

Parkhill Avenue, Crumpsall

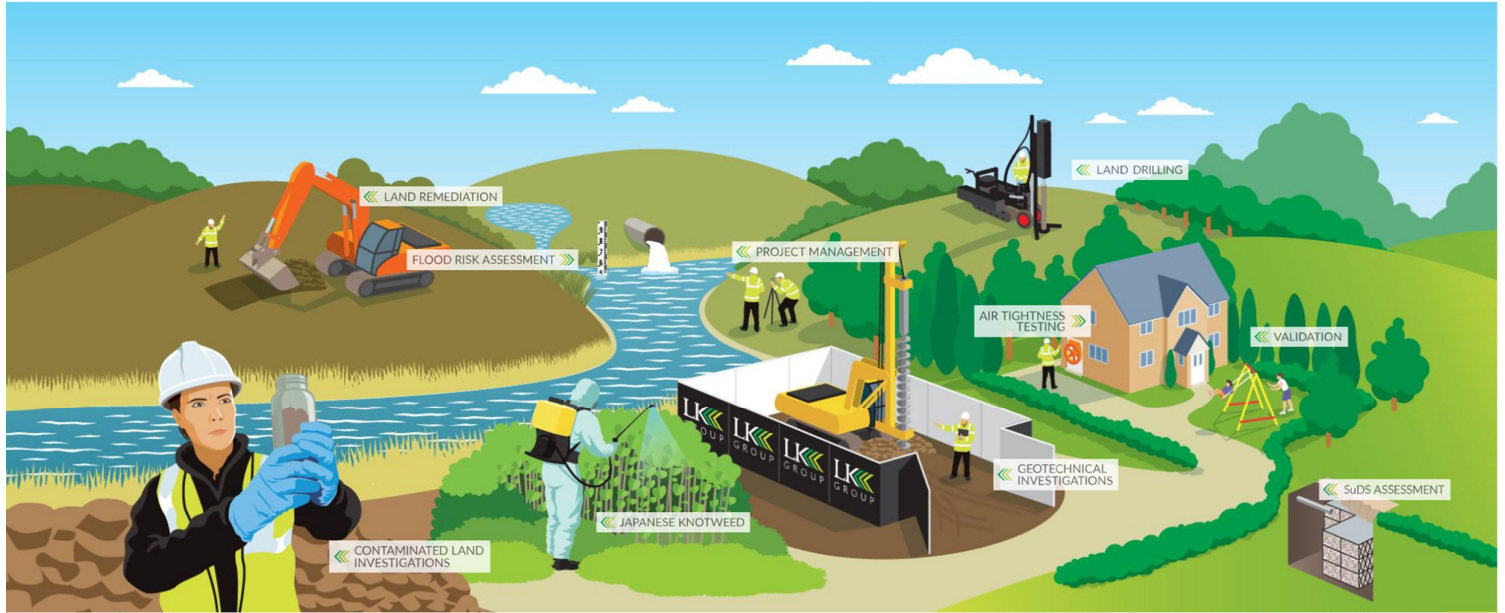
Phase 2 Geo-Environmental Investigation,
Risk Assessment and
Remediation Strategy

Job Number: LKC 23 1405
Date: April 2025
Client: Great Places Housing Group



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Written By	Catherine Baranek / Colin Wardle		
Approved By	Paul Quimby		

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EXECUTIVE SUMMARY

Site Details

Location	The site is located on land between Parkhill Avenue, Delaunays Road and Cleveland Road. Centred at approximate National Grid Reference 384950, 402730.
Area	3,800m ² .
Topography	Flat area in the western corner of site (65mAOD) with a steep slope down to the east / south-east (54-57mAOD).
Current Site Use	Vacant land, heavily overgrown with trees and vegetation. Currently undergoing vegetation / tree clearance and Japanese Knotweed removal.
Proposed Development	Residential houses and apartments including soft landscaping and car parking. As part of the development, vegetation will be cleared and a significant depth of soil removed from site as part of the Japanese Knotweed removal.

Site Setting

Main Historical Features	Onsite: South / south-west area was developed as houses with gardens. The housing was demolished between 2006 and 2020. The northern area remained vacant (vegetated). Surrounding Area: Fields, housing, reservoir (adj to east (downslope of site)), chemical works (>200m east), mills (100m north), sand pit (200m north), workhouses (100m south), electrical cable manufacturing (200m north), tannery (200m west).
Geology / Hydrogeology	Superficial: Glacial Till (diamicton) / Secondary Undifferentiated Aquifer. Bedrock: Chester Pebble Beds Formation / Principal Aquifer.
Infilled Ground	No recorded landfills. Potentially infilled ground identified within 250m.
Site Reconnaissance	Site is accessed from Parkhill Avenue through locked double gates. The site consists of mature trees and overgrown vegetation. Japanese knotweed was noted in a number of areas across the site. Flat area in the western corner of site with a steep slope down to the east / south-east. Note: From January 2025 vegetation clearance (including tree removal) and Japanese Knotweed removal is underway.
Recommendations	Site Investigation was recommended to further assess geo-environmental risk.

Ground Investigation Work Undertaken

Date of Investigation:	1 st Phase of Investigation: April to May 2024. 2 nd Phase of Investigation: January to February 2025.
Intrusive Investigation Work Undertaken:	<u>1st Phase of Investigation:</u> 4no. window sample boreholes. Follow dynamic probing in WS104. 3no. mechanically excavated trial pits. 2no. cable percussion boreholes. Contamination and geotechnical testing. Gas monitoring. Groundwater monitoring. <u>2nd Phase of Investigation:</u> 3no. cable percussion boreholes. Contamination and geotechnical testing. Gas monitoring. Groundwater monitoring.

Ground Conditions

Made Ground	Recorded in all boreholes to depths of 0.2-1.0mbgl. The made ground generally comprised gravelly sandy silt with frequent rootlets, occasional / rare brick, concrete, glass, plastic, timber, metal and ceramics.
Superficial	Horizons of natural cohesive and granular deposits of predominantly clay, silt, sand and gravel to the completion depths investigated (max. depth of 20.45mbgl).
Bedrock	Not encountered.
Groundwater	No groundwater strikes were recorded during the investigation. Monitoring recorded groundwater levels between 3.00mbgl and 4.57mbgl. No groundwater was encountered in WS101 and WS102.
Obstructions	Not encountered.

Geotechnical Assessment

Allowable Bearing Pressure	The natural cohesive strata returned s_u values of between 18 and 67kPa between 1.20-3.00mbgl, with a conservative s_u of 50kPa being returned from 4.00m. The granular strata returned an ABC of between 39 and 336kN/m ² at depths of between 1.20m and 7.00mbgl, ranging from Loose to Dense (averaging Medium Dense), with a conservative ABC of 100kN/m ² from 4.00m onwards, equating to an average angle of internal friction (ϕ') of 31°.
Anticipated Foundation Type	Whilst a ground improvement solution is viable, low s_u values were obtained in pockets of the cohesive natural strata which may preclude this option, it is therefore considered that a piling solution will provide the most reliable and cost-effective option for the site.
Other Considerations	Consideration of effects of trees also needs to be considered. A low to medium volume change potential has been calculated for the site. Temporary supports of excavations may be required. Detailed design should be carried out by structural engineer. Concrete Requirements DS1-AC-1s. A condition survey of the existing retaining wall forming the south-east boundary to Delauneys Road should be completed. The site slopes, from c.65m AOD in the west to c.54m AOD in the east and a slope stability assessment is underway, which will be reported under separate cover.

Contamination Risk Assessment

PL	Contaminant	Risk	Recommendations
1	PAHs, asbestos, metals, other inorganic / inorganic contaminants	Low	No remediation required
2	Volatile contaminants	Low	No remediation required
3	Methane and carbon dioxide	Moderate / Low	No remediation required
4	PAHs, metals, other mobile contaminants	Low	No remediation required
5	Naphthalene and other organic contaminants	Low	No remediation required

Further Considerations
Japanese Knotweed – validation report.
Unexpected contamination.
Decommissioning of boreholes.
Potable water pipes.
Re-use of site generated material.
Stockpile management.
Disposal of material.
Health and safety considerations.
Validation of imported soils for use in gardens / soft landscaping.
Site completion report.

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Appendix B – Profile Logs

Appendix C – Certificates of Analysis (Soil)

Appendix D – Certificates of Analysis (Geotechnical)

Appendix E – Certificates of Analysis (Water)

Appendix F – Gas Monitoring Results

Appendix G – Generic Assessment Criteria Values

Appendix H – HazWasteOnline Output Sheets

Appendix I – References

1. Introduction

1.1. Background

LK Consult Ltd (LKC) has been commissioned to carry out a Phase 2 Geo-Environmental Investigation, Risk Assessment and Outline Remediation Strategy for Parkhill Avenue, Crumpsall. The investigation was undertaken in support of planning application to develop the site for residential end use.

The following work has previously been undertaken:

- Phase 1 Preliminary Risk Assessment by Curtins (Ref: 077873-CUR-00-XX-RP-GE-006, dated April 2021).
- Phase 1 Desk Study, undertaken by Sutcliffe (Ref: LG26934, dated August 2014).

This investigation has been undertaken to confirm the ground conditions below the site and to allow a contamination and geotechnical assessment to be undertaken.

The investigation will aim to confirm the risks of the potential pollutant linkages identified in the PRA and recommend further assessment / remediation, as required.

This revision of the report is an interim following completion of a second phase of investigation work. The final report will be issued once gas monitoring has been completed and all laboratory data received.

A summary of the site details is presented in Table 1-1. Figure 1 indicates the site location and boundary plan. Figure 2 indicates the proposed development.

Location	The site is located on land between Parkhill Avenue, Delaunays Road and Cleveland Road. The site is approximately 3.3 miles northeast of Manchester City Centre. Centred at approximate National Grid Reference 384950, 402730.
Area	3,800m ² .
Topography	Flat area in the western corner of site (65mAOD) with a steep slope down to the east / south-east (54-57mAOD).
Current Site Use	Vacant land, heavily overgrown. From January 2025, vegetation clearance and removal of Japanese Knotweed has commenced.
Proposed Development	Residential houses and apartments including soft landscaping and car parking. As part of the development, vegetation will be cleared and trees removed from the developable area (trees will remain in the south-east of the site which will remain undeveloped). A significant depth of soil removed from site as part of the Japanese Knotweed removal (see Knotweed Management Plan, produced by the LK Group, ref: IPM 21 1083 001 18 th April 2024).

Table 1-1: Summary of site details.

Plate 1-1 provides an indication of the extent of Japanese Knotweed.



Plate 1-2: Indication of extent of Japanese Knotweed.

2. Preliminary Risk Assessment

A summary of desk based information is included in the following sections (based on the Phase 1 reports referenced in Section 1) with an updated preliminary geotechnical constraints and preliminary risk assessment.

2.1. Summary of Site History, Environmental Settings and Site Reconnaissance

Pertinent information has been summarised in Table 2-1.

Main Historical Features	Onsite: South / south-west area was developed as houses with gardens. The housing was demolished between 2006 and 2020. The northern area remained vacant (vegetated). Surrounding Area: Fields, housing, reservoir (adj to east (downslope of site)), chemical works (>200m east), mills (100m north), sand pit (200m north), workhouses (100m south), electrical cable manufacturing (200m north), tannery (200m west).
Geology / Hydrogeology	Artificial: None. Superficial: Glacial Till (diamicton) / Secondary Undifferentiated Aquifer. Bedrock: Chester Pebble Beds Formation / Principal Aquifer. The site is not within a Source Protection Zone. Nearby BGS logs: Made ground to 1.5m, firm light brown very silty very sandy CLAY with occasional lenses of sand and silt to 7.0-10.0mbgl.
Hydrology	Nearest surface water feature is the River Irk 42m north.
Infilled Ground	No recorded landfills. Potentially infilled ground identified within 250m.
Mining	Site is within coal mining reporting area but lies outside a Coal Mining Development High Risk Area.
Site Reconnaissance	Site is accessed from Parkhill Avenue through locked double gates. The site consists of mature trees and overgrown vegetation. Japanese knotweed was noted in a number of areas across the site. Flat area in the western corner of site with a steep slope down to the east / south-east.

Table 2-1: Summary of site details, historical review, environmental settings, and site reconnaissance. Note: only features within 250m of the site are including with the historical features.

2.2. Preliminary Geotechnical Constraints

Table 2-2 summarises the geotechnical constraints.

Coal Mining	The risk from shallow coal mining is considered to be low.
Slope Stability	Further assessment is required to confirm the instability risk.
Made Ground	Unknown depth and constituent of made ground across the site. Possible in-ground structures from former development.
Superficial	Unknown strength of soils for foundation design.
Bedrock	Unknown depth to bedrock. Shallow bedrock not anticipated.
Groundwater	Unknown depth and variability of groundwater.
Plasticity	Plasticity of clay deposits should be confirmed.
Sulphate	Unknown sulphate content of the made ground and natural.
Road / Pavement Design	Unknown CBR values for footpath and road design should be calculated.

Table 2-2: Summary of geotechnical constraints.

2.3. Conceptual Model

The contamination conceptual model in the Sutcliffe's Phase 1 Report has been updated to be in line with LKC current risk assessment methodology (detailed below). Generic potential pollutant linkages are described along with an assessment of the risk based upon guidance on probabilities and consequences outlined in CIRIA C552¹.

In order to assess the potential risk for each pollutant linkage, an assessment of the magnitude of the potential consequence (severity) of the risk occurring and the magnitude of the probability (likelihood) of the risk occurring has been considered and classified. This is based on the guidance provided in CIRIA C552 and further details including a risk matrix is provided in Appendix A.

The probability is based on the site history, site reconnaissance, environmental setting, pathways, and receptors. Reasonable worst-case consequence has been assumed at this stage.

Where LKC identified a low to very low risk, targeted or low-density intrusive investigation work, a watching brief (during construction work) or no investigation work will be recommended. This will be dependent on the nature of the site and the proposed development.

Where LKC identifies a moderate or higher risk, intrusive investigation work or precautionary remediation is recommended.

The conceptual model is based on the future use of the site (post development), in line with proposed development scheme.

Due to the minor consequence associated with the phytotoxic effect to flora (i.e., loss of plants in a landscaping scheme), the overall risk for most sites will be very low to low. here soils contain significant concentrations of heavy metals, in general there will other pollutant linkages (i.e., the risk to human health) that will trigger the requirement for remediation (e.g., a clean environmental cover system). As such the risk to flora associated with phytotoxic contaminants will not be considered further.

The risk to buildings associated with elevated sulphate will be considered as part of the geotechnical assessment and will not be included in the contamination risk assessment.

PL	Source and Contaminants of Concern	Pathway	Receptor	Probability	Consequence	Risk
1	Made ground / former development (housing). PAHs, metals, asbestos, other organic / inorganic contaminants subject to made ground constituents.	Dermal contact. Inhalation of soil, fibres, and dust. Ingestion of soils, dust, home-grown produce, soil attached to home-grown produce. Windblown dust.	Future site users. Offsite receptors.	Low Likelihood	Medium	Moderate / Low
	Offsite sources – reservoir, works. PAHs, metals, other organic and inorganic contaminants.	Dermal contact. Inhalation of soil, fibres, and dust. Ingestion of soils, dust, home-grown produce, soil attached to home-grown produce. Windblown dust.	Future site users.	Unlikely	Medium	Low
2	Made ground / former development (housing), offsite sources (reservoir, works). Naphthalene and other volatile contaminants subject to made ground constituents and migration from offsite sources.	Inhalation of vapours. Migration via permeable strata and preferential pathways.	Future site users. Offsite receptors.	Unlikely	Medium	Low
3	Hazardous / ground gas: methane, carbon dioxide from made ground and infilled land.	Migration via permeable strata and preferential pathways. Inhalation of gas. Explosion in confined spaces.	Future site users. Buildings. Offsite receptors.	Low Likelihood	Severe	Moderate
4	Made ground / former development (housing). PAHs, metals, other mobile contaminants subject to made ground constituents.	Surface run-off. Migration via permeable strata and preferential pathways. Perched waters migration.	Groundwater Surface water (River Irk)	Low Likelihood	Medium	Moderate / Low
5	Made ground / former development (housing), offsite sources (reservoir, works). Naphthalene and other organic contaminants subject to made ground constituents and migration from offsite sources.	Permeation of pipes. Ingestion of tainted water supply.	Future site users. Water pipes.	Low Likelihood	Medium	Moderate / Low

Table 2-3: Preliminary Contamination Conceptual Model.

3. Ground Investigation

3.1. Site Investigation Design and Methodology

First Phase of Investigation Work

The investigation was carried out April to May 2024 and comprised the following:

- 4no. window sample boreholes drilled to 5.45-6.43mbgl (WS101-WS104). Follow-on dynamic probing to 10.00mbgl in WS104.
- 2no. cable percussion boreholes drilled to 15.00-15.80mbgl (CP101-CP102).
- 3no. trial pits (using 5t tracked machine) excavated to 2.00mbgl (TP101-TP103).

Due to the slope of the site and heavy vegetation, the access was limited. Investigation locations targeted proposed buildings and to allow adequate assessment of ground conditions across the site where access permitted.

A further 2no. cable percussive boreholes were proposed in the north-east area of the site principally for geotechnical purposes; however, were not completed due to access restrictions. It is recommended that these are completed once site enabling works have commenced to allow safe access.

Investigation work was carried out under the supervision of a Japanese Knotweed specialist to ensure that Japanese Knotweed was not spread across the site or off site.

Second Phase of Investigation Work

A second phase of investigation was carried out January to February 2024 and comprised the following:

- 2no. cable percussion boreholes drilled to 15.00-15.80mbgl (CP201-CP202).
- 1no. cable percussion borehole drilled to 20.45mbgl (CP203).

This phase of investigation work targeted the proposed apartment block in the north-east of the site. The work was undertaken following clearance of vegetation in this area of the site and under the supervision of a Japanese Knotweed specialist.

All site investigation locations are shown in Figure 3.

All profile logs are provided in Appendix B and are in line with BS14688-1⁵ and BS5930⁶.

3.2. Well Installations

All window sample boreholes (WS101-WS104) and cable percussive boreholes CP101, CP201 and CP202 were installed with monitoring wells for gas and groundwater monitoring / sampling. Monitoring wells were installed in accordance with BS10175 and CIRIA C665⁷ and generally comprised approximately 1m plain pipe over a length of slotted pipe surrounded by pea gravel and sealed at the top with bentonite and concrete.

Well installation details are provided in Profile Logs in Appendix B.

3.3. Sampling Protocol

3.3.1. Soil Sampling (Contamination)

Standard sampling protocol and preservation of samples was undertaken as described in the EA guidance on site investigation⁸.

Soil was collected for onsite testing for total volatile organic compounds (TVOCs) using a photoionisation detector (PID) fitted with a 10.6eV lamp and moisture trap. A plastic zip bag was half filled with soil allowing a suitably sized headspace. The bag was sealed and stored for at least 20 minutes before being tested. Results of the PID readings are presented on the profile logs (Appendix B). The on-site monitoring was carried out in line CIRIA C665⁹ to aid in screening samples for volatile analysis.

Soil samples of approximately 500g were recovered in amber jars and plastic tubs. All the samples were sent to DETS laboratory for chemical testing.

Many of the contamination tests are UKAS or MCERTS accredited and further details are given in the Certificate of Analysis presented in Appendix C. Table 3-1 shows the soil testing undertaken.

Testing	No. Samples	Justification
Metals / metalloids, pH, sulphate, speciated PAH, asbestos screen, SOM.	8	A basic suite with a broad selection of contaminants where no significant evidence of contamination was identified.
Metals / metalloids, pH, sulphate, cyanide suite, TPHCWG, BTEX, MTBE, speciated PAHs, phenol, asbestos screen, SOM.	5	A more detailed suite to confirm the absence of contamination and to provide data for waste assessment.
Waste Acceptance Criteria (WAC)	3	Samples of representative material which may be earmarked for disposal.

Table 3-1: Summary of Soil Testing.

Notes:

If asbestos present during screen identification and quantification will be undertaken.

Metal/metalloids=arsenic, cadmium, chromium, (total and hexavalent), copper, lead, mercury, nickel, selenium, vanadium, zinc, and boron; TPHCWG=carbon banded and aromatic/aliphatic split petroleum hydrocarbons; PAH=polycyclic aromatic hydrocarbons, BTEX=benzene, toluene, ethylbenzene, and xylenes; MTBE=Methyl tert-butyl ether, SOM=Soil Organic Matter.

3.3.2. Soil Sampling (Geotechnical)

Soil samples taken during the investigation were collected in tubs, bulk bags and sealed U100 tubes and sent to Murray Rix Laboratories for geotechnical testing.

Many of the tests are UKAS accredited and further details are given in the laboratory report presented in Appendix D. Table 3-2 shows the geotechnical testing undertaken.

Testing	No. Samples
pH and water-soluble sulphate	(see Table 3-1)
Atterberg Limits (plasticity testing)	8
Moisture Content	3
Shear box	1
Particle Size Distribution (PSD) - wet sieve	8
Particle Size Distribution (PSD) - sedimentation	1
BRE Short Suite	1
Triaxial	3

Table 3-2: Summary of Geotechnical Testing Undertaken.

3.3.3. Water Sampling

To establish the condition of the shallow and deeper groundwater, LKC undertook 3no. groundwater samples from 1no. cable percussion borehole (CP101) and 2no. window sample boreholes (WS103 and WS104).

Sampling was carried out in accordance with BS5930¹⁰ and BS5667-11¹¹.

The groundwater samples were collected a minimum of 1 week after drilling had finished. Sample collection was undertaken using a low flow sampling pump. The sample was collected in glass and plastic bottles and a glass vial. A water meter was used to test the pH, temperature, and conductivity before sampling until equilibrium conditions were met, as per BS10175¹² guidelines.

The samples were sent to DETS laboratory for analysis. The sampling suite is presented in Table 3-3. Many of the tests are UKAS or MCERTS accredited and further details are given in the Certificate of Analysis presented in Appendix E.

Testing	No. Samples	Justification
Metals / metalloids, pH, sulphate, cyanide suite, TPHCWG, BTEX, MTBE, speciated PAHs, phenol, and hardness.	3	Detailed suite undertaken across the site to confirm the absence of contamination.

Table 3-3: Summary of Groundwater Undertaken.

Notes:

Metal/metalloids=arsenic, cadmium, chromium, (total and hexavalent), copper, lead, mercury, nickel, selenium, vanadium, zinc, and boron; TPHCWG=carbon banded and aromatic/aliphatic split petroleum hydrocarbons; PAH=polycyclic aromatic hydrocarbons, BTEX=benzene, toluene, ethylbenzene, and xylenes; MTBE=Methyl tert-butyl ether.

3.4. In-situ Testing

3.4.1. Geotechnical Testing

In-situ geotechnical tests were performed in the boreholes to further characterise the sub-soil conditions. The following tests were undertaken:

- Standard Penetration Tests (SPTs) were performed in the window sample boreholes and cable percussion boreholes at 1.0-1.5m intervals.
- Shear vane tests / pocket penetrometer tests (giving undrained shear strength) were performed within cohesive strata.

The results are provided within Appendix B.

3.5. Gas Monitoring

Six gas monitoring visits have been undertaken over a period of three months as part of the 1st phase of investigation. A further 5 visits over 5 weeks have been undertaken in CP201 and CP202 as part of the 2nd phase of investigation.

The 2nd phase of monitoring was carried out to supplement the original data, a full period of gas monitoring was not possible due to time constraints and was not considered to be required given the consistency of ground conditions and consistency of gas data across the site.

Monitoring is being undertaken using a Geotechnical Instruments GA5000 in accordance with the monitoring protocol outlined in CIRIA C665¹⁴ (flow rate measured

first). The monitoring was undertaken over a range of weather conditions (including low and falling barometric pressure and heavy rain) to demonstrate worst-case conditions. The gas monitoring results are reproduced in full in Appendix F.

4. Ground Conditions

4.1. Geology

The ground conditions beneath the site are summarised below. Logs are provided in Appendix B.

4.1.1. Made Ground

Made ground was recorded in all boreholes to depths of 0.20-2.45mbgl (locally deeper in the north). The made ground generally comprised gravelly sandy silt with frequent rootlets, occasional / rare brick, concrete, glass, plastic, timber, metal and ceramics.

It should be noted that a significant quantity of the made ground will be removed as part of the Japanese Knotweed removal (see location in Plate 1-1).

4.1.2. Natural Strata

Superficial strata comprised horizons of natural cohesive and granular superficial deposits of clay, silt, sand and gravel to the completion depths investigated (maximum depth of 20.45mbgl (CP203)).

4.1.3. Contamination

Except for the anthropogenic material encountered in the made ground (as described above), no further contamination was identified.

There was no visual / olfactory evidence of hydrocarbons or volatile contaminants in any locations. The PID recorded a maximum of 1.0ppm TVOC in the samples.

4.1.4. Obstructions

No obstructions were identified within any investigation location.

4.2. Groundwater

4.2.1. Groundwater Levels

No groundwater strikes were recorded during the investigation in trial pits and boreholes.

Groundwater monitoring within the borehole wells has been undertaken on six occasions. This data is provided in Appendix F. Monitoring levels were recorded between 3.10mbgl and 7.24mbgl. No groundwater was encountered in WS101 and WS102.

4.2.2. Contamination

No evidence of contamination was identified in the groundwater during investigation work or monitoring. No free phase hydrocarbons were detected.

5. Geotechnical Assessment

5.1. Proposed Development

It is understood that the proposed development will comprise low rise residential housing and apartments with associated landscaping and infrastructure. Details of the proposed loadings are not known and therefore a line loading of 75kN/m has been assumed for the low rise housing for preliminary assessment purposes only.

The finished ground levels have not been provided and it is therefore anticipated that they will not vary significantly from current levels. However, should the development proposals or finished levels be altered then the comments/recommendations in this section may require revising.

The depths of any underground engineering works (sewers etc.) are unknown and therefore have not been considered in the following assessment. Any such works should be designed so as not to influence, or compromise, proposed or existing foundations or ground stability.

It is anticipated that some enabling works and retaining structures may be required to create level developable platforms.

Given the nature of the proposed development the structure meets the criteria of Geotechnical Category 2 of Eurocode 7²⁰.

5.2. Summary of Ground Conditions

Ground conditions identified at the site are detailed in Section 4.1, and typically comprises made ground up to 2.45m (locally deeper in the north), over horizons of natural cohesive and granular superficial deposits of clay, silt, sand and gravel to the completion depths investigated (maximum depth of 20.45mbgl (CP203)).

5.3. Site Preparation

The site should be cleared and any vegetation below areas of proposed development stripped in accordance with Series 200 of the Specification for Highway Works²¹. This should include:

- Roots present below the footprint of proposed structures and infrastructure should be grubbed out and the resulting void infilled with suitable compacted engineered fill.
- Redundant services should be sealed off and grubbed out and replaced with suitable compacted engineered fill; and,
- Buried structures and old foundations may be encountered on site from terrace housing identified in the Phase I PRA (Curtins Report). These should be excavated from below the proposed development footprint with the resulting void backfilled.

The near surface soils may potentially be disturbed by weathering and site traffic. Precautions should be taken to avoid this, as excessive disturbance may result in more onerous floor slab design, road cap thickness and increased amount of site disposal etc.

A brick retaining wall forms the south-east boundary with Delaunays Road, reducing in height as it heads north-east to the junction with Cleveland Road. The bricks visually appear in good condition; however, vegetation is overgrowing the wall and in places

obscures the wall. Some of the coping stones are loose or missing and there does not appear to be any signs of drainage/weep holes visible within the wall. A condition survey of the wall should be undertaken prior to starting the development.

The site slopes downwards from south-west (c.65m AOD) to north-east (c.54m AOD) and an assessment of the slope stability is being undertaken, this will be reported under separate cover.

5.4. Foundation Conditions and Bearing Capacity

5.4.1. General

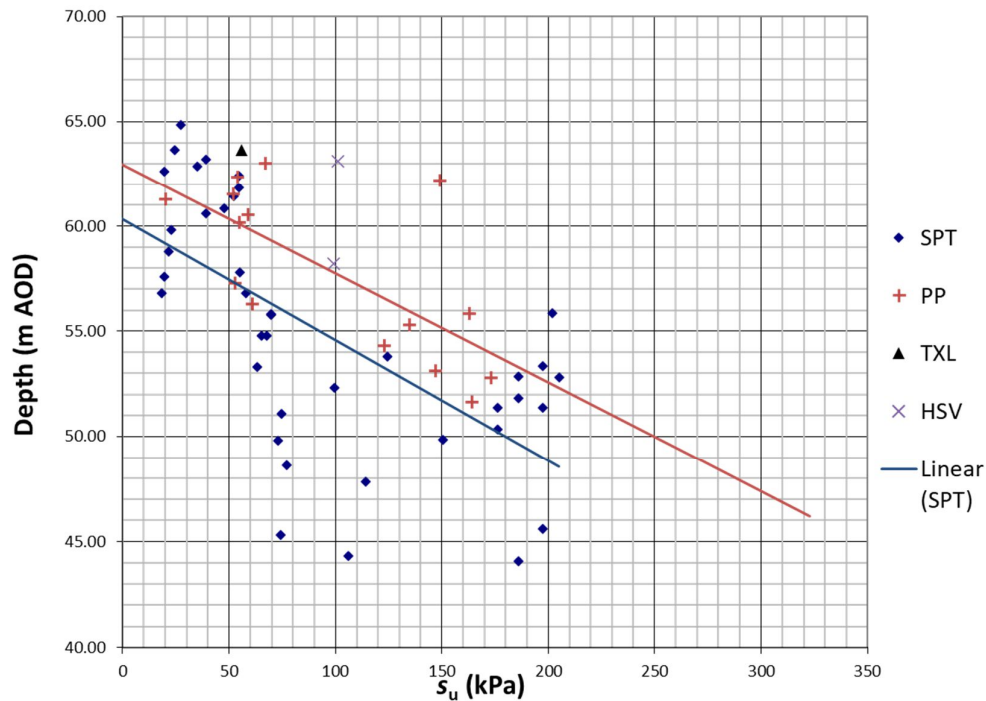
It is considered that the Made Ground is not suitable for a founding material due to the inherent variability of the material. The variable interbedded nature of the underlying cohesive and granular superficial deposits along with 2.00m deep excavations associated with the Japanese Knotweed treatment will further preclude the application of shallow foundations due to the potential for differential settlements to occur. Foundation options are therefore:

- Conventional strip footings on vibro granular columns; or,
- Deeper pile foundations.

These options are discussed below:

Strength of the natural cohesive material has been assessed using in-situ testing by SPT, Hand Shear Vane (HSV) and Pocket Penetrometer (PP) along with laboratory testing by quick undrained Triaxial, to obtain the undrained shear strength (s_u) of the cohesive material. The results of the testing have been plotted against depth (metres Above Ordnance Datum (AOD)) as is shown in Graph 5-1 below:

Undrained Shear Strength (s_u)



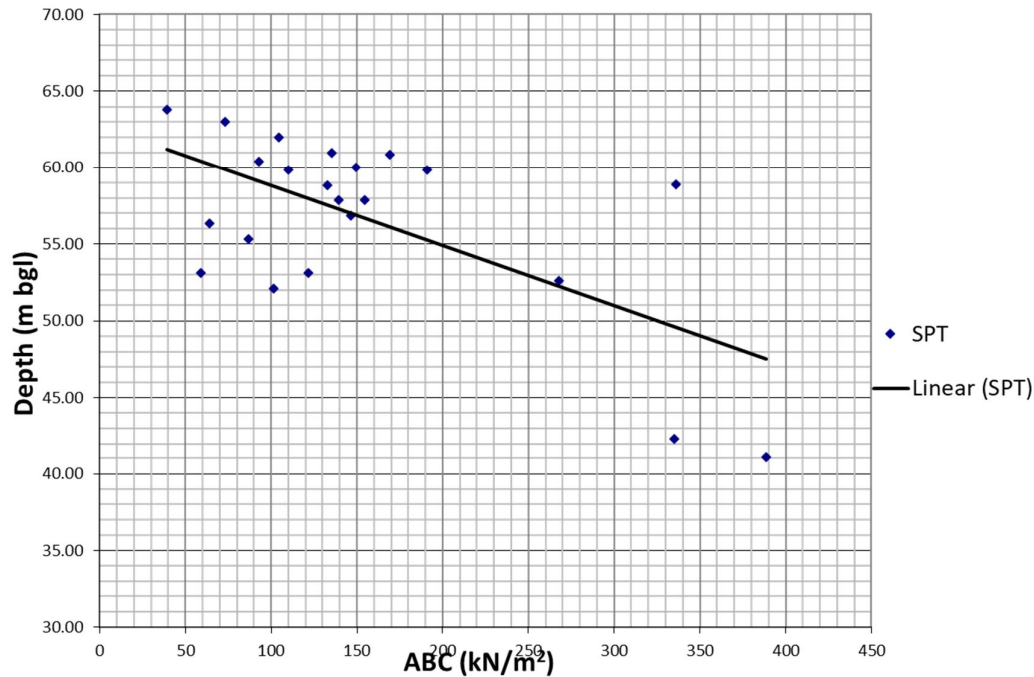
Graph 5-1: Summary of s_u vs depth from in-situ SPT, HSV and PP testing along with laboratory TXL.

From Graph 5-1 it can be seen that the strength of the cohesive deposits is initially low, typically between 18 and 67kPa between c. 65-57mAOD, increasing with depth below 57mAOD from 47 to 205kPa.

A conservative s_u of 50kPa is assigned to the cohesive material from a depth of c. 4mbgl (57mAOD) for the natural cohesive superficial deposits.

The natural granular material encountered at various depths between 63.80mAOD and 41.09mAOD in the exploratory holes, has been assessed using in-situ testing by SPT to obtain the Allowable Bearing Capacity (ABC) of the granular strata although no SPTs were carried out in the granular strata below 48.24mAOD in CP102. The results of the testing have been plotted against depth (mAOD) and are shown in Graph 5-2 below.

Allowable Bearing Capacity (Granular)



Graph 5-2: Summary of ABC Vs. Depth from In-Situ SPT.

An ABC of between 39 and 190kN/m² is obtained at depths of between 63.80mAOD and 52.09mAOD, ranging from loose to dense (averaging medium dense), with a conservative ABC of 100kN/m² from 4.00mbgl onwards, equating to an average angle of internal friction (ϕ') of 31°.

Groundwater was not recorded in any of the exploratory holes during the site investigation works. Groundwater monitoring within the borehole wells has been undertaken on six occasions. This data is provided in Appendix F. Monitoring levels were recorded between 3.1mbgl and 4.57mbgl in WS103-WS104 and at 7.2-7.24mbgl in CP101. No groundwater was encountered in WS101 and WS102. The presence of the groundwater has the potential to reduce the bearing capacity of a granular strata by as much as 50%. The effect that the groundwater may have should also be considered when assessing the bulb of pressure exerted by foundations.

5.4.2. Plasticity

Clay samples were subjected to Atterberg Limits (plasticity) and Moisture Content testing. Results are provided in Appendix D.

The clay is classified as low and medium plasticity.

The modified plasticity index as detailed in Chapter 4.2-D5 of the NHBC standards (modified plasticity index = plasticity index x % less than 425 μ m sieve / 100%) characterises the clay as having a medium volume change potential.

5.4.3. Ground Improvement

The use of ground improvement techniques such as vibro granular columns will allow shallow foundations to be utilised with the made ground and remove variability between the natural cohesive and granular strata. The vibro granular columns should provide an Allowable Bearing Capacity of around 150kN/m². Specialist advice should be sought from a suitably experienced contractor regarding Allowable Bearing Capacity and settlements.

It should be noted that vibro stone columns are not suitable in clays with a Plasticity Index greater than 40% or with an undrained shear strength of less than 30kPa. Results of PP tests indicate soft pockets at shallow depths within the Clay (<30kPa) may prevent the use of this technique. The plasticity will be confirmed in the final report.

It should be noted that the stone columns provide a pathway for gas and vapour migration, and additional mitigation measures may be required to help prevent the ingress into properties.

5.4.4. Piled Foundations

Consideration may be given to the use of piled foundations to transfer loadings through poor ground conditions and bear within the underlying stiff and very stiff natural clays encountered from depths of between 7.70m and 8.00mbgl.

Laboratory shear box testing on an undisturbed sample of clay obtained from 9.00mbgl in CP102 returned an effective cohesion (c') of 39kPa and an effective angle of internal friction (ϕ') of 33°.

Up to 1.00m of made ground has been recorded within the exploratory holes and consideration must be given to the potential for negative skin friction to influence the piles.

Pile design should be undertaken by a specialist contractor to allow them to reduce the Factor of Safety based on their extensive pile testing data.

Should a pile foundation solution be the preferred option, then warranty providers may require further information on ground conditions to a minimum of 5m below the base of the pile.

Casing is required while drilling the piles due to the presence of granular strata. This will help minimise ground disturbance and prevent collapse into the borehole causing areas of weakness.

5.4.5. Foundation Recommendations

Whilst a Ground Improvement solution is viable, low s_u values were obtained in pockets of the cohesive made ground and natural strata which may preclude this option, it is therefore considered that a piling solution will provide the most reliable and cost-effective option for the site.

5.5. Ground Floor Slabs

Warranty providers such as NHBC will require suspended floor slabs where Made Ground is in excess of 600mm. Due to the presence of varying thickness' upto 1.00m depth of Made Ground across the site, it is considered that a suspended floor slab will be required for the proposed low rise residential houses.

In the location of the proposed apartment block, suitable preparation of the sub-grade, by a combination of excavation and re-compaction, a ground bearing floor slab should prove suitable for the proposed buildings.

If vibro granular columns are used for the foundations, then this could be extended to the floor slab to improve formation conditions and reduce the risk of damage from settlement. However, it may be more reliable to opt for suspended floor slabs.

Should a piled foundation solution be selected then a piled structure will generally have a suspended or piled floor due to potential differential settlement between the floor and the shell.

5.6. Pavement Construction

Topsoil is not suitable for use as a sub-grade. Untreated made ground is considered unsuitable as a sub-grade due to its potential variability and potentially low strength/high compressibility. It should be removed to a depth of 0.5m below formation level and sorted to remove any unsuitable or deleterious materials. The sub formation should be rolled, and suitable excavated material can then be replaced, up to formation level, in fully compacted thin layers. Any deficit should be made up with suitable imported fill compacted as above. Following this treatment an overall design CBR of 2-5% should be available, although this will require confirmation through in-situ CBR tests.

Based on the plasticity index the soils are not considered frost susceptible.

Following excavation, the sub formation should be proof rolled and any soft material inspected and removed.

5.7. Drainage

Due to the current sloping ground and the poor permeability of the soils along with the presence of up to 1.00m thickness of made ground across the site, conventional soakaway drainage is unlikely to be suitable.

5.8. Concrete Durability

Based upon the results of the chemical analyses (Appendix D), subsurface concrete can be designed in accordance with Design Sulphate Class DS-1, Aggressive Chemical Environment for Concrete Classification (ACEC) AC-1s in accordance with the recommendations provided in BRE Special Digest 1 (2005).

5.9. Excavations

The shallow superficial deposits included made ground and granular strata. The short- and long-term stability of near vertically sided excavations can therefore not be guaranteed and random and sudden instability within these soils should be anticipated.

Due to the variability of the made ground all excavations should be supported or battered back in accordance with guidance contained in CIRIA R97²².

5.10. Construction Activity and Inspection

The following activities and inspections should be incorporated into the site works:

- Due to the variability of the soils at the site it is recommended that sufficient allowance is made for the inspection of formation and sub formations to foundations and pavement construction.
- Excavations where access is required should be subject to a risk assessment from a competent person and where appropriate mitigation measures such as benching back the sides or use of support systems in accordance with CIRIA R97²³ utilised.
- De-watering may be required, especially following periods of heavy rainfall. Removal of surface water and water within trenches should be possible with conventional sump pumping. Discharge of any water should be agreed with the relevant regulatory body and be undertaken under a trade effluent discharge, where required. Measures to remove silt and suspended solids may be required and consideration should be given to provision of space for settling tanks or an attenuation pond.
- Where access to confined spaces is required appropriate mitigation measures should be addressed within the Construction Stage Health and Safety Plan. Particular account should be taken of the gas results.

The presence of potential contamination and mitigation measures should be addressed as part of the Construction Stage Health and Safety Plan and should include measures to design out the risks, reduce their impact and finally the use of Personnel Protective Equipment (PPE).

6. Generic Risk Assessment

6.1. Introduction

Current good practice requires that the findings from a site investigation should be evaluated on a site-specific basis, using a risk-based approach. Risk assessment involves identification and evaluation of the hazards presented by the concentrations of contaminants measured followed by an evaluation of the risks which are associated with these hazards (LCRM²⁴). Information gathered from the risk assessment has been collated in the revised contamination conceptual model in Section 6.6.

6.2. Soil Risk Assessment

6.2.1. Methodology

With regards to the soil risk assessment LKC will use the following hierarchy:

- Category 4 Screening Levels (C4SLs)^{25, 26}.
- LQM Suitable 4 Use Levels (S4ULs)^{27, 28, 29, 30}.

The proposed development is for residential houses with gardens and apartments, therefore the assessment criteria for residential with plant uptake has been used as a conservative screen.

All criteria have been generated using the CLEA V1.06 model³¹ based either on 1%, 2.5% and 6% Soil Organic matter (SOM). Results will be compared to the nearest appropriate SOM.

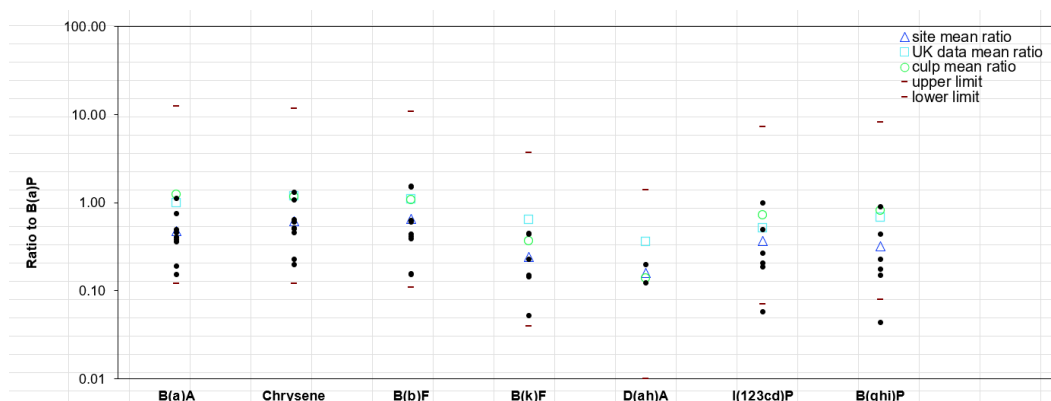
A summary of the generic assessment criteria used in this assessment is provided in Appendix G.

B(a)P as Surrogate Marker

LKC consider the main risk drivers for PAHs are benzo(a)pyrene (B(a)P) and naphthalene. This is due to B(a)P possibly being a carcinogen and most toxic of the PAHs^{32,33} and naphthalene the most volatile and soluble³⁴. The C4SLs indicate B(a)P as a surrogate marker for carcinogenic PAHs, if it falls within appropriate limits, since the risk from other non-carcinogenic PAHs are considered negligible³⁵. For B(a)P to be used as a surrogate marker it should follow the profile described by the HPA (2008)³⁶ and CL:AIRE (2013). Naphthalene will be treated separately using the LQM S4ULs.

LKC undertook an assessment of the PAH data for the site with regards to using B(a)P as a surrogate marker for carcinogenic PAHs as per HPA and CL:AIRE guidelines. The primary toxicological study related to Culp *et.al*³⁷, which was based on coal tar mixtures (>80,000mg/kg of total PAHs) fed in food to mice over a two-year carcinogenicity study.

Graph 6-1 summarises the study site data with respect to how the ratios of carcinogenic PAHs relate to B(a)P, within the confidence limits provided in the HPA document.



Graph 6-1: The ratio of PAH to B(a)P in soil for all available data at the site based on 11 samples (where values were >LOD to allow the calculation of a ratio).

