5	ISO 17025	-	< 5.0	<25.0 [Ⓚ]	-	-
Tetrachloroethene	µg/kg	5	NONE	-	< 5.0	<25.0 ^{ⓀⓀ}	-	-
1,2-Dibromoethane	µg/kg	5	ISO 17025	-	< 5.0	<25.0 [Ⓚ]	-	-
Chlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	<25.0 [Ⓚ]	-	-
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	-	< 5.0 ^{##}	<25.0 ^{## Ⓚ}	-	-
Ethylbenzene	µg/kg	5	MCERTS	<25 ⁺	< 5.0	<25.0 [Ⓚ]	< 5.0	-
p & m-Xylene	µg/kg	5	MCERTS	1400 ⁺	57	<25.0 [Ⓚ]	< 5.0	-
Styrene	µg/kg	5	ISO 17025	-	< 5.0	<25.0 [Ⓚ]	-	-
Bromoform	µg/kg	5	NONE	-	< 5.0	<25.0 [Ⓚ]	-	-
o-Xylene	µg/kg	5	MCERTS	770 ⁺	37	<25.0 [Ⓚ]	< 5.0	-
Isopropylbenzene	µg/kg	5	ISO 17025	-	< 5.0	1700 [Ⓚ]	-	-
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	-	< 5.0	<25.0 ^{ⓀⓀ}	-	-
Bromobenzene	µg/kg	5	NONE	-	< 5.0	<25.0 ^{ⓀⓀ}	-	-
n-Propylbenzene	µg/kg	5	ISO 17025	-	< 5.0	3400 ^{Ⓚ 5%}	-	-
2-Chlorotoluene	µg/kg	5	ISO 17025	-	< 5.0	<25.0 [Ⓚ]	-	-
4-Chlorotoluene	µg/kg	5	ISO 17025	-	< 5.0	<25.0 [Ⓚ]	-	-
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	-	< 5.0	<25.0 [Ⓚ]	-	-
tert-Butylbenzene	µg/kg	5	ISO 17025	-	< 5.0	<25.0 [Ⓚ]	-	-
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	-	49	9500 ^{Ⓚ 5%}	-	-
sec-Butylbenzene	µg/kg	5	ISO 17025	-	< 5.0	2000 [Ⓚ]	-	-
1,3-Dichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	<25.0 [Ⓚ]	-	-
p-Isopropyltoluene	µg/kg	5	ISO 17025	-	< 5.0	<25.0 [Ⓚ]	-	-
1,4-Dichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	<25.0 [Ⓚ]	-	-
1,2-Dichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	<25.0 [Ⓚ]	-	-

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Lab Sample Number	218476	218477	218478	218479	218480			
Sample Reference	WS03	WS03	WS03	WS04	WS04			
Sample Number	10	11	13	15	16			
Depth (m)	0.50	0.90	2.50	0.70	1.00			
Date Sampled	04/06/2024	04/06/2024	04/06/2024	04/06/2024	04/06/2024			
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Butylbenzene	µg/kg	5	NONE	-	< 5.0	2100 ^{8&8}	-	-
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	-	< 5.0	<25.0 ⁸	-	-
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	<25.0 ^{8&}	-	-
Hexachlorobutadiene	µg/kg	5	NONE	-	< 5.0	<25.0 ^{8&8}	-	-
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	<25.0 ⁸	-	-