Notes:

B(a)P=Benzo(a)pyrene; D(ah)A=Dibenzo(ah)anthracene; B(a)A=Benzo(a)anthracene; B(b)F=Benzo(b)fluoranthene; B(k)F=Benzo(k)fluoranthene; I(123cd)P=Indeno(123cd)pyrene; B(ghi)P=Benzo(ghi)perylene.

All the data points that could be used to calculate ratios fall inside the upper or lower limits.

Based on this distribution of data LKC considers B(a)P can be used as a surrogate marker for carcinogenic PAHs and the C4SL criteria is suitable for this dataset.

6.2.2. Soil Results Comparison against Assessment Criteria

All analysis sheets are presented in Appendix C. Elevated results are presented in Table 6-1.

Sample Location / Depth (mbgl)	Contaminant	Total No. of Samples Tested	Criteria	Sample Result > Criteria
TP102 / 0.00-0.50	Benzo(a)pyrene	13	5.0	11.50

Table 6-1: Summary of Elevated Results.

Notes:

All units in mg/kg.

Only results that exceeded assessment criteria have been shown and results from all depths are noted.

Results have been compared to the nearest appropriate SOM for the assessment criteria hierarchy described in Section 6.2.

No asbestos was identified in any soil samples analysed.

6.2.3. Direct Contact Risk – Pollutant Linkage 1

Elevated PAHs have been identified in the made ground in TP102 (0.00-0.50mbgl), with B(a)P recorded at a concentration of 11.5mg/kg. The remaining samples recorded B(a)P at concentrations between <0.1mg/kg and 1.2mg/kg (majority <1.0mg/kg).

The B(a)P within TP102 is expected to be localised and may be associated with small fragments of coal, ash or tarmac. The sample was noted to be black which could be indicative of these materials. The contamination is not expected to be site wide.

It is anticipated that as part of the Japanese Knotweed removal work, the material from around TP102 will be removed from site. Soil is expected to be removed to an approximate depth of 2.0mbgl (to natural strata in the area around TP102).

Given the localised nature of the PAH contamination and the removal of the made ground in this area of the site, there is not expected to be a significant source of PAH onsite.

No further contamination was identified (metals, asbestos, other inorganic / organic contaminants) within the soils on site.

The probability of the above contaminants affected site users is considered to be unlikely. With a moderate consequence, the risk is low and no remediation is recommended.

6.2.4. Risk from Inhalation of Vapours – Pollutant Linkage 2

No visual / olfactory evidence of volatile contaminants was identified during the investigation. The PID did not detect any significant TVOCs. Confirmatory soil analysis did not detect any VOCs / SVOCs above assessment criteria.

LKC therefore consider the probability of volatile contaminants affecting site users as unlikely. The consequence is expected to be medium, giving a low risk and no remediation is required.

6.3. Gas Risk Assessment

Six gas monitoring visits have been undertaken over a period of three months as part of the 1st phase of investigation. A further 5 visits over 5 weeks have been undertaken in CP201 and CP202 as part of the 2nd phase of investigation.

The 2nd phase of monitoring was carried out to supplement the original data, a full period of gas monitoring was not possible due to time constraints and was not considered to be required given the consistency of ground conditions and consistency of gas data across the site.

Gas monitoring results in full are presented in Appendix F and summarised in Table 6-2. Following guidance set out in CIRIA C665⁴² and BS8485⁴³ peak methane and carbon dioxide concentrations have been used in the gas risk assessment. In addition, and as per guidance, flow rates were measured first.

Borehole Ref.	Visit	Peak CH ₄ (%v/v)	Peak CO ₂ (%v/v)	Min O ₂ (%v/v)	Steady Flow (l/h)	Groundwater Level (mbgl)	Pressure (mb)	Prev 24hr Pressure Trend
CP101	1	<0.1	1.9	17.5	<0.1	7.2	1015	Steady
	2	0.1	5.6	16.1	<0.1	7.24	996	Falling
	3	<0.1	2.4	17.4	0.1	7.23	1012	Rising
	4	<0.1	5.5	14.7	0.1	7.22	998	Steady
	5	<0.1	5.1	15.9	-0.1	7.25	1013	Steady
	6	<0.1	0.3	20.8	<0.1	7.27	1006	Rising
WS101	1	<0.1	1.6	18.3	<0.1	Dry	1015	Steady
	2	0.1	2.7	18.7	<0.1	Dry	996	Falling
	3	<0.1	2.4	17.6	<0.1	Dry	1012	Rising
	4	<0.1	4	17.3	-0.1	Dry	998	Steady
	5	<0.1	2.9	17.6	<0.1	Dry	1013	Steady
	6	<0.1	2.4	19.3	<0.1	DRY	1005	Rising
WS102	1	<0.1	2.8	17.3	<0.1	Dry	1016	Steady
	2	<0.1	6.6	15.2	<0.1	Dry	996	Falling
	3	<0.1	6.4	14.1	<0.1	Dry	1012	Rising
	4	<0.1	5.9	14.6	<0.1	Dry	999	Steady
	5	<0.1	6	15.2	<0.1	Dry	1012	Steady
	6	<0.1	2.6	19.1	<0.1	DRY	1006	Rising
WS103	1	<0.1	6.6	11.2	<0.1	3.18	1016	Steady
	2	0.1	6.4	11	<0.1	3.28	996	Falling
	3	0.1	11.8	5.2	<0.1	3.65	1012	Rising
	4	<0.1	11.5	10.8	<0.1	4.03	999	Steady
	5	<0.1	11.1	8.2	<0.1	4.35	1013	Steady
	6	<0.1	11	9.5	<0.1	4.57	1006	Rising
WS104	1	<0.1	3.4	13.3	<0.1	3.1	1017	Steady
	2	0.1	11	4.8	<0.1	3.39	996	Falling
	3	<0.1	7.3	8.2	<0.1	3.44	1013	Rising
	4	<0.1	6.3	13.8	<0.1	3.84	1000	Steady
	5	<0.1	6.7	15.2	<0.1	4.13	1013	Steady
	6	<0.1	4.7	17.8	<0.1	DRY	1007	Rising
CP201	1	<0.1	3.7	8.9	<0.1	3	1020	Falling
	2	<0.1	6.3	2.1	<0.1	3.1	1019	Variable
	3	<0.1	5.6	0.1	<0.1	3.085	995	Falling
	4	<0.1	6.3	0.1	<0.1	3.1	1022	Rising
	5	<0.1	6.6	0.1	<0.1	3.04	1005	Rising
CP202	1	<0.1	10.7	5.2	<0.1	4.1	1022	Falling
	2	<0.1	12.7	0.4	<0.1	4.17	1018	Variable
	3	<0.1	12.7	0.2	<0.1	4.145	995	Falling
	4	<0.1	11.0	0.1	<0.1	4.18	1023	Rising
	5	<0.1	12.1	0.1	<0.1	4.10	1004	Rising

Table 6-2: Summary of Gas Monitoring Data.

Gas Screening Value

In accordance with CIRIA C665⁴⁴, a Gas Screening Value (GSV) may be calculated. Assuming worst-case scenario maximum gas concentrations and flow for each borehole have been used to calculate the GSV. The GSV can be used to determine the characteristic situation (CS).

Table 6-3 shows the maximum GSV for each borehole and the appropriate characteristic situation (based on GSV only). An overall site assessment (all boreholes) has also been included (worst case values across the site).

Boreholes	Max GSV (l/hr)	CS	TL
CP101	0.0056	CS1	Green
WS101	0.0055	CS1	Green
WS102	0.0066	CS1	Green
WS103	0.0118	CS1	Green
WS104	0.0110	CS1	Green
CP201	0.0066	CS1	Green
CP202	0.0127	CS1	Green
All boreholes	0.0001 (CH ₄) 0.0118 (CO ₂)	CS1	Green

Table 6-3: Summary of Worst-Case Gas Screening Values (GSV).

Notes:

CS = Characteristic Situation; TL= Traffic Light.

In addition, in accordance with CIRIA C665⁴⁵, if carbon dioxide and methane are recorded above 5%v/v and 1%v/v respectively, you should consider upgrading the characteristic situation from CS1 to CS2.

Carbon dioxide was recorded above 6% in the majority of boreholes on numerous occasions with a maximum concentration of 12.7%v/v. However, made ground on site was generally found to be relatively shallow and no other significant sources of gas were noted. It should also be noted that a significant quantity of made ground will be removed as part of the Japanese Knotweed removal work reducing potential source of the residual hazardous gas.

Wilson et al suggests there is no need to increase the classification if the carbon dioxide is caused by biological respiration of small quantities of organic material. Plate 6-1 summarises the gas monitoring data using the methodology described by Wilson et al. This assessment is useful where there is low gas flow rates.

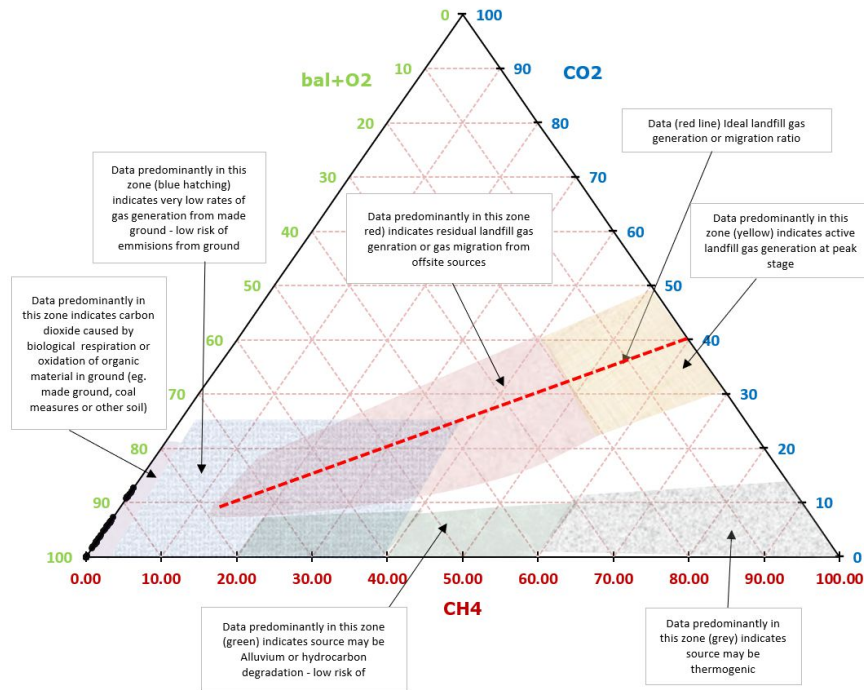


Plate 6-1: Gas Monitoring Ternary Plot.

Wilson et al goes on to say 'where gas monitoring results plot within the zone shown ...for microbial respiration there is no requirement to increase the Characteristic Situation simply because CO_2 concentrations exceed 5%'.

All the data to date (plotted above) falls within the area of the ternary plot which is indicative of microbial respiration. This indicates the carbon dioxide is likely to be from microbial degradation in the soil. Furthermore, CL:AIRE Research Bulletin 17 states 'Carbon dioxide in natural soils such as Glacial Deposits and Chalk can often be recorded at up to 15% in monitoring wells, but that this does not pose a risk to development'. The maximum concentration of carbon dioxide observed on site is 12.7% v/v with negligible flow rates to drive any gas migration.

Based on the above, it is considered that the probability of carbon dioxide affecting site users as unlikely. Assuming a severe consequence, there is a low/moderate risk and remediation is not required associated with the carbon dioxide.

Negligible methane was recorded; therefore, LKC consider the probability of methane gas affecting site users and buildings as unlikely. Assuming a severe consequence, there is a moderate / low risk. Given the minimal methane concentrations and flow, no remediation is required associated with methane.

6.4. Controlled Water Assessment

LKC considers the River Irk and the Principal Aquifer as the primary receptors.

LKC have compared results above Limits of Detection (LOD). Where relevant the review of priority substances takes precedence considering threshold values for groundwater cannot be used '*as part of site-specific investigations*'. The hierarchy is as follows:

- River Basin District Standards⁴⁶ and updated Water Framework Directive⁴⁷ for Annual Average / Maximum Allowable Concentration Environmental Quality Standards (AA-MAC-EQS) for priority substances (surface water risk) and 2016 private water supply standards (UKDWS potable)⁴⁸.
- 2001 Environment Agency Values for Environmental Quality Standards (EQS) and UK Drinking Water Standard (UKDWS)⁴⁹.
- Resource Protection Values (RPVs)⁵⁰.

With regards to hydrocarbon mixtures (TPHCWG) for UKDWS, LKC will use the CL:AIRE guidance on petroleum hydrocarbons in groundwater⁵¹ based on WHO guidelines.

No elevated contaminants above screening criteria were identified in any water sample.

Based on the above, LKC considers the probability of contaminants on site affecting the River Irk and Principal Aquifer as unlikely. Given the medium consequence, a low risk is anticipated (Pollutant Linkage 4) and no remediation is required.

6.5. Potable Water Supply

Soil results were compared to United Utilities (UU) guidelines for the selection of potable water pipes in land potentially affected by contamination. Only contaminants of concern, based on the preliminary conceptual model and ground conditions encountered, were analysed.

Slightly elevated TPH EC10-16 has been identified in TP103 (0.00-1.00mbgl). However, no visual / olfactory evidence of petroleum hydrocarbons were identified and the contamination is not expected to be site wide. Given the depth of made ground is relatively shallow across the majority of the site, and a significant amount of material will be removed from site as part of Japanese Knotweed removal (including the area around TP103), it is assumed that potable water pipes will be installed in natural strata rather than made ground.

The probability of organic contaminants affecting potable water pipes is unlikely. Given the consequence is considered to be moderate, the risk (Pollutant Linkage 5) is anticipated to be low and no remediation is recommended.

The utility provider may still require a Water Pipe Risk Assessment to be undertaken prior to connection to the main supply to confirm the most appropriate pipe material.

6.6. Revised Contamination Conceptual Model

The preliminary contamination conceptual model (Table 2-3) has been revised following the risk assessments undertaken in Sections 6.1-6.4. The revised contamination conceptual model follows the same methodology and guidance used in the preliminary contamination conceptual model. The risk matrix is provided in Appendix A.

The revised contamination conceptual model is presented in Table 6-4.

Where a very low risk or low risk is identified no specific remediation is required.

Where there is a moderate / low risk is identified, some form of remediation may be required depending on the pollutant linkage, the type and concentration of contaminants present and the proposed development.

Where LKC identifies a moderate or higher risk, remediation or further investigation work is recommended.

PL	Contaminants	Pathway	Receptor	Probability	Consequence	Risk	Recommendations
1	PAHs, metals, asbestos, other organic / inorganic contaminants	Dermal contact. Inhalation of soil, fibres, and dust. Ingestion of soils, dust, home-grown produce, soil attached to home-grown produce. Windblown dust.	Future site users. Offsite receptors.	Unlikely	Medium	Low	No remediation required.
2	Volatile Contaminants	Inhalation of vapours. Migration via permeable strata and preferential pathways.	Future site users. Offsite receptors.	Unlikely	Medium	Low	No remediation required.
3	Carbon dioxide	Migration via permeable strata and preferential pathways. Inhalation of gas.	Future site users. Buildings. Offsite receptors.	Unlikely	Severe	Moderate / Low	No remediation required.
	Methane	Migration via permeable strata and preferential pathways. Inhalation of gas. Explosion in confined spaces.	Future site users. Buildings. Offsite receptors.				
4	PAHs, metals, other mobile contaminants	Surface run-off. Migration via permeable strata and preferential pathways. Perched waters migration.	Groundwater. Surface water.	Unlikely	Medium	Low	No remediation required.
5	Naphthalene and other organic contaminants	Permeation of pipes. Ingestion of tainted water supply.	Future site users. Water pipes.	Unlikely	Medium	Low	No remediation required.

Table 6-4: Revised Contamination Conceptual Model.

7. Waste Disposal Assessment

7.1. HazWaste Assessment

The soil contamination results as presented in Appendix C have been used to help determine the waste classification of material for off-site disposal.

As an initial screen the soil results were inputted into HazWasteOnline™. This is a web-based facility that allows an assessment waste as either hazardous or non-hazardous waste based on relevant guidance and legislation.

HazWasteOnline™. has been designed to cover, amongst other waste types, the List of Waste (LoW) code number 17 "Construction and Demolition Waste (Including Excavated Soil from Contaminated Sites)".

Where less than limits of detection (LOD) were recorded, the value of the LOD was inputted.

Where applicable, contaminants were selected based on observations during sampling, site history, ground conditions and likely species present in soils (e.g., metal oxides relating to an ash-based source).

The results show that all the samples tested are classified as non-hazardous for disposal. The HazWasteOnline™ output sheets are provided in Appendix H.

8. Summary Conclusions

8.1. Ground Conditions

Ground conditions are summarised in Table 8-1 below.

Made Ground	Recorded in all boreholes to depths of 0.2-1.0mbgl. The made ground generally comprised gravelly sandy silt with frequent rootlets, occasional / rare brick, concrete, glass, plastic, timber, metal and ceramics.
Superficial	Horizons of natural cohesive and granular deposits of clay, silt, sand and gravel to the completion depths investigated (max. depth of 20.45mbgl).
Bedrock	Not encountered.
Groundwater	No groundwater strikes were recorded during the investigation. Monitoring recorded groundwater levels between 3.1mbgl and 7.24mbgl. No groundwater was encountered in WS101 and WS102.
Obstructions	Not encountered.

Table 8-1: Summary of Ground Conditions.

8.2. Geotechnical

Geotechnical observations and conclusions are contained in Table 8-2 below, more detailed discussions are contained within Section 5.

Allowable Bearing Pressure	The natural cohesive strata returned s_u values of between 18 and 67kPa between 1.20-3.00mbgl, with a conservative s_u of 50kPa being returned from 4.00m. The granular strata returned an ABC of between 39 and 336kN/m ² at depths of between 1.20m and 7.00mbgl, ranging from Loose to Dense (averaging Medium Dense), with a conservative ABC of 100kN/m ² from 4.00m onwards, equating to an average angle of internal friction (ϕ') of 31°.
Anticipated Foundation Type	Whilst a ground improvement solution is viable, low s_u values were obtained in pockets of the cohesive natural strata which may preclude this option, it is therefore considered that a piling solution will provide the most reliable and cost-effective option for the site.
Plasticity	Consideration will need to be given to the shrink / swell of the clay strata if it is to be used as founding strata, particularly where trees / hedges are present. Foundations may need to be deepened. A low to medium volume change potential has been calculated for the site.
Shallow Groundwater	Shallow groundwater was not identified on the site during the intrusive investigation works.
Concrete Requirements	Based on BRE Digest 2005 ⁵² – DS-1 AC-1s recommended.
Services	Consideration to the presence of services running through the site. Services may need to be re-routed.
Road / Pavement Design	Topsoil is not suitable for use as a sub-grade. Untreated made ground is considered unsuitable as a sub-grade due to its potential variability and potentially low strength / high compressibility. It should be removed to a depth of 0.5m below formation level and sorted to remove any unsuitable or deleterious materials. The sub formation should be rolled, and suitable excavated material can then be replaced, up to formation level, in fully compacted thin layers. Any deficit should be made up with suitable imported fill compacted as above. Following this treatment an overall design CBR of 2-5% should be available, although this will require confirmation through in-situ CBR tests.

Table 8-2: Geotechnical Conclusions Table.

Temporary support of excavation	The exploratory holes included granular strata. The short- and long-term stability of near vertically sided excavations can therefore not be guaranteed and random and sudden instability within these soils should be anticipated. All excavations should be supported or battered back in accordance with guidance contained in CIRIA R97.
Retaining Walls	A brick retaining wall forms the south-east boundary with Delauneys Road, reducing in height as it heads north-east to the junction with Cleveland Road. The bricks visually appear in good condition however vegetation is overgrowing the wall and in places obscures the wall. Some of the coping stones are loose or missing and there does not appear to be any signs of drainage/weep holes visible within the wall. A condition survey of the wall should be undertaken prior to starting the development.
Slope Stability	An assessment of the slope stability will be reported under separate cover.

Table 8-3 (cont.): Geotechnical Conclusions Table.

8.3. Contamination Assessment

A revised contamination conceptual model has been produced by LKC which is summarised in Table 8-3 below (more detailed model provided in Section 6).

PL	Contaminant	Risk	Recommendations
1	PAHs, asbestos, metals, other inorganic / inorganic contaminants	Low	No remediation required.
2	Volatile contaminants	Low	No remediation required.
3	Carbon dioxide and Methane	Moderate / Low	No remediation required
4	PAHs, metals, other mobile contaminants	Low	No remediation required.
5	Naphthalene and other organic contaminants	Low	No remediation required

Table 8-4: Summary Risk Table.

PL=Pollutant Linkage, see Table 6-4 for details.

8.4. Waste Assessment

The results show that all the samples tested are classified as non-hazardous for disposal.

8.5. Recommendations

The recommendations provided below are considered appropriate for the site based on the site investigation work undertaken to date. The recommendations will be updated once all investigation work has been completed.

LKC should stress that no remediation, enabling works or designing works should take place until Regulatory approval has been obtained.

A summary of remediation requirements is included in Table 8-4.

PL	Recommendation
1	No remediation required.
2	No remediation required.
3	No remediation required.
4	No remediation required.
5	No remediation required.

Table 7-4: Remediation Summary.

Based on the findings of the site investigation and risk assessment, no remediation is required. A watching brief for any unexpected contamination should be maintained during groundworks (refer to Section 8.6.1), and any imported soils brought to site for

use in gardens / soft landscaping should be validated to ensure they are suitable for use (refer to Section 8.7).

All the remediation and validation work should be documented in a Site Completion Report. The Completion Report will be provided to satisfy the outstanding contaminated land planning condition.

8.6. Other Considerations

8.6.1. Japanese Knotweed Removal

The removal of Japanese Knotweed impacted soils is currently being undertaken in line with the Japanese Knotweed Management Plan (ref: IPM 21 1083 001 18th April 2024).

A Validation Report will be produced once complete, detailing the work undertaken including location, depths and volumes of soils removed and disposal tickets.

Plate 8-1 shows the approximate extent of the Japanese Knotweed.

Estimated volumes for excavation and disposal are 1,750-2,000m³.



Plate 8-1: Approximate extent of Japanese Knotweed.

8.6.2. Unexpected Contamination

The relevant contractors should be briefed that during development works at the site should any unusual ground conditions and / or visual or olfactory evidence of contamination (including asbestos containing material) be encountered at the site, LKC and the Local Authority should be informed, and further assessment of the material may be required.

Impacted soils should be placed on an impermeable surface to await further assessment, treatment, or removal from site (this may be subject to chemical testing to confirm suitable waste facility). The work should be done under the supervision and instruction of an environmental consultant.

To determine that significantly impacted soils have been removed, verification samples will be collected from the base and sides of the excavation. If all impacted ground cannot be removed and contamination remains on the ground, further remediation may need to be considered.

Validation requirements should include a log of work undertaken, including photographs and details of any sampling undertaken and validation of any potential additional remedial work.

8.6.3. Decommissioning of Boreholes

Decommission all existing groundwater sampling, ground gas monitoring and groundwater level monitoring wells by grouting should be undertaken to ensure no contamination of aquifers. Any other boreholes or borehole installations encountered during groundworks should also be decommissioned.

All borehole and borehole installation decommissioning is to be undertaken in accordance with current EA guidelines⁵³.

8.6.4. Potable Water Pipes

Although a low risk to potable water pipes has been identified and standard pipe material is recommended, this should be agreed with the utility provider.

The utility provider may still require a Water Pipe Risk Assessment to be undertaken prior to connection to the main supply to confirm the most appropriate pipe material.

8.6.5. Re-use of Site Generated Material

To ensure material is compliant with appropriate waste regulations, any site won material re-used onsite should be in recourse to appropriate exemptions. A U1 and T5 exemption should be registered. This will allow the following to be used onsite or brought in for use onsite (refer to guidance for types of waste that can be used⁵⁴):

- 5,000 tonnes (c. 2,500m³) treatment of crushed concrete / stone.
- 1,000 tonnes (c. 500m³) use of non-hazardous soil.
- 5,000 tonnes (c. 2,500m³) use of clays, sand, gravel, brick, concrete, stone etc.
- 50,000 tonnes (c. 25,000m³) use of bituminous material to be used in roadways.

A Materials Management Plan (MMP) with recourse to the CL:AIRE Code of Practice⁵⁵ may be required if volumes exceed exemption limits. This must be registered before material movement starts onsite.

If an MMP is required, this needs to be registered by a Qualified Person (QP) and there must be 'certainty of use' for any material re-used onsite or exported to site to ensure there is no 'sham recovery'.

For all the above material will need to be tested at the rate and analytical suites presented in Table 8-2.

8.6.6. Stockpile Management

Stockpiled material should be suitably managed. Material should be segregated by type and source. For example, construction / demolition arisings, site won subsoil. Stockpiles may also require covering to minimise the generation of vapours, fibres, dust, and possible nuisance to adjacent receptors, and to prevent rainwater ingress. The source of each stockpile should be recorded and appropriate validation testing for re-use or potential offsite disposal should be undertaken as required.

8.6.7. Disposal of Material

Material required to be removed from site should be undertaken under an appropriate duty of care and the results of chemical analysis should be provided to a licensed landfill for confirmation of waste classification.

Waste records such as disposal tickets and waste carrier licences should be provided in the Site Completion Report. Photographic evidence of removal and waste removal tickets should be retained and included in the validation report.

8.6.8. Health and Safety Considerations

In working with, removing, or treating any contaminating material it is important that any potential risks associated with the actual site works are mitigated by good environmental management of the site during the remedial phases. Standard health and safety precautions (as per HSE guidance⁵⁶) should be adopted by all workers involved with site enabling and construction works.

8.7. Validation of Imported Soils

Chemical validation of all imported soils to be used on site in gardens and soft landscaping areas should be undertaken. Imported soils should be accompanied by a certificate of analysis and source details.

A summary of the required imported material sampling requirements is presented in Table 8-2, based on MCC 'Guidelines to Developer' (2021)⁵⁷. LKC consider no testing, but proof of provenance is sufficient for natural, virgin, quarried material.

Ideally, the material should be sampled at source to prevent double handling if soil fails, with confirmatory sampling undertaken on importation to site. Where this is not possible then material imported should be segregated based on source and soil type. Validation samples should be taken prior to placement in gardens / soft landscaping to ensure suitability for use.

Material Type	Source	Suite of Analysis	Sampling Rate (min. 3 per source)		
			Garden	Landscape	Other *
Topsoil / subsoil / Fill material	Greenfield	Suite A	200m ³	200m ³	200m ³
	Remediated / Site-won	Suite A / B dependent upon original SI	100m ³	150m ³	200m ³
	Brownfield / Unknown	Suite B	50m ³	150m ³	200m ³
Quarried Fill	First Generation i.e., quarried sand (subsoil) or stone (break layer)	No testing is required.	Certification of material provenance is required.		

Table 8-2: Sampling Requirements for Imported and Site Won Soils.

Notes:

Suite A - Heavy metals, pH, water soluble sulphate, speciated PAH, soil organic matter and asbestos screen.

Suite B - Heavy metals, pH, water soluble sulphate, speciated PAH, phenol, total and free cyanide, soil organic matter, asbestos screen, banded petroleum hydrocarbons (TPH CWG), BTEX, MTBE.

*Other assumed to be stone / 6F2 / mass fill etc.

Any soil with visual or olfactory evidence of hydrocarbons should be rejected.

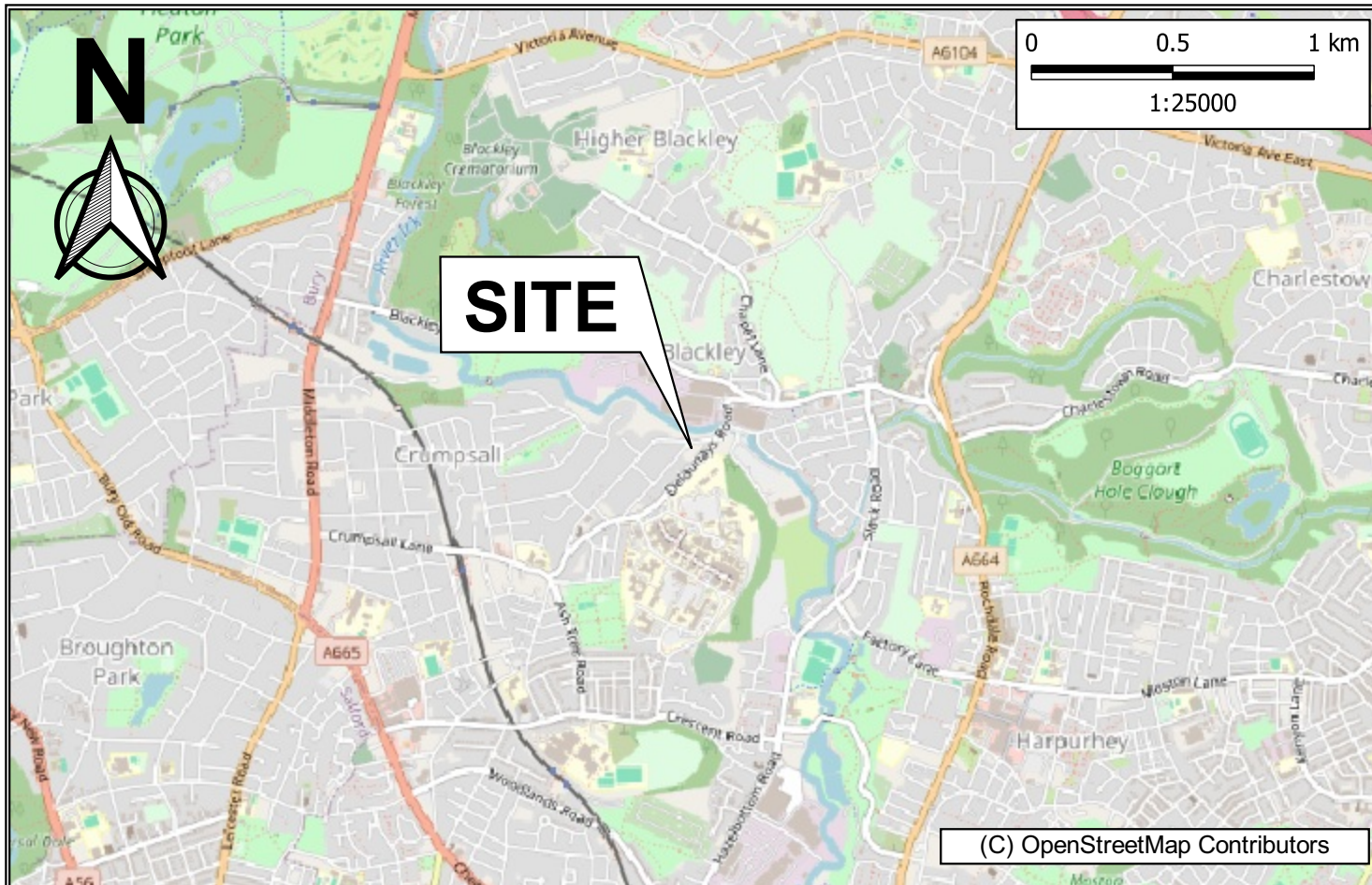
In addition, it should be ensured that the matrix of the topsoil is suitable as a growing medium and no undesirable material is present (in line with BS3882⁵⁸). LKC advise this information is provided by the supplier before material is imported onto site.

Imported material to be used in gardens will be compared against residential with plant uptake criteria (as used in the contamination risk assessment in Section 6).

8.8. Site Completion Report

All remediation (if unexpected contamination is identified) and validation work should be documented in a Site Completion Report. The Site Completion Report will allow discharge of relevant planning conditions.

Figures



Client: Great Places Housing Group				Title: Site Location & Boundary Plan			
Site: Parkhill Avenue, Crumpsall				Scale (see scale bar): 1:25,000 & 1:2,000 @ A4			
Job No.: LKC 23 1405	Drawn By: CB	Checked By: CB	Drawn: June 2024	Figure: 1		Revision:	



KEY

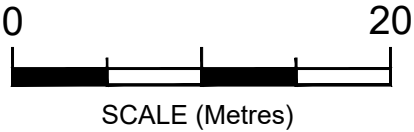
Site Boundary

Sampling Locations and features annotated by LK Consult Ltd are approximate and are based upon observed measurements unless otherwise stated. Do not scale from this drawing and work from marked dimensions only. All dimensions and features should be confirmed on site by the Contractor. Where this drawing includes information provided to LK Consult Ltd by others, LK Consult Ltd gives no warranty, representation or assurance as to the accuracy of such information.



Client: Great Places Housing Group			
Site: Park Hill Avenue, Crumpsall			
Title: Proposed Development Plan			
Job No.: LKC 23 1405	Scale (See Scale Bar): See Scale Bar	Figure: 2	Revision:
Drawn By: AC	Checked By: CB	Drawn: Jun 2024	

Extract From: Triangle Architects
Drawing Ref: Proposed Site Layout OPTION 3, No.SK06 (September 2023)





KEY

Site Boundary

Cable Percussive Borehole (CP)

Soakaway Test (SA)

Window Sample Borehole (WS)

Trial Pit (TP)

Cable Percussive Borehole (CP)

Previous SI Locations (LKC July 2024):

Soakaway Test (SA)

Previous SI Locations (LKC May 2024):

Window Sample Borehole (WS)

Trial Pit (TP)

Cable Percussive Borehole (CP)

Sampling Locations and features annotated by LK Consult Ltd are approximate and are based upon observed measurements unless otherwise stated. Do not scale from this drawing and work from marked dimensions only. All dimensions and features should be confirmed on site by the Contractor. Where this drawing includes information provided to LK Consult Ltd by others, LK Consult Ltd gives no warranty, representation or assurance as to the accuracy of such information.

LK

CONSULT LIMITED

Client:

Great Places Housing Group

Site:

Park Hill Avenue, Crumpsall

Title:

Site Investigation Location Plan

Job No.:

LKC231405

Scale (See Scale Bar):

See Scale Bar

Figure:

3

Revision:

C

Drawn By:

AC

Checked By:

FP

Drawn:

Feb 2025

Extract From: Triangle Architects
Drawing Ref: Proposed Site Layout OPTION 3, No.SK06 (September 2023)

Appendix A – Risk Matrix

RISK EVALUATION

The method for risk evaluation is a qualitative method of interpreting the output from the risk estimation stage of the assessment, based on CIRIA 552⁵⁹. It involves the classification of the:

- Magnitude of the potential consequence (severity) of the risk occurring (Table A).
- Magnitude of the probability (likelihood) of the risk occurring (Table B).

Consequence (Severity)		
Classification	Definition	Example
Severe	Short term (acute) risk to human health likely to result in 'significant harm' as defined by the Environment Protection Act 1990, Part IIA. Short term risk of pollution (note: water Resources Act contains no scope for considering significance of pollution) of sensitive water resource. Catastrophic damage to buildings/properties. A short-term risk to a particular ecosystem, or organism forming part of such ecosystem (note: the definition of ecological systems within the Draft Circular on Contaminated Land, DETR, 2000).	High Concentrations of cyanide on the surface of an informal recreation area. Major spillage of contaminants from site into controlled waters. Explosion, causing building collapse (can also equate to short term human health risk if buildings are occupied).
Medium	Chronic damage to Human Health ('significant harm' as defined in DETR, 2000). Pollution of sensitive water resources (note Water Resources Act contains no scope for considering significance of pollution). A significant change in a particular ecosystem, or organism forming part of such ecosystem.	Concentrations of a contaminant from site exceed generic, or site-specific assessment criteria. Leaching of contaminants from a site to a major or minor aquifer (Principal and Secondary). Death of a species within a designated nature reserve.
Mild	Pollution of non-sensitive water resources. Significant damage to crops, buildings, structures, and services ('significant harm' as defined in DETR, 2000). Damage to sensitive buildings/structures/services or the environment.	Pollution of non-classified groundwater. Damage to building rendering it unsafe to occupy (e.g., foundation damage resulting in instability).
Minor	Harm, although not necessarily significant harm, which may result in a financial loss, or expenditure to resolve. Non-permanent health effects to human health (easily prevented by means such as personal protective clothing etc). Easily repairable damage to buildings, structures, and services.	The presence of contaminants at such concentrations that protective equipment is required during site works. The loss of plants in a landscaping scheme. Discoloration of concrete.

Table A. Classification of Consequence

Probability (Likelihood)	
Classification	Definition
High Likelihood	There is a pollutant linkage and an event that either appears very likely in the short term and almost inevitable over the long term, or there is evidence at the receptor of harm or pollution.
Likely	There is a pollutant linkage, and all the elements are present and in the right place, which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term.
Low Likelihood	There is a pollutant linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period such event would take place and is less likely in the shorter term.
Unlikely	There is a pollutant linkage, but circumstances are such that it is improbable that an event would occur in the very long term.

Table B. Classification of Probability.

These classifications are then compared to indicate the risk presented by each pollutant linkage (Table C). It is important that this classification is only applied where there is a possibility (which can range from high likelihood to unlikely) of a pollutant linkage existing.

		Consequence			
		Severe	Medium	Mild	Minor
Probability	High Likelihood	Very High Risk	High Risk	Moderate Risk	Moderate / Low Risk
	Likely	High Risk	Moderate Risk	Moderate / Low Risk	Low Risk
	Low Likelihood	Moderate Risk	Moderate / Low Risk	Low Risk	Very Low Risk
	Unlikely	Moderate / Low Risk	Low Risk	Very Low Risk	Very Low Risk

Table C. Comparison of Consequence against Probability

Once the risk has been determined the corresponding action can be assessed (Table D).

Risk	Action Required
Very High Risk	There is a high probability that severe harm could arise to a designated receptor from an identified hazard, OR there is evidence that severe harm to a designated receptor is currently happening. This risk, if realised, is likely to result in a substantial liability. Urgent investigation (if not already undertaken) and remediation are likely to be required.
High Risk	Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. Urgent investigation (if not undertaken already) is required and remedial works may be necessary in the short term and are likely over the longer term.
Moderate Risk	It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild. Investigation (if not already undertaken) is normally required to clarify the risk and to determine the potential liability. Some remedial works may be required in the longer term.
Low Risk	It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild.
Very Low Risk	There is a low possibility that harm could arise to a receptor. In the event of such harm being realised it is not likely to be severe.

Table D. Description of the Classification and Likely Action Required.

Where a very low risk is identified no specific remediation is required.

Where a low risk is identified, some form of remediation may be required depending on the pollutant linkage, the type and concentration of contaminants present and the proposed development.

Where there is a moderate/low risk is identified, an assessment will be undertaken to establish what category the pollutant linkage will fall into.

Where LKC identifies a moderate or higher risk, remediation or further investigation work is recommended.

Appendix B – Profile Logs

		<h1>Cable Percussion Drilling Log</h1>				Location Number: <h2>CP101</h2>	
Project Name: Parkhill Avenue, Crumpsall		Client: Great Places Housing Group		Date: 01/05/2024			
Project ID:LKC 23 1405		Contractor: VC Drilling Ltd		Co-ords: E384911.42 N402722.23			
Equipment: Cable Percussive Drilling Rig / Shell and Auger Rig		Level 64.86m AOD	Logged By LGD	Scale 1:50	Page Number Sheet 1 of 2		

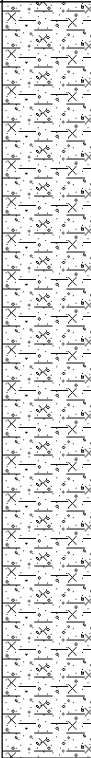
Depth (m)	Samples / Tests	Depth (m)	Legend	Stratum Description		Level (m)
0.00 - 0.40	B	0.50		MADE GROUND: Dark brown gravelly sandy SILT with frequent rootlets, occasional brick and concrete and rare glass, ceramic fragments. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-rounded comprising sandstone.	1	64.36
0.00 - 0.50	D			Light brown slightly gravelly silty SAND with rare coal fragments and clay pockets. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-rounded comprising sandstone.		
0.00 - 0.50	ES					
0.00 - 0.50	PID=0.2ppm					
0.40 - 1.00	B					
0.50 - 1.00	D	1.00		Soft consistency low strength brown slightly gravelly sandy silty CLAY. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-rounded comprising sandstone.	2	63.86
0.50 - 1.00	ES					
0.50 - 1.00	PID=0.1ppm					
1.20 - 1.65	B					
1.20 - 1.65	D					
1.20	N=5 (1,1/1,1,2,1)	3.30		Medium dense slightly gravelly silty SAND. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-rounded comprising sandstone.	3	61.56
2.00 - 2.45	B					
2.00 - 2.45	D					
2.00	N=7 (1,2/1,2,1,3)					
3.00 - 3.45	D					
3.00	N=12 (1,2/2,3,3,4)	5.80		Medium dense light brown sandy silty GRAVEL. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-rounded comprising sandstone.	4	59.06
4.00 - 4.45	B					
4.00 - 4.45	D					
4.00	N=20 (3,4/5,5,5,5)					
5.00 - 5.45	D					
5.00	N=23 (3,4/5,6,6,6)	7.70		Stiff to very stiff consistency high strength brown slightly gravelly sandy silty CLAY. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-rounded comprising mudstone.	5	57.16
6.00 - 6.45	B					
6.00	N=41 (7,10/11,12,10,8)					
7.00 - 7.45	D					
7.00	N=19 (3,4/4,5,5,5)					
9.00 - 9.45	D	9.00			6	
9.00	PP=163.3kPa					
9.00	N=50 (8,10/50 for 235mm)					
					7	
					8	
					9	
					10	

Hole Diameter		Casing Diameter		Water Strike Details		Chiselling	
Depth Base (m)	Diameter (mm)	Depth Base (m)	Diameter (mm)	Time Elapsed (mins)	Depth Water (m)	Depth Top (m)	Duration (hh:mm)
		9.00	150				

Remarks:

Hand excavated trial pit to 1.20mbgl with follow on cable percussive to 15.00mbgl.

Borehole dry and stable.

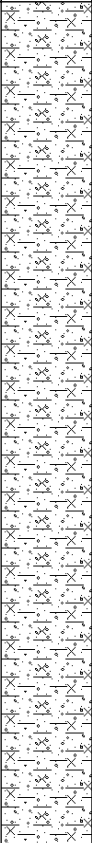
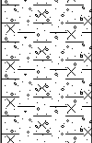
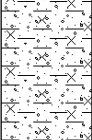
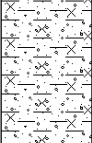
		<h1>Cable Percussion Drilling Log</h1>				Location Number: CP101		
Project Name: Parkhill Avenue, Crumpsall		Client: Great Places Housing Group			Date: 01/05/2024			
Project ID:LKC 23 1405		Contractor: VC Drilling Ltd			Co-ords: E384911.42 N402722.23			
Equipment: Cable Percussive Drilling Rig / Shell and Auger Rig		Level 64.86m AOD	Logged By LGD	Scale 1:50	Page Number Sheet 2 of 2			
Depth (m)	Samples / Tests	Depth (m)	Legend	Stratum Description			Level (m)	
10.50 - 10.95 10.50	D N=50 (7,11/50 for 235mm)	15.00		Stiff to very stiff consistency high strength brown slightly gravelly sandy silty CLAY. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-rounded comprising mudstone.		11	49.86	
12.00 - 12.45 12.00	D 50 (10,15/50 for 170mm)							12
13.50 - 13.95 13.50	D 50 (10,15/50 for 210mm)							13
15.00 - 15.45 15.00	D 45 (20,5/45 for 135mm)			End of Borehole at 15.00m				14
						15		
						16		
						17		
						18		
						19		
						20		
Hole Diameter		Casing Diameter		Water Strike Details		Chiselling		
Depth Base (m)	Diameter (mm)	Depth Base (m)	Diameter (mm)	Time Elapsed (mins)	Depth Water (m)	Depth Top (m)	Duration (hh:mm)	
		9.00	150					
Remarks: Hand excavated trial pit to 1.20mbgl with follow on cable percussive to 15.00mbgl. Borehole dry and stable.								