SVOCs

Analytical Parameter	Units	Limit of detection	Accreditation Status					
Aniline	mg/kg	0.1	NONE	-	< 0.1	< 0.1	-	-
Phenol	mg/kg	0.2	ISO 17025	-	< 0.2	< 0.2	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	-	-
Hexachloroethane	mg/kg	0.05	ISO 17025	-	< 0.05	< 0.05	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	< 0.2	< 0.2	-	-
Isophorone	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	-	-
2-Nitrophenol	mg/kg	0.3	NONE	-	< 0.3	< 0.3	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	< 0.1	< 0.1	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	< 0.1	< 0.1	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	-	< 0.1	< 0.1	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	-	< 0.2	< 0.2	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	< 0.1	28	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	-	-
2,6-Dinitrotoluene	mg/kg	0.1	NONE	-	< 0.1	< 0.1	-	-
2,4-Dinitrotoluene	mg/kg	0.2	NONE	-	< 0.2	< 0.2	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	-	-
4-Nitroaniline	mg/kg	0.2	NONE	-	< 0.2	< 0.2	-	-
Azobenzene	mg/kg	0.3	NONE	-	< 0.3	< 0.3	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	< 0.30	< 0.30	-	-
Carbazole	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	-	-
Dibutyl phthalate	mg/kg	0.2	NONE	-	< 0.2	< 0.2	-	-
Anthraquinone	mg/kg	0.3	NONE	-	< 0.3	< 0.3	-	-
Butyl benzyl phthalate	mg/kg	0.3	NONE	-	< 0.3	< 0.3	-	-

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

Analytical Report Number: 24-023381
 Project / Site name: Leeds Road
 Your Order No: GO3177

Lab Sample Number	218481	218482	218483	218484	218485
Sample Reference	WS04	WS04	WS05	WS05	WS05
Sample Number	17	18	21	22	23
Depth (m)	1.60	1.80	0.50	1.00	1.40
Date Sampled	04/06/2024	04/06/2024	04/06/2024	04/06/2024	04/06/2024
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	22	15	12	25	23
Total mass of sample received	kg	0.1	NONE	0.4	0.3	0.5	0.4	0.3

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	-	-	Not-detected	Not-detected	-
Asbestos Analyst ID	N/A	N/A	N/A	-	-	DSA	DSA	-

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	-	-	-	-	-
MBAS	mg/kg	0.2	NONE	-	-	0.21	0.43	-
Organic Matter (automated)	%	0.1	MCERTS	-	-	-	-	-
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	-	-	-	-	-

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	-	-	-	-	-

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	-	-	0.37	0.2	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	0.08	< 0.05	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-	0.28	0.5	-
Fluorene	mg/kg	0.05	MCERTS	-	-	0.17	0.36	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-	2.9	4	-
Anthracene	mg/kg	0.05	MCERTS	-	-	0.78	0.71	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-	5.7	7.8	-
Pyrene	mg/kg	0.05	MCERTS	-	-	5.4	7.4	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	4.5	4	-
Chrysene	mg/kg	0.05	MCERTS	-	-	4.6	5.1	-
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	-	-	7.3	5.7	-
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	-	-	3	1.8	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	7	4.3	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	5	2.3	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	1.1	0.63	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	5.5	2.5	-

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	-	-	53.6	-	-

Analytical Report Number: 24-023381
 Project / Site name: Leeds Road
 Your Order No: G03177

Lab Sample Number	218481	218482	218483	218484	218485
Sample Reference	WS04	WS04	WS05	WS05	WS05
Sample Number	17	18	21	22	23
Depth (m)	1.60	1.80	0.50	1.00	1.40
Date Sampled	04/06/2024	04/06/2024	04/06/2024	04/06/2024	04/06/2024
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Heavy Metals / Metalloids

Element	mg/kg	Limit of detection	Accreditation Status	218481	218482	218483	218484	218485
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	-	55	-	-
Barium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	36	-	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	-	0.43	-	-
Boron (water soluble)	mg/kg	0.2	MCERTS	-	-	0.5	-	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	-	< 0.2	-	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	12	-	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	-	50	-	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	-	27	-	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	-	< 0.3	-	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	-	14	-	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	2.3	-	-
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	18	-	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	-	11	-	-