		<h1>Cable Percussion Drilling Log</h1>				Location Number: <h2>CP102</h2>	
Project Name: Parkhill Avenue, Crumpsall		Client: Great Places Housing Group		Date: 30/04/2024			
Project ID:LKC 23 1405		Contractor: VC Drilling Ltd		Co-ords: E384925.93 N402740.93			
Equipment: Cable Percussive Drilling Rig / Shell and Auger Rig		Level 63.84m AOD	Logged By LGD	Scale 1:50	Page Number Sheet 1 of 2		

Depth (m)	Samples / Tests	Depth (m)	Legend	Stratum Description		Level (m)	Water Strikes
0.00 - 0.30	B	0.30		MADE GROUND: Dark brown slightly gravelly sandy SILT with frequent rootlets, occasional brick and rare glass, ceramic, plastic fragments. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-rounded comprising sandstone. Soft to firm consistency medium strength light brown slightly gravelly sandy silty CLAY. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-rounded comprising mudstone.	1	63.54	
0.00 - 0.30	D						
0.00 - 0.30	ES						
0.00 - 0.30	PID=0.1ppm						
0.30 - 1.00	B						
0.30 - 1.00	D						
0.30 - 1.20	ES						
0.30 - 1.00	PID=0.0ppm						
0.40 - 1.00	PID=1.0ppm						
1.20 - 1.65	B						
1.20 - 1.65	D						
1.20 - 1.65	N=4 (1,1/1,1,1,1)						
1.50	PP=54.0kPa						
2.00 - 2.45	B						
2.00 - 2.45	D						
2.00	N=6 (1,1/1,1,2,2)						
2.30	PP=51.5kPa						
3.00 - 3.45	B	3.80		Medium dense orange loose to medium dense slightly gravelly silty SAND. Sand is fine to coarse. Gravel is fine to coarse comprising mudstone and sandstone.	4	60.04	
3.00 - 3.45	D						
3.00 - 3.45	N=11 (1,1/2,3,3,3)						
3.30	PP=58.9kPa						
4.00 - 4.45	B						
4.00 - 4.45	D						
4.00 - 4.45	N=13 (2,3/3,3,3,4)						
5.00 - 5.45	B						
5.00 - 5.45	D						
5.00 - 5.45	N=16 (3,4/4,4,4,4)						
6.00 - 6.45	D						
6.00 - 6.45	N=17 (3,4/4,5,4,4)						
7.00 - 7.45	D						
7.00 - 7.45	N=18 (3,4/5,4,5,4)						
7.50 - 7.95	D						
7.50		7.50		Orange brownish sandy silty GRAVEL. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-rounded comprising sandstone.	5	56.34	
8.00							
8.00							
8.00							
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8.00							
8.00							
8.00							
8.00							
8.00							
9.00 - 9.45	U	8.00		Stiff to very stiff high strength greyish brown slightly gravelly sandy silty CLAY. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-rounded comprising sandstone and mudstone.	8	55.84	
9.00 - 9.45	D						
9.50							
9.50							
9.50							
9.50							
9.50							
9.50							
9.50							
9.50							
9.50							
9.50							
9.50							
9.50							
9.50							
9.50	D	9.50		Borehole dry and stable.	9		
9.50							
9.50							
9.50							
9.50							
9.50							
9.50							
9.50							
9.50							
9.50							
9.50							
9.50							
9.50							
9.50							
9.50							
9.50		9.50		Borehole dry and stable.	10		
9.50							
9.50							
9.50							
9.50							
9.50							
9.50							
9.50							
9.50							
9.50							
9.50							
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9.50							
9.50							
9.50							

Hole Diameter		Casing Diameter		Water Strike Details		Chiselling	
Depth Base (m)	Diameter (mm)	Depth Base (m)	Diameter (mm)	Time Elapsed (mins)	Depth Water (m)	Depth Top (m)	Duration (hh:mm)
		9.00	150				

Remarks:
 Hand excavated trial pit to 1.20mbgl with follow on cable percussive drilling to 15.80mbgl.
 Borehole dry and stable.

Project Name: Parkhill Avenue, Crumpsall			Client: Great Places Housing Group			Date: 30/04/2024				
Project ID:LKC 23 1405			Contractor: VC Drilling Ltd			Co-ords: E384925.93 N402740.93				
Equipment: Cable Percussive Drilling Rig / Shell and Auger Rig			Level 63.84m AOD		Logged By LGD		Scale 1:50		Page Number Sheet 2 of 2	
Depth (m)	Samples / Tests	Depth (m)	Legend	Stratum Description					Level (m)	Water Strikes
10.50 - 10.95 10.50 - 10.95 10.50 - 10.84 10.70	B D N=50 (25 for 105mm/50 for 235mm) PP=147.2kPa			Stiff to very stiff high strength greyish brown slightly gravelly sandy silty CLAY. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-rounded comprising sandstone and mudstone.				11		
12.00 - 12.45 12.00 - 12.45 12.00 - 12.44 12.20	B D N=50 (8,12/50 for 285mm) PP=164.3kPa							12		
								13		
13.50 - 13.95 13.50	D 50 (7,14/50 for 160mm)							14		
15.00 - 15.45 15.00 - 15.38	D N=50 (8,13/50 for 235mm)							15		
15.80	D	15.60 15.80		Orangish brown sandy silty GRAVEL. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-rounded comprising sandstone				48.24		
				End of Borehole at 15.80m				16	48.04	
								17		
								18		
								19		
								20		
Hole Diameter		Casing Diameter		Water Strike Details			Chiselling			
Depth Base (m)	Diameter (mm)	Depth Base (m)	Diameter (mm)	Time Elapsed (mins)	Depth Water (m)	Depth Top (m)	Depth Base (m)	Duration (hh:mm)		
		9.00	150							

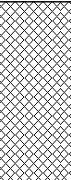
Remarks:

Hand excavated trial pit to 1.20mbgl with follow on cable percussive drilling to 15.80mbgl.

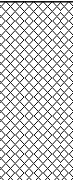
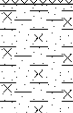
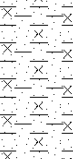
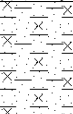
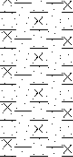
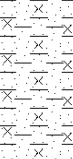
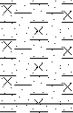
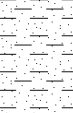
Borehole dry and stable.

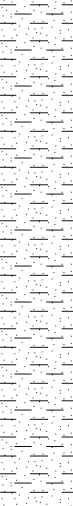
Remarks:	
Installed 1p 4s.	

Remarks:	
Installed 1p 4s.	

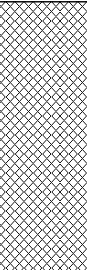
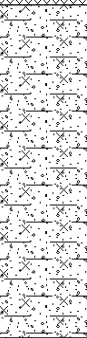
		<h1>Cable Percussion Drilling Log</h1>					Location Number: CP202			
Project Name: Parkhill Avenue, Crumpsall			Client: Great Places Housing Group			Date: 22/01/2025 - 23/01/2025				
Project ID:LKC 23 1405			Contractor: PM Sampling Ltd			Co-ords: E384973.24 N402752.84				
Equipment: Cable Percussive Drilling Rig / Shell and Auger Rig			Level 57.32m AOD		Logged By FP		Scale 1:50		Page Number Sheet 1 of 2	
Depth (m)	Samples / Tests	Depth (m)	Legend	Stratum Description					Level (m)	Well
0.50 - 1.20	B	1.20		MADE GROUND: Dark brown gravelly sandy CLAY with occasional rootlets, brick fragments, coal fragments, ash and rare glass. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded comprising sandstone.				1	56.12	
1.20 - 1.65 1.20 - 1.65	D N=6 (1,1/1,1,2,2)			Light brown silty clayey SAND with occasional pockets of clay, rare coal fragments. Sand is fine to medium.				2		
1.65 - 2.00	B							3		
2.00 - 2.45 2.00 - 2.45	D N=7 (1,1/2,1,2,2)							4		
2.50 - 3.00	B	3.45		Brown very sandy CLAY. Sand is fine to coarse.				5	53.88	
3.00 - 3.45 3.00	D N=10 (2,2/2,3,3,2)							6		
3.50 - 4.00	B							7		
4.00 - 4.45 4.00	D N=15 (3,3/4,3,4,4)							8		
4.50 - 5.00	B	4.00		Greyish brown slightly gravelly sandy silty CLAY with rare coal fragments. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded comprising sandstone, mudstone and coal fragments.				9	53.32	
5.00 - 5.45 5.00	D N=24 (3,4/4,4,7,9)							10		
5.50 - 6.00	B							11		
								12		
7.50 - 7.95 7.50	D N=18 (3,3/4,4,5,5)	7.50		Greyish brown gravelly sandy SILT. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded comprising sandstone and mudstone.				13	49.82	
8.00 - 8.50	B							14		
								15		
								16		
9.50 - 10.00	B							17		
								18		
								19		
								20		
								21		
								22		
								23		
								24		
								25		
								26		
								27		
								28		
								29		
								30		
								31		
								32		
Hole Diameter		Casing Diameter		Water Strike Details			Chiselling			
Depth Base (m)	Diameter (mm)	Depth Base (m)	Diameter (mm)	Time Elapsed (mins)	Depth Water (m)	Depth Top (m)	Depth Base (m)	Duration (hh:mm)		
15.45	150	15.00	150							
Remarks: Installed 1p 4s.										

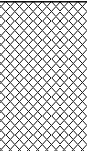
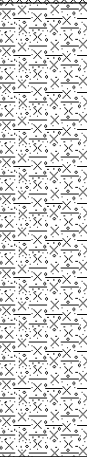
		<h1>Cable Percussion Drilling Log</h1>					Location Number: CP202								
Project Name: Parkhill Avenue, Crumpsall			Client: Great Places Housing Group			Date: 22/01/2025 - 23/01/2025									
Project ID:LKC 23 1405			Contractor: PM Sampling Ltd			Co-ords: E384973.24 N402752.84									
Equipment: Cable Percussive Drilling Rig / Shell and Auger Rig			Level 57.32m AOD		Logged By FP		Scale 1:50		Page Number Sheet 2 of 2						
Depth (m)	Samples / Tests	Depth (m)	Legend	Stratum Description					Level (m)	Well					
10.50 - 10.95 10.50	D N=29 (5,5/6,7,8,8)			Greyish brown gravelly sandy SILT. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded comprising sandstone and mudstone.											
11.00 - 11.50	B							11							
12.00 - 12.45 12.00	D N=20 (4,5/5,5,5,5)									12					
12.50 - 13.00	B														
13.00 - 13.45 13.00	D N=30 (6,7/7,7,8,8)									13					
13.50 - 14.00	B									14					
15.00 - 15.45 15.00	D N=50 (9,9/50 for 285mm)	15.00								15	42.32				
		15.45								15	41.88				
										End of Borehole at 15.45m					
													16		
							17								
							18								
							19								
							20								
Hole Diameter		Casing Diameter		Water Strike Details			Chiselling								
Depth Base (m)	Diameter (mm)	Depth Base (m)	Diameter (mm)	Time Elapsed (mins)	Depth Water (m)	Depth Top (m)	Depth Base (m)	Duration (hh:mm)							
15.45	150	15.00	150												
Remarks: Installed 1p 4s.															

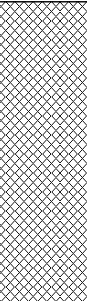
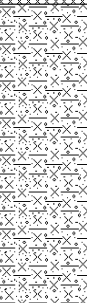
		<h1>Cable Percussion Drilling Log</h1>				Location Number: CP203	
Project Name: Parkhill Avenue, Crumpsall		Client: Great Places Housing Group		Date: 18/02/2025 - 19/02/2025			
Project ID:LKC 23 1405		Contractor: Lundy Site Investigations Ltd					
Equipment: Cable Percussive Drilling Rig / Shell and Auger Rig		Level	Logged By FP	Scale 1:50	Page Number Sheet 1 of 3		
Depth (m)	Samples / Tests	Depth (m)	Legend	Stratum Description		Level (m)	Water Strikes
0.00 - 1.20	B			MADE GROUND: Dark brown gravelly sandy CLAY with occasional rootlets, brick fragments, coal fragments, concrete, ash and rare glass. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded comprising sandstone.			
1.20 - 1.65 1.20 - 1.65 1.20	B D N=6 (1,1/2,2,1,1)	1.20		Soft consistency light brown slightly gravelly very sandy clayey SILT. Sand is fine to coarse.	1		
2.00 - 2.45 2.00 - 2.45 2.00	B D N=10 (1,0/1,3,3,3)				2		
3.00 - 3.45 3.00 - 3.45 3.00	B D N=12 (3,3/3,3,3,3)	3.00		Loose to medium dense light brown very silty fine to coarse SAND.	3		
4.00 - 4.45 4.00	D N=26 (4,5/5,7,7,7)	3.90		Dense sandy GRAVEL with cobbles. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded comprising sandstone. Cobbles are subangular to subrounded.	4		
4.60	B	4.60		Soft to firm consistency grey slightly gravelly very sandy silty CLAY. Sand is fine to medium.	5		
5.00 - 5.45 5.00 - 5.45 5.00	B D N=10 (1,2/2,3,2,3)				6		
6.00 - 6.45 6.00 - 6.45 6.00	B D N=19 (2,4/4,5,5,5)				7		
7.50 - 7.95 7.50 - 7.95 7.50	B D N=20 (1,4/5,5,5,5)				8		
8.10	B	8.10		Firm consistency laminated sandy CLAY.			
9.00 - 9.45	U				9		
9.50	D				10		
Hole Diameter		Casing Diameter		Water Strike Details		Chiselling	
Depth Base (m)	Diameter (mm)	Depth Base (m)	Diameter (mm)	Time Elapsed (mins)	Depth Water (m)	Depth Top (m)	Duration (hh:mm)
5.00 20.45	200 150	5.00 20.00	200 150				
Remarks:							

		<h1>Cable Percussion Drilling Log</h1>					Location Number: CP203			
Project Name: Parkhill Avenue, Crumpsall			Client: Great Places Housing Group			Date: 18/02/2025 - 19/02/2025				
Project ID:LKC 23 1405			Contractor: Lundy Site Investigations Ltd							
Equipment: Cable Percussive Drilling Rig / Shell and Auger Rig			Level		Logged By FP		Scale 1:50		Page Number Sheet 2 of 3	
Depth (m)	Samples / Tests	Depth (m)	Legend	Stratum Description					Level (m)	Water Strikes
10.50 - 10.95 10.50 - 10.95 10.50	B D N=32 (3,5/7,8,8,9)			Firm consistency laminated sandy CLAY.				11		
12.00 - 12.45 12.00 - 12.45 12.45 12.00	B D N=22 (4,4/5,5,5,7)							12		
13.50 - 13.95 13.50 - 13.95 13.50	B D N=31 (4,4/6,8,8,9)	13.40		Dense light brown slightly gravelly silty fine to medium SAND.				13		
15.00 - 15.45 15.00 - 15.45 15.00	B D N=34 (5,5/7,8,9,10)							14		▼
15.90	B	15.90		Loose light brown SAND and GRAVEL with cobbles. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded comprising sandstone. Cobbles are subrounded.				15		
16.50 - 16.95 16.50	D N=10 (2,2/2,3,2,3)							16		
18.00 - 18.45 18.00 - 18.45 18.00	B D N=20 (2,4/5,5,5,5)	18.00		Loose to medium dense grey fine to coarse SAND.				17		
19.50 - 19.95 19.50 - 19.95 19.50	B D N=22 (1,4/5,5,6,6) D							18		
								19		
								20		
Hole Diameter		Casing Diameter		Water Strike Details			Chiselling			
Depth Base (m)	Diameter (mm)	Depth Base (m)	Diameter (mm)	Time Elapsed (mins)	Depth Water (m)	Depth Top (m)	Depth Base (m)	Duration (hh:mm)		
5.00 20.45	200 150	5.00 20.00	200 150							
Remarks:										

		<h1>Cable Percussion Drilling Log</h1>					Location Number: CP203			
Project Name: Parkhill Avenue, Crumpsall			Client: Great Places Housing Group			Date: 18/02/2025 - 19/02/2025				
Project ID:LKC 23 1405			Contractor: Lundy Site Investigations Ltd							
Equipment: Cable Percussive Drilling Rig / Shell and Auger Rig			Level		Logged By FP		Scale 1:50		Page Number Sheet 3 of 3	
Depth (m)	Samples / Tests	Depth (m)	Legend	Stratum Description					Level (m)	Water Strikes
20.00 - 20.45 20.00	N=22 (3,4/5,6,6,5)	20.45		Loose to medium dense grey fine to coarse SAND.						
				End of Borehole at 20.45m						
								21		
								22		
								23		
								24		
								25		
								26		
								27		
								28		
								29		
								30		
Hole Diameter		Casing Diameter		Water Strike Details			Chiselling			
Depth Base (m)	Diameter (mm)	Depth Base (m)	Diameter (mm)	Time Elapsed (mins)	Depth Water (m)	Depth Top (m)	Depth Base (m)	Duration (hh:mm)		
5.00 20.45	200 150	5.00 20.00	200 150							
Remarks:										

		<h1>Trial Pit Log</h1>				Location Number: TP101								
Project: Parkhill Avenue, Crumpsall			Client: Great Places Housing Group			Date: 29/04/2024								
Project No. : LKC 23 1405			Contractor: H & C Plant Hire			Co-ords: E384913.51 N402714.95								
Equipment: Excavator: 5 Tonne Tracked			Level 64.60m AOD		Logged By LGD		Scale 1:25		Page Number Sheet 1 of 1					
Depth (m)		Samples / Tests		Depth (m)		Legend		Stratum Description					Level (m)	
0.00 - 0.50 0.00 - 0.50 0.00 - 0.50		D ES PID=0.2ppm		0.90				MADE GROUND: Dark brown gravelly sandy SILT with frequent rootlets, occasional brick and rare concrete, glass, timber, ceramic fragments. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-rounded comprising sandstone.			0.5		63.70	
0.90 - 1.50 0.90 - 1.50 0.90 - 1.90 0.90 - 1.50		B D ES PID=0.0ppm		2.00				Light brown gravelly silty clayey SAND with clay pockets. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-rounded comprising sandstone.			1.0 1.5			
								End of Trial Pit at 2.00m			2.0		62.60	
											2.5 3.0 3.5 4.0 4.5 5.0			
		Pit Dimensions						Pit Stability						
		Length (m)		Width (m)		Depth (m)		Stable						
		1.70		0.80		2.00								
		Remarks:												
Machine excavated trial pit to 2.00mbgl.														
Trial pit dry.														

		<h1>Trial Pit Log</h1>				Location Number: TP102								
Project: Parkhill Avenue, Crumpsall			Client: Great Places Housing Group			Date: 29/04/2024								
Project No. : LKC 23 1405			Contractor: H & C Plant Hire			Co-ords: E384926.55 N402727.29								
Equipment: Excavator: 5 Tonne Tracked			Level 63.51m AOD		Logged By LGD		Scale 1:25		Page Number Sheet 1 of 1					
Depth (m)		Samples / Tests		Depth (m)		Legend		Stratum Description					Level (m)	
0.00 - 0.50 0.00 - 0.50 0.00 - 0.50		D ES PID=0.3ppm		0.50				MADE GROUND: Dark brown / black gravelly sandy SILT with frequent rootlets, occasional brick, concrete and rare glass, plastic, metal, ceramic fragments. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-rounded comprising sandstone.			0.5		63.01	
0.50 - 1.00 0.50 - 1.00 0.50 - 1.00		D ES PID=0.1ppm		2.00				Soft consistency light brown slightly gravelly sandy clayey SILT. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-rounded comprising mudstone.			1.0 1.5 2.0		61.51	
1.00 - 2.00		B						End of Trial Pit at 2.00m			2.5 3.0 3.5 4.0 4.5 5.0			
						Pit Dimensions			Pit Stability					
						Length (m)		Width (m)		Depth (m)		Stable		
						1.60		0.90		2.00				
						Remarks:								
Machine excavated trial pit to 2.00mbgl.														
Trial pit dry.														
Unable to perform hand shear vanes due to limited clay samples.														

		<h1>Trial Pit Log</h1>				Location Number: TP103								
Project: Parkhill Avenue, Crumpsall			Client: Great Places Housing Group			Date: 29/04/2024								
Project No. : LKC 23 1405			Contractor: H & C Plant Hire			Co-ords: E384954.93 N402740.14								
Equipment: Excavator: 5 Tonne Tracked			Level 59.70m AOD		Logged By LGD		Scale 1:25		Page Number Sheet 1 of 1					
Depth (m)		Samples / Tests		Depth (m)		Legend		Stratum Description					Level (m)	
0.00 - 1.00 0.00 - 1.00 0.00 - 1.00		D ES PID=0.2ppm						MADE GROUND: Dark brown gravelly sandy SILT with frequent rootlets, occasional brick and rare timber, glass, ceramic fragments. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-rounded comprising sandstone.			0.5			
1.00 - 2.00 1.00 - 2.00 1.00 - 2.00		D ES PID=0.1ppm		1.00				Stiff consistency high strength light brown slightly gravelly sandy clayey SILT. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-rounded comprising mudstone.			1.0		58.70	
1.50 - 2.00 1.50		B SV=99.00kPa									1.5			
				2.00				End of Trial Pit at 2.00m			2.0		57.70	
											2.5			
											3.0			
											3.5			
											4.0			
											4.5			
											5.0			
						Pit Dimensions						Pit Stability		
						Length (m)		Width (m)		Depth (m)		Stable		
						1.70		0.80		2.00				
						Remarks:								
Machine excavated trial pit to 2.00.														
Trial pit dry.														

		<h1>Window Sample Borehole Log</h1>				Location Number: <h2>WS101</h2>	
Project Name: Parkhill Avenue, Crumpsall			Client: Great Places Housing Group		Date: 02/05/2024		
Project No. : LKC 23 1405			Contractor: D & I Drilling Ltd		Co-ords: E384904.66 N402719.54		
Equipment: Window Sample Rig: Competitor Dart			Level 65.00m AOD	Logged By LGD	Scale 1:50	Page Number Sheet 1 of 1	

Depth (m)	Samples / Tests	Depth (m)	Legend	Stratum Description		Level (m)	Well
0.00 - 0.50	D	0.60		MADE GROUND: Dark brown gravelly sandy SILT with frequent rootlets, brick and rare plastic, glass and ceramic fragments. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-rounded comprising sandstone.	1	64.40	
0.00 - 0.50	ES						
0.00 - 0.50	PID=0.1ppm						
0.60 - 1.00	D						
0.60 - 1.00	ES						
0.60 - 1.00	PID=0.0ppm						
1.00 - 2.00	D						
1.20 - 1.65	N=4 (1,1/1,1,1,1)						
2.00 - 3.00	D						
2.00 - 2.45	N=8 (1,1/2,2,2,2)						
3.00 - 4.00	D	5.45		Very loose to medium dense light brown slightly gravelly silty SAND. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-rounded comprising sandstone.	2		
3.00 - 3.45	N=12 (3,3/3,3,3,3)						
4.00 - 5.00	D						
4.00 - 4.45	N=16 (3,3/4,4,4,4)						
5.00 - 5.45	N=18 (3,2/3,4,5,6)			Band of sand and gravel at 2.80mbgl to 3.00mbgl.	3		
				End of Borehole at 5.45m	4		
					5		
					6		
					7		
					8		
					9		
					10		

Remarks:

Hand excavated trial pit to 1.20mbgl with follow on Windowless Sampler to 5.45mbgl.

Borehole dry and stable.



Window Sample Borehole Log

Location Number:
WS102

Project Name: Parkhill Avenue, Crumpsall

Client: Great Places Housing Group

Date: 02/05/2024

Project No. : LKC 23 1405

Contractor: D & I Drilling Ltd

Co-ords: E384916.59 N402731.68

Equipment: Window Sample Rig: Competitor Dart

Level
64.42m AOD

Logged By
LGD

Scale
1:50

Page Number
Sheet 1 of 1

Depth (m)	Samples / Tests	Depth (m)	Legend	Stratum Description		Level (m)	Well
0.00 - 0.20	D	0.20		MADE GROUND: Dark brown gravelly sandy SILT with frequent rootlets, occasional brick and rare plastic, glass fragments. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-rounded comprising sandstone	1	64.22	
0.00 - 0.20	ES						
0.00 - 0.20	PID=0.2ppm						
0.20 - 0.50	D						
0.20 - 0.50	ES						
0.20 - 0.50	PID=0.1ppm			Firm to stiff medium to high strength slightly gravelly sandy silty CLAY. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-rounded comprising mudstone.			
1.20 - 1.65	N=8 (1,1/2,2,2,2)	1.80		Clay becomes stiff at 1.60mbgl to 1.80mbgl.	2	62.62	
1.40	PP=67.4kPa						
1.70	PP=149.1kPa						
1.80 - 2.50	D						
1.80 - 2.50	ES						
1.80 - 2.50	PID=0.1ppm			Very soft to firm consistency very low to medium strength light brown slightly gravelly sandy SILT. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-rounded comprising sandstone.			
2.00 - 2.45	N=12 (1,3/3,3,3,3)			Silt becomes firm at 2.50mbgl to 3.50mbgl			
2.25	PP=19.6kPa						
3.00 - 3.45	N=12 (3,3/3,3,3,3)	3.50		Medium dense light brown slightly gravelly silty SAND. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-rounded comprising sandstone.	3	60.92	
3.25	PP=55.2kPa						
3.50 - 4.00	D						
3.50 - 4.00	ES						
4.00 - 4.45	N=11 (4,3/3,3,3,2)						
5.00 - 5.45	N=13 (4,4/3,3,3,4)	5.45		End of Borehole at 5.45m	4	58.97	
					5		
					6		
					7		
					8		
					9		
					10		

Remarks:

Hand excavated trial pit to 1.20mbgl with follow on Windowless Sampler to 5.45mbgl.

Borehole dry and stable.



Window Sample Borehole Log

Location Number:
WS103

Project Name: Parkhill Avenue, Crumpsall

Client: Great Places Housing Group

Date: 02/05/2024

Project No. : LKC 23 1405

Contractor: D & I Drilling Ltd

Co-ords: E384961.75 N402745.09

Equipment: Window Sample Rig: Competitor Dart

Level
58.80m AOD

Logged By
LGD

Scale
1:50

Page Number
Sheet 1 of 1

Depth (m)	Samples / Tests	Depth (m)	Legend	Stratum Description		Level (m)	Well
0.00 - 0.30 0.00 - 0.30 0.00 - 0.30	D ES PID=0.2ppm			MADE GROUND: Dark brown very gravelly silty SAND with frequent rootlets, brick, occasional coal, glass and rare ceramic. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-rounded comprising sandstone.			
1.00 - 1.50 1.00 - 1.50 1.00 - 1.50 1.20 - 1.65 1.50	D ES PID=0.0ppm N=4 (1,1/1,1,1,1) PP=53.0kPa	1.00		Firm to stiff consistency medium to high strength light brown slightly gravelly sandy SILT. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-rounded comprising sandstone.	1	57.80	
2.00 - 3.00 2.00 - 2.45	D N=4 (1,2/1,1,1,1)			Band of clay at 3.80mbgl to 4.00mbgl. Silt becomes stiff at 3.00mbgl to 5.50mbgl.	2		
2.50	PP=61.3kPa						
3.00 - 3.80 3.00 - 3.45	D N=16 (4,4/4,4,4,4)				3		
3.50	PP=134.9kPa						
3.80 - 4.00 4.00 - 5.00 4.00 - 4.45	D D N=16 (3,3/3,4,4,5)				4		
4.50	PP=122.6kPa						
5.00 - 5.45	N=30 (6,6/7,7,8,8)				5		
5.50 - 6.00	D	5.50		Very stiff consistency very high strength brown slightly gravelly sandy silty CLAY. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-rounded comprising mudstone.	6	53.30	
6.00 6.00 - 6.42	PP=173.2kPa N=50 (6,8/50 for 275mm)	6.42		End of Borehole at 6.42m		52.38	
					7		
					8		
					9		
					10		

Remarks:

Hand excavated trial pit to 1.20mbgl with follow on Windowless Sampler to.

20% recovery from sampler at 2.00mbgl to 3.00mbgl.

Borehole dry and stable.

SPT refused at 6.425mbgl

Remarks:
Hand excavated trial pit to 1.20mbgl with follow on Windowless Sampler to 7.45mbgl.
Dynamic probing from 7.45mbgl to 10.00mbgl.
Borehole dry.
Borehole collapsed at 5.00mbgl.

Appendix C – Certificates of Analysis (Soil)



Kris Rodway
LK Consult Limited
Unit 29 Eton Business Park
Eton Hill Road
Manchester
M26 2ZS

Normec DETS Limited
Unit 1
Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
ME17 2JN
t: 01622 850410

DETS Report No: 24-04690

Site Reference: Park Hill Avenue, Crumpsall

Project / Job Ref: LKC 24 1405

Order No: LKC231405-KR

Sample Receipt Date: 01/05/2024

Sample Scheduled Date: 01/05/2024

Report Issue Number: 1

Reporting Date: 08/05/2024



Steve Knight
Customer Support Manager

Dates of laboratory activities for each tested analyte are available upon request.

Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

For Topsoil and WAC analysis the expanded uncertainty measurement should be considered while evaluating results against compliance values.



Normec DETS Limited
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Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410



Soil Analysis Certificate						
DETS Report No: 24-04690	~Date Sampled	29/04/24	29/04/24	29/04/24		
LK Consult Limited	~Time Sampled	None Supplied	None Supplied	None Supplied		
~Site Reference: Park Hill Avenue, Crumpsall	~TP / BH No	TP101	TP102	TP103		
~Project / Job Ref: LKC 24 1405	~Additional Refs	None Supplied	None Supplied	None Supplied		
~Order No: LKC231405-KR	~Depth (m)	0.00 - 0.50	0.00 - 0.50	0.00 - 1.00		
Reporting Date: 08/05/2024	DETS Sample No	712600	712601	712602		

Determinand	Unit	RL	Accreditation					
Asbestos Screen ^(S)	N/a	N/a	ISO17025	Not Detected	Not Detected	Not Detected		
pH	pH Units	N/a	MCERTS	7.9	7.8	7.7		
Total Cyanide	mg/kg	< 1	NONE	1	< 1	< 1		
Free Cyanide	mg/kg	< 1	NONE	< 1	< 1	< 1		
W/S Sulphate as SO ₄ (2:1)	mg/l	< 10	MCERTS	14	< 10	< 10		
W/S Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	0.01	< 0.01	< 0.01		
Organic Matter (SOM)	%	< 0.1	MCERTS	3.6	10.6	3.7		
Arsenic (As)	mg/kg	< 2	MCERTS	13	20	12		
W/S Boron	mg/kg	< 1	NONE	< 1	< 1	< 1		
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	< 0.2	2.1	< 0.2		
Chromium (Cr)	mg/kg	< 2	MCERTS	15	16	20		
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2		
Copper (Cu)	mg/kg	< 4	MCERTS	31	101	51		
Lead (Pb)	mg/kg	< 3	MCERTS	125	171	85		
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1	< 1	< 1		
Nickel (Ni)	mg/kg	< 3	MCERTS	11	17	19		
Selenium (Se)	mg/kg	< 2	MCERTS	< 2	< 2	< 2		
Vanadium (V)	mg/kg	< 1	MCERTS	23	29	24		
Zinc (Zn)	mg/kg	< 3	MCERTS	78	623	120		
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2	< 2	< 2		

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
Subcontracted analysis (S)

~ Sample details provided by the customer



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Lenham Heath
Maidstone
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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 24-04690	~Date Sampled	29/04/24	29/04/24	29/04/24		
LK Consult Limited	~Time Sampled	None Supplied	None Supplied	None Supplied		
~Site Reference: Park Hill Avenue, Crumpsall	~TP / BH No	TP101	TP102	TP103		
~Project / Job Ref: LKC 24 1405	~Additional Refs	None Supplied	None Supplied	None Supplied		
~Order No: LKC231405-KR	~Depth (m)	0.00 - 0.50	0.00 - 0.50	0.00 - 1.00		
Reporting Date: 08/05/2024	DETS Sample No	712600	712601	712602		

Determinand	Unit	RL	Accreditation				
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1	1.16	1.09	
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	0.25	< 0.1	
Acenaphthene	mg/kg	< 0.1	MCERTS	0.14	0.93	1.73	
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	0.84	1.24	
Phenanthrene	mg/kg	< 0.1	MCERTS	0.97	11.70	8.98	
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	2.35	1.79	
Fluoranthene	mg/kg	< 0.1	MCERTS	0.60	30.60	6.31	
Pyrene	mg/kg	< 0.1	MCERTS	0.56	27.40	5.26	
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	0.15	13	1.71	
Chrysene	mg/kg	< 0.1	MCERTS	0.22	15.30	1.77	
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	0.15	17.80	1.41	
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	5.28	0.47	
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	11.50	1.20	
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	5.77	0.52	
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	1.43	< 0.1	
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	< 0.1	5.16	0.39	
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	2.8	150	33.9	

~ Sample details provided by the customer



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Rose Lane
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Maidstone
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Soil Analysis Certificate - TPH CWG Banded

DETS Report No: 24-04690	~Date Sampled	29/04/24	29/04/24	29/04/24		
LK Consult Limited	~Time Sampled	None Supplied	None Supplied	None Supplied		
~Site Reference: Park Hill Avenue, Crumpsall	~TP / BH No	TP101	TP102	TP103		
~Project / Job Ref: LKC 24 1405	~Additional Refs	None Supplied	None Supplied	None Supplied		
~Order No: LKC231405-KR	~Depth (m)	0.00 - 0.50	0.00 - 0.50	0.00 - 1.00		
Reporting Date: 08/05/2024	DETS Sample No	712600	712601	712602		

Determinand	Unit	RL	Accreditation					
Aliphatic >C5 - C6 : HS 1D MS AL	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Aliphatic >C6 - C8 : HS 1D MS AL	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05		
Aliphatic >C8 - C10 : EH CU 1D AL	mg/kg	< 2	MCERTS	< 2	< 2	< 2		
Aliphatic >C10 - C12 : EH CU 1D AL	mg/kg	< 2	MCERTS	< 2	< 2	< 2		
Aliphatic >C12 - C16 : EH CU 1D AL	mg/kg	< 3	MCERTS	< 3	< 3	< 3		
Aliphatic >C16 - C21 : EH CU 1D AL	mg/kg	< 3	MCERTS	< 3	< 3	< 3		
Aliphatic >C21 - C34 : EH CU 1D AL	mg/kg	< 10	MCERTS	< 10	< 10	< 10		
Aliphatic >C34 - C44	mg/kg	< 10	NONE	< 10	< 10	< 10		
Aliphatic (C5 - C44) : HS_1D_MS+EH_CU_1D_AL	mg/kg	< 21	NONE	< 21	< 21	< 21		
Aromatic >C5 - C7 : HS 1D MS AR	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Aromatic >C7 - C8 : HS 1D MS AR	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05		
Aromatic >C8 - C10 : EH CU 1D AR	mg/kg	< 2	MCERTS	< 2	< 2	< 2		
Aromatic >C10 - C12 : EH CU 1D AR	mg/kg	< 2	MCERTS	< 2	< 2	< 2		
Aromatic >C12 - C16 : EH CU 1D AR	mg/kg	< 2	MCERTS	< 2	9	14		
Aromatic >C16 - C21 : EH CU 1D AR	mg/kg	< 3	MCERTS	< 3	117	40		
Aromatic >C21 - C35 : EH CU 1D AR	mg/kg	< 10	MCERTS	< 10	172	13		
Aromatic >C35 - C44	mg/kg	< 10	NONE	< 10	< 10	< 10		
Aromatic (C5 - C44) : HS_1D_MS+EH_CU_1D_AR	mg/kg	< 21	NONE	< 21	299	68		
Total >C5 - C44 : HS_1D_MS+EH_CU_1D_Tot al	mg/kg	< 42	NONE	< 42	299	68		

~ Sample details provided by the customer



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Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 24-04690	~Date Sampled	29/04/24	29/04/24	29/04/24		
LK Consult Limited	~Time Sampled	None Supplied	None Supplied	None Supplied		
~Site Reference: Park Hill Avenue, Crumpsall	~TP / BH No	TP101	TP102	TP103		
~Project / Job Ref: LKC 24 1405	~Additional Refs	None Supplied	None Supplied	None Supplied		
~Order No: LKC231405-KR	~Depth (m)	0.00 - 0.50	0.00 - 0.50	0.00 - 1.00		
Reporting Date: 08/05/2024	DETS Sample No	712600	712601	712602		

Determinand	Unit	RL	Accreditation					
Benzene : HS_1D_MS	ug/kg	< 2	MCERTS	< 2	< 2	< 2		
Toluene : HS_1D_MS	ug/kg	< 5	MCERTS	< 5	< 5	< 5		
Ethylbenzene : HS_1D_MS	ug/kg	< 2	MCERTS	< 2	< 2	< 2		
p & m-xylene : HS_1D_MS	ug/kg	< 2	MCERTS	< 2	< 2	< 2		
o-xylene : HS_1D_MS	ug/kg	< 2	MCERTS	< 2	< 2	< 2		
MTBE : HS_1D_MS	ug/kg	< 5	MCERTS	< 5	< 5	< 5		

~ Sample details provided by the customer



Normec DETS Limited
L, Rose Lane Industrial Estate
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Waste Acceptance Criteria Analytical Certificate																																							
DETS Report No: 24-04690		~Date Sampled	29/04/24		<table border="1"> <thead> <tr> <th colspan="3">Landfill Waste Acceptance Criteria Limits</th> </tr> <tr> <th>Inert Waste Landfill</th> <th>Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill</th> <th>Hazardous Waste Landfill</th> </tr> </thead> <tbody> <tr> <td>3%</td> <td>5%</td> <td>6%</td> </tr> <tr> <td>--</td> <td>--</td> <td>10%</td> </tr> <tr> <td>6</td> <td>--</td> <td>--</td> </tr> <tr> <td>1</td> <td>--</td> <td>--</td> </tr> <tr> <td>500</td> <td>--</td> <td>--</td> </tr> <tr> <td>100</td> <td>--</td> <td>--</td> </tr> <tr> <td>--</td> <td>>6</td> <td>--</td> </tr> <tr> <td>--</td> <td>To be evaluated</td> <td>To be evaluated</td> </tr> </tbody> </table>					Landfill Waste Acceptance Criteria Limits			Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill	3%	5%	6%	--	--	10%	6	--	--	1	--	--	500	--	--	100	--	--	--	>6	--	--	To be evaluated	To be evaluated
Landfill Waste Acceptance Criteria Limits																																							
Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill																																					
3%	5%	6%																																					
--	--	10%																																					
6	--	--																																					
1	--	--																																					
500	--	--																																					
100	--	--																																					
--	>6	--																																					
--	To be evaluated	To be evaluated																																					
LK Consult Limited		~Time Sampled	None Supplied																																				
~Site Reference: Park Hill Avenue, Crumpsall		~TP / BH No	TP101																																				
~Project / Job Ref: LKC 24 1405		~Additional Refs	None Supplied																																				
~Order No: LKC231405-KR		~Depth (m)	0.00 - 0.50																																				
Reporting Date: 08/05/2024		DETS Sample No	712600																																				
Determinand	Unit	MDL																																					
TOC ^{MU}	%	< 0.1	2.1																																				
Loss on Ignition ^{MU}	%	< 0.01	7.70																																				
BTEX ^{MU}	mg/kg	< 0.05	< 0.05																																				
Sum of PCBs	mg/kg	< 0.1	< 0.1																																				
Mineral Oil ^{MU}	mg/kg	< 10	< 10																																				
Total PAH ^{MU}	mg/kg	< 1.7	2.8																																				
pH ^{MU}	pH Units	N/a	7.9																																				
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	< 1																																				
Eluate Analysis			2:1 mg/l	8:1 mg/l		Cumulative 10:1 * mg/kg	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)																																
Arsenic ^U		0.0013	0.0016		0.029	0.5	2	25																															
Barium ^U		0.0259	0.0196		0.359	20	100	300																															
Cadmium ^U		< 0.0002	< 0.0002		< 0.002	0.04	1	5																															
Chromium ^U		0.0104	0.0026		0.052	0.5	10	70																															
Copper ^U		0.0049	0.0141		0.249	2	50	100																															
Mercury ^U		< 0.00004	< 0.00004		< 0.0004	0.01	0.2	2																															
Molybdenum ^U		0.0357	0.0133		0.256	0.5	10	30																															
Nickel ^U		0.0004	0.0005		0.0099	0.4	10	40																															
Lead ^U		0.0003	0.0017		0.030	0.5	10	50																															
Antimony ^U		0.0098	< 0.0002		0.007	0.06	0.7	5																															
Selenium ^U		0.0006	0.0006		0.0103	0.1	0.5	7																															
Zinc ^U		0.004	0.031		0.54	4	50	200																															
Chloride ^U		1	3		56	800	15000	25000																															
Fluoride ^U		0.6	< 0.5		< 1	10	150	500																															
Sulphate ^U		6	3		55	1000	20000	50000																															
TDS		117	77		1422	4000	60000	100000																															
Phenol Index ^U		< 0.01	< 0.01		< 0.5	1	-	-																															
DOC ^U		12.4	11.5		209	500	800	1000																															
Leach Test Information																																							
Sample Mass (kg)			0.10																																				
Dry Matter (%)			85.5																																				
Moisture (%)			17																																				
Stage 1																																							
Volume Eluate L2 (litres)			0.16																																				
Filtered Eluate VE1 (litres)			0.06																																				

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Samples Descriptions page describes if the test is performed on the dried or as-received portion

Stated limits are for guidance only and Normec DETS Limited cannot be held responsible for any discrepancies with current legislation

M Denotes MCERTS accredited test

U Denotes ISO17025 accredited test

~ Sample details provided by the customer

* DETS are accredited for the testing of leachate and not the leachate preparation stage which is unaccredited



Normec DETS Limited
Unit 1, Rose Lane Industrial Estate
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Kent ME17 2JN
Tel : 01622 850410



Soil Analysis Certificate - Sample Descriptions	
DETS Report No: 24-04690	
LK Consult Limited	
~Site Reference: Park Hill Avenue, Crumpsall	
~Project / Job Ref: LKC 24 1405	
~Order No: LKC231405-KR	
Reporting Date: 08/05/2024	

DETS Sample No	~TP / BH No	~Additional Refs	~Depth (m)	Moisture Content (%)	Sample Matrix Description
712600	TP101	None Supplied	0.00 - 0.50	14	Brown sandy clay with brick and concrete
712601	TP102	None Supplied	0.00 - 0.50	13	Black loamy sand with stones
712602	TP103	None Supplied	0.00 - 1.00	12.2	Brown sandy clay with stones and vegetation

Moisture content is part of procedure E003 & is not an accredited test

Insufficient Sample ^{1/5}

Unsuitable Sample ^{1/5}

~ Sample details provided by the customer



Normec DETS Limited
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410



Soil Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 24-04690

LK Consult Limited

~Site Reference: Park Hill Avenue, Crumpsall

~Project / Job Ref: LKC 24 1405

~Order No: LKC231405-KR

Reporting Date: 08/05/2024

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 - C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	Fraction Organic Carbon (FOC)	Determination of TOC by combustion analyser.	E027
Soil	D	Organic Matter (SOM)	Determination of TOC by combustion analyser.	E027
Soil	D	TOC (Total Organic Carbon)	Determination of TOC by combustion analyser.	E027
Soil	AR	Exchangeable Ammonium	Determination of ammonium by discrete analyser.	E029
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried
AR As Received

~ Sample details provided by the customer



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Water Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 24-04690

LK Consult Limited

~Site Reference: Park Hill Avenue, Crumpsall

~Project / Job Ref: LKC 24 1405

~Order No: LKC231405-KR

Reporting Date: 08/05/2024

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Water	UF	Alkalinity	Determination of alkalinity by titration against hydrochloric acid using bromocresol green as the end point	E103
Water	F	Ammoniacal Nitrogen	Determination of ammoniacal nitrogen by discrete analyser.	E126
Water	UF	BTEX	Determination of BTEX by headspace GC-MS	E101
Water	F	Cations	Determination of cations by filtration followed by ICP-MS	E102
Water	U	Chemical Oxygen Demand (COD)	Determination using a COD reactor followed by colorimetry	E112
Water	UF	Biological Oxygen Demand (COD)	Determination using BOD sensors measuring the change of pressure	E133
Water	F	Chloride	Determination of chloride by filtration & analysed by ion chromatography	E109
Water	F	Chromium - Hexavalent	Determination of hexavalent chromium by acidification, addition of 1,5 diphenylcarbazide followed by	E116
Water	UF	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E115
Water	UF	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through liquid:liquid extraction with cyclohexane	E111
Water	F	Diesel Range Organics (C10 - C24)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	Dissolved Organic Content (DOC)	Determination of DOC by filtration followed by low heat with persulphate addition followed by IR detection	E110
Water	UF	Electrical Conductivity	Determination of electrical conductivity by electrometric measurement	E123
Water	F	EPH (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E104
Water	F	Fluoride	Determination of Fluoride by filtration & analysed by ion chromatography	E109
Water	F	Hardness	Determination of Ca and Mg by ICP-MS followed by calculation	E102
Leachate	F	Leachate Preparation - NRA	Based on National Rivers Authority leaching test 1994	E301
Leachate	F	Leachate Preparation - WAC	Based on BS EN 12457 Pt1, 2, 3	E302
Water	F	Metals	Determination of metals by filtration followed by ICP-MS	E102
Water	F	Mineral Oil (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GI-FID	E104
Water	F	Nitrate	Determination of nitrate by filtration & analysed by ion chromatography	E109
Water	UF	Monohydric Phenol	Determination of phenols by distillation followed by colorimetry	E121
Water	F	PAH - Speciated (EPA 16)	Determination of PAH compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E105
Water	F	PCB - 7 Congeners	Determination of PCB compounds by concentration through SPE cartridge, collection in dichloromethane	E108
Water	UF	Petroleum Ether Extract (PEE)	Gravimetrically determined through liquid:liquid extraction with petroleum ether	E111
Water	UF	pH	Determination of pH by electrometric measurement	E107
Water	F	Phosphate	Determination of phosphate by filtration & analysed by ion chromatography	E109
Water	UF	Redox Potential	Determination of redox potential by electrometric measurement	E113
Water	F	Sulphate (as SO4)	Determination of sulphate by filtration & analysed by ion chromatography	E109
Water	UF	Sulphide	Determination of sulphide by distillation followed by colorimetry	E118
Water	F	SVOC	Determination of semi-volatile organic compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E106
Water	UF	Toluene Extractable Matter (TEM)	Gravimetrically determined through liquid:liquid extraction with toluene	E111
Water	UF	Total Organic Carbon (TOC)	Low heat with persulphate addition followed by IR detection	E110
Water	F	TPH CWG (all: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C35. C5 to C8 by headspace GC-MS	E104
Water	F	TPH LQM (all: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C44. C5 to C8 by headspace GC-MS	E104
Water	UF	VOCs	Determination of volatile organic compounds by headspace GC-MS	E101
Water	UF	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E101

Key

F Filtered

UF Unfiltered

~ Sample details provided by the customer



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List of HWOL Acronyms and Operators

DETS Report No: 24-04690

LK Consult Limited

~Site Reference: Park Hill Avenue, Crumpsall

~Project / Job Ref: LKC 24 1405

~Order No: LKC231405-KR

Reporting Date: 08/05/2024

Acronym	Description
HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#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 eg. EH+HS_Total or EH_CU+HS_Total
~	Sample details provided by the customer

Benzene - HS_1D_MS
Ethylbenzene - HS_1D_MS
MTBE - HS_1D_MS
Mineral Oil (C10 - C40) (BS EN 12457-3) - EH_CU_1D_AL
TPH CWG - Aliphatic >C10 - C12 - EH_CU_1D_AL
TPH CWG - Aliphatic >C12 - C16 - EH_CU_1D_AL
TPH CWG - Aliphatic >C16 - C21 - EH_CU_1D_AL
TPH CWG - Aliphatic >C21 - C34 - EH_CU_1D_AL
TPH CWG - Aliphatic >C5 - C44 - HS_1D_MS+EH_CU_1D_AL
TPH CWG - Aliphatic >C5 - C6 - HS_1D_MS_AL
TPH CWG - Aliphatic >C6 - C8 - HS_1D_MS_AL
TPH CWG - Aliphatic >C8 - C10 - EH_CU_1D_AL
TPH CWG - Aromatic >C10 - C12 - EH_CU_1D_AR
TPH CWG - Aromatic >C12 - C16 - EH_CU_1D_AR
TPH CWG - Aromatic >C16 - C21 - EH_CU_1D_AR
TPH CWG - Aromatic >C21 - C35 - EH_CU_1D_AR
TPH CWG - Aromatic >C5 - C44 - HS_1D_MS+EH_CU_1D_AR
TPH CWG - Aromatic >C5 - C7 - HS_1D_MS_AR
TPH CWG - Aromatic >C7 - C8 - HS_1D_MS_AR
TPH CWG - Aromatic >C8 - C10 - EH_CU_1D_AR
TPH CWG - Total >C5 - C44 - HS_1D_MS+EH_CU_1D_Total
Toluene - HS_1D_MS
Total BTEX (BS EN 12457-3) - HS_1D_MS_Total
m & p-xylene - HS_1D_MS
o-Xylene - HS_1D_MS

Parameter	Matrix Type	Expanded Uncertainty Measurement	Unit
TOC	Soil	12.2	%
Loss on Ignition	Soil	22.9	%
BTEX	Soil	11.2	%
Sum of PCBs	Soil	43.4	%
Mineral Oil	Soil	9.0	%
Total PAH	Soil	18.5	%
pH	Soil	0.335	Units
Acid Neutralisation Capacity	Soil	18.0	%
Clay Content	Soil	15.0	%
Silt Content	Soil	14.0	%
Sand Content	Soil	13.0	%
Loss on Ignition	Soil	22.9	%
pH	Soil	0.335	Units
Carbonate	Soil	12.0	%
Total Nitrogen	Soil	12.0	%
Phosphorus (Extractable)	Soil	24.0	%
Potassium (Extractable)	Soil	20.0	%
Magnesium (Extractable)	Soil	26.0	%
Zinc	Soil	21.6	%
Copper	Soil	18.2	%
Nickel	Soil	24.3	%
Available Sodium	Soil	23.0	%
Available Calcium	Soil	23.0	%
Electrical Conductivity	Soil	10.0	%



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DETS Report No: 24-04917

Site Reference: Park Hill Avenue, Crumpsall

Project / Job Ref: LKC 23 1405

Order No: LKC231405-KR

Sample Receipt Date: 07/05/2024

Sample Scheduled Date: 07/05/2024

Report Issue Number: 1

Reporting Date: 13/05/2024



Steve Knight
Customer Support Manager

Dates of laboratory activities for each tested analyte are available upon request.

Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

For Topsoil and WAC analysis the expanded uncertainty measurement should be considered while evaluating results against compliance values.



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Soil Analysis Certificate					
DETS Report No: 24-04917	~Date Sampled	02/05/24	02/05/24	02/05/24	02/05/24
LK Consult Limited	~Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: Park Hill Avenue, Crumpsall	~TP / BH No	WS101	WS102	WS103	WS104
~Project / Job Ref: LKC 23 1405	~Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied
~Order No: LKC231405-KR	~Depth (m)	0.00 - 0.50	0.20 - 0.50	0.00 - 0.30	0.00 - 0.20
Reporting Date: 13/05/2024	DETS Sample No	713600	713601	713602	713603

Determinand	Unit	RL	Accreditation	(n)	(n)	(n)	(n)	(n)
Asbestos Screen ^(S)	N/a	N/a	ISO17025	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
pH	pH Units	N/a	MCERTS	7.7	6.9	7.7	6.7	7.7
Total Cyanide	mg/kg	< 1	NONE			< 1		< 1
Free Cyanide	mg/kg	< 1	NONE			< 1		< 1
W/S Sulphate as SO ₄ (2:1)	mg/l	< 10	MCERTS	47	40	< 10	< 10	15
W/S Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	0.05	0.04	< 0.01	< 0.01	0.02
Organic Matter (SOM)	%	< 0.1	MCERTS	2.7	2.3	1.1	4.4	2.2
Arsenic (As)	mg/kg	< 2	MCERTS	11	11	2	7	7
W/S Boron	mg/kg	< 1	NONE			< 1		< 1
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	0.3	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (Cr)	mg/kg	< 2	MCERTS	11	32	4	10	13
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
Copper (Cu)	mg/kg	< 4	MCERTS	30	37	6	21	23
Lead (Pb)	mg/kg	< 3	MCERTS	90	23	9	82	20
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1	< 1
Nickel (Ni)	mg/kg	< 3	MCERTS	11	58	4	9	19
Selenium (Se)	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Vanadium (V)	mg/kg	< 1	MCERTS	22	34	7	12	17
Zinc (Zn)	mg/kg	< 3	MCERTS	91	90	15	68	58
Total Phenols (monohydric)	mg/kg	< 2	NONE			< 2		< 2

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
Subcontracted analysis (S)

~ Sample details provided by the customer

(n) Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation



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Soil Analysis Certificate					
DETS Report No: 24-04917	~Date Sampled	30/04/24	01/05/24		
LK Consult Limited	~Time Sampled	None Supplied	None Supplied		
~Site Reference: Park Hill Avenue, Crumpsall	~TP / BH No	CP102	CP101		
~Project / Job Ref: LKC 23 1405	~Additional Refs	None Supplied	None Supplied		
~Order No: LKC231405-KR	~Depth (m)	0.00 - 0.30	0.50 - 1.00		
Reporting Date: 13/05/2024	DETS Sample No	713605	713606		

Determinand	Unit	RL	Accreditation					
Asbestos Screen ^(S)	N/a	N/a	ISO17025	Not Detected	Not Detected			
pH	pH Units	N/a	MCERTS	7.1	7.7			
Total Cyanide	mg/kg	< 1	NONE					
Free Cyanide	mg/kg	< 1	NONE					
W/S Sulphate as SO ₄ (2:1)	mg/l	< 10	MCERTS	< 10	92			
W/S Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	< 0.01	0.09			
Organic Matter (SOM)	%	< 0.1	MCERTS	4.1	1.7			
Arsenic (As)	mg/kg	< 2	MCERTS	23	7			
W/S Boron	mg/kg	< 1	NONE					
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	0.3	< 0.2			
Chromium (Cr)	mg/kg	< 2	MCERTS	17	11			
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2			
Copper (Cu)	mg/kg	< 4	MCERTS	55	26			
Lead (Pb)	mg/kg	< 3	MCERTS	178	51			
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1	< 1			
Nickel (Ni)	mg/kg	< 3	MCERTS	18	11			
Selenium (Se)	mg/kg	< 2	MCERTS	< 2	< 2			
Vanadium (V)	mg/kg	< 1	MCERTS	27	15			
Zinc (Zn)	mg/kg	< 3	MCERTS	95	50			
Total Phenols (monohydric)	mg/kg	< 2	NONE					

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
 Subcontracted analysis (S)
 ~ Sample details provided by the customer



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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 24-04917	~Date Sampled	02/05/24	02/05/24	02/05/24	02/05/24	02/05/24
LK Consult Limited	~Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: Park Hill Avenue, Crumpsall	~TP / BH No	WS101	WS102	WS103	WS104	WS104
~Project / Job Ref: LKC 23 1405	~Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Order No: LKC231405-KR	~Depth (m)	0.00 - 0.50	0.20 - 0.50	0.00 - 0.30	0.00 - 0.20	0.20 - 1.00
Reporting Date: 13/05/2024	DETS Sample No	713600	713601	713602	713603	713604

Determinand	Unit	RL	Accreditation	(n)	(n)	(n)	(n)	(n)
Naphthalene	mg/kg	< 0.1	MCERTS	0.16	< 0.1	0.21	0.14	< 0.1
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	mg/kg	< 0.1	MCERTS	0.35	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	mg/kg	< 0.1	MCERTS	0.22	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	mg/kg	< 0.1	MCERTS	2.14	< 0.1	0.66	0.93	0.35
Anthracene	mg/kg	< 0.1	MCERTS	0.46	< 0.1	0.14	0.16	< 0.1
Fluoranthene	mg/kg	< 0.1	MCERTS	2.38	< 0.1	1.10	1.32	0.45
Pyrene	mg/kg	< 0.1	MCERTS	2.07	< 0.1	1.07	1.23	0.40
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	0.87	< 0.1	0.50	0.46	0.16
Chrysene	mg/kg	< 0.1	MCERTS	0.98	< 0.1	0.71	0.60	0.21
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	0.84	< 0.1	1.01	0.58	0.21
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	0.32	< 0.1	0.29	0.21	< 0.1
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	0.86	< 0.1	0.86	0.44	0.19
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	0.44	< 0.1	0.65	0.25	< 0.1
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.13	< 0.1	< 0.1
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	0.38	< 0.1	0.59	0.21	< 0.1
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	12.5	< 1.6	7.9	6.5	2

~ Sample details provided by the customer

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Soil Analysis Certificate - Speciated PAHs

DETS Report No: 24-04917	~Date Sampled	30/04/24	01/05/24			
LK Consult Limited	~Time Sampled	None Supplied	None Supplied			
~Site Reference: Park Hill Avenue, Crumpsall	~TP / BH No	CP102	CP101			
~Project / Job Ref: LKC 23 1405	~Additional Refs	None Supplied	None Supplied			
~Order No: LKC231405-KR	~Depth (m)	0.00 - 0.30	0.50 - 1.00			
Reporting Date: 13/05/2024	DETS Sample No	713605	713606			

Determinand	Unit	RL	Accreditation				
Naphthalene	mg/kg	< 0.1	MCERTS	0.13	< 0.1		
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1		
Acenaphthene	mg/kg	< 0.1	MCERTS	0.24	< 0.1		
Fluorene	mg/kg	< 0.1	MCERTS	0.14	< 0.1		
Phenanthrene	mg/kg	< 0.1	MCERTS	1.65	0.29		
Anthracene	mg/kg	< 0.1	MCERTS	0.31	< 0.1		
Fluoranthene	mg/kg	< 0.1	MCERTS	2.04	0.35		
Pyrene	mg/kg	< 0.1	MCERTS	1.77	0.32		
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	0.60	0.11		
Chrysene	mg/kg	< 0.1	MCERTS	0.84	0.15		
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	0.73	0.12		
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	0.24	< 0.1		
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	0.58	< 0.1		
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	0.31	< 0.1		
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1		
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	0.25	< 0.1		
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	9.8	< 1.6		

~ Sample details provided by the customer



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Kent ME17 2JN
Tel : 01622 850410



Soil Analysis Certificate - TPH CWG Banded					
DETS Report No: 24-04917	~Date Sampled	02/05/24	02/05/24		
LK Consult Limited	~Time Sampled	None Supplied	None Supplied		
~Site Reference: Park Hill Avenue, Crumpsall	~TP / BH No	WS103	WS104		
~Project / Job Ref: LKC 23 1405	~Additional Refs	None Supplied	None Supplied		
~Order No: LKC231405-KR	~Depth (m)	0.00 - 0.30	0.20 - 1.00		
Reporting Date: 13/05/2024	DETS Sample No	713602	713604		

Determinand	Unit	RL	Accreditation					
Aliphatic >C5 - C6 : HS 1D MS AL	mg/kg	< 0.01	NONE	< 0.01	< 0.01			
Aliphatic >C6 - C8 : HS 1D MS AL	mg/kg	< 0.05	NONE	< 0.05	< 0.05			
Aliphatic >C8 - C10 : EH CU 1D AL	mg/kg	< 2	MCERTS	< 2	< 2			
Aliphatic >C10 - C12 : EH CU 1D AL	mg/kg	< 2	MCERTS	< 2	< 2			
Aliphatic >C12 - C16 : EH CU 1D AL	mg/kg	< 3	MCERTS	< 3	< 3			
Aliphatic >C16 - C21 : EH CU 1D AL	mg/kg	< 3	MCERTS	< 3	< 3			
Aliphatic >C21 - C34 : EH CU 1D AL	mg/kg	< 10	MCERTS	28	< 10			
Aliphatic >C34 - C44	mg/kg	< 10	NONE	< 10	< 10			
Aliphatic (C5 - C44) : HS_1D_MS+EH_CU_1D_AL	mg/kg	< 21	NONE	28	< 21			
Aromatic >C5 - C7 : HS 1D MS AR	mg/kg	< 0.01	NONE	< 0.01	< 0.01			
Aromatic >C7 - C8 : HS 1D MS AR	mg/kg	< 0.05	NONE	< 0.05	< 0.05			
Aromatic >C8 - C10 : EH CU 1D AR	mg/kg	< 2	MCERTS	< 2	< 2			
Aromatic >C10 - C12 : EH CU 1D AR	mg/kg	< 2	MCERTS	< 2	< 2			
Aromatic >C12 - C16 : EH CU 1D AR	mg/kg	< 2	MCERTS	5	< 2			
Aromatic >C16 - C21 : EH CU 1D AR	mg/kg	< 3	MCERTS	5	3			
Aromatic >C21 - C35 : EH CU 1D AR	mg/kg	< 10	MCERTS	80	< 10			
Aromatic >C35 - C44	mg/kg	< 10	NONE	34	< 10			
Aromatic (C5 - C44) : HS_1D_MS+EH_CU_1D_AR	mg/kg	< 21	NONE	125	< 21			
Total >C5 - C44 : HS_1D_MS+EH_CU_1D_Tot al	mg/kg	< 42	NONE	153	< 42			

~ Sample details provided by the customer



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Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 24-04917	~Date Sampled	02/05/24	02/05/24			
LK Consult Limited	~Time Sampled	None Supplied	None Supplied			
~Site Reference: Park Hill Avenue, Crumpsall	~TP / BH No	WS103	WS104			
~Project / Job Ref: LKC 23 1405	~Additional Refs	None Supplied	None Supplied			
~Order No: LKC231405-KR	~Depth (m)	0.00 - 0.30	0.20 - 1.00			
Reporting Date: 13/05/2024	DETS Sample No	713602	713604			

Determinand	Unit	RL	Accreditation				
Benzene : HS_1D_MS	ug/kg	< 2	MCERTS	< 2	< 2		
Toluene : HS_1D_MS	ug/kg	< 5	MCERTS	< 5	< 5		
Ethylbenzene : HS_1D_MS	ug/kg	< 2	MCERTS	< 2	< 2		
p & m-xylene : HS_1D_MS	ug/kg	< 2	MCERTS	< 2	< 2		
o-xylene : HS_1D_MS	ug/kg	< 2	MCERTS	< 2	< 2		
MTBE : HS_1D_MS	ug/kg	< 5	MCERTS	< 5	< 5		

~ Sample details provided by the customer



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Waste Acceptance Criteria Analytical Certificate																																							
DETS Report No: 24-04917		~Date Sampled	02/05/24		<table border="1"> <thead> <tr> <th colspan="3">Landfill Waste Acceptance Criteria Limits</th> </tr> <tr> <th>Inert Waste Landfill</th> <th>Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill</th> <th>Hazardous Waste Landfill</th> </tr> </thead> <tbody> <tr> <td>3%</td> <td>5%</td> <td>6%</td> </tr> <tr> <td>--</td> <td>--</td> <td>10%</td> </tr> <tr> <td>6</td> <td>--</td> <td>--</td> </tr> <tr> <td>1</td> <td>--</td> <td>--</td> </tr> <tr> <td>500</td> <td>--</td> <td>--</td> </tr> <tr> <td>100</td> <td>--</td> <td>--</td> </tr> <tr> <td>--</td> <td>>6</td> <td>--</td> </tr> <tr> <td>--</td> <td>To be evaluated</td> <td>To be evaluated</td> </tr> </tbody> </table>					Landfill Waste Acceptance Criteria Limits			Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill	3%	5%	6%	--	--	10%	6	--	--	1	--	--	500	--	--	100	--	--	--	>6	--	--	To be evaluated	To be evaluated
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100	--	--																																					
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LK Consult Limited		~Time Sampled	None Supplied																																				
~Site Reference: Park Hill Avenue, Crumpsall		~TP / BH No	WS103																																				
~Project / Job Ref: LKC 23 1405		~Additional Refs	None Supplied																																				
~Order No: LKC231405-KR		~Depth (m)	0.00 - 0.30																																				
Reporting Date: 13/05/2024		DETS Sample No	713602																																				
Determinand	Unit	MDL																																					
TOC ^{MU}	%	< 0.1	0.7																																				
Loss on Ignition ^{MU}	%	< 0.01	1.11																																				
BTEX ^{MU}	mg/kg	< 0.05	< 0.05																																				
Sum of PCBs	mg/kg	< 0.1	< 0.1																																				
Mineral Oil ^{MU}	mg/kg	< 10	37																																				
Total PAH ^{MU}	mg/kg	< 1.7	8.1																																				
pH ^{MU}	pH Units	N/a	7.7																																				
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	< 1																																				
Eluate Analysis			2:1 mg/l	8:1 mg/l		Cumulative 10:1 * mg/kg	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)																																
Arsenic ^U		0.0051	0.0061		0.110	0.5	2	25																															
Barium ^U		0.0355	0.0124		0.245	20	100	300																															
Cadmium ^U		< 0.0002	< 0.0002		< 0.002	0.04	1	5																															
Chromium ^U		< 0.0002	0.0009		0.015	0.5	10	70																															
Copper ^U		0.0037	0.0009		0.019	2	50	100																															
Mercury ^U		0.00009	< 0.00004		< 0.0004	0.01	0.2	2																															
Molybdenum ^U		0.0246	0.0039		0.089	0.5	10	30																															
Nickel ^U		< 0.0002	< 0.0002		< 0.0002	0.4	10	40																															
Lead ^U		0.0008	0.0026		0.046	0.5	10	50																															
Antimony ^U		0.0064	< 0.0002		0.005	0.06	0.7	5																															
Selenium ^U		0.0008	0.0005		0.0099	0.1	0.5	7																															
Zinc ^U		0.004	0.003		0.05	4	50	200																															
Chloride ^U		18	2		46	800	15000	25000																															
Fluoride ^U		0.7	< 0.5		< 1	10	150	500																															
Sulphate ^U		100	10		260	1000	20000	50000																															
TDS		188	61		1213	4000	60000	100000																															
Phenol Index ^U		< 0.01	< 0.01		< 0.5	1	-	-																															
DOC ^U		23	11.3		215	500	800	1000																															
Leach Test Information																																							
Sample Mass (kg)			0.09																																				
Dry Matter (%)			92.8																																				
Moisture (%)			7.8																																				
Stage 1																																							
Volume Eluate L2 (litres)			0.17																																				
Filtered Eluate VE1 (litres)			0.07																																				

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Samples Descriptions page describes if the test is performed on the dried or as-received portion

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M Denotes MCERTS accredited test

U Denotes ISO17025 accredited test

~ Sample details provided by the customer

* DETS are accredited for the testing of leachate and not the leachate preparation stage which is unaccredited



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Waste Acceptance Criteria Analytical Certificate																																							
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Landfill Waste Acceptance Criteria Limits																																							
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100	--	--																																					
--	>6	--																																					
--	To be evaluated	To be evaluated																																					
LK Consult Limited		~Time Sampled	None Supplied																																				
~Site Reference: Park Hill Avenue, Crumpsall		~TP / BH No	WS104																																				
~Project / Job Ref: LKC 23 1405		~Additional Refs	None Supplied																																				
~Order No: LKC231405-KR		~Depth (m)	0.20 - 1.00																																				
Reporting Date: 13/05/2024		DETS Sample No	713604																																				
Determinand	Unit	MDL																																					
TOC ^{MU}	%	< 0.1	1.3																																				
Loss on Ignition ^{MU}	%	< 0.01	3																																				
BTEX ^{MU}	mg/kg	< 0.05	< 0.05																																				
Sum of PCBs	mg/kg	< 0.1	< 0.1																																				
Mineral Oil ^{MU}	mg/kg	< 10	< 10																																				
Total PAH ^{MU}	mg/kg	< 1.7	2																																				
pH ^{MU}	pH Units	N/a	7.7																																				
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	< 1																																				
Eluate Analysis			2:1 mg/l	8:1 mg/l		Cumulative 10:1 * mg/kg	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)																																
Arsenic ^U		0.0005	0.0005		0.009	0.5	2	25																															
Barium ^U		0.0257	0.0192		0.351	20	100	300																															
Cadmium ^U		< 0.0002	< 0.0002		< 0.002	0.04	1	5																															
Chromium ^U		< 0.0002	0.0009		0.015	0.5	10	70																															
Copper ^U		0.0006	0.0021		0.037	2	50	100																															
Mercury ^U		< 0.00004	< 0.00004		< 0.0004	0.01	0.2	2																															
Molybdenum ^U		0.0075	0.0039		0.073	0.5	10	30																															
Nickel ^U		< 0.0002	< 0.0002		< 0.0002	0.4	10	40																															
Lead ^U		< 0.0002	< 0.0002		0.003	0.5	10	50																															
Antimony ^U		< 0.0002	< 0.0002		< 0.002	0.06	0.7	5																															
Selenium ^U		0.0002	< 0.0002		0.0009	0.1	0.5	7																															
Zinc ^U		< 0.001	0.006		0.11	4	50	200																															
Chloride ^U		1	< 1		14	800	15000	25000																															
Fluoride ^U		1.4	0.8		14.7	10	150	500																															
Sulphate ^U		3	< 1		< 20	1000	20000	50000																															
TDS		85	41		771	4000	60000	100000																															
Phenol Index ^U		< 0.01	< 0.01		< 0.5	1	-	-																															
DOC ^U		7.1	8.1		146	500	800	1000																															
Leach Test Information																																							
Sample Mass (kg)			0.10																																				
Dry Matter (%)			84.5																																				
Moisture (%)			18.4																																				
Stage 1																																							
Volume Eluate L2 (litres)			0.16																																				
Filtered Eluate VE1 (litres)			0.06																																				

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Soil Analysis Certificate - Sample Descriptions

DETS Report No: 24-04917

LK Consult Limited

~Site Reference: Park Hill Avenue, Crumpsall

~Project / Job Ref: LKC 23 1405

~Order No: LKC231405-KR

Reporting Date: 13/05/2024

DETS Sample No	~TP / BH No	~Additional Refs	~Depth (m)	Moisture Content (%)	Sample Matrix Description
713600	WS101	None Supplied	0.00 - 0.50	10.6	Brown sandy gravel with stones and brick
713601	WS102	None Supplied	0.20 - 0.50	17.1	Light brown clay with vegetation
713602	WS103	None Supplied	0.00 - 0.30	6.6	Brown sandy clay with stones
713603	WS104	None Supplied	0.00 - 0.20	23.6	Brown sandy clay with stones and brick
713604	WS104	None Supplied	0.20 - 1.00	15	Brown loamy sand with stones and vegetation
713605	CP102	None Supplied	0.00 - 0.30	15.6	Brown sandy clay
713606	CP101	None Supplied	0.50 - 1.00	11.4	Brown sandy clay

Moisture content is part of procedure E003 & is not an accredited test

Insufficient Sample ^{1/5}

Unsuitable Sample ^{u/s}

~ Sample details provided by the customer



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Soil Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 24-04917

LK Consult Limited

~Site Reference: Park Hill Avenue, Crumpsall

~Project / Job Ref: LKC 23 1405

~Order No: LKC231405-KR

Reporting Date: 13/05/2024

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 - C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	Fraction Organic Carbon (FOC)	Determination of TOC by combustion analyser.	E027
Soil	D	Organic Matter (SOM)	Determination of TOC by combustion analyser.	E027
Soil	D	TOC (Total Organic Carbon)	Determination of TOC by combustion analyser.	E027
Soil	AR	Exchangeable Ammonium	Determination of ammonium by discrete analyser.	E029
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried
AR As Received

~ Sample details provided by the customer



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Water Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 24-04917

LK Consult Limited

~Site Reference: Park Hill Avenue, Crumpsall

~Project / Job Ref: LKC 23 1405

~Order No: LKC231405-KR

Reporting Date: 13/05/2024

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Water	UF	Alkalinity	Determination of alkalinity by titration against hydrochloric acid using bromocresol green as the end point	E103
Water	F	Ammoniacal Nitrogen	Determination of ammoniacal nitrogen by discrete analyser.	E126
Water	UF	BTEX	Determination of BTEX by headspace GC-MS	E101
Water	F	Cations	Determination of cations by filtration followed by ICP-MS	E102
Water	U	Chemical Oxygen Demand (COD)	Determination using a COD reactor followed by colorimetry	E112
Water	UF	Biological Oxygen Demand (BOD)	Determination using BOD sensors measuring the change of pressure	E133
Water	F	Chloride	Determination of chloride by filtration & analysed by ion chromatography	E109
Water	F	Chromium - Hexavalent	Determination of hexavalent chromium by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E116
Water	UF	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E115
Water	UF	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through liquid:liquid extraction with cyclohexane	E111
Water	F	Diesel Range Organics (C10 - C24)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	Dissolved Organic Content (DOC)	Determination of DOC by filtration followed by low heat with persulphate addition followed by IR detection	E110
Water	UF	Electrical Conductivity	Determination of electrical conductivity by electrometric measurement	E123
Water	F	EPH (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E104
Water	F	Fluoride	Determination of Fluoride by filtration & analysed by ion chromatography	E109
Water	F	Hardness	Determination of Ca and Mg by ICP-MS followed by calculation	E102
Leachate	F	Leachate Preparation - NRA	Based on National Rivers Authority leaching test 1994	E301
Leachate	F	Leachate Preparation - WAC	Based on BS EN 12457 Pt1, 2, 3	E302
Water	F	Metals	Determination of metals by filtration followed by ICP-MS	E102
Water	F	Mineral Oil (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	Nitrate	Determination of nitrate by filtration & analysed by ion chromatography	E109
Water	UF	Monohydric Phenol	Determination of phenols by distillation followed by colorimetry	E121
Water	F	PAH - Speciated (EPA 16)	Determination of PAH compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E105
Water	F	PCB - 7 Congeners	Determination of PCB compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E108
Water	UF	Petroleum Ether Extract (PEE)	Gravimetrically determined through liquid:liquid extraction with petroleum ether	E111
Water	UF	pH	Determination of pH by electrometric measurement	E107
Water	F	Phosphate	Determination of phosphate by filtration & analysed by ion chromatography	E109
Water	UF	Redox Potential	Determination of redox potential by electrometric measurement	E113
Water	F	Sulphate (as SO4)	Determination of sulphate by filtration & analysed by ion chromatography	E109
Water	UF	Sulphide	Determination of sulphide by distillation followed by colorimetry	E118
Water	F	SVOC	Determination of semi-volatile organic compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E106
Water	UF	Toluene Extractable Matter (TEM)	Gravimetrically determined through liquid:liquid extraction with toluene	E111
Water	UF	Total Organic Carbon (TOC)	Low heat with persulphate addition followed by IR detection	E110
Water	F	TPH CWG (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C35. C5 to C8 by headspace GC-MS	E104
Water	F	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C44. C5 to C8 by headspace GC-MS	E104
Water	UF	VOCs	Determination of volatile organic compounds by headspace GC-MS	E101
Water	UF	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E101

Key

F Filtered

UF Unfiltered

~ Sample details provided by the customer



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List of HWOL Acronyms and Operators

DETS Report No: 24-04917

LK Consult Limited

~Site Reference: Park Hill Avenue, Crumpsall

~Project / Job Ref: LKC 23 1405

~Order No: LKC231405-KR

Reporting Date: 13/05/2024

Acronym	Description
HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#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 eg. EH+HS Total or EH_CU+HS Total
~	Sample details provided by the customer

Benzene - HS_1D_MS
Ethylbenzene - HS_1D_MS
MTBE - HS_1D_MS
Mineral Oil (C10 - C40) (BS EN 12457-3) - EH_CU_1D_AL
TPH CWG - Aliphatic >C10 - C12 - EH_CU_1D_AL
TPH CWG - Aliphatic >C12 - C16 - EH_CU_1D_AL
TPH CWG - Aliphatic >C16 - C21 - EH_CU_1D_AL
TPH CWG - Aliphatic >C21 - C34 - EH_CU_1D_AL
TPH CWG - Aliphatic >C5 - C44 - HS_1D_MS+EH_CU_1D_AL
TPH CWG - Aliphatic >C5 - C6 - HS_1D_MS_AL
TPH CWG - Aliphatic >C6 - C8 - HS_1D_MS_AL
TPH CWG - Aliphatic >C8 - C10 - EH_CU_1D_AL
TPH CWG - Aromatic >C10 - C12 - EH_CU_1D_AR
TPH CWG - Aromatic >C12 - C16 - EH_CU_1D_AR
TPH CWG - Aromatic >C16 - C21 - EH_CU_1D_AR
TPH CWG - Aromatic >C21 - C35 - EH_CU_1D_AR
TPH CWG - Aromatic >C5 - C44 - HS_1D_MS+EH_CU_1D_AR
TPH CWG - Aromatic >C5 - C7 - HS_1D_MS_AR
TPH CWG - Aromatic >C7 - C8 - HS_1D_MS_AR
TPH CWG - Aromatic >C8 - C10 - EH_CU_1D_AR
TPH CWG - Total >C5 - C44 - HS_1D_MS+EH_CU_1D_Total
Toluene - HS_1D_MS
Total BTEX (BS EN 12457-3) - HS_1D_MS_Total
m & p-xylene - HS_1D_MS
o-Xylene - HS_1D_MS

Parameter	Matrix Type	Expanded Uncertainty Measurement	Unit
TOC	Soil	12.2	%
Loss on Ignition	Soil	22.9	%
BTEX	Soil	11.2	%
Sum of PCBs	Soil	43.4	%
Mineral Oil	Soil	9.0	%
Total PAH	Soil	18.5	%
pH	Soil	0.335	Units
Acid Neutralisation Capacity	Soil	18.0	%
Clay Content	Soil	15.0	%
Silt Content	Soil	14.0	%
Sand Content	Soil	13.0	%
Loss on Ignition	Soil	22.9	%
pH	Soil	0.335	Units
Carbonate	Soil	12.0	%
Total Nitrogen	Soil	12.0	%
Phosphorus (Extractable)	Soil	24.0	%
Potassium (Extractable)	Soil	20.0	%
Magnesium (Extractable)	Soil	26.0	%
Zinc	Soil	21.6	%
Copper	Soil	18.2	%
Nickel	Soil	24.3	%
Available Sodium	Soil	23.0	%
Available Calcium	Soil	23.0	%
Electrical Conductivity	Soil	10.0	%



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t: 01622 850410

DETS Report No: 25-00872

Site Reference: Park Hill Avenue, Crumpsall

Project / Job Ref: LKC 23 1405

Order No: PO-C000844

Sample Receipt Date: 29/01/2025

Sample Scheduled Date: 29/01/2025

Report Issue Number: 1

Reporting Date: 06/02/2025



Steve Knight
Customer Support Manager

Dates of laboratory activities for each tested analyte are available upon request.

Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.



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Soil Analysis Certificate						
DETS Report No: 25-00872	~Date Sampled	20/01/25	22/01/25	22/01/25		
LK Consult Limited	~Time Sampled	None Supplied	None Supplied	None Supplied		
~Site Reference: Park Hill Avenue, Crumpsall	~TP / BH No	CP201	CP202	CP202		
~Project / Job Ref: LKC 23 1405	~Additional Refs	ES	ES	ES		
~Order No: PO-C000844	~Depth (m)	0.00 - 0.50	0.00 - 1.20	1.20 - 1.65		
Reporting Date: 06/02/2025	DETS Sample No	761634	761635	761636		

Determinand	Unit	RL	Accreditation					
Asbestos Screen ^(S)	N/a	N/a	ISO17025	Not Detected	Not Detected	Not Detected		
pH	pH Units	N/a	MCERTS	7.7	7.8	7.3		
W/S Sulphate as SO ₄ (2:1)	mg/l	< 10	MCERTS	11	48	22		
W/S Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	0.01	0.05	0.02		
Organic Matter (SOM)	%	< 0.1	MCERTS	7.8	4.5	2.1		
W/S Chloride (2:1)	mg/kg	< 1	MCERTS			12		
W/S Chloride (2:1)	mg/l	< 0.5	MCERTS			6.2		
Water Soluble Nitrate (2:1) as NO ₃	mg/kg	< 3	MCERTS			< 3		
Water Soluble Nitrate (2:1) as NO ₃	mg/l	< 1.5	MCERTS			< 1.5		
Arsenic (As)	mg/kg	< 2	MCERTS	11	11	6		
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	0.4	0.3	< 0.2		
Chromium (Cr)	mg/kg	< 2	MCERTS	14	16	11		
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2		
Copper (Cu)	mg/kg	< 4	MCERTS	39	34	17		
Lead (Pb)	mg/kg	< 3	MCERTS	88	61	19		
W/S Magnesium	mg/l	< 0.1	NONE			2.1		
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1	< 1	< 1		
Nickel (Ni)	mg/kg	< 3	MCERTS	17	20	13		
Selenium (Se)	mg/kg	< 2	MCERTS	< 2	< 2	< 2		
Vanadium (V)	mg/kg	< 1	MCERTS	22	20	13		
Zinc (Zn)	mg/kg	< 3	MCERTS	104	80	41		

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion

Subcontracted analysis (S)

~Sample details provided by customer and can affect the validity of results

Subcontracted analysis (S)



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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 25-00872	~Date Sampled	20/01/25	22/01/25	22/01/25		
LK Consult Limited	~Time Sampled	None Supplied	None Supplied	None Supplied		
~Site Reference: Park Hill Avenue, Crumpsall	~TP / BH No	CP201	CP202	CP202		
~Project / Job Ref: LKC 23 1405	~Additional Refs	ES	ES	ES		
~Order No: PO-C000844	~Depth (m)	0.00 - 0.50	0.00 - 1.20	1.20 - 1.65		
Reporting Date: 06/02/2025	DETS Sample No	761634	761635	761636		

Determinand	Unit	RL	Accreditation				
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	
Acenaphthene	mg/kg	< 0.1	MCERTS	0.18	0.31	< 0.1	
Fluorene	mg/kg	< 0.1	MCERTS	0.14	0.25	< 0.1	
Phenanthrene	mg/kg	< 0.1	MCERTS	1.43	2.11	< 0.1	
Anthracene	mg/kg	< 0.1	MCERTS	0.33	0.43	< 0.1	
Fluoranthene	mg/kg	< 0.1	MCERTS	2.30	2.44	< 0.1	
Pyrene	mg/kg	< 0.1	MCERTS	2.15	2.51	< 0.1	
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	1.02	1.14	< 0.1	
Chrysene	mg/kg	< 0.1	MCERTS	1.01	1.03	< 0.1	
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	1.10	1.08	< 0.1	
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	0.34	0.21	< 0.1	
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	0.90	0.85	< 0.1	
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	0.52	0.45	< 0.1	
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	0.52	0.47	< 0.1	
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	11.9	13.3	< 1.6	

~Sample details provided by customer and can affect the validity of results



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Lenham Heath
Maidstone
Kent ME17 2JN
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Soil Analysis Certificate - Sample Descriptions

DETS Report No: 25-00872	
LK Consult Limited	
~Site Reference: Park Hill Avenue, Crumpsall	
~Project / Job Ref: LKC 23 1405	
~Order No: PO-C000844	
Reporting Date: 06/02/2025	

DETS Sample No	~TP / BH No	~Additional Refs	~Depth (m)	Moisture Content (%)	Sample Matrix Description
761634	CP201	ES	0.00 - 0.50	20.9	Brown loamy sand with vegetation
761635	CP202	ES	0.00 - 1.20	15.5	Brown sandy loam with vegetation
761636	CP202	ES	1.20 - 1.65	18.7	Light brown sandy clay with vegetation

Moisture content is part of procedure E003 & is not an accredited test

Insufficient Sample ^{1/5}

Unsuitable Sample ^{U/S}

~Sample details provided by customer and can affect the validity of results



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Soil Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 25-00872

LK Consult Limited

~Site Reference: Park Hill Avenue, Crumpsall

~Project / Job Ref: LKC 23 1405

~Order No: PO-C000844

Reporting Date: 06/02/2025

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 - C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	Fraction Organic Carbon (FOC)	Determination of TOC by combustion analyser.	E027
Soil	D	Organic Matter (SOM)	Determination of TOC by combustion analyser.	E027
Soil	D	TOC (Total Organic Carbon)	Determination of TOC by combustion analyser.	E027
Soil	AR	Exchangeable Ammonium	Determination of ammonium by discrete analyser.	E029
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried
AR As Received

~Sample details provided by customer and can affect the validity of results



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List of HWOL Acronyms and Operators	
DETS Report No: 25-00872	
LK Consult Limited	
~Site Reference: Park Hill Avenue, Crumpsall	
~Project / Job Ref: LKC 23 1405	
~Order No: PO-C000844	
Reporting Date: 06/02/2025	

Acronym	Description
HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#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 eg. EH+HS_Total or EH_CU+HS_Total
~	Sample details provided by customer and can affect the validity of results

Det - Acronym

Appendix D – Certificates of Analysis (Geotechnical)

TEST REPORT

Client LK Consult Ltd

Address Unit 29 Eton Business Park
Eton Hill Road
Radcliffe
Greater Manchester
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Contract LKC 23 1405 -
Park Hill Avenue, Crumpsall

Job Number MRN 24076/54
Date of Issue 02 July 2024
Page 1 of 11

Approved Signatories

S J Hutchings, O P Davies

Notes

- 1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.
- 2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.
- 3 Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation.
- 4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted.
- 5 The results included within the report are representative of the samples submitted for analysis.
- 6 This certificate should not be reproduced, except in full, without the express permission of the laboratory.



Andrew House, Hadfield Street, Dukinfield, Cheshire SK16 4QX Tel: 0161 475 0870
Email: enquiries@murrayrix.com Website: www.murrayrix.com

Also at: London: 020 8523 1999

Murray Rix is the trading name of Murray Rix (Northern) Limited. Registered in England 2878361

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

LIQUID LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.3 (30° FALL CONE) 1 POINT METHOD

PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5

WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

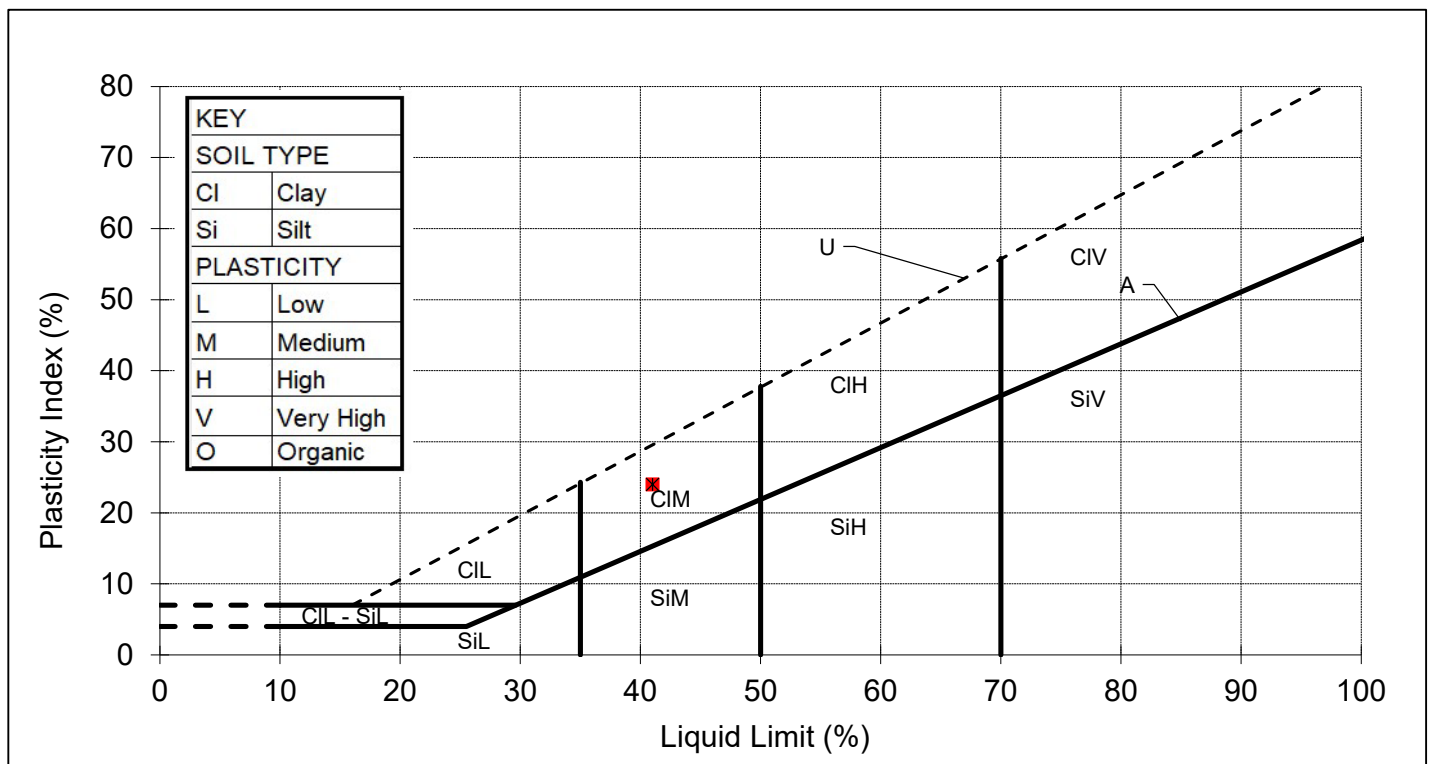
CLIENT	LK Consult Ltd
SITE	LKC 23 1405 - Park Hill Avenue, Crumpsall
JOB NUMBER	MRN 24076/54

SAMPLE LABEL	CP101 2.00-2.45m	DATE SAMPLED	21-May-24
SAMPLE No.	483301	DATE RECEIVED	30-May-24
DATE TESTED	03-Jun-24	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly CLAY.		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Hand Picked

Test Readings mm (average)		Moisture Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	22.3	42.4	0.965	
Determination 2 (avg)	22.6	42.6		

Natural Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
22.5	41	17	24	99



REMARKS

SIGNED

NAME

O.P. Davies BA (Hons)
(Laboratory Manager)

DATE

02-Jul-24

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

LIQUID LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.3 (30° FALL CONE) 1 POINT METHOD

PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5

WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

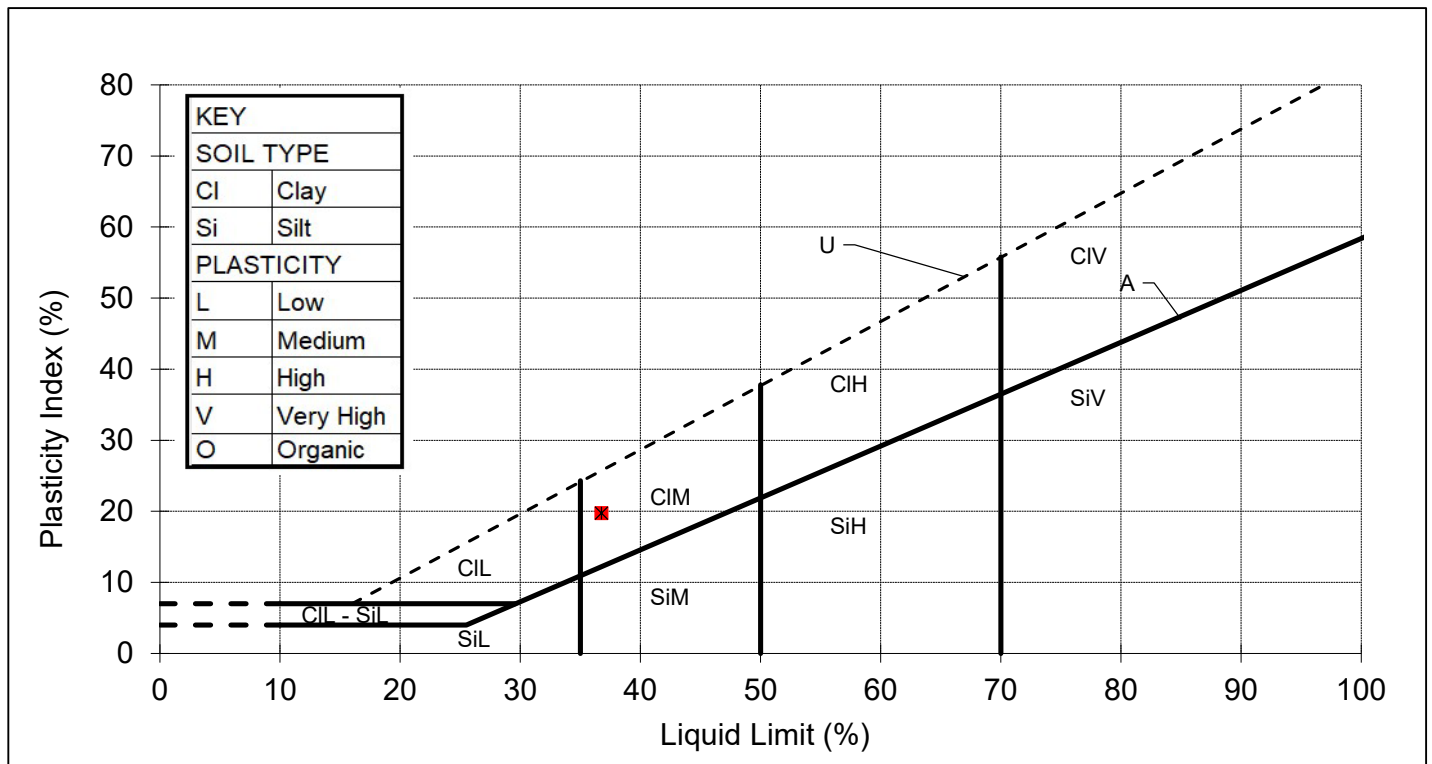
CLIENT	LK Consult Ltd
SITE	LKC 23 1405 - Park Hill Avenue, Crumpsall
JOB NUMBER	MRN 24076/54

SAMPLE LABEL	CP102 3.00-3.45m	DATE SAMPLED	21-May-24
SAMPLE No.	488003	DATE RECEIVED	30-May-24
DATE TESTED	03-Jun-24	SAMPLED BY	Client

MATERIAL	Dark brown silty slightly sandy CLAY.		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Hand Picked

Test Readings mm (average)		Moisture Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	23.0	38.1	0.962	
Determination 2 (avg)	22.7	38.3		

Natural Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
24.1	37	17	20	100



REMARKS

SIGNED

NAME

O.P. Davies BA (Hons)
(Laboratory Manager)

DATE

02-Jul-24

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DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

LIQUID LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.3 (30° FALL CONE) 1 POINT METHOD

PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5

WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

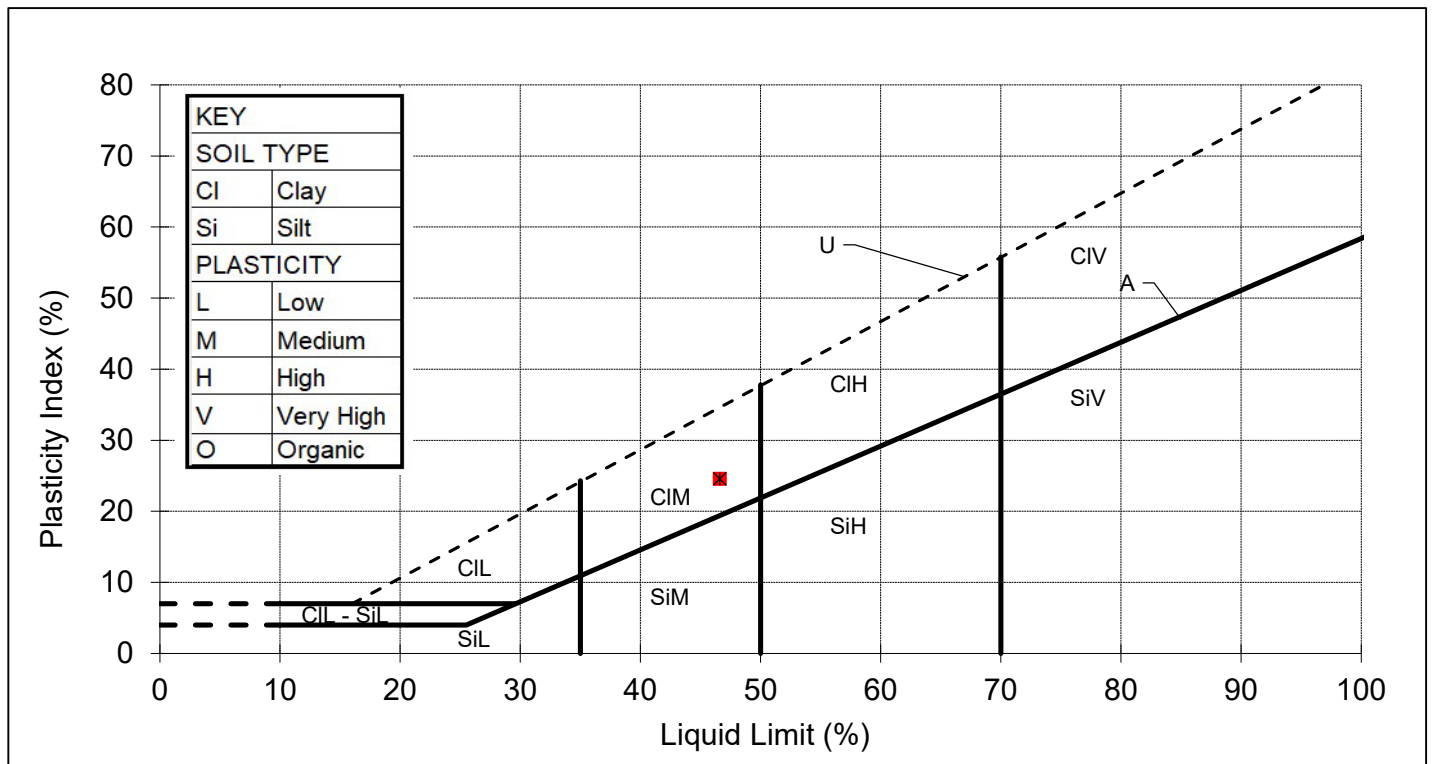
CLIENT	LK Consult Ltd
SITE	LKC 23 1405 - Park Hill Avenue, Crumpsall
JOB NUMBER	MRN 24076/54

SAMPLE LABEL	WS102 0.20-0.50m	DATE SAMPLED	21-May-24
SAMPLE No.	488007	DATE RECEIVED	30-May-24
DATE TESTED	03-Jun-24	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly CLAY.		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Hand Picked

Test Readings mm (average)		Moisture Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	18.7	45.6	1.021	
Determination 2 (avg)	18.8	45.7		

Natural Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
25.9	47	22	25	100



REMARKS

SIGNED

NAME

O.P. Davies BA (Hons)
(Laboratory Manager)

DATE

02-Jul-24

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DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

LIQUID LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.3 (30° FALL CONE) 1 POINT METHOD

PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5

WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

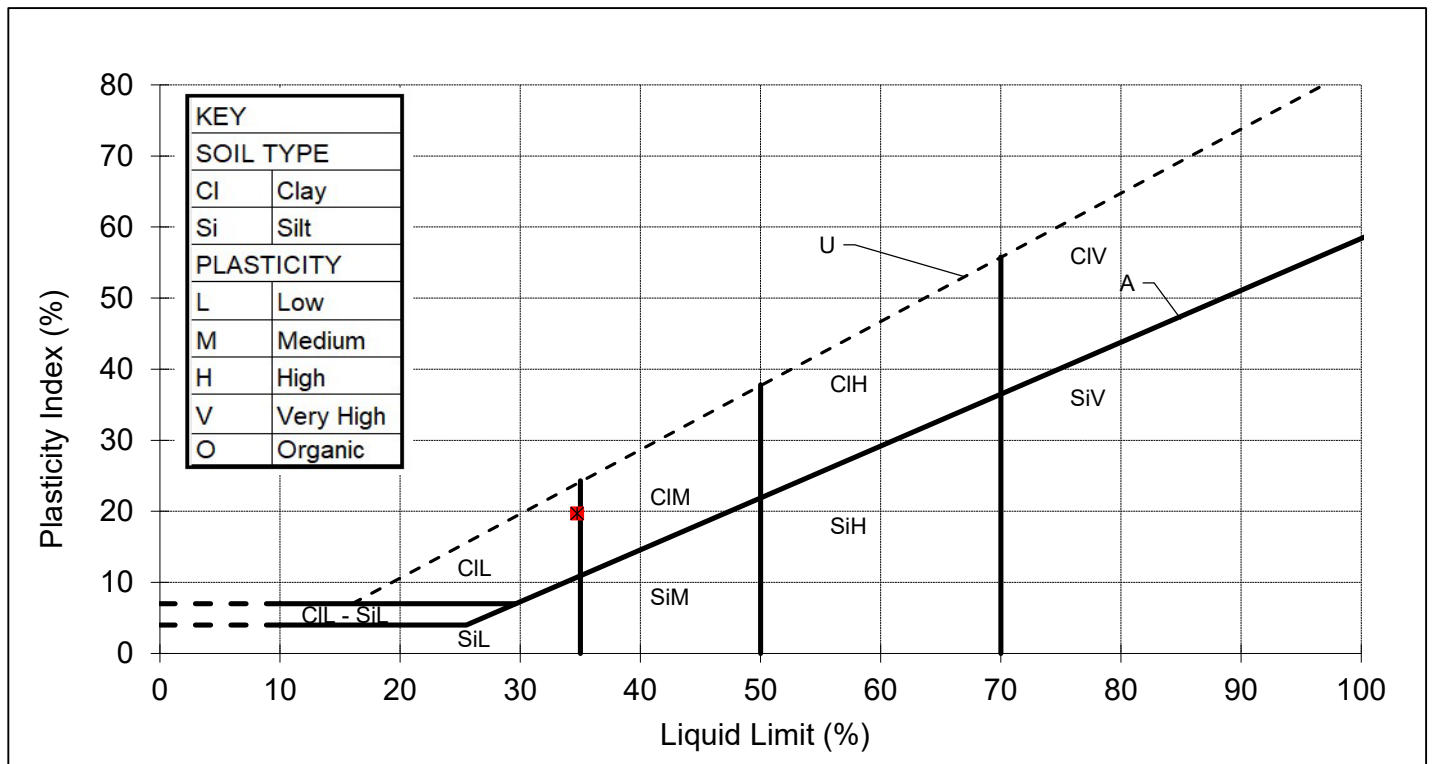
CLIENT	LK Consult Ltd
SITE	LKC 23 1405 - Park Hill Avenue, Crumpsall
JOB NUMBER	MRN 24076/54

SAMPLE LABEL	WS103 2.00-3.00m	DATE SAMPLED	21-May-24
SAMPLE No.	488008	DATE RECEIVED	30-May-24
DATE TESTED	03-Jun-24	SAMPLED BY	Client

MATERIAL	Brown silty sandy CLAY.		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Hand Picked

Test Readings mm (average)		Moisture Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	21.7	35.5	0.977	
Determination 2 (avg)	21.4	35.6		

Natural Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
28.6	35	15	20	100



REMARKS

SIGNED

NAME

O.P. Davies BA (Hons)
(Laboratory Manager)

DATE

02-Jul-24

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

LIQUID LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.3 (30° FALL CONE) 1 POINT METHOD

PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5

WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

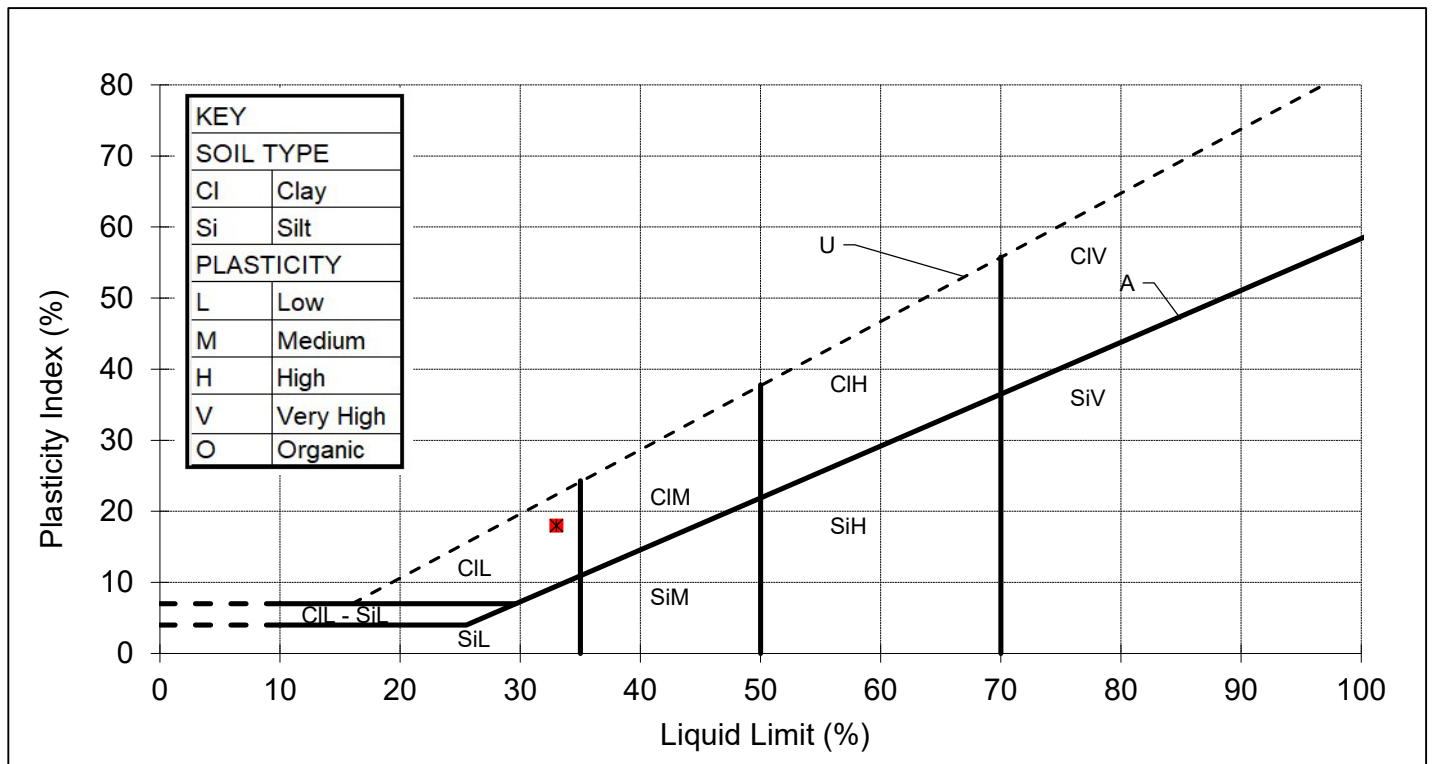
CLIENT	LK Consult Ltd
SITE	LKC 23 1405 - Park Hill Avenue, Crumpsall
JOB NUMBER	MRN 24076/54

SAMPLE LABEL	WS104 2.50-3.00m	DATE SAMPLED	21-May-24
SAMPLE No.	488009	DATE RECEIVED	30-May-24
DATE TESTED	03-Jun-24	SAMPLED BY	Client

MATERIAL	Brown silty sandy CLAY.		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Hand Picked

Test Readings mm (average)		Moisture Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	21.1	33.8	0.982	
Determination 2 (avg)	21.2	33.4		

Natural Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
21.9	33	15	18	100



REMARKS

SIGNED

NAME

O.P. Davies BA (Hons)
(Laboratory Manager)

DATE

02-Jul-24

TEST CERTIFICATE
PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892-4:2016

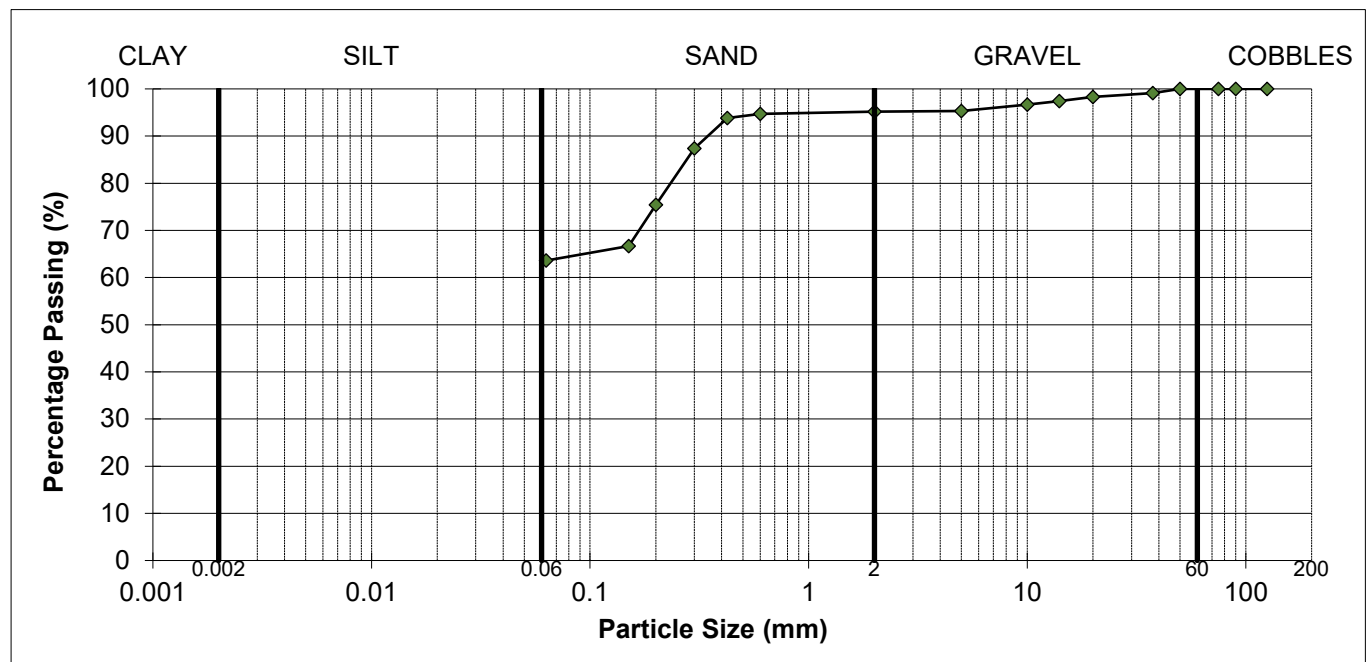
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

CLIENT	LK Consult Ltd
SITE	LKC 23 1405 - Park Hill Avenue, Crumpsall
JOB NUMBER	MRN 24076/54

SAMPLE LABEL	CP101 4.00-4.45m	DATE SAMPLED	21-May-24
LAB SAMPLE No	483302	DATE RECEIVED	30-May-24
DATE TESTED	04-Jun-24	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly CLAY.
ADVISED SOURCE	Site Investigation Sample

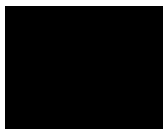
Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		5	95	
90	100		2	95	
75	100		0.6	95	
50	100		0.425	94	
37.5	99		0.3	87	
20	98		0.2	75	
14	97		0.15	67	
10	97		0.063	64	



As received water content	20.0%
---------------------------	-------

REMARKS

SIGNED



NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE

02-Jul-24

TEST CERTIFICATE
PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892-4:2016

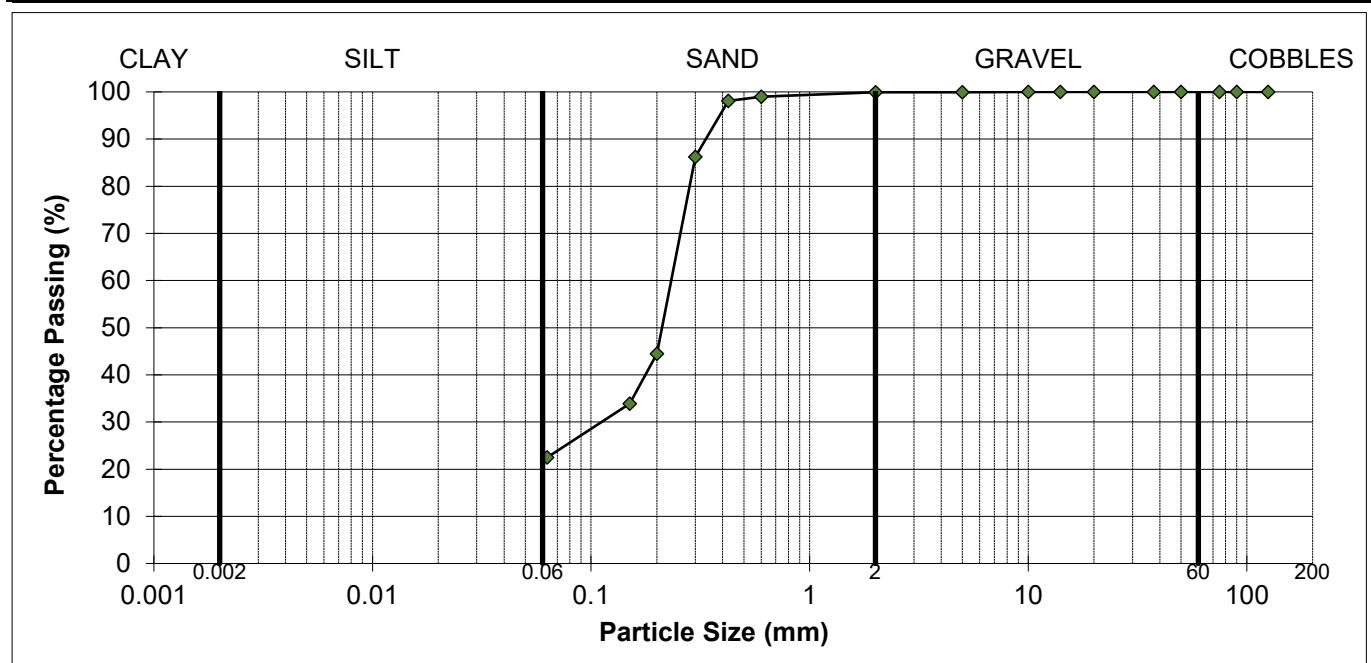
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

CLIENT	LK Consult Ltd
SITE	LKC 23 1405 - Park Hill Avenue, Crumpsall
JOB NUMBER	MRN 24076/54

SAMPLE LABEL	CP102 4.00-4.45m	DATE SAMPLED	21-May-24
LAB SAMPLE No	483304	DATE RECEIVED	30-May-24
DATE TESTED	04-Jun-24	SAMPLED BY	Client

MATERIAL	Brown clayey SAND.
ADVISED SOURCE	Site Investigation Sample

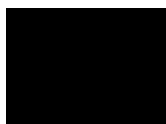
Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		5	100	
90	100		2	100	
75	100		0.6	99	
50	100		0.425	98	
37.5	100		0.3	86	
20	100		0.2	45	
14	100		0.15	34	
10	100		0.063	23	



As received water content	17.7%
---------------------------	-------

REMARKS

SIGNED



NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE

02-Jul-24

TEST CERTIFICATE
PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892-4:2016

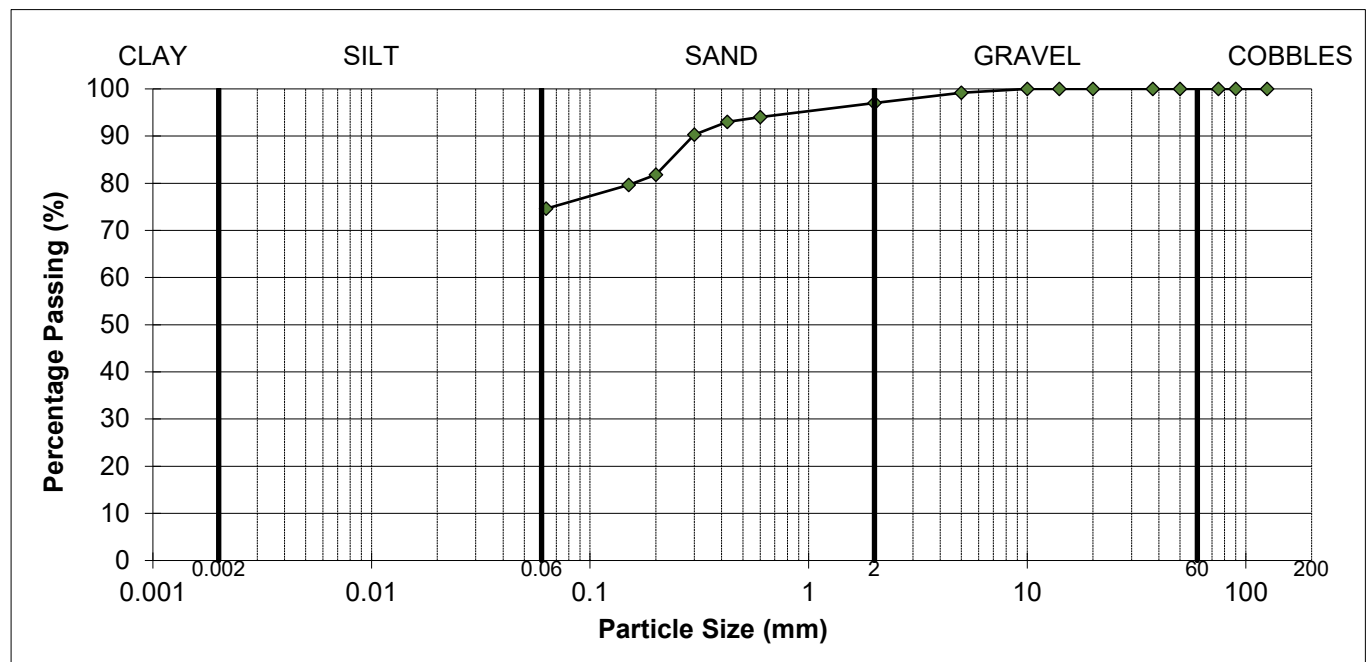
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

CLIENT	LK Consult Ltd
SITE	LKC 23 1405 - Park Hill Avenue, Crumpsall
JOB NUMBER	MRN 24076/54

SAMPLE LABEL	WS101 2.00-3.00m	DATE SAMPLED	21-May-24
LAB SAMPLE No	483306	DATE RECEIVED	30-May-24
DATE TESTED	04-Jun-24	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly CLAY.
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		5	99	
90	100		2	97	
75	100		0.6	94	
50	100		0.425	93	
37.5	100		0.3	90	
20	100		0.2	82	
14	100		0.15	80	
10	100		0.063	75	



As received water content	26.7%
---------------------------	-------

REMARKS

SIGNED



NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE

02-Jul-24

TEST CERTIFICATE
PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892-4:2016

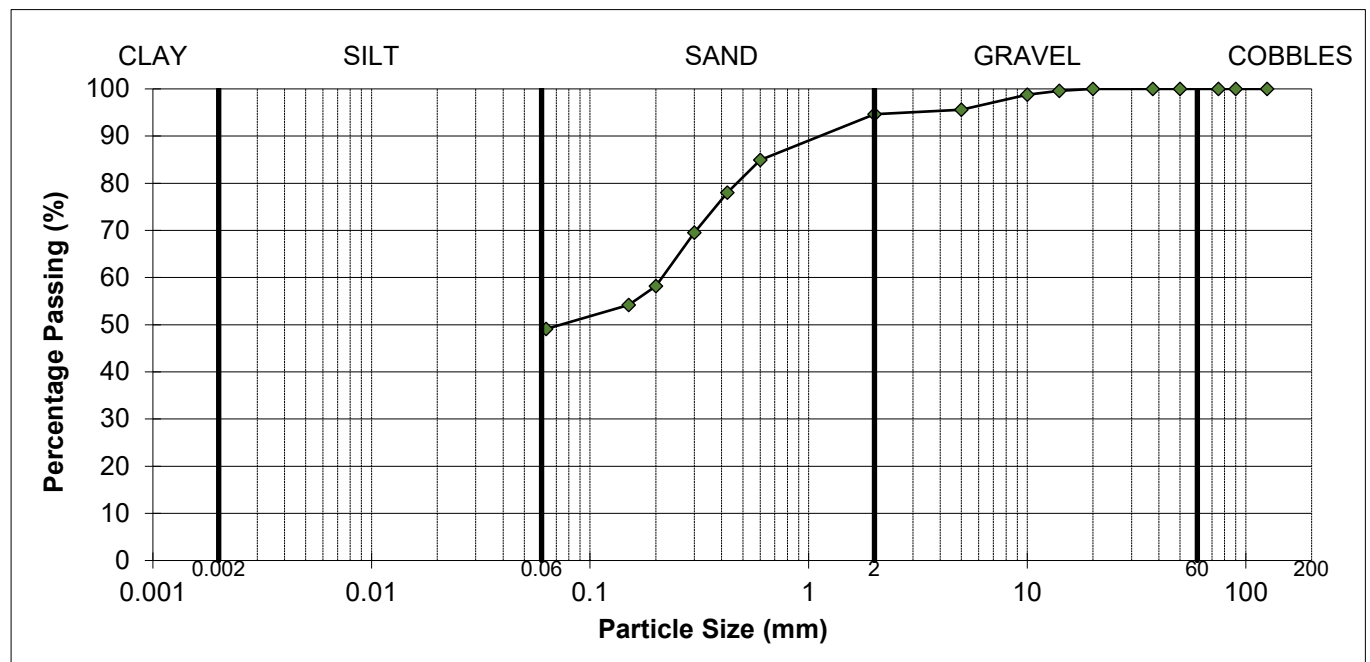
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

CLIENT	LK Consult Ltd
SITE	LKC 23 1405 - Park Hill Avenue, Crumpsall
JOB NUMBER	MRN 24076/54

SAMPLE LABEL	TP101 2.50-3.00m	DATE SAMPLED	21-May-24
LAB SAMPLE No	483310	DATE RECEIVED	30-May-24
DATE TESTED	04-Jun-24	SAMPLED BY	Client

MATERIAL	Brown silty very sandy slightly gravelly CLAY.
ADVISED SOURCE	Site Investigation Sample

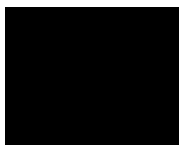
Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		5	96	
90	100		2	95	
75	100		0.6	85	
50	100		0.425	78	
37.5	100		0.3	70	
20	100		0.2	58	
14	100		0.15	54	
10	99		0.063	49	



As received water content	26.7%
---------------------------	-------

REMARKS

SIGNED



NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE

02-Jul-24

MURRAY RIX
ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

TEST CERTIFICATE
PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892-4:2016

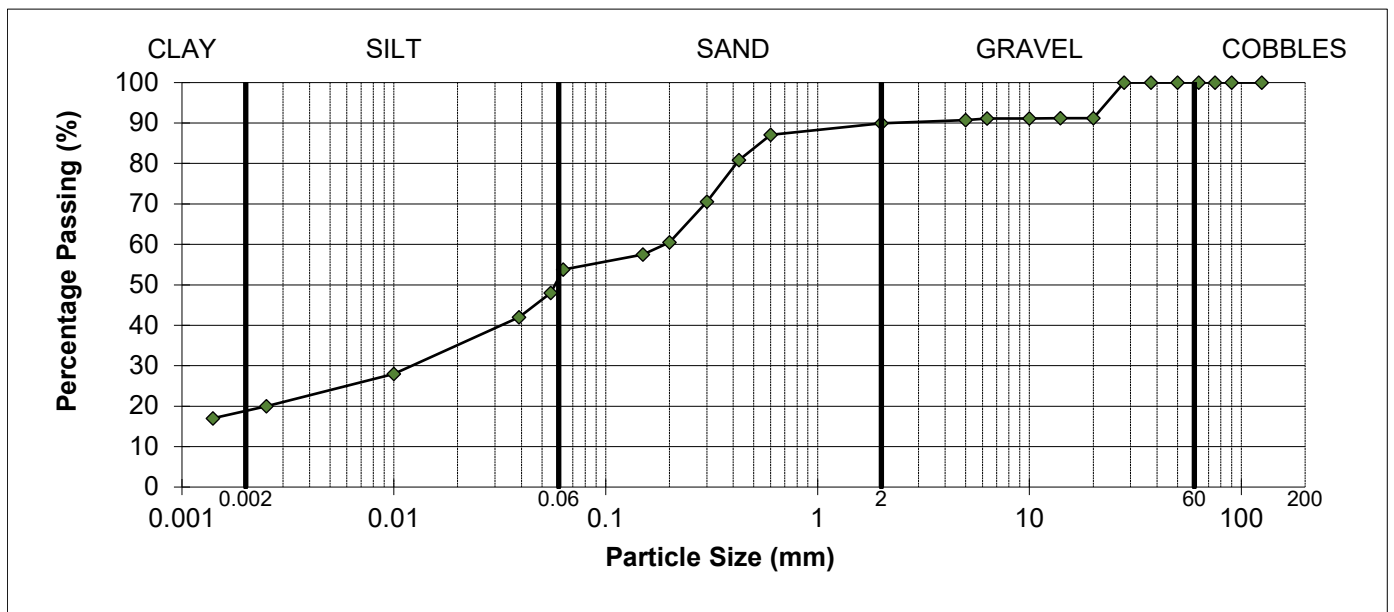
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

CLIENT	LK Consult Ltd
SITE	LKC 23 1405 - Park Hill Avenue, Crumpsall
JOB NUMBER	MRN 24076/54

SAMPLE LABEL	TP102 1.00-2.00	DATE SAMPLED	21-May-24
LAB SAMPLE No	483311	DATE RECEIVED	30-May-24
DATE TESTED	08-Jun-24	SAMPLED BY	Client

MATERIAL	Brown silty very sandy slightly gravelly CLAY.
ADVISED SOURCE	Site Investigation Sample

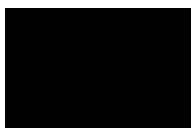
Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		2	90	
90	100		0.6	87	
75	100		0.425	81	
63	100		0.3	71	
50	100		0.2	61	
37.5	100		0.15	58	
28	100		0.063	54	
20	91		0.055	48	
14	91		0.039	42	
10	91		0.01	28	
6.3	91		0.0025	20	
5	91		0.0014	17	



REMARKS

As received water content	24.4%
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SIGNED



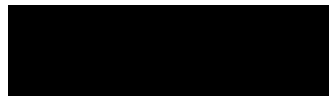
NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE

02-Jul-24

Issued by Soil Engineering Geoservices Limited,
Parkside Lane,
Dewsbury Road,
Leeds
LS11 5SX.
Tel: 0113 2711111
Fax: 0113 2760472
Email: enquiries@soil-engineering.co.uk

Authorised signatory



P. Rogers (Technical Manager)
S. Harper (Laboratory Production Manager)
K. Walker ✓ (Laboratory Manager)

Customer name Murray Rix (Northern) Ltd
Address Andrew House
 Hadfield Street
 Dukinfield
 Cheshire
 SK16 4QX

Contract name Park Hill Avenue
Your reference

Dates of receipt of samples 06/06/2024

Dates of testing 02/07/2024 to 03/07/2024

Sampling was not performed by the Laboratory of Soil Engineering.

Testing was performed on 1 number of samples received in good condition.

Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation.

Results reported relate only to the samples tested.

Tests marked 'Not UKAS' in this report are not included in the UKAS accreditation schedule for our laboratory. These results will appear in italics on any summary of tests.

Samples will be retained for 28 days from date of issue of this report and then be disposed of, unless we receive written instruction to the contrary

Key to Laboratory Summary Sheets

Common to all summaries

Sample Type	U	Undisturbed sample	D	Small disturbed sample
	P	Piston sample	B	Bulk disturbed sample
	TW	Thin walled sample	BLK	Block sample
	L	Liner sample	C	Rock core
	AMAL	Amalgamated sample		

Test status Any result in *italics* indicates a test that is not within the scope of the UKAS accreditation for this laboratory.

Summary of Laboratory Soil Tests: Index / Classification Tests

Particle density	p	Small pyknometer method	g	Gas jar method
Plastic index	N/P	Non plastic, although liquid limit will have been determined if requested		
Particle size (PSD)	¹	Following value in silt column denotes combined clay and silt fraction		
	p	Following value in clay column denotes sedimentation by pipette, else sedimentation is by hydrometer.		

Summary of Laboratory Soil Tests: Strength and Permeability Tests

Triaxial	UU	Single stage unconsolidated quick undrained	UUM	Multi stage unconsolidated quick undrained
	UU3	Set of 3 unconsolidated quick undrained	CU	Single stage consolidated undrained
	CUM	Multi stage consolidated undrained	CU3	Set of 3 consolidated undrained
	CD	Single stage consolidated drained	CDM	Multi stage consolidated drained
	CD3	Set of 3 consolidated drained		
	Note that single stage tests are reported assuming $f = 0$ for total stress and $c' = 0$ for effective stress			
Consol	Oed	One-dimensional oedometer	Hyd	Hydraulic cell consolidation
	m_v	coefficient of compressibility quoted for p_0 to $p_0 + 100\text{kPa}$, where determined		
Permeability	C	Constant head permeability	T	Triaxial permeability
Shearbox	SSB	Small shear box	LSB	Large shear box
	p	Peak value	r	Residual value
	RS	Ring shear		

Summary of Laboratory Soil Re-Use Test

MCV	s	MCV value at natural or specified moisture content	int	Intercept of calibration line in MCV calibration
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Summary of Laboratory Rock Strength Tests

Point Load Type	D	Diametral	A	Axial
(Combination of)	I	Irregular lump	B	Block
	L	Test performed parallel to planes of weakness		
	P	Test performed perpendicular to planes of weakness		
	X	Invalid failure of point load (not broken between points of load application)		

Summary of Laboratory Rock Materials Tests

Ten% fines	w	Soaked test	d	Dry test
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Point Load Index Result

Point Load Type	D	Diametral	A	Axial
(Combination of)	I	Irregular lump	B	Block
	L	Parallel to planes of weakness		
	P	Perpendicular to planes of weakness		
	X	Invalid failure of point load (not broken between points of load application)		
Dimensions	W	Diameter of core or average smallest width perpendicular to axis of loading in a block or irregular lump		
	D	Distance between platens when just in contact with specimen		
	D'	Distance between platens at point of failure		
	De	Equivalent core diameter	Is	P/De^2
	Is(50)	$F \times Is$	F	$(De/50)^{0.45}$
	Is(50) point load strength index corrected for a diametral test of core diameter 50mm			
	For Axial/Lump tests $De^2 = (4/\pi) \times (W \times D')$		For Diametral tests $De^2 = D \times D'$	

Important note: summary sheets are provided for convenience and in no way replace individual test result sheets which shall, without exception, be regarded as the definitive result.