Petroleum Hydrocarbons

Parameter	mg/kg	Limit of detection	Accreditation Status	218481	218482	218483	218484	218485
TPHCWG - Aliphatic >EC5 - EC6 HS_1D_AL	mg/kg	0.02	NONE	<0.100 ^{8&+}	<0.100 ^{8&+}	<0.100 ^{8&+}	-	< 0.020
TPHCWG - Aliphatic >EC6 - EC8 HS_1D_AL	mg/kg	0.02	NONE	<0.100 ^{8&+}	<0.100 ^{8&+}	<0.100 ^{8&+}	-	1
TPHCWG - Aliphatic >EC8 - EC10 HS_1D_AL	mg/kg	0.05	NONE	<0.250 ^{8&+}	<0.250 ^{8&+}	<0.250 ^{8&+}	-	0.056
TPHCWG - Aliphatic >EC10 - EC12 EH_CU_1D_AL	mg/kg	1	MCERTS	< 1.0	130	< 1.0	-	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 EH_CU_1D_AL	mg/kg	2	MCERTS	4.5	2300	3.3	-	< 2.0
TPHCWG - Aliphatic >C16 - C21 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0	3700	< 8.0	-	< 8.0
TPHCWG - Aliphatic >C21 - C35 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0	580	14	-	< 8.0
TPHCWG - Aliphatic >C5 - C35 EH_CU+HS_1D_AL	mg/kg	10	NONE	<50 ^{8&+}	6700 ^{8&+}	<50 ^{8&+}	-	< 10

Parameter	mg/kg	Limit of detection	Accreditation Status	218481	218482	218483	218484	218485
TPHCWG - Aromatic >EC5 - EC7 HS_ID_AR	mg/kg	0.01	NONE	<0.050 ^{8&+}	<0.050 ^{8&+}	<0.050 ^{8&+}	-	0.54
TPHCWG - Aromatic >EC7 - EC8 HS_ID_AR	mg/kg	0.01	NONE	<0.050 ^{8&+}	<0.050 ^{8&+}	<0.050 ^{8&+}	-	0.098
TPHCWG - Aromatic >EC8 - EC10 HS_ID_AR	mg/kg	0.05	NONE	<0.250 ^{8&+}	<0.250 ^{8&+}	<0.250 ^{8&+}	-	0.49
TPHCWG - Aromatic >EC10 - EC12 EH_CU_ID_AR	mg/kg	1	MCERTS	< 1.0	70	< 1.0	-	< 1.0
TPHCWG - Aromatic >EC12 - EC16 EH_CU_ID_AR	mg/kg	2	MCERTS	< 2.0	1500	4.1	-	< 2.0
TPHCWG - Aromatic >EC16 - EC21 EH_CU_ID_AR	mg/kg	10	MCERTS	< 10	2100	23	-	< 10
TPHCWG - Aromatic >EC21 - EC35 EH_CU_ID_AR	mg/kg	10	MCERTS	< 10	300	60	-	< 10
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_ID_AR	mg/kg	10	NONE	<50 ^{8&+}	3900 ^{8&+}	87 ^{8&+}	-	< 10

Analytical Report Number: 24-023381
 Project / Site name: Leeds Road
 Your Order No: GO3177

Lab Sample Number	218481	218482	218483	218484	218485
Sample Reference	WS04	WS04	WS05	WS05	WS05
Sample Number	17	18	21	22	23
Depth (m)	1.60	1.80	0.50	1.00	1.40
Date Sampled	04/06/2024	04/06/2024	04/06/2024	04/06/2024	04/06/2024
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

VOCs

Compound	Units	Limit of detection	Accreditation Status	218481	218482	218483	218484	218485
Chloromethane	µg/kg	5	ISO 17025	-	-	<25.0 ^{^+}	< 5.0 [#]	-
Chloroethane	µg/kg	5	NONE	-	-	<25.0 ^{8&+}	< 5.0	-
Bromomethane	µg/kg	5	ISO 17025	-	-	<25.0 ⁺	< 5.0	-
Vinyl Chloride	µg/kg	5	NONE	-	-	<25.0 ^{8&+}	< 5.0	-
Trichlorofluoromethane	µg/kg	5	NONE	-	-	<25.0 ^{### 8&+}	< 5.0	-
1,1-Dichloroethane	µg/kg	5	NONE	-	-	<25.0 ^{8&+}	< 5.0	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	-	-	<25.0 ^{8&+}	< 5.0	-
Trans 1,2-dichloroethylene	µg/kg	5	NONE	-	-	<25.0 ^{8&+}	< 5.0	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	<25.0 ^{8&+}	<25.0 ^{8&+}	<25.0 ^{8&+}	< 5.0	< 5.0
1,1-Dichloroethane	µg/kg	5	ISO 17025	-	-	<25.0 ^{###}	< 5.0	-
2,2-Dichloropropane	µg/kg	5	NONE	-	-	<25.0 ^{8&+}	< 5.0	-
Chloroform	µg/kg	5	ISO 17025	-	-	<25.0 ^{###}	< 5.0 ^{##}	-
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	-	-	<25.0 ^{###}	< 5.0 ^{##}	-
1,2-Dichloroethane	µg/kg	5	ISO 17025	-	-	<25.0 ^{###}	< 5.0 ^{##}	-
1,1-Dichloropropene	µg/kg	5	ISO 17025	-	-	<25.0 ⁺	< 5.0	-
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	-	-	<25.0 ⁺	< 5.0	-
Benzene	µg/kg	5	MCERTS	<25.0 ⁺	<25.0 ⁺	<25.0 ⁺	110	480
Carbontetrachloride	µg/kg	5	NONE	-	-	<25.0 ^{### 8&+}	< 5.0 ^{###}	-
1,2-Dichloropropane	µg/kg	5	ISO 17025	-	-	<25.0 ⁺	< 5.0	-
Trichloroethene	µg/kg	5	ISO 17025	-	-	<25.0 ⁺	< 5.0	-
Dibromomethane	µg/kg	5	ISO 17025	-	-	<25.0 ⁺	< 5.0	-
Bromodichloromethane	µg/kg	5	ISO 17025	-	-	<25.0 ^{###}	< 5.0 ^{##}	-
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	-	-	<25.0 ⁺	< 5.0	-
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	-	-	<25.0 ⁺	< 5.0	-
Toluene	µg/kg	5	MCERTS	<25.0 ⁺	<25.0 ⁺	<25.0 ⁺	< 5.0	68
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	-	-	<25.0 ⁺	< 5.0	-
1,3-Dichloropropane	µg/kg	5	ISO 17025	-	-	<25.0 ⁺	< 5.0	-
Dibromochloromethane	µg/kg	5	ISO 17025	-	-	<25.0 ⁺	< 5.0	-
Tetrachloroethene	µg/kg	5	NONE	-	-	<25.0 ^{8&+}	< 5.0	-
1,2-Dibromoethane	µg/kg	5	ISO 17025	-	-	<25.0 ⁺	< 5.0	-
Chlorobenzene	µg/kg	5	ISO 17025	-	-	<25.0 ⁺	< 5.0	-
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	-	-	<25.0 ⁺	< 5.0 ^{##}	-
Ethylbenzene	µg/kg	5	MCERTS	<25.0 ⁺	<25.0 ⁺	<25.0 ⁺	< 5.0	69
p & m-Xylene	µg/kg	5	MCERTS	<25.0 ⁺	<25.0 ⁺	<25.0 ⁺	< 5.0	210
Styrene	µg/kg	5	ISO 17025	-	-	<25.0 ⁺	< 5.0	-
Bromoform	µg/kg	5	NONE	-	-	<25.0 ^{8&+}	< 5.0	-
o-Xylene	µg/kg	5	MCERTS	<25.0 ⁺	<25.0 ⁺	<25.0 ⁺	< 5.0	40
Isopropylbenzene	µg/kg	5	ISO 17025	-	-	<25.0 ⁺	< 5.0	-
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	-	-	<25.0 ^{8&+}	< 5.0	-
Bromobenzene	µg/kg	5	NONE	-	-	<25.0 ^{8&+}	< 5.0	-
n-Propylbenzene	µg/kg	5	ISO 17025	-	-	<25.0 ^{##}	< 5.0	-
2-Chlorotoluene	µg/kg	5	ISO 17025	-	-	<25.0 ⁺	< 5.0	-
4-Chlorotoluene	µg/kg	5	ISO 17025	-	-	<25.0 ⁺	< 5.0	-
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	-	-	<25.0 ⁺	< 5.0	-
tert-Butylbenzene	µg/kg	5	ISO 17025	-	-	<25.0 ⁺	< 5.0	-
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	-	-	<25.0 ⁺	< 5.0	-
sec-Butylbenzene	µg/kg	5	ISO 17025	-	-	<25.0 ⁺	< 5.0	-
1,3-Dichlorobenzene	µg/kg	5	ISO 17025	-	-	<25.0 ⁺	< 5.0	-
p-Isopropyltoluene	µg/kg	5	ISO 17025	-	-	<25.0 ⁺	< 5.0	-
1,4-Dichlorobenzene	µg/kg	5	ISO 17025	-	-	<25.0 ⁺	< 5.0	-
1,2-Dichlorobenzene	µg/kg	5	ISO 17025	-	-	<25.0 ⁺	< 5.0	-