Report number LT1966



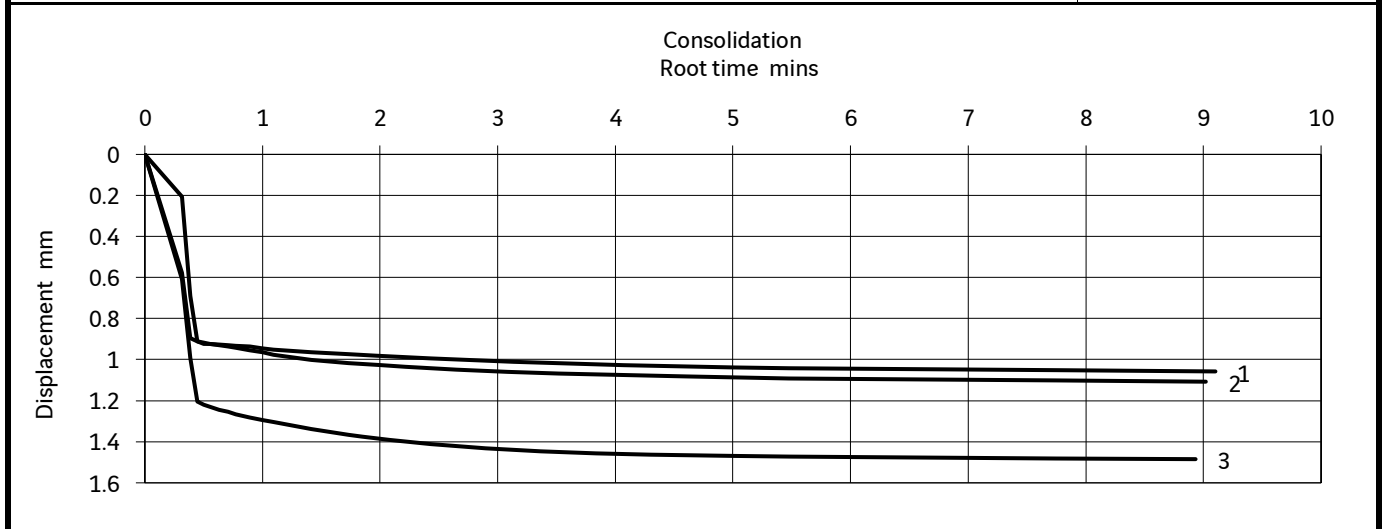
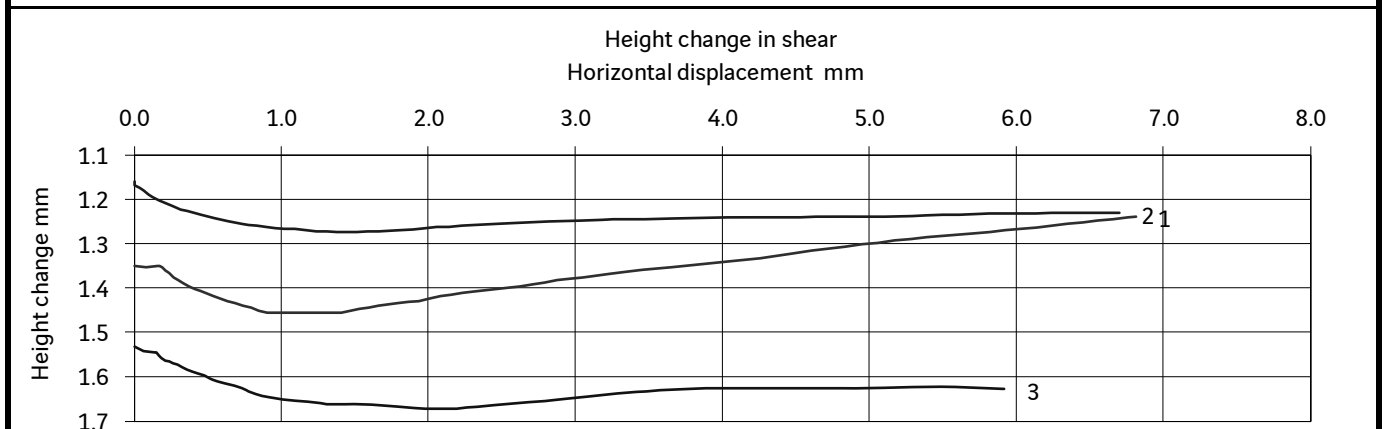
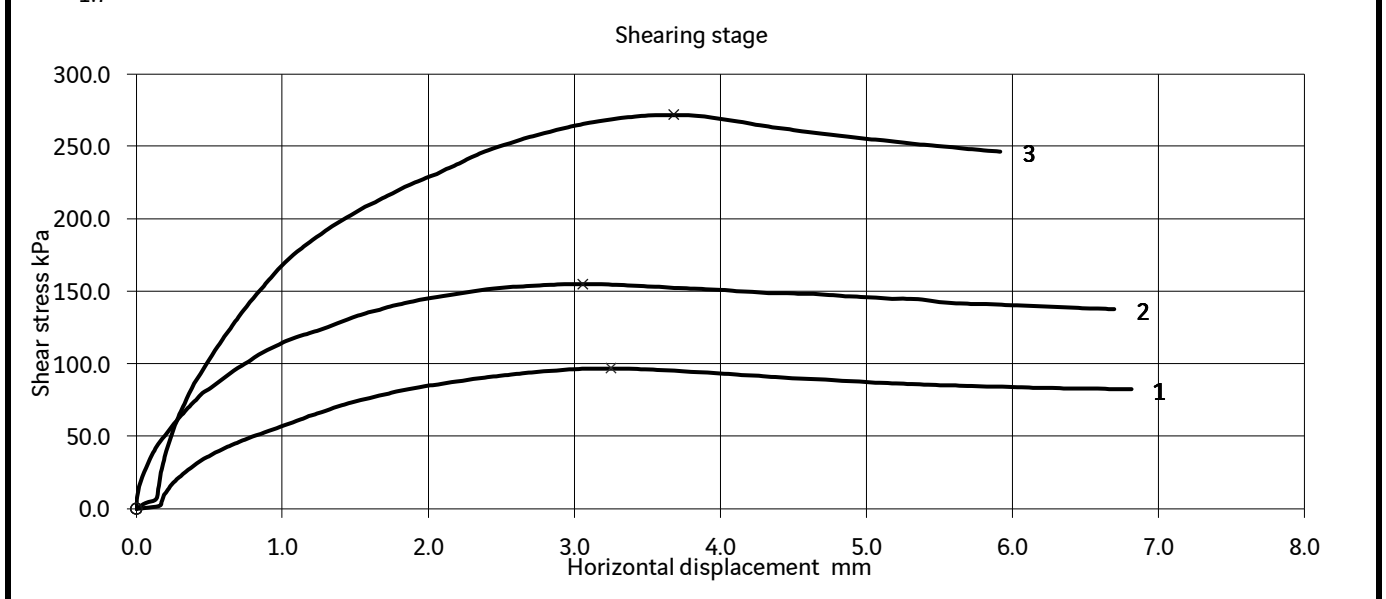
Form No. LAB001

Revision No. 2.02

Issue Date 29/07/2010

Part of the Bachy Soletanche Group

Project Name	Park Hill Avenue	Shear Strength Using The Small Shearbox BS1377: Part 7: 1990: Clause 4 with Water Content to BS EN ISO 17892-1: 2014	Hole ID CP102
Project No.	LT1966		Sample Depth 9.00m
Engineer	Murray Rix Ltd		Sample Number 4
Employer	Murray Rix Ltd		Sample Type U
Description	Brown slightly sandy slightly gravelly CLAY.		Specimen Depth 9.00m
			Specimen Number 1



Approved by:	Leeds Laboratory	Results apply to samples as received.	 SOIL engineering
Kevin Walker		Print date 04/07/2024	
Revision No. 3.04	Issue Date 01/05/2024		

Project Name Park Hill Avenue		Shear Strength Using The Small Shearbox BS1377: Part 7: 1990: Clause 4 with Water Content to BS EN ISO 17892-1: 2014		Hole ID CP102	
Project No. LT1966				Sample Depth 9.00m	
Engineer Murray Rix Ltd				Sample Number 4	
Employer Murray Rix Ltd				Sample Type U	
Description Brown slightly sandy slightly gravelly CLAY.				Specimen Depth 9.00m	
				Specimen Number 1	

Peak

c' 39 kPa

φ' 33 °

Coulomb envelope

× Peak shear strength ○ Residual shear strength

Test run number		1	2	3
Normal stress	kPa	89.4	180.2	359.9
Particle density	Assumed Mg/m3	2.65	2.65	2.65
Trimming moisture content	%	10.9	10.1	10.9
Water content of specimen before test	%	12.1	11.1	11.2
Water content of specimen after test	%	12.7	11.6	10.8
Specimen dimensions				
Side 1	mm	60.02	59.98	60.09
Side 2	mm	60.08	60.04	60.47
Height	mm	19.82	19.71	20.28
Bulk density	Mg/m3	2.27	2.24	2.24
Dry density	Mg/m3	2.03	2.02	2.02
Saturation	%	104.0	94.4	94.3
Initial voids ratio		0.31	0.31	0.31
Voids ratio after consolidation		0.24	0.24	0.22
Voids ratio after shear		0.23	0.23	0.21
Rate of displacement	mm/min	0.120	0.120	0.120
Displacement at peak	mm	3.3	3.1	3.7
Shear strength at peak	kPa	96.8	154.9	271.7
Displacement at residual	mm			
Shear strength at residual	kPa			
Final displacement	mm	6.8	6.7	5.9

Method of reversal	Peak only
--------------------	-----------

Remarks Specimen tested submerged.
 Specimen prepared from undisturbed sample.

Deviations from test method:

Approved by:	Leeds Laboratory	Results apply to samples as received.		 SOIL engineering
Kevin Walker			Print date 04/07/2024	
Revision No. 3.04		Issue Date 01/05/2024		

TEST REPORT

Client LK Consult Ltd

Address Unit 29 Eton Business Park
Eton Hill Road
Radcliffe
Greater Manchester
M26 2ZS

Contract LKC 23 1405 -
Parkhill Avenue, Crumpsall

Job Number MRN 25007/32
Date of Issue 26 March 2025
Page 1 of 10

Approved Signatories

S J Hutchings, O P Davies

Notes

- 1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.
- 2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.
- 3 Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation.
- 4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted.
- 5 The results included within the report are representative of the samples submitted for analysis.
- 6 This certificate should not be reproduced, except in full, without the express permission of the laboratory.



Andrew House, Hadfield Street, Dukinfield, Cheshire SK16 4QX Tel: 0161 475 0870
Email: enquiries@murrayrix.com Website: www.murrayrix.com

Also at: London: 020 8523 1999

Murray Rix is the trading name of Murray Rix (Northern) Limited. Registered in England 2878361

TEST CERTIFICATE
PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892-4:2016

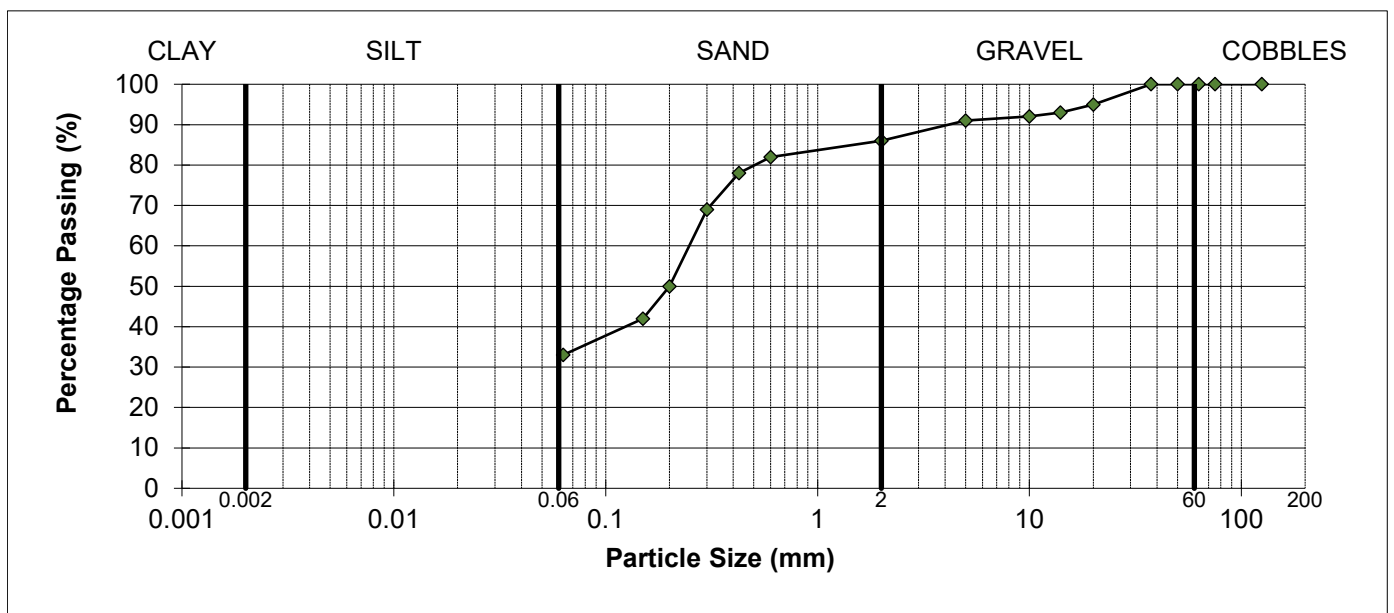
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

CLIENT	LK Consult Ltd
SITE	LKC 23 1405 - Parkhill Avenue, Crumpsall
JOB NUMBER	MRN 25007/32

SAMPLE LABEL	CP201 3.5-4.0m B	DATE SAMPLED	Not advised
LAB SAMPLE No	5030201	DATE RECEIVED	28-Feb-25
DATE TESTED	05-Mar-25	SAMPLED BY	Client

MATERIAL	Brown clayey gravelly SAND
ADVISED SOURCE	Site Investigation Sample

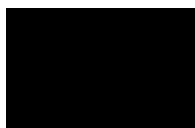
Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		5	91	
75	100		2	86	
63	100		0.6	82	
50	100		0.425	78	
37.5	100		0.3	69	
20	95		0.2	50	
14	93		0.15	42	
10	92		0.063	33	



REMARKS

As received water content = 22.0%

SIGNED



NAME O.P. Davies BA (Hons)
(Director / Head of Laboratory)

DATE

26-Mar-25

TEST CERTIFICATE
PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892-4:2016

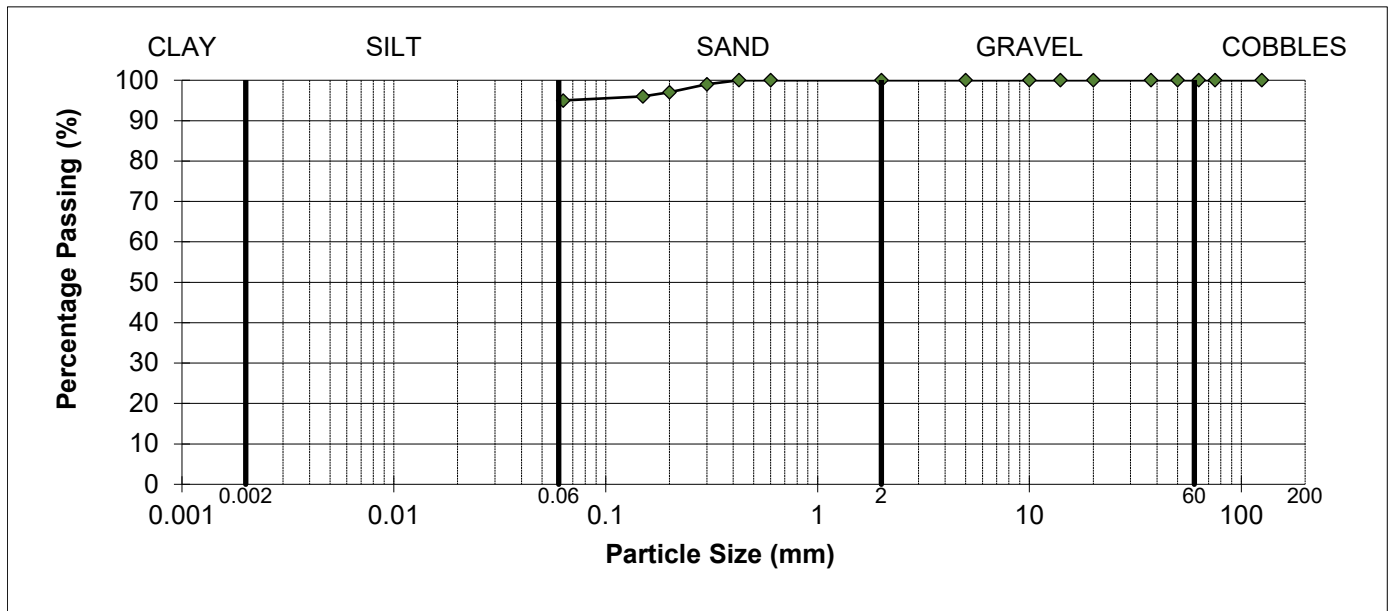
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

CLIENT	LK Consult Ltd
SITE	LKC 23 1405 - Parkhill Avenue, Crumpsall
JOB NUMBER	MRN 25007/32

SAMPLE LABEL	CP202 8.0-8.5m B	DATE SAMPLED	Not advised
LAB SAMPLE No	5030205	DATE RECEIVED	28-Feb-25
DATE TESTED	05-Mar-25	SAMPLED BY	Client

MATERIAL	Brown slightly sandy SILT
ADVISED SOURCE	Site Investigation Sample

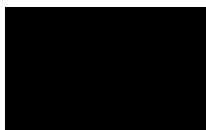
Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		5	100	
75	100		2	100	
63	100		0.6	100	
50	100		0.425	100	
37.5	100		0.3	99	
20	100		0.2	97	
14	100		0.15	96	
10	100		0.063	95	



REMARKS

As received water content = 21.3%

SIGNED



NAME O.P. Davies BA (Hons)
(Director / Head of Laboratory)

DATE

26-Mar-25

TEST CERTIFICATE
PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892-4:2016

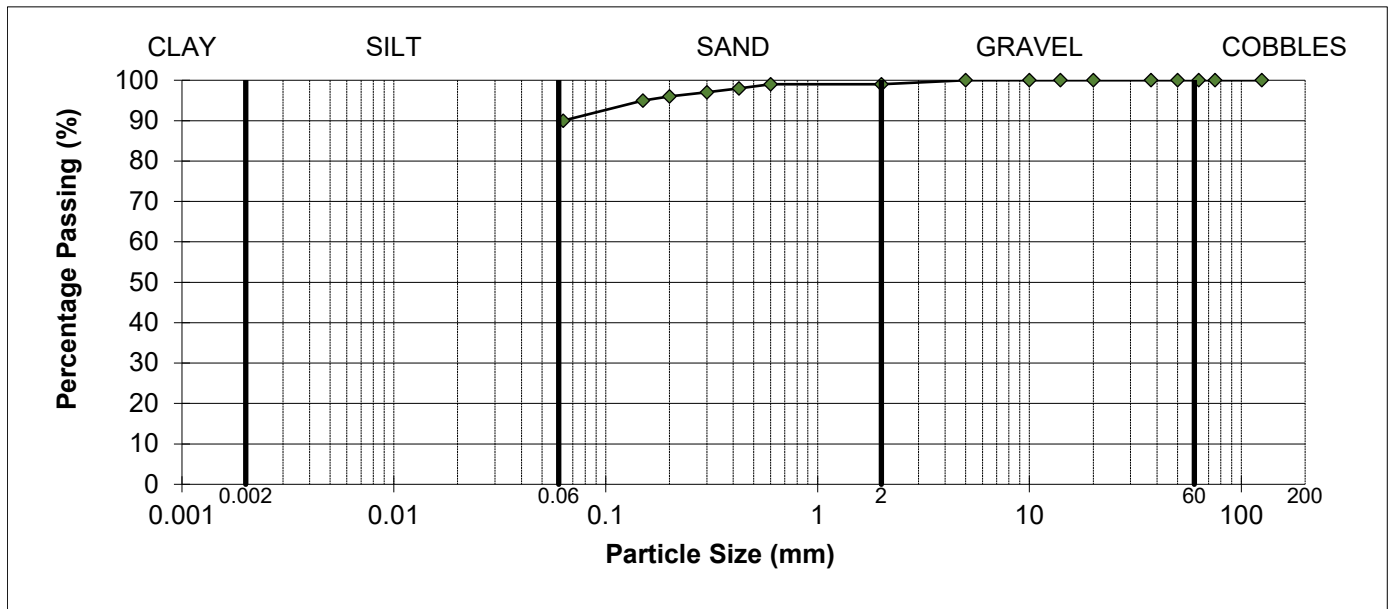
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

CLIENT	LK Consult Ltd
SITE	LKC 23 1405 - Parkhill Avenue, Crumpsall
JOB NUMBER	MRN 25007/32

SAMPLE LABEL	CP202 11.0-11.5m B	DATE SAMPLED	Not advised
LAB SAMPLE No	5030206	DATE RECEIVED	28-Feb-25
DATE TESTED	05-Mar-25	SAMPLED BY	Client

MATERIAL	Brown slightly sandy slightly gravelly SILT
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		5	100	
75	100		2	99	
63	100		0.6	99	
50	100		0.425	98	
37.5	100		0.3	97	
20	100		0.2	96	
14	100		0.15	95	
10	100		0.063	90	



REMARKS

As received water content = 31.7%

SIGNED



NAME O.P. Davies BA (Hons)
(Director / Head of Laboratory)

DATE

26-Mar-25

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

LIQUID LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.3 (30° FALL CONE) 1 POINT METHOD

PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5

WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

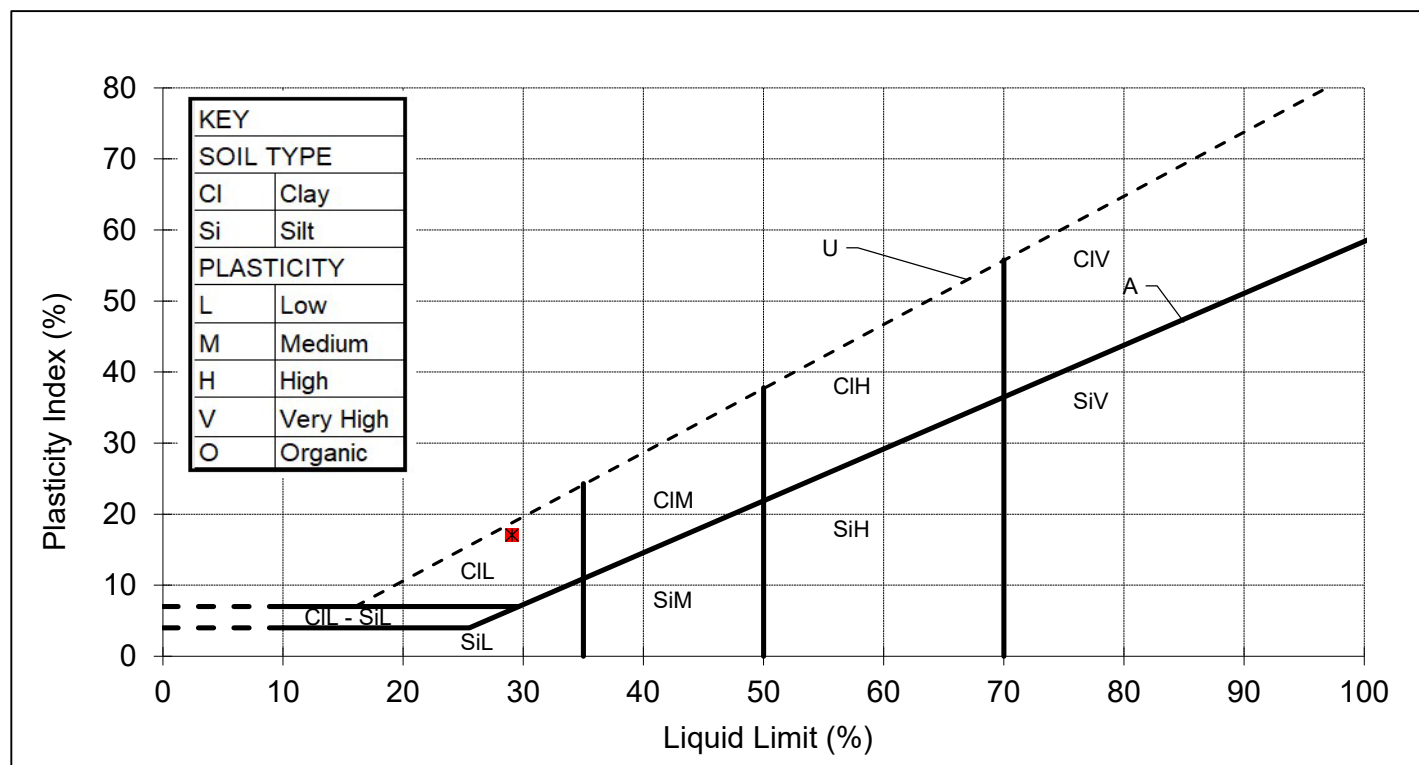
CLIENT	LK Consult Ltd
SITE	LKC 23 1405 - Parkhill Avenue, Crumpsall
JOB NUMBER	MRN 25007/32

SAMPLE LABEL	CP202 4.0-4.45 D	DATE SAMPLED	Not advised
SAMPLE No.	5030204	DATE RECEIVED	28-Feb-25
DATE TESTED	04-Mar-25	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Wet Sieved

Test Readings mm (average)		Water Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	18.5	28.6	1.023	
Determination 2 (avg)	18.4	28.2		

Natural Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
21.8	29	12	17	86



REMARKS

SIGNED

NAME

O.P. Davies BA (Hons)
(Director / Head of Laboratory)

DATE

26-Mar-25

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

LIQUID LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.3 (30° FALL CONE) 1 POINT METHOD

PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5

WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

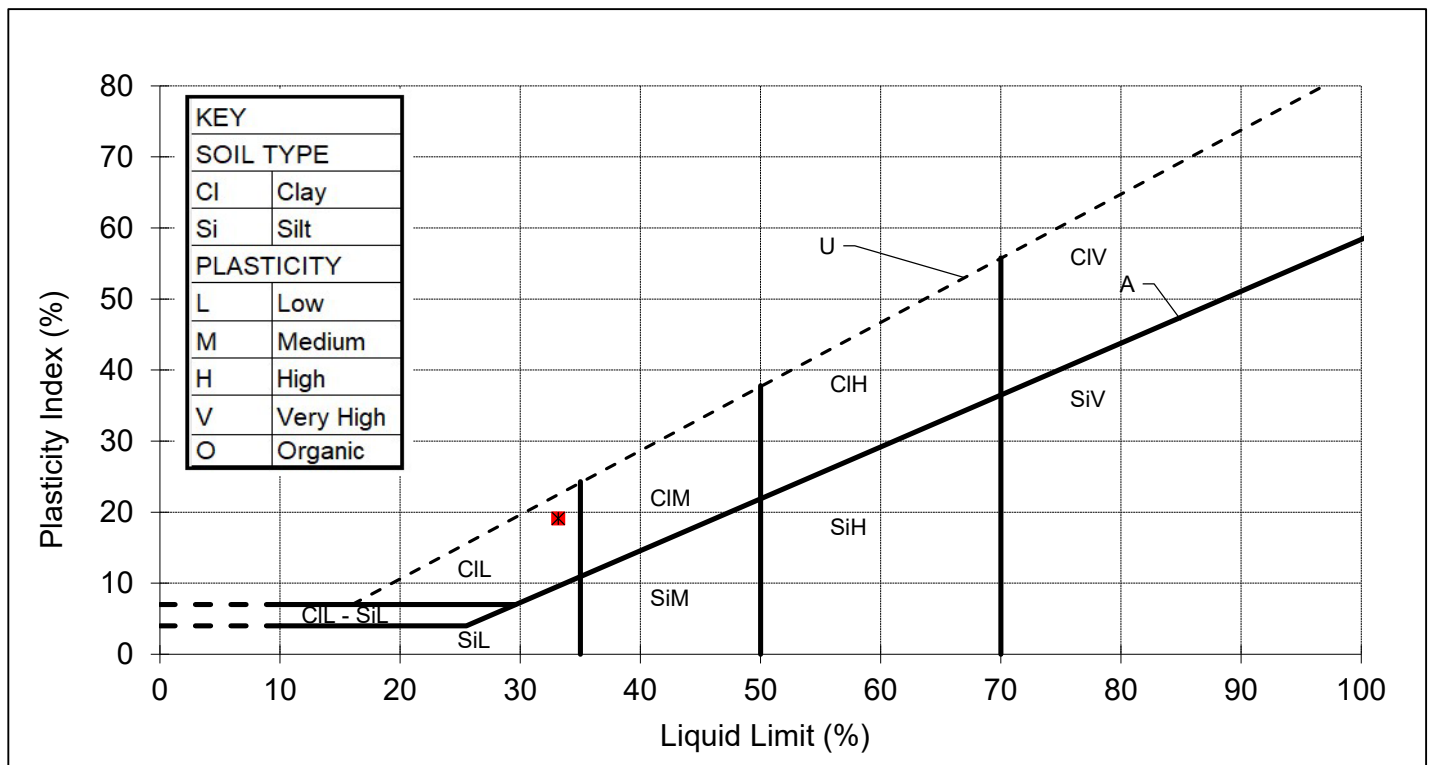
CLIENT	LK Consult Ltd
SITE	LKC 23 1405 - Parkhill Avenue, Crumpsall
JOB NUMBER	MRN 25007/32

SAMPLE LABEL	CP203 2.0-2.45m D	DATE SAMPLED	Not advised
SAMPLE No.	5030207	DATE RECEIVED	28-Feb-25
DATE TESTED	04-Mar-25	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Wet Sieved

Test Readings mm (average)		Water Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	20.0	33.2	1.002	
Determination 2 (avg)	19.8	33.0		

Natural Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
21.0	33	14	19	94



REMARKS

SIGNED

NAME

O.P. Davies BA (Hons)
(Director / Head of Laboratory)

DATE

26-Mar-25

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

LIQUID LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.3 (30° FALL CONE) 1 POINT METHOD

PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5

WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

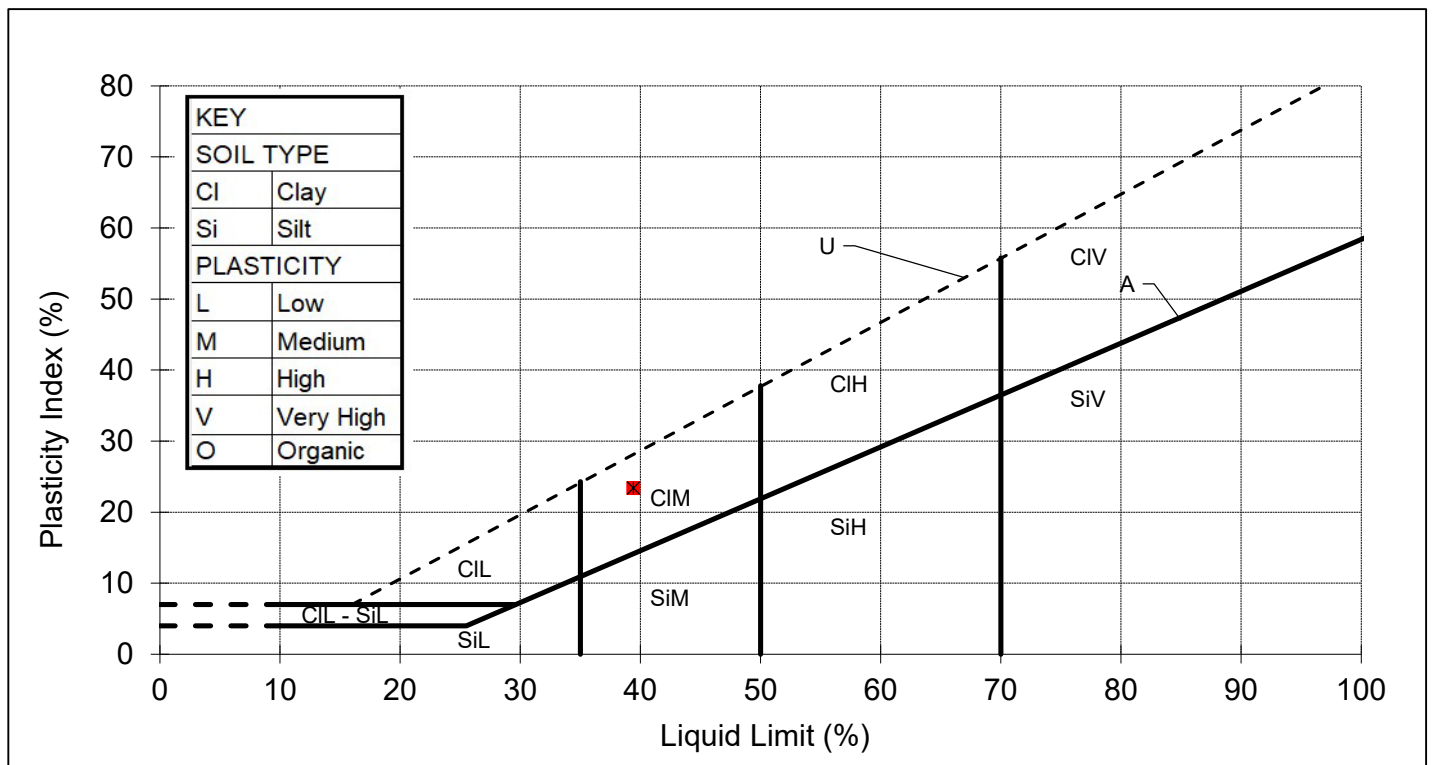
CLIENT	LK Consult Ltd
SITE	LKC 23 1405 - Parkhill Avenue, Crumpsall
JOB NUMBER	MRN 25007/32

SAMPLE LABEL	CP203 5.0-5.45m D	DATE SAMPLED	Not advised
SAMPLE No.	5030208	DATE RECEIVED	28-Feb-25
DATE TESTED	04-Mar-25	SAMPLED BY	Client

MATERIAL	Grey silty slightly sandy CLAY		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Hand Picked

Test Readings mm (average)		Water Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	16.8	37.5	1.045	
Determination 2 (avg)	17.0	37.9		

Natural Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
18.5	39	16	23	97



REMARKS

SIGNED

NAME

O.P. Davies BA (Hons)
(Director / Head of Laboratory)

DATE

26-Mar-25

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

BS EN ISO 17892-8:2018

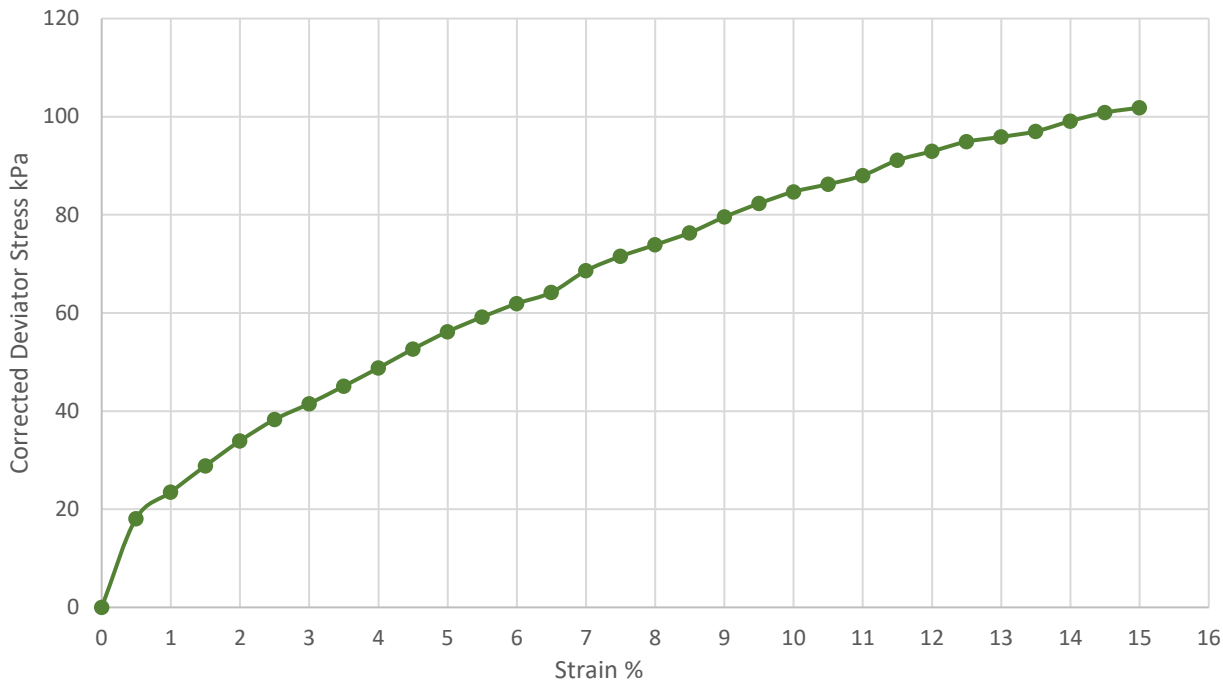
CLIENT	LK Consult Ltd
SITE	LKC 23 1405 - Parkhill Avenue, Crumpsall
JOB NUMBER	MRN 25007/32

SAMPLE LABEL	CP201 6.0-6.45m U	DATE SAMPLED	Not advised
LAB SAMPLE No.	5030202	DATE RECEIVED	28-Feb-25
DATE TESTED	14-Mar-25	SAMPLED BY	Client
MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		

INITIAL CONDITIONS

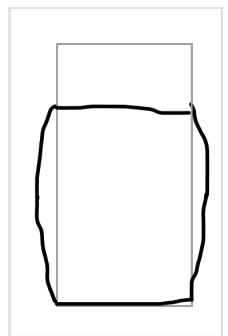
Specimen Location	Sample Length (mm)	370	Specimen depth from top of Sample (mm)	30
	Sample Orientation	Vertical	Specimen Condition	Undisturbed
	Specimen Length (mm)	201	Specimen Water Content (%)	21.2
	Specimen Diameter (mm)	101	Specimen Bulk Density (Mg/m ³)	2.16
	Membrane Thickness (mm)	0.4	Specimen Dry Density (Mg/m ³)	1.78
	Membrane Correction	3.39		

CORRECTED DEVIATOR STRESS vs AXIAL STRAIN



TEST TYPE
SINGLE STAGE

SKETCH OF
SPECIMEN AT
FAILURE



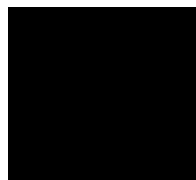
PLASTIC

Cell Pressure (kPa)	Failure Strain (%)	Rate of Strain (%/min)	Corrected Deviator Stress (kPa)	Shear Strength Cu (kPa)
120	15.0	2.0	102	51

Remarks/Abnormalities

Name O.P. Davies BA (Hons)
(Director / Head of Laboratory)

Signed



Date 26 March 2025

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

BS EN ISO 17892-8:2018

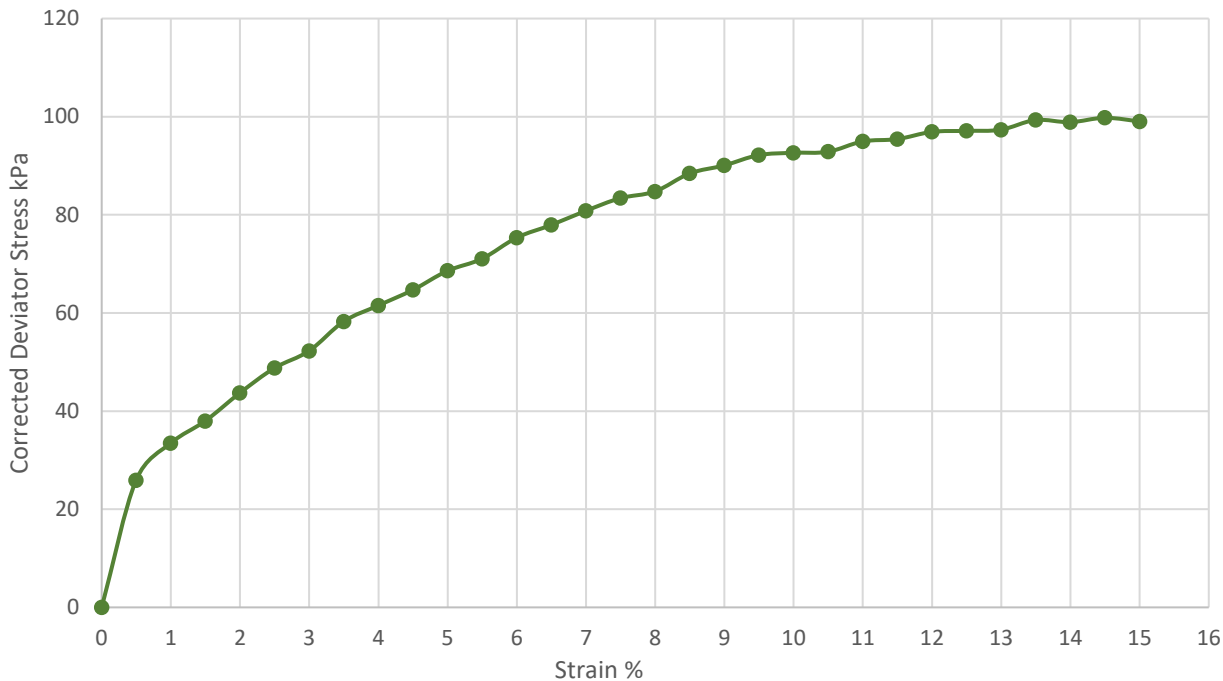
CLIENT	LK Consult Ltd
SITE	LKC 23 1405 - Parkhill Avenue, Crumpsall
JOB NUMBER	MRN 25007/32

SAMPLE LABEL	CP201 9.0-9.45m U	DATE SAMPLED	Not advised
LAB SAMPLE No.	5030203	DATE RECEIVED	28-Feb-25
DATE TESTED	14-Mar-25	SAMPLED BY	Client
MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		

INITIAL CONDITIONS

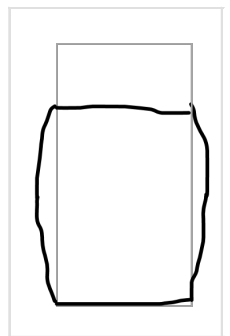
Specimen Location		Sample Length (mm)	450	Specimen depth from top of Sample (mm)	50
		Sample Orientation	Vertical	Specimen Condition	Undisturbed
		Specimen Length (mm)	200	Specimen Water Content (%)	27.4
		Specimen Diameter (mm)	101	Specimen Bulk Density (Mg/m3)	2.08
		Membrane Thickness (mm)	0.4	Specimen Dry Density (Mg/m3)	1.63
		Membrane Correction	3.39		

CORRECTED DEVIATOR STRESS vs AXIAL STRAIN



TEST TYPE
SINGLE STAGE

SKETCH OF
SPECIMEN AT
FAILURE



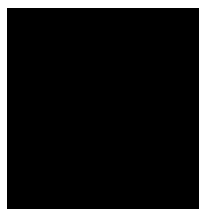
PLASTIC

Cell Pressure (kPa)	Failure Strain (%)	Rate of Strain (%/min)	Corrected Deviator Stress (kPa)	Shear Strength Cu (kPa)
180	14.5	2.0	100	50

Remarks/Abnormalities

Name O.P. Davies BA (Hons)
(Director / Head of Laboratory)

Signed



Date 26 March 2025

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

BS EN ISO 17892-8:2018

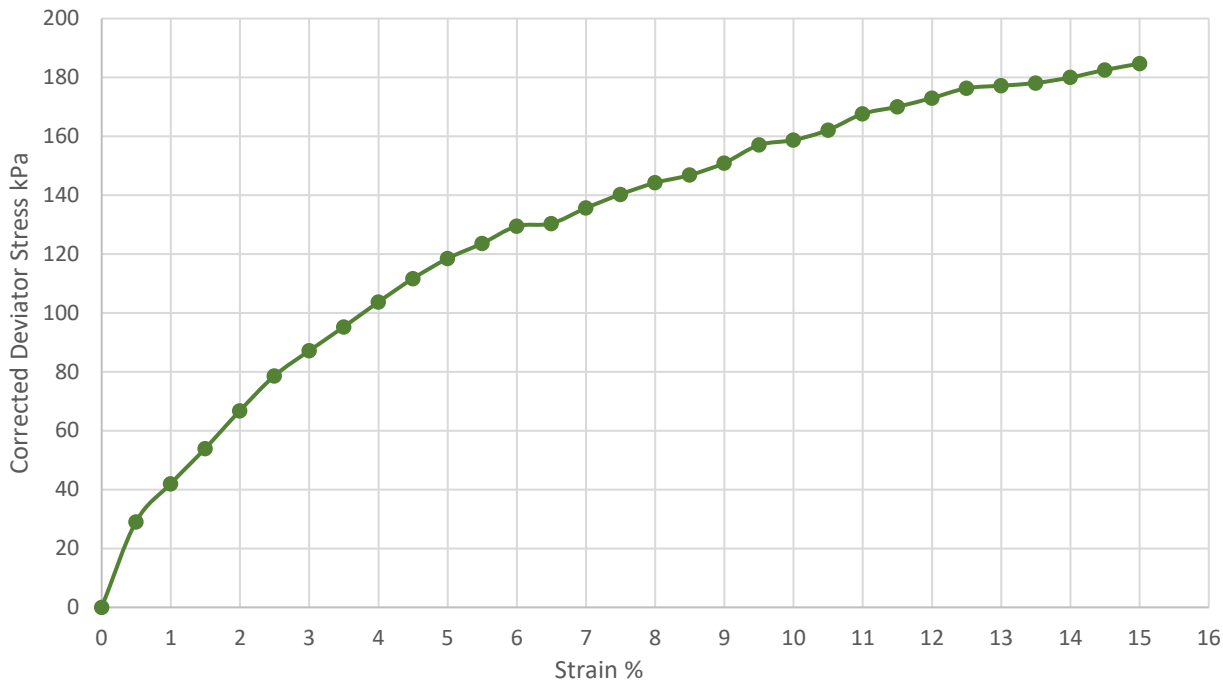
CLIENT	LK Consult Ltd
SITE	LKC 23 1405 - Parkhill Avenue, Crumpsall
JOB NUMBER	MRN 25007/32

SAMPLE LABEL	CP203 9.0-9.45m U	DATE SAMPLED	Not advised
LAB SAMPLE No.	5030209	DATE RECEIVED	28-Feb-25
DATE TESTED	14-Mar-25	SAMPLED BY	Client
MATERIAL	Brown grey silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		

INITIAL CONDITIONS

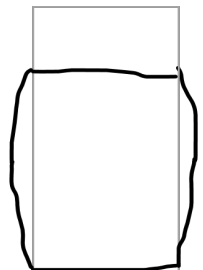
Specimen Location		Sample Length (mm)	450	Specimen depth from top of Sample (mm)	30
		Sample Orientation	Vertical	Specimen Condition	Undisturbed
		Specimen Length (mm)	200	Specimen Water Content (%)	20.5
		Specimen Diameter (mm)	101	Specimen Bulk Density (Mg/m3)	2.23
		Membrane Thickness (mm)	0.4	Specimen Dry Density (Mg/m3)	1.85
		Membrane Correction	3.39		

CORRECTED DEVIATOR STRESS vs AXIAL STRAIN



TEST TYPE
SINGLE STAGE

SKETCH OF
SPECIMEN AT
FAILURE



PLASTIC

Cell Pressure (kPa)	Failure Strain (%)	Rate of Strain (%/min)	Corrected Deviator Stress (kPa)	Shear Strength Cu (kPa)
180	15.0	2.0	185	92

Remarks/Abnormalities

Name O.P. Davies BA (Hons)
(Director / Head of Laboratory)

Signed



Date 26 March 2025

Appendix E – Certificates of Analysis (Water)



Catherine Baranek
LK Consult Limited
Unit 29 Eton Business Park
Eton Hill Road
Manchester
M26 2ZS

Normec DETS Limited
Unit 1
Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
ME17 2JN
t: 01622 850410

DETS Report No: 24-05759

Site Reference: Park Hill Avenue, Crumpsall

Project / Job Ref: LKC 23 1405

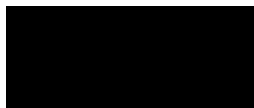
Order No: LKC231405-CB

Sample Receipt Date: 24/05/2024

Sample Scheduled Date: 24/05/2024

Report Issue Number: 1

Reporting Date: 05/06/2024



Steve Knight
Customer Support Manager

Dates of laboratory activities for each tested analyte are available upon request.

Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.



Normec DETS Limited
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410



Water Analysis Certificate						
DETS Report No: 24-05759	~Date Sampled	22/05/24	22/05/24	22/05/24		
LK Consult Limited	~Time Sampled	None Supplied	None Supplied	None Supplied		
~Site Reference: Park Hill Avenue, Crumpsall	~TP / BH No	CP101	WS103	WS104		
~Project / Job Ref: LKC 23 1405	~Additional Refs	None Supplied	None Supplied	None Supplied		
~Order No: LKC231405-CB	~Depth (m)	None Supplied	None Supplied	None Supplied		
Reporting Date: 05/06/2024	DETS Sample No	717307	717308	717309		

Determinand	Unit	RL	Accreditation	(hs)		(hs)		
pH	pH Units	N/a	ISO17025	7.9	8.1	8.0		
Total Cyanide	ug/l	< 5	ISO17025	6	< 5	< 5		
Free Cyanide	ug/l	< 5	NONE	< 5	< 5	< 5		
Sulphate as SO ₄	mg/l	< 1	ISO17025	50	66	38		
Dissolved Organic Carbon (DOC)	mg/l	<1.0	NONE	14.8	11.5	18.8		
Hardness - Total	mgCaCO ₃ /l	< 0.25	NONE	284	278	446		
Arsenic (dissolved)	ug/l	< 0.2	ISO17025	0.6	0.5	1.6		
Boron (dissolved)	ug/l	< 1	ISO17025	104	86	124		
Cadmium (dissolved)	ug/l	< 0.2	ISO17025	< 0.2	< 0.2	< 0.2		
Chromium (dissolved)	ug/l	< 0.2	ISO17025	1.0	0.9	1.3		
Chromium (hexavalent)	ug/l	< 20	NONE	< 20	< 20	< 20		
Copper (dissolved)	ug/l	< 0.2	ISO17025	1.6	0.9	1.2		
Lead (dissolved)	ug/l	< 0.2	ISO17025	0.3	0.2	0.5		
Mercury (dissolved)	ug/l	< 0.04	ISO17025	< 0.04	< 0.04	< 0.04		
Nickel (dissolved)	ug/l	< 0.2	ISO17025	2.0	18.4	6.1		
Selenium (dissolved)	ug/l	< 0.2	ISO17025	1.1	0.3	0.3		
Vanadium (dissolved)	ug/l	< 0.2	ISO17025	0.9	0.9	1.1		
Zinc (dissolved)	ug/l	< 1	ISO17025	44	60	88		
Calcium (dissolved)	mg/l	< 0.1	ISO17025	88.2	58	118		
Total Phenols (monohydric)	ug/l	< 10	ISO17025	< 10	< 10	< 10		

Subcontracted analysis ^(S)

Insufficient sample ^{I/S}

Unsuitable Sample ^{U/S}

~Sample details provided by customer and can affect the validity of results

(hs) Please note deviating sample due to head space in container



Normec DETS Limited
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

Water Analysis Certificate - Speciated PAH

DETS Report No: 24-05759	~Date Sampled	22/05/24	22/05/24	22/05/24		
LK Consult Limited	~Time Sampled	None Supplied	None Supplied	None Supplied		
~Site Reference: Park Hill Avenue, Crumpsall	~TP / BH No	CP101	WS103	WS104		
~Project / Job Ref: LKC 23 1405	~Additional Refs	None Supplied	None Supplied	None Supplied		
~Order No: LKC231405-CB	~Depth (m)	None Supplied	None Supplied	None Supplied		
Reporting Date: 05/06/2024	DETS Sample No	717307	717308	717309		

Determinand	Unit	RL	Accreditation	(hs)		(hs)		
Naphthalene	ug/l	< 0.01	NONE	< 0.01	0.01	< 0.01		
Acenaphthylene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Acenaphthene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Fluorene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Phenanthrene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Anthracene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Fluoranthene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Pyrene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Benzo(a)anthracene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Chrysene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Benzo(b)fluoranthene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Benzo(k)fluoranthene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Benzo(a)pyrene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Indeno(1,2,3-cd)pyrene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Dibenz(a,h)anthracene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Benzo(ghi)perylene	ug/l	0.008	NONE	< 0.008	< 0.008	< 0.008		
Total EPA-16 PAHs	ug/l	< 0.16	NONE	< 0.16	< 0.16	< 0.16		

~Sample details provided by customer and can affect the validity of results



Normec DETS Limited
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

Water Analysis Certificate - TPH CWG Banded						
DETS Report No: 24-05759	~Date Sampled	22/05/24	22/05/24	22/05/24		
LK Consult Limited	~Time Sampled	None Supplied	None Supplied	None Supplied		
~Site Reference: Park Hill Avenue, Crumpsall	~TP / BH No	CP101	WS103	WS104		
~Project / Job Ref: LKC 23 1405	~Additional Refs	None Supplied	None Supplied	None Supplied		
~Order No: LKC231405-CB	~Depth (m)	None Supplied	None Supplied	None Supplied		
Reporting Date: 05/06/2024	DETS Sample No	717307	717308	717309		

Determinand	Unit	RL	Accreditation	(hs)		(hs)	
Aliphatic >C5 - C6 : HS 1D MS AL	ug/l	< 10	NONE	< 10	< 10	< 10	
Aliphatic >C6 - C8 : HS 1D MS AL	ug/l	< 10	NONE	< 10	< 10	< 10	
Aliphatic >C8 - C10 : EH CU 1D AL	ug/l	< 10	NONE	< 10	< 10	< 10	
Aliphatic >C10 - C12 : EH CU 1D AL	ug/l	< 10	NONE	< 10	< 10	< 10	
Aliphatic >C12 - C16 : EH CU 1D AL	ug/l	< 10	NONE	< 10	< 10	< 10	
Aliphatic >C16 - C21 : EH CU 1D AL	ug/l	< 10	NONE	< 10	< 10	< 10	
Aliphatic >C21 - C34 : EH CU 1D AL	ug/l	< 10	NONE	< 10	< 10	< 10	
Aliphatic >C34 - C44 : EH CU 1D AL	ug/l	< 10	NONE	< 10	< 10	< 10	
Aliphatic (C5 - C44) : HS 1D MS+EH CU 1D AL	ug/l	< 70	NONE	< 70	< 70	< 70	
Aromatic >C5 - C7 : HS 1D MS AR	ug/l	< 10	NONE	< 10	< 10	< 10	
Aromatic >C7 - C8 : HS 1D MS AR	ug/l	< 10	NONE	< 10	< 10	< 10	
Aromatic >C8 - C10 : EH CU 1D AR	ug/l	< 10	NONE	< 10	< 10	< 10	
Aromatic >C10 - C12 : EH CU 1D AR	ug/l	< 10	NONE	< 10	< 10	< 10	
Aromatic >C12 - C16 : EH CU 1D AR	ug/l	< 10	NONE	< 10	< 10	< 10	
Aromatic >C16 - C21 : EH CU 1D AR	ug/l	< 10	NONE	< 10	< 10	< 10	
Aromatic >C21 - C35 : EH CU 1D AR	ug/l	< 10	NONE	< 10	< 10	< 10	
Aromatic >C35 - C44 : EH CU 1D AR	ug/l	< 10	NONE	< 10	< 10	< 10	
Aromatic (C5 - C44) : HS 1D MS+EH CU 1D AR	ug/l	< 70	NONE	< 70	< 70	< 70	
Total >C5 - C44 : HS 1D MS+EH CU 1D Total	ug/l	< 140	NONE	< 140	< 140	< 140	

~Sample details provided by customer and can affect the validity of results
(hs) Please note deviating sample due to head space in container



Normec DETS Limited
Unit 1, Rose Lane Industrial Estate
Rose Lane
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Water Analysis Certificate - BTEX / MTBE						
DETS Report No: 24-05759	~Date Sampled	22/05/24	22/05/24	22/05/24		
LK Consult Limited	~Time Sampled	None Supplied	None Supplied	None Supplied		
~Site Reference: Park Hill Avenue, Crumpsall	~TP / BH No	CP101	WS103	WS104		
~Project / Job Ref: LKC 23 1405	~Additional Refs	None Supplied	None Supplied	None Supplied		
~Order No: LKC231405-CB	~Depth (m)	None Supplied	None Supplied	None Supplied		
Reporting Date: 05/06/2024	DETS Sample No	717307	717308	717309		

Determinand	Unit	RL	Accreditation	(hs)	(hs)		
Benzene : HS 1D MS	ug/l	< 1	ISO17025	< 1	< 1	< 1	
Toluene : HS 1D MS	ug/l	< 5	ISO17025	< 5	< 5	< 5	
Ethylbenzene : HS 1D MS	ug/l	< 5	ISO17025	< 5	< 5	< 5	
p & m-xylene : HS 1D MS	ug/l	< 10	ISO17025	< 10	< 10	< 10	
o-xylene : HS 1D MS	ug/l	< 5	ISO17025	< 5	< 5	< 5	
MTBE : HS 1D MS	ug/l	< 10	ISO17025	< 10	< 10	< 10	

~Sample details provided by customer and can affect the validity of results

(hs) Please note deviating sample due to head space in container



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Water Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 24-05759

LK Consult Limited

~Site Reference: Park Hill Avenue, Crumpsall

~Project / Job Ref: LKC 23 1405

~Order No: LKC231405-CB

Reporting Date: 05/06/2024

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Water	UF	Alkalinity	Determination of alkalinity by titration against hydrochloric acid using bromocresol green as the end point	E103
Water	F	Ammoniacal Nitrogen	Determination of ammoniacal nitrogen by discrete analyser.	E126
Water	UF	BTEX	Determination of BTEX by headspace GC-MS	E101
Water	F	Cations	Determination of cations by filtration followed by ICP-MS	E102
Water	U	Chemical Oxygen Demand (COD)	Determination using a COD reactor followed by colorimetry	E112
Water	UF	Biological Oxygen Demand (COD)	Determination using BOD sensors measuring the change of pressure	E133
Water	F	Chloride	Determination of chloride by filtration & analysed by ion chromatography	E109
Water	F	Chromium - Hexavalent	Determination of hexavalent chromium by acidification, addition of 1,5 diphenylcarbazide followed by	E116
Water	UF	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E115
Water	UF	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through liquid:liquid extraction with cyclohexane	E111
Water	F	Diesel Range Organics (C10 - C24)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	Dissolved Organic Content (DOC)	Determination of DOC by filtration followed by low heat with persulphate addition followed by IR dete	E110
Water	UF	Electrical Conductivity	Determination of electrical conductivity by electrometric measurement	E123
Water	F	EPH (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E104
Water	F	Fluoride	Determination of Fluoride by filtration & analysed by ion chromatography	E109
Water	F	Hardness	Determination of Ca and Mg by ICP-MS followed by calculation	E102
Leachate	F	Leachate Preparation - NRA	Based on National Rivers Authority leaching test 1994	E301
Leachate	F	Leachate Preparation - WAC	Based on BS EN 12457 Pt1, 2, 3	E302
Water	F	Metals	Determination of metals by filtration followed by ICP-MS	E102
Water	F	Mineral Oil (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GI-FID	E104
Water	F	Nitrate	Determination of nitrate by filtration & analysed by ion chromatography	E109
Water	UF	Monohydric Phenol	Determination of phenols by distillation followed by colorimetry	E121
Water	F	PAH - Speciated (EPA 16)	Determination of PAH compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E105
Water	F	PCB - 7 Congeners	Determination of PCB compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E108
Water	UF	Petroleum Ether Extract (PEE)	Gravimetrically determined through liquid:liquid extraction with petroleum ether	E111
Water	UF	pH	Determination of pH by electrometric measurement	E107
Water	F	Phosphate	Determination of phosphate by filtration & analysed by ion chromatography	E109
Water	UF	Redox Potential	Determination of redox potential by electrometric measurement	E113
Water	F	Sulphate (as SO4)	Determination of sulphate by filtration & analysed by ion chromatography	E109
Water	UF	Sulphide	Determination of sulphide by distillation followed by colorimetry	E118
Water	F	SVOC	Determination of semi-volatile organic compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E106
Water	UF	Toluene Extractable Matter (TEM)	Gravimetrically determined through liquid:liquid extraction with toluene	E111
Water	UF	Total Organic Carbon (TOC)	Low heat with persulphate addition followed by IR detection	E110
Water	F	TPH CWG (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C35. C5 to C8 by headspace GC-MS	E104
Water	F	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C44. C5 to C8 by headspace GC-MS	E104
Water	UF	VOCs	Determination of volatile organic compounds by headspace GC-MS	E101
Water	UF	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E101

Key

F Filtered
UF Unfiltered

~Sample details provided by customer and can affect the validity of results



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List of HWOL Acronyms and Operators

Acronym	Description
HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#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 eg. EH+HS_Total or EH_CU+HS_Total
~	Sample details provided by customer and can affect the validity of results

Benzene - HS_1D_MS
Ethylbenzene - HS_1D_MS
MTBE - HS_1D_MS
TPH - Aliphatic >C34 - C44 - raw data - EH_CU_1D_AL
TPH CWG - Aliphatic >C10 - C12 - EH_CU_1D_AL
TPH CWG - Aliphatic >C12 - C16 - EH_CU_1D_AL
TPH CWG - Aliphatic >C16 - C21 - EH_CU_1D_AL
TPH CWG - Aliphatic >C21 - C34 - EH_CU_1D_AL
TPH CWG - Aliphatic >C34 - C44 - EH_CU_1D_AL
TPH CWG - Aliphatic >C5 - C44 - HS_1D_MS+EH_CU_1D_AL
TPH CWG - Aliphatic >C5 - C6 - HS_1D_MS_AL
TPH CWG - Aliphatic >C6 - C8 - HS_1D_MS_AL
TPH CWG - Aliphatic >C8 - C10 - EH_CU_1D_AL
TPH CWG - Aromatic >C10 - C12 - EH_CU_1D_AR
TPH CWG - Aromatic >C12 - C16 - EH_CU_1D_AR
TPH CWG - Aromatic >C16 - C21 - EH_CU_1D_AR
TPH CWG - Aromatic >C21 - C35 - EH_CU_1D_AR
TPH CWG - Aromatic >C35 - C44 - EH_CU_1D_AR
TPH CWG - Aromatic >C5 - C44 - HS_1D_MS+EH_CU_1D_AR
TPH CWG - Aromatic >C5 - C7 - HS_1D_MS_AR
TPH CWG - Aromatic >C7 - C8 - HS_1D_MS_AR
TPH CWG - Aromatic >C8 - C10 - EH_CU_1D_AR
TPH CWG - Total >C5 - C44 - HS_1D_MS+EH_CU_1D_Total
Toluene - HS_1D_MS
m & p-xylene - HS_1D_MS
o-Xylene - HS_1D_MS

Appendix F – Gas Monitoring Results

	LK CONSULT LTD GAS MONITORING RECORD	Site Details		Monitoring Visit Conditions		Visit No. 1 of 6
		Site Name	Parkhill Avenue, Crumpsall	Recent Weather	Sunny	
		Job Number	LKC 23 1405	Ground Conditions	Dry	
		Engineer	LGD	Approx. Air temperature (°C)	20	
		Date	10/05/2024	Atmospheric Pressure (Prev. 24 hrs)	Steady	

Site Monitoring	BH Ref.	CP101	WS101	WS102	WS103	WS104											
	Time	13:14:35	13:03:19	13:54:15	14:04:35	14:18:17											
	Barometric Pressure (mb)	1015	1015	1016	1016	1017											
	Relative Pressure (mb)	-5.71	-5.07	-6.7	-10.58	-3.99											
Gas and Groundwater Monitoring Data	Internal Flow ³ (l/hr)	0	0	0	0	0											
	Peak Flow (l/hr)	0	0	0	0	0											
	Steady CH ₄ (%v/v)	0	0	0	0	0											
	Peak CH ₄ (%v/v)	0	0	0	0	0											
	% LEL ²	0	0	0	0	0											
	Steady CO ₂ (%v/v)	1.9	1.6	2.8	6.6	2.5											
	Peak CO ₂ (%v/v)	1.9	1.6	2.8	6.6	3.4											
	Steady O ₂ (%v/v)	17.5	18.3	17.3	11.2	15.4											
	Min O ₂ (%v/v)	17.5	18.3	17.3	11.2	13.3											
	Balance (%)	80.6	80.1	79.9	82.2	82.1											
	Steady CO (ppm)	2	2	3	5	4											
	Peak CO (ppm)	3	2	1	6	5											
	Steady H ₂ S (ppm)	0	1	0	1	0											
	Peak H ₂ S (ppm)	0	1	0	1	0											
	Steady PID (ppm)	0	0.1	0	0	0											
	Max PID (ppm)	0.1	0.3	0.1	0	0.1											
	Standing Water Level (mbgl)	7.2	Dry	Dry	3.18	3.1											
	Installation Base Depth (mbgl)	14.9	4.9	1.96	5.2	4.5											
	Response Zone/Strata	1-5m (S)	1-14m (Cl / S)	1-5m (Cl / S / Si)	1-5m (Si / Cl)	1-5m (Si / Cl)											
	Comments																

Equipment			ABBREVIATIONS			NOTES	
Gas Machine	Gas Analyser GA5000		ND	Not detected	ppm	Parts per million	All monitoring is carried out in line with LK Consult Ltd procedures, with reference to CIRIA C665.
	G502417		NR	Not recorded	mb	Millibars	
Dipmeter	HydroTechnik		UR	Unable to record	l/hr	Litres per hour	¹ Equipment is serviced and checked as recommended by the manufacturer. Refer to calibration records and service certificates.
	HT-03		OS	Off recordable scale	mbgl	Metres below ground level	
PID	0		N/A	Not applicable	LEL	Lower explosive limit in air	² CH ₄ is explosive between the range of 5-15%v/v. 100% lower explosive limit is equal to 5%v/v CH ₄ . ³ Flow readings are based on steady 1 minute value where flow is detected (equipment range of +/- 12 ltr/hr).
	0						

	LK CONSULT LTD GAS MONITORING RECORD	Site Details		Monitoring Visit Conditions		Visit No. 2 of 6
		Site Name	Parkhill Avenue, Crumpsall	Recent Weather	Heavy rain, light wind, cool.	
		Job Number	LKC 23 1405	Ground Conditions	Wet	
		Engineer	JW	Approx. Air temperature (°C)	12	
		Date	00/01/1900	Atmospheric Pressure (Prev. 24 hrs)	Falling	

Site Monitoring	BH Ref.	CP101	WS101	WS102	WS103	WS104											
	Time	12:54:11	13:27:56	13:39:30	14:13:30	13:50:10											
Gas and Groundwater Monitoring Data	Barometric Pressure (mb)	996	996	996	996	996											
	Relative Pressure (mb)	-3.6	-6.52	-5.57	-4.68	-4.58											
	Internal Flow ³ (l/hr)	0	0	0	0	0											
	Peak Flow (l/hr)	0	0	0	0	0											
	Steady CH ₄ (%v/v)	0	0	0	0	0											
	Peak CH ₄ (%v/v)	0.1	0.1	0	0.1	0.1											
	% LEL ²	0	0	0	0	0											
	Steady CO ₂ (%v/v)	5.6	2.7	6.5	6.3	11											
	Peak CO ₂ (%v/v)	5.6	2.7	6.6	6.4	11											
	Steady O ₂ (%v/v)	16.1	18.7	15.2	11	4.8											
	Min O ₂ (%v/v)	16.1	18.7	15.2	11	4.8											
	Balance (%)	78.3	78.6	78.3	82.7	84.2											
	Steady CO (ppm)	2	1	1	1	1											
	Peak CO (ppm)	4	1	1	3	6											
	Steady H ₂ S (ppm)	0	0	0	0	0											
	Peak H ₂ S (ppm)	0	0	0	0	0											
	Steady PID (ppm)	NR	NR	NR	NR	NR											
	Max PID (ppm)	NR	NR	NR	NR	NR											
	Standing Water Level (mbgl)	7.24	Dry	Dry	3.28	3.39											
	Installation Base Depth (mbgl)	14.23	4.87	4.92	4.47	5.16											
	Response Zone/Strata	1-5m (S)	1-14m (Cl / S)	1-5m (Cl / S / Si)	1-5m (Si / Cl)	1-5m (Si / Cl)											
	Comments																

Equipment		ABBREVIATIONS				NOTES	
Gas Machine	Gas Analyser GA5000	ND	Not detected	ppm	Parts per million	All monitoring is carried out in line with LK Consult Ltd procedures, with reference to CIRIA C665.	
	G502417	NR	Not recorded	mb	Millibars		
Dipmeter	Geotech Oil-in-Water Interface Meter	UR	Unable to record	l/hr	Litres per hour	¹ Equipment is serviced and checked as recommended by the manufacturer. Refer to calibration records and service certificates.	
	HT-01	OS	Off recordable scale	mbgl	Metres below ground level		
PID	-	N/A	Not applicable	LEL	Lower explosive limit in air	² CH ₄ is explosive between the range of 5-15%v/v. 100% lower explosive limit is equal to 5%v/v CH ₄ .	
	-						

³Flow readings are based on steady 1 minute value where flow is detected (equipment range of +/- 12 ltr/hr).

	LK CONSULT LTD GAS MONITORING RECORD	Site Details		Monitoring Visit Conditions		Visit No. 3 of 6
		Site Name	Parkhill Avenue, Crumpsall	Recent Weather	Clear, Dry, Warm	
		Job Number	LKC 23 1405	Ground Conditions	Dry	
		Engineer	CD	Approx. Air temperature (°C)	15	
		Date	12/06/2024	Atmospheric Pressure (Prev. 24 hrs)	Rising	

Site Monitoring	BH Ref.	CP101	WS101	WS102	WS103	WS104											
	Time	15:30:48	15:39:53	15:20:49	15:00:22	15:08:21											
Gas and Groundwater Monitoring Data	Barometric Pressure (mb)	1012	1012	1012	1012	1013											
	Relative Pressure (mb)	0.27	-0.3	0.12	0.39	-0.02											
	Internal Flow ³ (l/hr)	0.1	0	0	0	0											
	Peak Flow (l/hr)	0.1	-0.1	0	0	0											
	Steady CH ₄ (%v/v)	0	0	0	0	0											
	Peak CH ₄ (%v/v)	0	0	0	0.1	0											
	% LEL ²	0	0	0	0	0											
	Steady CO ₂ (%v/v)	2.4	2.4	6.4	11.8	7.3											
	Peak CO ₂ (%v/v)	2.4	2.4	6.4	11.8	7.3											
	Steady O ₂ (%v/v)	17.4	17.6	14.1	5.2	8.2											
	Min O ₂ (%v/v)	17.4	17.6	14.1	5.2	8.2											
	Balance (%)	80.2	80	79.5	83	84.5											
	Steady CO (ppm)	2	1	1	1	1											
	Peak CO (ppm)	4	1	1	6	3											
	Steady H ₂ S (ppm)	0	1	0	0	0											
	Peak H ₂ S (ppm)	0	1	0	0	0											
	Steady PID (ppm)	NR	NR	NR	NR	NR											
	Max PID (ppm)	NR	NR	NR	NR	NR											
	Standing Water Level (mbgl)	7.23	Dry	Dry	3.65	3.44											
	Installation Base Depth (mbgl)	14.17	4.87	4.91	5.15	4.46											
	Response Zone/Strata	1-5m (S)	1-14m (Cl / S)	1-5m (Cl / S / Si)	1-5m (Si / Cl)	1-5m (Si / Cl)											
	Comments																

Equipment		ABBREVIATIONS			NOTES		
Gas Machine	Gas Analyser GA5000	ND	Not detected	ppm	Parts per million	All monitoring is carried out in line with LK Consult Ltd procedures, with reference to CIRIA C665.	
	G502417	NR	Not recorded	mb	Millibars		
Dipmeter	HydroTechnik	UR	Unable to record	l/hr	Litres per hour	¹ Equipment is serviced and checked as recommended by the manufacturer. Refer to calibration records and service certificates.	
	HT-01	OS	Off recordable scale	mbgl	Metres below ground level		
PID	-	N/A	Not applicable	LEL	Lower explosive limit in air	² CH ₄ is explosive between the range of 5-15%v/v. 100% lower explosive limit is equal to 5%v/v CH ₄ .	
	-						

³Flow readings are based on steady 1 minute value where flow is detected (equipment range of +/- 12 ltr/hr).

 LK CONSULT	LK CONSULT LTD GAS MONITORING RECORD	Site Details		Monitoring Visit Conditions		Visit No. 4 of 6
		Site Name	Parkhill Avenue, Crumpsall	Recent Weather	Overcast, Warm	
		Job Number	LKC 23 1405	Ground Conditions	Wet	
		Engineer	LGD	Approx. Air temperature (°C)	16	
		Date	03/07/2024	Atmospheric Pressure (Prev. 24 hrs)	Steady	

Site Monitoring	BH Ref.	CP101	WS101	WS102	WS103	WS104											
	Time	12:52:25	12:29:17	13:03:35	13:15:19	13:26:07											
	Barometric Pressure (mb)	998	998	999	999	1000											
	Relative Pressure (mb)	-4.8	-6.14	-7.51	-6.25	-5.12											
Gas and Groundwater Monitoring Data	Internal Flow ³ (l/hr)	0.1	-0.1	0	0	0											
	Peak Flow (l/hr)	0.1	0.1	0	0	0											
	Steady CH ₄ (%v/v)	0	0	0	0	0											
	Peak CH ₄ (%v/v)	0	0	0	0	0											
	% LEL ²	0	0	0	0	0											
	Steady CO ₂ (%v/v)	5.5	4	5.9	11.5	5.6											
	Peak CO ₂ (%v/v)	5.5	4	5.9	11.5	6.3											
	Steady O ₂ (%v/v)	14.8	17.3	14.6	10.8	14.9											
	Min O ₂ (%v/v)	14.7	17.3	14.6	10.8	13.8											
	Balance (%)	79.7	78.7	79.5	77.7	79.5											
	Steady CO (ppm)	0	0	0	0	0											
	Peak CO (ppm)	2	1	2	2	3											
	Steady H ₂ S (ppm)	0	0	0	0	0											
	Peak H ₂ S (ppm)	0	0	0	0	0											
	Steady PID (ppm)	0	0	0	0	0											
	Max PID (ppm)	0	0	0	0	0											
	Standing Water Level (mbgl)	7.22	Dry	Dry	4.03	3.84											
	Installation Base Depth (mbgl)	14.03	4.9	4.92	5.18	4.49											
	Response Zone/Strata	1-5m (S)	1-14m (Cl / S)	1-5m (Cl / S / Si)	1-5m (Si / Cl)	1-5m (Si / Cl)											
	Comments																

Equipment			ABBREVIATIONS			NOTES	
Gas Machine	Gas Analyser GA5000		ND	Not detected	ppm	Parts per million	All monitoring is carried out in line with LK Consult Ltd procedures, with reference to CIRIA C665.
	G507783		NR	Not recorded	mb	Millibars	
Dipmeter	HydroTechnik		UR	Unable to record	l/hr	Litres per hour	¹ Equipment is serviced and checked as recommended by the manufacturer. Refer to calibration records and service certificates.
	HT-02		OS	Off recordable scale	mbgl	Metres below ground level	
PID	-		N/A	Not applicable	LEL	Lower explosive limit in air	² CH ₄ is explosive between the range of 5-15%v/v. 100% lower explosive limit is equal to 5%v/v CH ₄ . ³ Flow readings are based on steady 1 minute value where flow is detected (equipment range of +/- 12 ltr/hr).
	-						

	LK CONSULT LTD GAS MONITORING RECORD	Site Details		Monitoring Visit Conditions		Visit No. 5 of 6
		Site Name	Parkhill Avenue, Crumpsall	Recent Weather	Cloudy/overcast	
		Job Number	LKC 23 1405	Ground Conditions	Dry	
		Engineer	HW	Approx. Air temperature (°C)	18	
		Date	24/07/2024	Atmospheric Pressure (Prev. 24 hrs)	Steady	

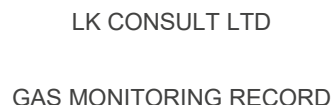
Site Monitoring	BH Ref.	CP101	WS101	WS102	WS103	WS104											
	Time	12:17:01	12:33:26	12:03:43	12:45:05	12:57:20											
Gas and Groundwater Monitoring Data	Barometric Pressure (mb)	1013	1013	1012	1013	1013											
	Relative Pressure (mb)	-3.68	-6.67	-5.09	-5.79	-6.9											
	Internal Flow ³ (l/hr)	-0.1	0	0	0	0											
	Peak Flow (l/hr)	0	0	0	0	0											
	Steady CH ₄ (%v/v)	0	0	0	0	0											
	Peak CH ₄ (%v/v)	0	0	0	0	0											
	% LEL ²	0	0	0	0	0											
	Steady CO ₂ (%v/v)	5.1	2.9	6	11.1	5.9											
	Peak CO ₂ (%v/v)	5.1	2.9	6	11.1	6.7											
	Steady O ₂ (%v/v)	15.9	17.6	15.2	8.2	15.7											
	Min O ₂ (%v/v)	15.9	17.6	15.2	8.2	15.2											
	Balance (%)	79	79.5	78.8	80.7	78.4											
	Steady CO (ppm)	1	0	0	1	1											
	Peak CO (ppm)	5	3	1	7	4											
	Steady H ₂ S (ppm)	0	0	0	0	0											
	Peak H ₂ S (ppm)	0	0	0	0	0											
	Steady PID (ppm)	-	-	-	-	-											
	Max PID (ppm)	-	-	-	-	-											
	Standing Water Level (mbgl)	7.25	Dry	Dry	4.35	4.13											
	Installation Base Depth (mbgl)	14.15	4.87	4.91	5.16	4.46											
	Response Zone/Strata	1-5m (S)	1-14m (Cl / S)	5m (Cl / S)	1-5m (Si / Cl)	1-5m (Si / Cl)											
	Comments	0	0	0	0	0											

Equipment			ABBREVIATIONS			NOTES	
Gas Machine	Gas Analyser GA5000		ND	Not detected	ppm	Parts per million	All monitoring is carried out in line with LK Consult Ltd procedures, with reference to CIRIA C665.
	G507783		NR	Not recorded	mb	Millibars	
Dipmeter	HydroTechnik		UR	Unable to record	l/hr	Litres per hour	¹ Equipment is serviced and checked as recommended by the manufacturer. Refer to calibration records and service certificates.
	HT-02		OS	Off recordable scale	mbgl	Metres below ground level	
PID	-		N/A	Not applicable	LEL	Lower explosive limit in air	² CH ₄ is explosive between the range of 5-15%v/v. 100% lower explosive limit is equal to 5%v/v CH ₄ . ³ Flow readings are based on steady 1 minute value where flow is detected (equipment range of +/- 12 ltr/hr).
	-						

 LK CONSULT	LK CONSULT LTD GAS MONITORING RECORD	Site Details		Monitoring Visit Conditions		Visit No.
		Site Name	Parkhill Avenue, Crumpsall	Recent Weather	sunny, windy, cloudy	6
		Job Number	LKC 23 1405	Ground Conditions	Dry	of
		Engineer	HW	Approx. Air temperature (°C)	18	6
		Date	09/08/2024	Atmospheric Pressure (Prev. 24 hrs)	Rising	

Site Monitoring	BH Ref.	CP101	WS101	WS102	WS103	WS104											
	Time	11:44:37	11:35:35	11:56:39	12:05:35	12:14:28											
Gas and Groundwater Monitoring Data	Barometric Pressure (mb)	1006	1005	1006	1006	1007											
	Relative Pressure (mb)	-0.6	0.04	-0.02	-0.05	0.04											
	Internal Flow ³ (l/hr)	0	0	0	0	0											
	Peak Flow (l/hr)	0	0	0	0	0											
	Steady CH ₄ (%v/v)	0	0	0	0	0											
	Peak CH ₄ (%v/v)	0	0	0	0	0											
	% LEL ²	0	0	0	0	0											
	Steady CO ₂ (%v/v)	0.2	2.3	2.4	10.6	3.7											
	Peak CO ₂ (%v/v)	0.3	2.4	2.6	11	4.7											
	Steady O ₂ (%v/v)	20.8	19.4	19.4	10	18.6											
	Min O ₂ (%v/v)	20.8	19.3	19.1	9.5	17.8											
	Balance (%)	79	78.3	78.2	79.4	77.7											
	Steady CO (ppm)	0	0	0	0	0											
	Peak CO (ppm)	5	2	1	1	2											
	Steady H ₂ S (ppm)	0	0	0	0	0											
	Peak H ₂ S (ppm)	0	0	0	0	0											
	Steady PID (ppm)	-	-	-	-	-											
	Max PID (ppm)	-	-	-	-	-											
	Standing Water Level (mbgl)	7.27	DRY	DRY	4.57	DRY											
	Installation Base Depth (mbgl)	14.12	4.86	4.91	5.16	4.44											
	Response Zone/Strata	1-5m (S)	1-14m (Cl / S)	5m (Cl / S)	1-5m (Si / Cl)	1-5m (Si / Cl)											
	Comments	0	0	0	0	0											

Equipment			ABBREVIATIONS			NOTES	
Gas Machine	Gas Analyser GA5000		ND	Not detected	ppm	Parts per million	All monitoring is carried out in line with LK Consult Ltd procedures, with reference to CIRIA C665.
	G502417		NR	Not recorded	mb	Millibars	
Dipmeter	HydroTechnik		UR	Unable to record	l/hr	Litres per hour	¹ Equipment is serviced and checked as recommended by the manufacturer. Refer to calibration records and service certificates.
	HT-02		OS	Off recordable scale	mbgl	Metres below ground level	
PID	-		N/A	Not applicable	LEL	Lower explosive limit in air	² CH ₄ is explosive between the range of 5-15%v/v. 100% lower explosive limit is equal to 5%v/v CH ₄ . ³ Flow readings are based on steady 1 minute value where flow is detected (equipment range of +/- 12 ltr/hr).
	-						

[illegible]

Equipment		ABBREVIATIONS				NOTES
Gas Machine	Gas Analyser GA5000	ND	Not detected	ppm	Parts per million	All monitoring is carried out in line with LK Consult Ltd procedures, with reference to CIRIA C665.
	G502417	NR	Not recorded	mb	Millibars	
Dipmeter	HydroTechnik	UR	Unable to record	l/hr	Litres per hour	¹ Equipment is serviced and checked as recommended by the manufacturer. Refer to calibration records and service certificates. ² CH4 is explosive between the range of 5-15%v/v. 100% lower explosive limit is equal to 5%v/v CH4.
	HT-02	OS	Off recordable scale	mbgl	Metres below ground level	
PID	-	N/A	Not applicable	LEL	Lower explosive limit in air	³ Flow readings are based on steady 1 minute value where flow is detected (equipment range of +/- 12 ltr/hr).
	-					

	LK CONSULT LTD GAS MONITORING RECORD	Site Details		Monitoring Visit Conditions		Visit No. 2 of 5
		Site Name	Park Hill Avenue, Crumpsall	Recent Weather	Overcast, Cold, Breezey	
		Job Number	LKC 23 1405	Ground Conditions	Wet	
		Engineer	FP	Approx. Air temperature (°C)	5	
		Date	13/02/2025	Atmospheric Pressure (Prev. 24 hrs)	Variable	

Site Monitoring	BH Ref.	CP201	CP202													
	Time	10:31:47	10:20:20													
Gas and Groundwater Monitoring Data	Barometric Pressure (mb)	1019	1018													
	Relative Pressure (mb)	0.07	0.05													
	Internal Flow ¹ (l/hr)	0	0													
	Peak Flow (l/hr)	0	0													
	Steady CH ₄ (%v/v)	0	0													
	Peak CH ₄ (%v/v)	0	0													
	% LEL ²	0	0													
	Steady CO ₂ (%v/v)	4.9	12.7													
	Peak CO ₂ (%v/v)	6.3	12.7													
	Steady O ₂ (%v/v)	2.1	0.4													
	Min O ₂ (%v/v)	2.1	0.4													
	Balance (%)	93	86.9													
	Steady CO (ppm)	0	1													
	Peak CO (ppm)	1	2													
	Steady H ₂ S (ppm)	0	0													
	Peak H ₂ S (ppm)	0	0													
	Steady PID (ppm)	NR	NR													
	Max PID (ppm)	NR	NR													
	Standing Water Level (mbgl)	3.1	4.17													
	Installation Base Depth (mbgl)	4.8	4.89													
	Response Zone/Strata	1.00-5.00	1.00-5.00													
	Comments															

Equipment			ABBREVIATIONS			NOTES	
Gas Machine	Gas Analyser GA5000		ND	Not detected	ppm	Parts per million	All monitoring is carried out in line with LK Consult Ltd procedures, with reference to CIRIA C665.
	G502417		NR	Not recorded	mb	Millibars	
Dipmeter	HydroTechnik		UR	Unable to record	l/hr	Litres per hour	¹ Equipment is serviced and checked as recommended by the manufacturer. Refer to calibration records and service certificates.
	HT-02		OS	Off recordable scale	mbgl	Metres below ground level	
PID	-		N/A	Not applicable	LEL	Lower explosive limit in air	² CH ₄ is explosive between the range of 5-15%v/v. 100% lower explosive limit is equal to 5%v/v CH ₄ . ³ Flow readings are based on steady 1 minute value where flow is detected (equipment range of +/- 12 ltr/hr).
	-						

	LK CONSULT LTD GAS MONITORING RECORD	Site Details		Monitoring Visit Conditions		Visit No. 3 of 5
		Site Name	Park Hill Avenue, Crumpsall	Recent Weather	Overcast, Cold, Windy	
		Job Number	LKC 23 1405	Ground Conditions	Wet	
		Engineer	FP	Approx. Air temperature (°C)	14	
		Date	21/02/2025	Atmospheric Pressure (Prev. 24 hrs)	Falling	

Site Monitoring	BH Ref.	CP201	CP202													
	Time	09:56:22	09:45:30													
	Barometric Pressure (mb)	995	995													
	Relative Pressure (mb)	0.09	0.44													
Gas and Groundwater Monitoring Data	Internal Flow ¹ (l/hr)	0	0													
	Peak Flow (l/hr)	0	-0.1													
	Steady CH ₄ (%v/v)	0	0													
	Peak CH ₄ (%v/v)	0	0													
	% LEL ²	0	0													
	Steady CO ₂ (%v/v)	5.6	12.7													
	Peak CO ₂ (%v/v)	5.6	12.7													
	Steady O ₂ (%v/v)	0.1	0.2													
	Min O ₂ (%v/v)	0.1	0.2													
	Balance (%)	94.2	87.1													
	Steady CO (ppm)	0	0													
	Peak CO (ppm)	1	0													
	Steady H ₂ S (ppm)	0	0													
	Peak H ₂ S (ppm)	0	0													
	Steady PID (ppm)	NR	NR													
	Max PID (ppm)	NR	NR													
	Standing Water Level (mbgl)	3.085	4.145													
	Installation Base Depth (mbgl)	4.86	4.94													
	Response Zone/Strata	1.00-5.00	1.00-5.00													
	Comments															

Equipment			ABBREVIATIONS			NOTES
Gas Machine	Gas Analyser GA5000		ND	Not detected	ppm	Parts per million
	G507783		NR	Not recorded	mb	Millibars
Dipmeter	Geotech Oil-in-Water Interface Meter		UR	Unable to record	l/hr	Litres per hour
	1-800-833-7958		OS	Off recordable scale	mbgl	Metres below ground level
PID	-		N/A	Not applicable	LEL	Lower explosive limit in air
	-					³ Flow readings are based on steady 1 minute value where flow is detected (equipment range of +/- 12 ltr/hr).

All monitoring is carried out in line with LK Consult Ltd procedures, with reference to CIRIA C665.

¹Equipment is serviced and checked as recommended by the manufacturer. Refer to calibration records and service certificates.

²CH₄ is explosive between the range of 5-15%v/v. 100% lower explosive limit is equal to 5%v/v CH₄.

³Flow readings are based on steady 1 minute value where flow is detected (equipment range of +/- 12 ltr/hr).

	LK CONSULT LTD GAS MONITORING RECORD	Site Details		Monitoring Visit Conditions		Visit No. 4 of 5
		Site Name	Park Hill Avenue, Crumpsall	Recent Weather	Overcast, Mild, Steady	
		Job Number	LKC 23 1405	Ground Conditions	Boggy	
		Engineer	LGD	Approx. Air temperature (°C)	4	
		Date	28/02/2025	Atmospheric Pressure (Prev. 24 hrs)	Rising	

Site Monitoring	BH Ref.	CP201	CP202													
	Time	09:26:38	09:35:35													
	Barometric Pressure (mb)	1022	1023													
	Relative Pressure (mb)	0.02	0													
Gas and Groundwater Monitoring Data	Internal Flow ³ (l/hr)	0	0													
	Peak Flow (l/hr)	0	0													
	Steady CH ₄ (%v/v)	0	0													
	Peak CH ₄ (%v/v)	0	0													
	% LEL ²	0	0													
	Steady CO ₂ (%v/v)	6.3	11													
	Peak CO ₂ (%v/v)	6.3	11													
	Steady O ₂ (%v/v)	0.1	0.1													
	Min O ₂ (%v/v)	0.1	0.1													
	Balance (%)	93.6	88.9													
	Steady CO (ppm)	1	1													
	Peak CO (ppm)	2	1													
	Steady H ₂ S (ppm)	0	0													
	Peak H ₂ S (ppm)	0	0													
	Steady PID (ppm)	NR	NR													
	Max PID (ppm)	NR	NR													
	Standing Water Level (mbgl)	3.1	4.18													
	Installation Base Depth (mbgl)	4.84	4.95													
	Response Zone/Strata	1.00-5.00	1.00-5.00													
	Comments															

Equipment			ABBREVIATIONS			NOTES
Gas Machine		ND	Not detected	ppm	Parts per million	All monitoring is carried out in line with LK Consult Ltd procedures, with reference to CIRIA C665. ¹ Equipment is serviced and checked as recommended by the manufacturer. Refer to calibration records and service certificates.
		NR	Not recorded	mb	Millibars	
Dipmeter		UR	Unable to record	l/hr	Litres per hour	² CH ₄ is explosive between the range of 5-15%v/v. 100% lower explosive limit is equal to 5%v/v CH ₄ .
		OS	Off recordable scale	mbgl	Metres below ground level	
PID		N/A	Not applicable	LEL	Lower explosive limit in air	³ Flow readings are based on steady 1 minute value where flow is detected (equipment range of +/- 12 ltr/hr).