Analytical Report Number: 24-023381
 Project / Site name: Leeds Road
 Your Order No: GO3177

Lab Sample Number	218481	218482	218483	218484	218485			
Sample Reference	WS04	WS04	WS05	WS05	WS05			
Sample Number	17	18	21	22	23			
Depth (m)	1.60	1.80	0.50	1.00	1.40			
Date Sampled	04/06/2024	04/06/2024	04/06/2024	04/06/2024	04/06/2024			
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Butylbenzene	µg/kg	5	NONE	-	-	<25.0 ^{8&+}	< 5.0	-
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	-	-	<25.0 ⁺	< 5.0	-
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	-	-	<25.0 ⁺	< 5.0	-
Hexachlorobutadiene	µg/kg	5	NONE	-	-	<25.0 ^{8&+ +}	< 5.0	-
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	-	-	<25.0 ⁺	< 5.0	-

SVOCs

Analytical Parameter	Units	Limit of detection	Accreditation Status					
Aniline	mg/kg	0.1	NONE	-	-	< 0.1	< 0.1	-
Phenol	mg/kg	0.2	ISO 17025	-	-	< 0.2	< 0.2	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	< 0.1	< 0.1	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	< 0.2	< 0.2	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	< 0.2	< 0.2	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	< 0.1	< 0.1	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	< 0.2	< 0.2	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	< 0.1	< 0.1	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	< 0.3	< 0.3	-
Hexachloroethane	mg/kg	0.05	ISO 17025	-	-	< 0.05	< 0.05	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	< 0.3	< 0.3	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	< 0.2	< 0.2	-
Isophorone	mg/kg	0.2	MCERTS	-	-	< 0.2	< 0.2	-
2-Nitrophenol	mg/kg	0.3	NONE	-	-	< 0.3	< 0.3	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	< 0.3	< 0.3	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	< 0.3	< 0.3	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	< 0.3	< 0.3	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	< 0.3	< 0.3	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-	< 0.1	< 0.1	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	< 0.1	< 0.1	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	< 0.1	< 0.1	-
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	-	-	< 0.1	< 0.1	-
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	-	-	< 0.2	< 0.2	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	0.4	0.2	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	< 0.1	< 0.1	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	< 0.1	< 0.1	-
2,6-Dinitrotoluene	mg/kg	0.1	NONE	-	-	< 0.1	< 0.1	-
2,4-Dinitrotoluene	mg/kg	0.2	NONE	-	-	< 0.2	< 0.2	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	0.3	< 0.2	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	-	-	< 0.3	< 0.3	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	< 0.2	< 0.2	-
4-Nitroaniline	mg/kg	0.2	NONE	-	-	< 0.2	< 0.2	-
Azobenzene	mg/kg	0.3	NONE	-	-	< 0.3	< 0.3	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	< 0.2	< 0.2	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	< 0.30	< 0.30	-
Carbazole	mg/kg	0.3	MCERTS	-	-	0.4	0.3	-
Dibutyl phthalate	mg/kg	0.2	NONE	-	-	< 0.2	< 0.2	-
Anthraquinone	mg/kg	0.3	NONE	-	-	< 0.3	0.3	-
Butyl benzyl phthalate	mg/kg	0.3	NONE	-	-	< 0.3	< 0.3	-

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

Analytical Report Number: 24-023381
 Project / Site name: Leeds Road
 Your Order No: GO3177

Lab Sample Number	218486	218487			
Sample Reference	WS05	WS05			
Sample Number	24	25			
Depth (m)	2.00	2.40			
Date Sampled	04/06/2024	04/06/2024			
Time Taken	None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	16	17
Total mass of sample received	kg	0.1	NONE	0.4	0.3

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	-	-
Asbestos Analyst ID	N/A	N/A	N/A	-	-

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	-	-
MBAS	mg/kg	0.2	NONE	-	-
Organic Matter (automated)	%	0.1	MCERTS	-	-
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	-	-

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	-	-
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-
Fluorene	mg/kg	0.05	MCERTS	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-
Anthracene	mg/kg	0.05	MCERTS	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-
Pyrene	mg/kg	0.05	MCERTS	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-
Chrysene	mg/kg	0.05	MCERTS	-	-
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	-	-
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-
Dibenzo(a,h)anthracene	mg/kg	0.05	MCERTS	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	-	-
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Analytical Report Number: 24-023381
 Project / Site name: Leeds Road
 Your Order No: GO3177

Lab Sample Number	218486	218487	
Sample Reference	WS05	WS05	
Sample Number	24	25	
Depth (m)	2.00	2.40	
Date Sampled	04/06/2024	04/06/2024	
Time Taken	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status

Heavy Metals / Metalloids

Element	mg/kg	Limit of detection	Accreditation Status	218486	218487
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	-
Barium (aqua regia extractable)	mg/kg	1	MCERTS	-	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	-
Boron (water soluble)	mg/kg	0.2	MCERTS	-	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	-
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	-

Petroleum Hydrocarbons

Parameter	mg/kg	Limit of detection	Accreditation Status	218486	218487
TPHCWG - Aliphatic >EC5 - EC6 HS_1D_AL	mg/kg	0.02	NONE	0.039	<0.100 ^{8&+}
TPHCWG - Aliphatic >EC6 - EC8 HS_1D_AL	mg/kg	0.02	NONE	0.067	<0.100 ^{8&+}
TPHCWG - Aliphatic >EC8 - EC10 HS_1D_AL	mg/kg	0.05	NONE	< 0.050	<0.250 ^{8&+}
TPHCWG - Aliphatic >EC10 - EC12 EH_CU_1D_AL	mg/kg	1	MCERTS	1.2	67
TPHCWG - Aliphatic >EC12 - EC16 EH_CU_1D_AL	mg/kg	2	MCERTS	17	1100
TPHCWG - Aliphatic >C16 - C21 EH_CU_1D_AL	mg/kg	8	MCERTS	25	1700
TPHCWG - Aliphatic >C21 - C35 EH_CU_1D_AL	mg/kg	8	MCERTS	12	350
TPHCWG - Aliphatic >C5 - C35 EH_CU+HS_1D_AL	mg/kg	10	NONE	55	3300 ^{8&+}

Parameter	mg/kg	Limit of detection	Accreditation Status	218486	218487
TPHCWG - Aromatic >EC5 - EC7 HS_ID_AR	mg/kg	0.01	NONE	0.034	0.7 ^{8&+}
TPHCWG - Aromatic >EC7 - EC8 HS_ID_AR	mg/kg	0.01	NONE	< 0.010	0.41 ^{8&+}
TPHCWG - Aromatic >EC8 - EC10 HS_ID_AR	mg/kg	0.05	NONE	< 0.050	24 ^{8&+}
TPHCWG - Aromatic >EC10 - EC12 EH_CU_ID_AR	mg/kg	1	MCERTS	< 1.0	47
TPHCWG - Aromatic >EC12 - EC16 EH_CU_ID_AR	mg/kg	2	MCERTS	12	800
TPHCWG - Aromatic >EC16 - EC21 EH_CU_ID_AR	mg/kg	10	MCERTS	15	1100
TPHCWG - Aromatic >EC21 - EC35 EH_CU_ID_AR	mg/kg	10	MCERTS	< 10	200
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_ID_AR	mg/kg	10	NONE	27	2200 ^{8&+}

Analytical Report Number: 24-023381
 Project / Site name: Leeds Road
 Your Order No: G03177

Lab Sample Number	218486	218487	
Sample Reference	WS05	WS05	
Sample Number	24	25	
Depth (m)	2.00	2.40	
Date Sampled	04/06/2024	04/06/2024	
Time Taken	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status

VOCs

Compound	Units	Limit of detection	Accreditation Status	218486	218487
Chloromethane	µg/kg	5	ISO 17025	-	-
Chloroethane	µg/kg	5	NONE	-	-
Bromomethane	µg/kg	5	ISO 17025	-	-
Vinyl Chloride	µg/kg	5	NONE	-	-
Trichlorofluoromethane	µg/kg	5	NONE	-	-
1,1-Dichloroethene	µg/kg	5	NONE	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	-	-
Trans 1,2-dichloroethylene	µg/kg	5	NONE	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	<25.0 ^{8&+}
1,1-Dichloroethane	µg/kg	5	ISO 17025	-	-
2,2-Dichloropropane	µg/kg	5	NONE	-	-
Chloroform	µg/kg	5	ISO 17025	-	-
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	-	-
1,2-Dichloroethane	µg/kg	5	ISO 17025	-	-
1,1-Dichloropropene	µg/kg	5	ISO 17025	-	-
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	-	-
Benzene	µg/kg	5	MCERTS	31	190 ⁺
Carbontetrachloride	µg/kg	5	NONE	-	-
1,2-Dichloropropane	µg/kg	5	ISO 17025	-	-
Trichloroethene	µg/kg	5	ISO 17025	-	-
Dibromomethane	µg/kg	5	ISO 17025	-	-
Bromodichloromethane	µg/kg	5	ISO 17025	-	-
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	-	-
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	-	-
Toluene	µg/kg	5	MCERTS	< 5.0	<25.0 ⁺
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	-	-
1,3-Dichloropropane	µg/kg	5	ISO 17025	-	-
Dibromochloromethane	µg/kg	5	ISO 17025	-	-
Tetrachloroethene	µg/kg	5	NONE	-	-
1,2-Dibromoethane	µg/kg	5	ISO 17025	-	-
Chlorobenzene	µg/kg	5	ISO 17025	-	-
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	-	-
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	5300 ⁺
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	2400 ⁺
Styrene	µg/kg	5	ISO 17025	-	-
Bromoform	µg/kg	5	NONE	-	-
o-Xylene	µg/kg	5	MCERTS	< 5.0	540 ⁺
Isopropylbenzene	µg/kg	5	ISO 17025	-	-
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	-	-
Bromobenzene	µg/kg	5	NONE	-	-
n-Propylbenzene	µg/kg	5	ISO 17025	-	-
2-Chlorotoluene	µg/kg	5	ISO 17025	-	-
4-Chlorotoluene	µg/kg	5	ISO 17025	-	-
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	-	-
tert-Butylbenzene	µg/kg	5	ISO 17025	-	-
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	-	-
sec-Butylbenzene	µg/kg	5	ISO 17025	-	-
1,3-Dichlorobenzene	µg/kg	5	ISO 17025	-	-
p-Isopropyltoluene	µg/kg	5	ISO 17025	-	-
1,4-Dichlorobenzene	µg/kg	5	ISO 17025	-	-
1,2-Dichlorobenzene	µg/kg	5	ISO 17025	-	-

Analytical Report Number: 24-023381
 Project / Site name: Leeds Road
 Your Order No: G03177

Lab Sample Number	218486	218487			
Sample Reference	WS05	WS05			
Sample Number	24	25			
Depth (m)	2.00	2.40			
Date Sampled	04/06/2024	04/06/2024			
Time Taken	None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Butylbenzene	µg/kg	5	NONE	-	-
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	-	-
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	-	-
Hexachlorobutadiene	µg/kg	5	NONE	-	-
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	-	-

SVOCs

	mg/kg	Limit of detection	Accreditation Status		
Aniline	mg/kg	0.1	NONE	-	-
Phenol	mg/kg	0.2	ISO 17025	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-
Hexachloroethane	mg/kg	0.05	ISO 17025	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	-
Isophorone	mg/kg	0.2	MCERTS	-	-
2-Nitrophenol	mg/kg	0.3	NONE	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-
2,6-Dinitrotoluene	mg/kg	0.1	NONE	-	-
2,4-Dinitrotoluene	mg/kg	0.2	NONE	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-
4-Nitroaniline	mg/kg	0.2	NONE	-	-
Azobenzene	mg/kg	0.3	NONE	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-
Carbazole	mg/kg	0.3	MCERTS	-	-
Dibutyl phthalate	mg/kg	0.2	NONE	-	-
Anthraquinone	mg/kg	0.3	NONE	-	-
Butyl benzyl phthalate	mg/kg	0.3	NONE	-	-

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

Analytical Report Number : 24-023381
Project / Site name: Leeds Road

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
218471	WS01	1	0.8	Brown loam and sand with clinker
218472	WS01	2	1.6	Brown clay and sand with gravel
218473	WS01	4	3.5	Grey clay and sand with gravel
218474	WS02	5	0.6	Black loam and sand with gravel
218475	WS02	8	2.5	Brown sandy clay with gravel and oil / petroleum
218476	WS03	10	0.5	Black loam and sand with gravel
218477	WS03	11	0.9	Brown sand with gravel
218478	WS03	13	2.5	Brown sand with gravel
218479	WS04	15	0.7	Brown loam and sand with gravel
218480	WS04	16	1	Brown loam and clay with gravel
218481	WS04	17	1.6	Brown clay and sand with gravel
218482	WS04	18	1.8	Brown sand with gravel
218483	WS05	21	0.5	Brown loam and sand with gravel
218484	WS05	22	1	Brown clay and loam with gravel
218485	WS05	23	1.4	Brown clay and loam with gravel
218486	WS05	24	2	Brown sand with gravel
218487	WS05	25	2.4	Grey sand with gravel

Analytical Report Number : 24-023381
Project / Site name: Leeds Road

Water matrix abbreviations:

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES	In-house method based on Second Site Properties version 3	L038B	D	MCERTS
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088	D/W	MCERTS
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS
MBAS (Methylene Blue Active Substances) - soil	Colorimetric analysis method using methylene blue to detect the presence of anionic surfactants/detergents	In-house method based on standard methods for the examination of waters and waste water, method 5540c	L097B	D	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Analytical Report Number : 24-023381
 Project / Site name: Leeds Road

Water matrix abbreviations:

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
-	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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

&&+ - Method detection limit raised due to the sample being diluted due to matrix interference. The result should be considered as being deviating and may be compromised.

&&- Method detection limit raised due to the sample being diluted due to parameter over calibration range. The result should be considered as being deviating and should be interpreted with caution.

\$+ - Result over calibration range, concentration determined by extrapolated calibration. The result should be interpreted with caution.

- Data reported unaccredited due to quality control parameter failure associated with this result; other checks applied prior to reporting the data have been accepted. The result should be considered as being deviating and may be compromised.

& - Data reported unaccredited - method detection limit raised due to the sample being diluted due to parameter over calibration range. The result should be considered as being deviating and should be interpreted with caution.

^ - Data reported unaccredited due to quality control parameter failure associated with this result; The result should be considered as being deviating and may be compromised

+ - Data reported unaccredited - method detection limit raised due to the sample being diluted due to matrix interference. The result should be considered as being deviating and may be compromised.

- Quality control parameter failure associated with this result; other checks applied prior to reporting the data have been accepted. The result should be considered as being deviating and may be compromised.

- Quality control parameter has a high recovery (outside of limit); however the associated result is below the reporting limit, other checks applied prior to reporting the data have been accepted. The result should be considered as being deviating and may be compromised.

\$\$ - Data reported unaccredited, result over calibration range, concentration determined by extrapolated calibration. The result should be interpreted with caution.



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