 <div> <div>LK CONSULT LTD</div> <div>GAS MONITORING RECORD</div> </div>	Site Details		Monitoring Visit Conditions		Visit No. 5 of 5
	Site Name	Parkhill Avenue, Crumpsall	Recent Weather	Sunny, dry	
	Job Number	LKC 23 1405	Ground Conditions	Damp	
	Engineer	EH	Approx. Air temperature (°C)	9°C	
	Date	06/03/2025	Atmospheric Pressure (Prev. 24 hrs)	Rising	

Site Monitoring	BH Ref.	CP201	CP202														
	Time	09:43:03	09:35:45														
	Barometric Pressure (mb)	1005	1004														
	Relative Pressure (mb)	0.49	0.44														
Gas and Groundwater Monitoring Data	Internal Flow ¹ (l/hr)	0	0														
	Peak Flow (l/hr)	0	0														
	Steady CH ₄ (%v/v)	0	0														
	Peak CH ₄ (%v/v)	0	0														
	% LEL ²	0	0														
	Steady CO ₂ (%v/v)	6.6	12.1														
	Peak CO ₂ (%v/v)	6.6	12.1														
	Steady O ₂ (%v/v)	0.1	0.1														
	Min O ₂ (%v/v)	0.1	0.1														
	Balance (%)	93.3	87.8														
	Steady CO (ppm)	0	0														
	Peak CO (ppm)	0	0														
	Steady H ₂ S (ppm)	0	0														
	Peak H ₂ S (ppm)	0	0														
	Steady PID (ppm)	-	-														
	Max PID (ppm)	-	-														
	Standing Water Level (mbgl)	3.04	4.1														
	Installation Base Depth (mbgl)	4.82	4.88														
	Response Zone/Strata	1.00-5.00	1.00-5.00														
	Comments																

Equipment			ABBREVIATIONS			NOTES
Gas Machine		ND	Not detected	ppm	Parts per million	All monitoring is carried out in line with LK Consult Ltd procedures, with reference to CIRIA C665. ¹ Equipment is serviced and checked as recommended by the manufacturer. Refer to calibration records and service certificates. ² CH4 is explosive between the range of 5-15%v/v. 100% lower explosive limit is equal to 5%v/v CH4. ³ Flow readings are based on steady 1 minute value where flow is detected (equipment range of +/- 12 ltr/hr).
		NR	Not recorded	mb	Millibars	
Dipmeter		UR	Unable to record	l/hr	Litres per hour	
		OS	Off recordable scale	mbgl	Metres below ground level	
PID		N/A	Not applicable	LEL	Lower explosive limit in air	

Appendix G – Generic Assessment Criteria Values

Generic Assessment Criteria Values

Contaminant	SOM	Res +	Res -	Allot.	Comm.	pos resi	pos park	Source	
Metals	Inorganic Arsenic	N/A	37	40	49	640	79	168	DEFRA C4SL
	Beryllium	N/A	1.7	1.7	35	12	2.2	63	LQM S4UL
	Boron	N/A	290	11,000	45	240,000	21,000	46,000	LQM S4UL
	Cadmium	N/A	26	149	4.9	410	220	880	DEFRA C4SL
	Chromium (III)	N/A	910	910	18,000	8,600	1,500	33,000	LQM S4UL
	Chromium (VI)	N/A	21.0	21.0	170.0	49	23.0	250	DEFRA C4SL
	Copper	N/A	2,400	7,100	520	68,000	12,000	44,000	LQM S4UL
	Lead	N/A	200	310	80	2,330	630	1,300	DEFRA C4SL
	Elemental Mercury	N/A	1.2	1.2	21	58 (25.8) ^{vap}	16	30 (25.8) ^{vap}	LQM S4UL
	Inorganic Mercury	N/A	40	56	19	1,100	120	240	LQM S4UL
	Methylmercury	N/A	11	15	6.0	320	40	68	LQM S4UL
	Nickel	N/A	180	180	230	980	230	3,400	LQM S4UL
	Selenium	N/A	250	430	88	12,000	1,100	1,800	LQM S4UL
	Vanadium	N/A	410	1,200	91	9,000	2,000	5,000	LQM S4UL
	Zinc	N/A	3,700	40,000	620	730,000	81,000	170,000	LQM S4UL
Polycyclic Aromatic Hydrocarbons (PAHs)	Acenaphthene	1%	210	3,000 (57.1) ^{sol}	34	84,000 (57.0) ^{sol}	15,000	29,000	LQM S4UL
		2.5%	510	4,700 (141) ^{sol}	85	97,000 (141) ^{sol}	15,000	30,000	LQM S4UL
		6%	1,100	6,000 (336) ^{sol}	200	100,000	15,000	30,000	LQM S4UL
	Acenaphthylene	1%	170	2,900 (86.1) ^{sol}	28	83,000 (86.1) ^{sol}	15,000	29,000	LQM S4UL
		2.5%	420	4,600 (212) ^{sol}	69	97,000 (212) ^{sol}	15,000	30,000	LQM S4UL
		6%	920	6,000 (506) ^{sol}	160	100,000	15,000	30,000	LQM S4UL
	Anthracene	1%	2,400	31,000 (1.17) ^{vap}	380	520,000	74,000	150,000	LQM S4UL
		2.5%	5,400	35,000	950	540,000	74,000	150,000	LQM S4UL
		6%	11,000	37,000	2,200	540,000	74,000	150,000	LQM S4UL
	Benz(a)anthracene	1%	7.2	11	2.9	170	29	49	LQM S4UL
		2.5%	11	14	6.5	170	29	56	LQM S4UL
		6%	13	15	13	180	29	62	LQM S4UL
	Benzo(a)pyrene (only)	1%	5.0	5.3	5.70	77	10.0	21	DEFRA C4SL
		2.5%	5.0	5.3	5.70	77	10.0	21	DEFRA C4SL
		6%	5.0	5.3	5.70	77	10.0	21	DEFRA C4SL
	Benzo(b)fluoranthene	1%	2.6	3.9	0.99	44	7.1	13	LQM S4UL
		2.5%	3.3	4.0	2.1	44	7.2	15	LQM S4UL
		6%	3.7	4.0	3.9	45	7.2	16	LQM S4UL
	Benzo(ghi)perylene	1%	320	360	290	3,900	640	1,400	LQM S4UL
		2.5%	340	360	470	4,000	640	1,500	LQM S4UL
		6%	350	360	640	4,000	640	1,600	LQM S4UL
	Benzo(k)fluoranthene	1%	77	110	37	1,200	190	370	LQM S4UL
		2.5%	93	110	75	1,200	190	410	LQM S4UL
		6%	100	110	130	1,200	190	440	LQM S4UL
	Chrysene	1%	15	30	4.1	350	57	93	LQM S4UL
		2.5%	22	31	9.4	350	57	110	LQM S4UL
		6%	27	32	19	350	57	120	LQM S4UL
	Dibenzo(ah)anthracene	1%	0.24	0.31	0.14	3.5	0.57	1.1	LQM S4UL
		2.5%	0.28	0.32	0.27	3.6	0.58	1.3	LQM S4UL
		6%	0.3	0.32	0.43	3.6	0.58	1.4	LQM S4UL
	Fluoranthene	1%	280	1,500	52	23,000	3,100	6,300	LQM S4UL
		2.5%	560	1,600	130	23,000	3,100	6,300	LQM S4UL
		6%	890	1,600	290	23,000	3,100	6,400	LQM S4UL
	Fluorene	1%	170	2,800 (36.0) ^{sol}	27	63,000 (30.9) ^{sol}	9,900	20,000	LQM S4UL
		2.5%	400	3,800 (76.5) ^{sol}	67	68,000	9,900	20,000	LQM S4UL
		6%	860	4,500 (183) ^{sol}	160	71,000	9,900	20,000	LQM S4UL
	Indeno(123-cd)pyrene	1%	27	45	9.5	500	82	150	LQM S4UL
		2.5%	36	46	21	510	82	170	LQM S4UL
		6%	41	46	39	510	82	180	LQM S4UL
	Naphthalene	1%	2.3 ^f	2.3 ^f	4.1 ^f	190 ^f (76.4) ^{sol}	4,900 ^f	1,200 ^f (76.4) ^{sol}	LQM S4UL
		2.5%	5.6 ^f	5.6 ^f	10 ^f	460 ^f (183) ^{sol}	4,900 ^f	1,900 ^f (183) ^{sol}	LQM S4UL
		6%	13 ^f	13 ^f	24 ^f	1,100 ^f (432) ^{sol}	4,900 ^f	3,000	LQM S4UL
	Phenanthrene	1%	95	1,300 (36.0) ^{sol}	15	22,000	3,100	6,200	LQM S4UL
		2.5%	220	1,500	38	22,000	3,100	6,200	LQM S4UL
		6%	440	1,500	90	22,000	3,100	6,300	LQM S4UL
	Pyrene	1%	620	3,700	110	54,000	7,400	15,000	LQM S4UL
		2.5%	1,200	3,800	270	54,000	7,400	15,000	LQM S4UL
		6%	2,000	3,800	620	54,000	7,400	15,000	LQM S4UL
	Coal Tar (B(a)P as surrogate marker)	1%	0.79	1.2	0.32	15	2.2	4.4	LQM S4UL
		2.5%	0.98	1.2	0.67	15	2.2	4.7	LQM S4UL
		6%	1.1	1.2	1.2	15	2.2	4.8	LQM S4UL

Generic Assessment Criteria Values

BTEX Compounds	Contaminant	SOM	Res +	Res -	Allot.	Comm.	POS _{resi}	POS _{park}	Source
	Benzene	1%	0.087	0.38	0.017	27	72	90	LQM S4UL
		2.5%	0.17	0.70	0.034	47	72	100	LQM S4UL
		6%	0.37	1.4	0.075	90	73	110	LQM S4UL
	Toluene	1%	130	880 (869) ^{vap}	22	56,000 (869) ^{vap}	56,000	87,000 (869) ^{vap}	LQM S4UL
		2.5%	290	1,900	51	110,000 (1,920) ^{vap}	56,000	95,000 (1,920)	LQM S4UL
		6%	660	3,900	120	180,000 (4,360) ^{vap}	56,000	100,000 (4,360)	LQM S4UL
	Ethylbenzene	1%	47	83	16	5,700 (518) ^{vap}	24,000	17,000 (518) ^{vap}	LQM S4UL
		2.5%	110	190	39	13,000 (1,220) ^{vap}	24,000	22,000 (1,220)	LQM S4UL
		6%	260	440	91	27,000 (2,840) ^{vap}	25,000	27,000 (2,840)	LQM S4UL
	o-xylene	1%	60	88	28	6,600 (478) ^{sol}	41,000	17,000 (478) ^{sol}	LQM S4UL
		2.5%	140	210	67	15,000 (1,120) ^{sol}	42,000	24,000 (1,120) ^{sol}	LQM S4UL
		6%	330	480	160	33,000 (2,620) ^{sol}	43,000	33,000 (2,620) ^{sol}	LQM S4UL
m-xylene	1%	59	82	31	6,200 (625) ^{vap}	41,000	17,000 (625) ^{vap}	LQM S4UL	
	2.5%	140	190	74	14,000 (1,470) ^{vap}	42,000	24,000 (1,470)	LQM S4UL	
	6%	320	450	170	31,000 (3,460) ^{vap}	43,000	32,000 (3,460)	LQM S4UL	
p-xylene	1%	56	79	29	5,900 (576) ^{sol}	41,000	17,000 (576) ^{sol}	LQM S4UL	
	2.5%	130	180	69	14,000 (1,350) ^{sol}	42,000	23,000 (1,350) ^{sol}	LQM S4UL	
	6%	310	430	160	30,000 (3,170) ^{sol}	43,000	31,000 (3,170) ^{sol}	LQM S4UL	
Petroleum Hydrocarbons	Aliphatic								
	EC 5-6	1%	42	42	730	3,200 (304) ^{sol}	570,000(304) ^{sol}	95,000 (304) ^{sol}	LQM S4UL
	EC>6-8	1%	100	100	2,300	7,800 (144) ^{sol}	600,000	150,000 (144) ^{sol}	LQM S4UL
	EC>8-10	1%	27	27	320	2,000 (78) ^{sol}	13,000	14,000 (78) ^{vap}	LQM S4UL
	EC>10-12	1%	130 (48) ^{vap}	130 (48) ^{vap}	2,200	9,700 (48) ^{sol}	13,000	21,000 (48) ^{vap}	LQM S4UL
	EC>12-16	1%	1,100 (24) ^{sol}	1,100 (24) ^{sol}	11,000	59,000 (24) ^{sol}	13,000	25,000 (24) ^{sol}	LQM S4UL
	EC>16-35	1%	65,000 (8.48)	65,000 (8.48) ^{f, sol}	260,000 ^f	160,000 ^f	250,000 ^f	450,000 ^f	LQM S4UL
	EC>35-44	1%	65,000 (8.48)	65,000 (8.48) ^{f, sol}	260,000 ^f	160,000 ^f	250,000 ^f	450,000 ^f	LQM S4UL
	Aliphatic								
	EC 5-6	2.5%	78	78	1,700	5,900 (558) ^{sol}	590,000	130,000 (558) ^{sol}	LQM S4UL
	EC>6-8	2.5%	230	230	5,600	17,000 (322) ^{sol}	610,000	220,000 (322) ^{sol}	LQM S4UL
	EC>8-10	2.5%	65	65	770	4,800 (190) ^{vap}	13,000	18,000 (190) ^{vap}	LQM S4UL
	EC>10-12	2.5%	330 (118) ^{vap}	330 (118) ^{vap}	4,400	23,000 (118) ^{vap}	13,000	23,000 (118) ^{vap}	LQM S4UL
	EC>12-16	2.5%	2,400 (59) ^{sol}	2,400 (59) ^{sol}	13,000	82,000 (59) ^{sol}	13,000	25,000 (59) ^{sol}	LQM S4UL
	EC>16-35	2.5%	92,000 (21)	92,000 (21) ^{f, sol}	270,000 ^f	1,700,000 ^f	250,000 ^f	480,000 ^f	LQM S4UL
	EC>35-44	2.5%	92,000 (21)	92,000 (21) ^{f, sol}	270,000 ^f	1,700,000 ^f	250,000 ^f	480,000 ^f	LQM S4UL
	Aliphatic								
	EC 5-6	6%	160	160	3,900	12,000 (1,150) ^{sol}	600,000	180,000 (1,150)	LQM S4UL
	EC>6-8	6%	530	530	13,000	40,000 (736) ^{sol}	620,000	320,000 (736) ^{sol}	LQM S4UL
	EC>8-10	6%	150	150	1,700	11,000 (451) ^{vap}	13,000	21,000 (451) ^{vap}	LQM S4UL
	EC>10-12	6%	760 (283) ^{vap}	760 (283) ^{vap}	7,300	47,000 (283) ^{vap}	13,000	24,000 (283) ^{vap}	LQM S4UL
	EC>12-16	6%	4,300 (142) ^{sol}	4,400 (142) ^{sol}	13,000	90,000 (142) ^{sol}	13,000	26,000 (142) ^{sol}	LQM S4UL
	EC>16-35	6%	110,000 ^f	110,000 ^f	270,000 ^f	1,800,000 ^f	250,000 ^f	490,000 ^f	LQM S4UL
	EC>35-44	6%	110,000 ^f	110,000 ^f	270,000 ^f	1,800,000 ^f	250,000 ^f	490,000 ^f	LQM S4UL
	Aromatic								
	EC5-7(benzene as	1%	70	370	13	26,000 (1,220) ^{sol}	56,000	76,000 (1,220) ^{sol}	LQM S4UL
	EC>7-8(toluene)	1%	130	860	22	56,000 (869) ^{vap}	56,000	87,000 (869) ^{vap}	LQM S4UL
	EC>8-10	1%	34	47	8.6	3,500 (613) ^{vap}	5,000	7,200 (613) ^{vap}	LQM S4UL
	EC>10-12	1%	74	250	13	16,000 (364) ^{sol}	5,000	9,200 (364) ^{sol}	LQM S4UL
	EC>12-16	1%	140	1,800	23	36,000 (169) ^{sol}	5,100	10,000	LQM S4UL
	EC>16-21	1%	260 ^f	1,900 ^f	46 ^f	28,000 ^f	3,800 ^f	7,600 ^f	LQM S4UL
	EC>21-35	1%	1,100 ^f	1,900 ^f	370 ^f	28,000 ^f	3,800 ^f	7,800 ^f	LQM S4UL
	EC>35-44	1%	1,100 ^f	1,900 ^f	370 ^f	28,000 ^f	3,800 ^f	7,800 ^f	LQM S4UL
	Aromatic								
	EC5-7(benzene as	2.5%	140	690	27	46,000 (2,260) ^{sol}	56,000	84,000 (2,260) ^{sol}	LQM S4UL
	EC>7-8(toluene)	2.5%	290	1,800	51	110,000 (1,920) ^{sol}	56,000	95,000 (1,920) ^{sol}	LQM S4UL
	EC>8-10	2.5%	83	110	21	8,100 (1,500) ^{vap}	5,000	8,500 (1,500) ^{vap}	LQM S4UL
	EC>10-12	2.5%	180	590	31	28,000 (899) ^{sol}	5,000	9,700 (899) ^{sol}	LQM S4UL
	EC>12-16	2.5%	330	2,300 (419) ^{sol}	57	37,000	5,100	10,000	LQM S4UL
	EC>16-21	2.5%	540 ^f	1,900 ^f	110 ^f	28,000 ^f	3,800 ^f	7,700 ^f	LQM S4UL
	EC>21-35	2.5%	1,500 ^f	1,900 ^f	820 ^f	28,000 ^f	3,800 ^f	7,800 ^f	LQM S4UL
	EC>35-44	2.5%	1,500 ^f	1,900 ^f	820 ^f	28,000 ^f	3,800 ^f	7,800 ^f	LQM S4UL
	Aromatic								
	EC5-7(benzene as	6%	300	1,400	57	86,000 (4,710) ^{sol}	56,000	92,000 (4,710) ^{sol}	LQM S4UL
	EC>7-8(toluene)	6%	660	3,900	120	180,000 (4,360) ^{vap}	56,000	100,000 (4,360)	LQM S4UL
	EC>8-10	6%	190	270	51	17,000 (3,580) ^{vap}	5,000	9,300 (3,580) ^{vap}	LQM S4UL
	EC>10-12	6%	380	1,200	4	34,000 (2,150) ^{sol}	5,000	10,000	LQM S4UL
	EC>12-16	6%	660	2,500	130	38,000	5,100	10,000	LQM S4UL
	EC>16-21	6%	930 ^f	1,900 ^f	260 ^f	28,000 ^f	3,800 ^f	7,800 ^f	LQM S4UL
	EC>21-35	6%	1,700 ^f	1,900 ^f	1,600 ^f	28,000 ^f	3,800 ^f	7,900 ^f	LQM S4UL
	EC>35-44	6%	1,700 ^f	1,900 ^f	1,600 ^f	28,000 ^f	3,800 ^f	7,900 ^f	LQM S4UL
	Aliphatic +Aromatic >EC44	1%	1,600 ^f	1,900 ^f	1,200 ^f	28,000 ^f	3,800 ^f	7,800 ^f	LQM S4UL
		2.5%	1,800 ^f	1,900 ^f	2,100 ^f	28,000 ^f	3,800 ^f	7,800 ^f	LQM S4UL
		6%	1,900 ^f	1,900 ^f	3,000 ^f	28,000 ^f	3,800 ^f	7,900 ^f	LQM S4UL

Generic Assessment Criteria Values

Contaminant		SOM	Res +	Res -	Allot.	Comm.	POS _{resi}	POS _{park}	Source
Chloalkanes and Alkenes & Explosives	1,2 Dichloroethane (DCA)	1%	0.0071	0.0092	0.0046	0.67	29	21	LQM S4UL
		2.5%	0.0110	0.0130	0.0083	0.97	29	24	LQM S4UL
		6%	0.0190	0.0230	0.0160	1.7	29	28	LQM S4UL
	1,1,1 Trichloroethane (TCA)	1%	8.8	9.0	48	660	140,000	57,000 (1,425)	LQM S4UL
		2.5%	18	18	110	1,300	140,000	76,000 (2,915)	LQM S4UL
		6%	39	40	240	3,000	140,000	100,000 (6,392)	LQM S4UL
	1,1,2,2-Tetrachloroethanes (PCA)	1%	1.6	3.9	0.41	270	1,400	1,800	LQM S4UL
		2.5%	3.4	8.0	0.89	550	1,400	2,100	LQM S4UL
		6%	7.5	17	2.0	1,100	1,400	2,300	LQM S4UL
	1,1,1,2-Tetrachloroethanes (PCA)	1%	1.2	1.5	0.79	110	1,400	1,500	LQM S4UL
		2.5%	2.8	3.5	1.9	250	1,400	1,800	LQM S4UL
		6%	6.4	8.2	4.4	560	1,400	2,100	LQM S4UL
	Tetrachloroethene (PCE)	1%	0.31	0.32	2.00	24	3,200	1400	DEFRA C4SL
		2.5%	0.70	0.71	4.8	55	3,300	1900	DEFRA C4SL
		6%	1.60	1.60	11.0	130	3,400	2,500	DEFRA C4SL
	Tetrachloromethane (carbon tetrachloride)	1%	0.03	0.03	0.45	2.9	890	190	LQM S4UL
		2.5%	0.06	0.06	1.0	6.3	920	270	LQM S4UL
		6%	0.13	0.13	2.4	14	950	400	LQM S4UL
	Trichloroethene (TCE)	1%	0.009	0.010	0.032	0.7	76.0	41.0	DEFRA C4SL
		2.5%	0.020	0.020	0.072	1.5	78.0	51.0	DEFRA C4SL
		6%	0.043	0.045	0.160	3.4	79.0	69.0	DEFRA C4SL
	Trichloromethane (chloroform)	1%	0.91	1.2	0.42	99	2,500	2,600	LQM S4UL
		2.5%	1.7	2.1	0.83	170	2,500	2,800	LQM S4UL
		6%	3.4	4.2	1.7	350	2,500	3,100	LQM S4UL
	Chloroethene (vinyl chloride)	1%	0.006	0.015	0.0017	1.1E+00	7.8	18.0	DEFRA C4SL
		2.5%	0.010	0.019	0.0031	1.4E+00	7.8	19.0	DEFRA C4SL
		6%	0.017	0.029	0.0058	2.20	7.8	19.0	DEFRA C4SL
	2,4,6-Trinitrotoluene (TNT)	1%	1.6	65	0.24	1,000	130	260	LQM S4UL
		2.5%	3.7	66	0.58	1,000	130	270	LQM S4UL
		6%	8.1	66	1.4	1,000	130	270	LQM S4UL
	RDX	1%	120	13,000	17	210,000	26,000	49,000 (18.7) ^{sol}	LQM S4UL
		2.5%	250	13,000	38	210,000	26,000	51,000	LQM S4UL
		6%	540	13,000	85	210,000	27,000	53,000	LQM S4UL
	HMX	1%	5.7	6,700	0.86	110,000	13,000	23,000 (0.35) ^{vap}	LQM S4UL
		2.5%	13	6,700	1.9	110,000	13,000	23,000 (0.39) ^{vap}	LQM S4UL
		6%	26	6,700	3.9	110,000	13,000	24,000 (0.48) ^{vap}	LQM S4UL
Pesticides	Aldrin	1%	5.7	7.3	3.2	170	18	30	LQM S4UL
		2.5%	6.6	7.4	6.1	170	18	31	LQM S4UL
		6%	7.1	7.5	9.8	170	18	31	LQM S4UL
	Dieldrin	1%	0.97	7.0	0.17	170	18	30	LQM S4UL
		2.5%	2.0	7.3	0.41	170	18	30	LQM S4UL
		6%	3.5	7.4	0.96	170	18	31	LQM S4UL
	Atrazine	1%	3.3	610	0.5	9,300	1,200	2,300	LQM S4UL
		2.5%	7.8	620	1.2	9,400	1,200	2,400	LQM S4UL
		6%	17.4	620	2.7	9,400	1,200	2,400	LQM S4UL
	Dichlorvos	1%	3.2E-02	6.4	4.9E-03	140	16	26	LQM S4UL
		2.5%	6.6E-02	6.5	1.0E-02	140	16	26	LQM S4UL
		6%	0.14	6.6	2.2E-02	140	16	27	LQM S4UL
	Endosulfanns (2 isomers)	1%	7.4	160 (3.0E-03) ^{vap}	1.2	5,600 (3.0E-03) ^{vap}	1,200	2,300	LQM S4UL
		2.5%	18	280 (7.0E-03) ^{vap}	2.9	7,400 (7.0E-03) ^{vap}	1,200	2,400	LQM S4UL
		6%	41	410 (1.6E-02) ^{vap}	6.8	8,400 (1.6E-02) ^{vap}	1,200	2,500	LQM S4UL
	Hexachlorocyclohexane (3 isomers), inc Lindane	1%	8.5E-02	3.7	1.3E-02	65	8.1	15	LQM S4UL
		2.5%	0.2	3.8	3.2E-02	65	8.1	15	LQM S4UL
		6%	0.46	3.8	7.7E-02	65	8.1	16	LQM S4UL
Chlorobenzenes	Chlorobenzene	1%	0.46	0.46	5.9	56	11,000	1,300 (675) ^{sol}	LQM S4UL
		2.5%	1.0	1.0	14	130	13,000	2,000 (1,520) ^{sol}	LQM S4UL
		6%	2.4	2.4	32	290	14,000	2,900	LQM S4UL
	Dichlorobenzenes (3 isomers)	1%	23	24	94	2,000 (571) ^{sol}	90,000	24,000 (571) ^{sol}	LQM S4UL
		2.5%	55	57	230	4,800 (1,370) ^{sol}	95,000	36,000 (1,370) ^{sol}	LQM S4UL
		6%	130	130	540	11,000 (3,240) ^{sol}	98,000	51,000 (3,270) ^{sol}	LQM S4UL
	Trichlorobenzenes (3 isomers)	1%	2.6	2.6	55	220	15,000	1,700 (318) ^{vap}	LQM S4UL
		2.5%	6.4	6.4	140	530	17,000	2,600 (786) ^{vap}	LQM S4UL
		6%	15	15	320	1,300	19,000	4,000 (1,880) ^{vap}	LQM S4UL
	Tetrachlorobenzenes (3 isomers)	1%	0.66	0.75	0.38	49 (39.4) ^{vap}	78	110 (39) ^{vap}	LQM S4UL
		2.5%	1.6	1.9	0.90	120 (98.1) ^{vap}	79	120	LQM S4UL
		6%	3.7	4.3	2.2	240 (235) ^{vap}	79	130	LQM S4UL
	Pentachlorobenzene	1%	5.8	19	1.2	640 (43.0) ^{sol}	100	190	LQM S4UL
		2.5%	12	30	3.1	770 (107) ^{sol}	100	190	LQM S4UL
		6%	22	38	7.0	830	100	190	LQM S4UL
	Hexachlorobenzene	1%	1.8 (0.20) ^{vap}	4.1 (0.20) ^{vap}	0.47	110 (0.20) ^{vap}	16	30	LQM S4UL
		2.5%	3.3 (0.50) ^{vap}	5.7 (0.50) ^{vap}	1.1	120	16	30	LQM S4UL
		6%	4.9	6.7 (1.2) ^{vap}	2.5	120	16	30	LQM S4UL

Generic Assessment Criteria Values

Contaminant		SOM	Res +	Res -	Allot.	Comm.	^{POS} resi	^{POS} park	Source
Chlorophenol	Chlorophenols (4 congeners)	1%	0.87 ^g	94	0.13 ^g	3,500	620	1,100	LQM S4UL
		2.5%	2.0	150	0.30	4,000	620	1,100	LQM S4UL
		6%	4.5	210	0.70	4,300	620	1,100	LQM S4UL
	Pentachlorophenol	1%	0.22	27 (16.4) ^{vap}	3.0E-02	400	60	110	LQM S4UL
		2.5%	0.52	29	8.0E-02	400	60	120	LQM S4UL
		6%	1.2	31	0.19	400	60	120	LQM S4UL
Others	Carbon Disulphide	1%	0.14	0.14	4.8	11	11,000	1,300	LQM S4UL
		2.5%	0.29	0.29	10	22	11,000	1,900	LQM S4UL
		6%	0.62	0.62	23	47	11,000	2,700	LQM S4UL
	Hexachlorobutadiene	1%	0.29	0.32	0.25	31	25	48	LQM S4UL
		2.5%	0.7	0.78	0.61	66	25	50	LQM S4UL
		6%	1.6	1.8	1.4	120	25	51	LQM S4UL
	Phenol	1%	280	750	66	760 ^{dir} (31,000)	760 ^{dir} (11,000)	760 ^{dir} (8,600)	LQM S4UL
		2.5%	550	1,300	140	1,500 ^{dir} (35,000)	1,500 ^{dir}	1,500 ^{dir} (9,700)	LQM S4UL
		6%	1,100	2,300	280	3,200 ^{dir} (37,000)	3,200 ^{dir}	3,200 ^{dir} (11,000)	LQM S4UL
sol/vap = solubility/vapour limit (potentially use if free product identified, although highly conservative)									
f=naphthalene is based on comparison of inhalation exposure with TDI(inhal) for localised effect									
f = oral, dermal and inhalation exposures compared to oral HCV									
dir = S4ULs based on threshold protective of direct skin contact with phenol)brackets long term exposure for illustration purposes)									
g = derived based on 2,3,4-tetrachlorophenol									

Appendix H – HazWasteOnline Output Sheets

Waste Classification Report

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

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



DI6SZ-U1F6I-T8WFN

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

Report is invalid if pages are removed.

Job name

LKC231405

Description/Comments

Project

LKC231405

Site

Parkhill Avenue, Crumpsall

Classified by

Name: **Peter Dunn** Company: **LK Group**
Date: **27 Feb 2025 07:48 GMT**
Telephone: **0161 763 7200**

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

HazWasteOnline™ Certification:

CERTIFIED

Course

Hazardous Waste Classification
Most recent 3 year Refresher

Date

26 Mar 2015 *
02 Aug 2022

Next 3 year Refresher due by Aug 2025
* training course booked

Purpose of classification

2 - Material Characterisation

Address of the waste

Parkhill Avenue, Crumpsall

Post Code **M8 4QZ**

SIC for the process giving rise to the waste

Description of industry/producer giving rise to the waste

Development of brownfield land

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

Construction

Description of the waste

Made ground and soil

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	CP201-0.00 - 0.50-20/01/2025	0.00 - 0.50	Non Hazardous		3
2	CP202-0.00 - 1.20-22/01/2025	0.00 - 1.20	Non Hazardous		5
3	CP202-1.20 - 1.65-22/01/2025	1.20 - 1.65	Non Hazardous		7
4	TP101-0.00 - 0.50-29/04/2024	0.00 - 0.50	Non Hazardous		9
5	TP102-0.00 - 0.50-29/04/2024	0.00 - 0.50	Non Hazardous		12
6	TP103-0.00 - 1.00-29/04/2024	0.00 - 1.00	Non Hazardous		15
7	WS101-0.00 - 0.50-02/05/2024	0.00 - 0.50	Non Hazardous		18
8	WS102-0.20 - 0.50-02/05/2024	0.20 - 0.50	Non Hazardous		20
9	WS103-0.00 - 0.30-02/05/2024	0.00 - 0.30	Non Hazardous		22
10	WS104-0.00 - 0.20-02/05/2024	0.00 - 0.20	Non Hazardous		25
11	WS104-0.20 - 1.00-02/05/2024	0.20 - 1.00	Non Hazardous		27
12	CP102-0.00 - 0.30-30/04/2024	0.00 - 0.30	Non Hazardous		30
13	CP101-0.50 - 1.00-01/05/2024	0.50 - 1.00	Non Hazardous		32

Related documents

#	Name	Description
1	25-00872.1.hwol	DETS South .hwol file used to populate the Job
2	24-04690.1.hwol	DETS South .hwol file used to populate the Job
3	24-04917.1.hwol	DETS South .hwol file used to populate the Job
4	LK SUITE 1 - 5	waste stream template used to create this Job

Report

Created by: Peter Dunn

Created date: 27 Feb 2025 07:48 GMT

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Appendix A: Classifier defined and non GB MCL determinands	34
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Classification of sample: CP201-0.00 - 0.50-20/01/2025

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

Sample details

Sample name:	LoW Code:
CP201-0.00 - 0.50-20/01/2025	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.00 - 0.50 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
20.9%	
(wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 20.9% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				11 mg/kg	1.32	11.488 mg/kg	0.00115 %	✓	
	033-003-00-0	215-481-4	1327-53-3							
2	cadmium { cadmium oxide }				0.4 mg/kg	1.142	0.361 mg/kg	0.0000361 %	✓	
	048-002-00-0	215-146-2	1306-19-0							
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				14 mg/kg	1.462	16.185 mg/kg	0.00162 %	✓	
		215-160-9	1308-38-9							
4	copper { dicopper oxide; copper (I) oxide }				39 mg/kg	1.126	34.733 mg/kg	0.00347 %	✓	
	029-002-00-X	215-270-7	1317-39-1							
5	mercury { mercury dichloride }				<1 mg/kg	1.353	<1.353 mg/kg	<0.000135 %		<LOD
	080-010-00-X	231-299-8	7487-94-7							
6	nickel { nickel(II) oxide (nickel monoxide) }				17 mg/kg	1.273	17.113 mg/kg	0.00171 %	✓	
	028-003-00-2	215-215-7 [1] 234-323-5 [2] - [3]	1313-99-1 [1] 11099-02-8 [2] 34492-97-2 [3]							
7	lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	88 mg/kg		69.608 mg/kg	0.00696 %	✓	
	082-001-00-6									
8	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<2 mg/kg	1.405	<2.81 mg/kg	<0.000281 %		<LOD
	034-002-00-8									
9	vanadium { divanadium pentaoxide; vanadium pentoxide }				22 mg/kg	1.785	31.066 mg/kg	0.00311 %	✓	
	023-001-00-8	215-239-8	1314-62-1							
10	zinc { zinc oxide }				104 mg/kg	1.245	102.395 mg/kg	0.0102 %	✓	
	030-013-00-7	215-222-5	1314-13-2							
11	chromium in chromium(VI) compounds { chromium(VI) oxide }				<2 mg/kg	1.923	<3.846 mg/kg	<0.000385 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
12	pH				7.7 pH		7.7 pH	7.7 pH		
13	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
14	acenaphthylene	205-917-1	208-96-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
15	acenaphthene	201-469-6	83-32-9		0.18 mg/kg		0.142 mg/kg	0.0000142 %	✓	
16	fluorene	201-695-5	86-73-7		0.14 mg/kg		0.111 mg/kg	0.0000111 %	✓	
17	phenanthrene	201-581-5	85-01-8		1.43 mg/kg		1.131 mg/kg	0.000113 %	✓	
18	anthracene	204-371-1	120-12-7		0.33 mg/kg		0.261 mg/kg	0.0000261 %	✓	
19	fluoranthene	205-912-4	206-44-0		2.3 mg/kg		1.819 mg/kg	0.000182 %	✓	
20	pyrene	204-927-3	129-00-0		2.15 mg/kg		1.701 mg/kg	0.00017 %	✓	
21	benzo[a]anthracene	601-033-00-9	200-280-6		1.02 mg/kg		0.807 mg/kg	0.0000807 %	✓	
22	chrysene	601-048-00-0	205-923-4		1.01 mg/kg		0.799 mg/kg	0.0000799 %	✓	
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		1.1 mg/kg		0.87 mg/kg	0.000087 %	✓	
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.34 mg/kg		0.269 mg/kg	0.0000269 %	✓	
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.9 mg/kg		0.712 mg/kg	0.0000712 %	✓	
26	indeno[123-cd]pyrene	205-893-2	193-39-5		0.52 mg/kg		0.411 mg/kg	0.0000411 %	✓	
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
28	benzo[ghi]perylene	205-883-8	191-24-2		0.52 mg/kg		0.411 mg/kg	0.0000411 %	✓	
Total:								0.0301 %		

Key

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

Classification of sample: CP202-0.00 - 1.20-22/01/2025

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

Sample details

Sample name:	LoW Code:
CP202-0.00 - 1.20-22/01/2025	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.00 - 1.20 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
15.5%	
(wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 15.5% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				11 mg/kg	1.32	12.272 mg/kg	0.00123 %	✓	
	033-003-00-0	215-481-4	1327-53-3							
2	cadmium { cadmium oxide }				0.3 mg/kg	1.142	0.29 mg/kg	0.000029 %	✓	
	048-002-00-0	215-146-2	1306-19-0							
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				16 mg/kg	1.462	19.76 mg/kg	0.00198 %	✓	
		215-160-9	1308-38-9							
4	copper { dicopper oxide; copper (I) oxide }				34 mg/kg	1.126	32.347 mg/kg	0.00323 %	✓	
	029-002-00-X	215-270-7	1317-39-1							
5	mercury { mercury dichloride }				<1 mg/kg	1.353	<1.353 mg/kg	<0.000135 %		<LOD
	080-010-00-X	231-299-8	7487-94-7							
6	nickel { nickel(II) oxide (nickel monoxide) }				20 mg/kg	1.273	21.507 mg/kg	0.00215 %	✓	
	028-003-00-2	215-215-7 [1] 234-323-5 [2] - [3]	1313-99-1 [1] 11099-02-8 [2] 34492-97-2 [3]							
7	lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	61 mg/kg		51.545 mg/kg	0.00515 %	✓	
	082-001-00-6									
8	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<2 mg/kg	1.405	<2.81 mg/kg	<0.000281 %		<LOD
	034-002-00-8									
9	vanadium { divanadium pentaoxide; vanadium pentoxide }				20 mg/kg	1.785	30.17 mg/kg	0.00302 %	✓	
	023-001-00-8	215-239-8	1314-62-1							
10	zinc { zinc oxide }				80 mg/kg	1.245	84.143 mg/kg	0.00841 %	✓	
	030-013-00-7	215-222-5	1314-13-2							
11	chromium in chromium(VI) compounds { chromium(VI) oxide }				<2 mg/kg	1.923	<3.846 mg/kg	<0.000385 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
12	pH				7.8 pH		7.8 pH	7.8 pH		
			PH							
13	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
14	• acenaphthylene	205-917-1	208-96-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
15	• acenaphthene	201-469-6	83-32-9		0.31 mg/kg		0.262 mg/kg	0.0000262 %	✓	
16	• fluorene	201-695-5	86-73-7		0.25 mg/kg		0.211 mg/kg	0.0000211 %	✓	
17	• phenanthrene	201-581-5	85-01-8		2.11 mg/kg		1.783 mg/kg	0.000178 %	✓	
18	• anthracene	204-371-1	120-12-7		0.43 mg/kg		0.363 mg/kg	0.0000363 %	✓	
19	• fluoranthene	205-912-4	206-44-0		2.44 mg/kg		2.062 mg/kg	0.000206 %	✓	
20	• pyrene	204-927-3	129-00-0		2.51 mg/kg		2.121 mg/kg	0.000212 %	✓	
21	benzo[a]anthracene	601-033-00-9	200-280-6		1.14 mg/kg		0.963 mg/kg	0.0000963 %	✓	
22	chrysene	601-048-00-0	205-923-4		1.03 mg/kg		0.87 mg/kg	0.000087 %	✓	
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		1.08 mg/kg		0.913 mg/kg	0.0000913 %	✓	
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.21 mg/kg		0.177 mg/kg	0.0000177 %	✓	
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.85 mg/kg		0.718 mg/kg	0.0000718 %	✓	
26	• indeno[123-cd]pyrene	205-893-2	193-39-5		0.45 mg/kg		0.38 mg/kg	0.000038 %	✓	
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
28	• benzo[ghi]perylene	205-883-8	191-24-2		0.47 mg/kg		0.397 mg/kg	0.0000397 %	✓	
Total:								0.0272 %		

Key

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

Classification of sample: CP202-1.20 - 1.65-22/01/2025

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

Sample details

Sample name:	LoW Code:
CP202-1.20 - 1.65-22/01/2025	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
1.20 - 1.65 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
18.7%	
(wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 18.7% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				6 mg/kg	1.32	6.441 mg/kg	0.000644 %	✓	
	033-003-00-0	215-481-4	1327-53-3							
2	cadmium { cadmium oxide }				<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
	048-002-00-0	215-146-2	1306-19-0							
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				11 mg/kg	1.462	13.071 mg/kg	0.00131 %	✓	
		215-160-9	1308-38-9							
4	copper { dicopper oxide; copper (I) oxide }				17 mg/kg	1.126	15.561 mg/kg	0.00156 %	✓	
	029-002-00-X	215-270-7	1317-39-1							
5	mercury { mercury dichloride }				<1 mg/kg	1.353	<1.353 mg/kg	<0.000135 %		<LOD
	080-010-00-X	231-299-8	7487-94-7							
6	nickel { nickel(II) oxide (nickel monoxide) }				13 mg/kg	1.273	13.45 mg/kg	0.00135 %	✓	
	028-003-00-2	215-215-7 [1] 234-323-5 [2] - [3]	1313-99-1 [1] 11099-02-8 [2] 34492-97-2 [3]							
7	lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	19 mg/kg		15.447 mg/kg	0.00154 %	✓	
	082-001-00-6									
8	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<2 mg/kg	1.405	<2.81 mg/kg	<0.000281 %		<LOD
	034-002-00-8									
9	vanadium { divanadium pentaoxide; vanadium pentoxide }				13 mg/kg	1.785	18.868 mg/kg	0.00189 %	✓	
	023-001-00-8	215-239-8	1314-62-1							
10	zinc { zinc oxide }				41 mg/kg	1.245	41.49 mg/kg	0.00415 %	✓	
	030-013-00-7	215-222-5	1314-13-2							
11	chromium in chromium(VI) compounds { chromium(VI) oxide }				<2 mg/kg	1.923	<3.846 mg/kg	<0.000385 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
12	pH				7.3 pH		7.3 pH	7.3 pH		
			PH							
13	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
14	• acenaphthylene	205-917-1	208-96-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
15	• acenaphthene	201-469-6	83-32-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
16	• fluorene	201-695-5	86-73-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
17	• phenanthrene	201-581-5	85-01-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
18	• anthracene	204-371-1	120-12-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
19	• fluoranthene	205-912-4	206-44-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
20	• pyrene	204-927-3	129-00-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
21	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
22	chrysene	601-048-00-0	205-923-4	218-01-9	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
23	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
24	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
26	• indeno[123-cd]pyrene	205-893-2	193-39-5		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
28	• benzo[ghi]perylene	205-883-8	191-24-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
Total:								0.0134 %		

Key

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

Classification of sample: TP101-0.00 - 0.50-29/04/2024

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

Sample details

Sample name:	LoW Code:
TP101-0.00 - 0.50-29/04/2024	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.00 - 0.50 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
14%	
(wet weight correction)	

Hazard properties

None identified

Determinands

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

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number								
1		arsenic { arsenic trioxide }			13	mg/kg	1.32	14.761 mg/kg		0.00148 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
2		cadmium { cadmium oxide }			<0.2	mg/kg	1.142	<0.228 mg/kg		<0.0000228 %		<LOD
	048-002-00-0	215-146-2	1306-19-0									
3		chromium in chromium(III) compounds {  chromium(III) oxide (worst case) }			15	mg/kg	1.462	18.854 mg/kg		0.00189 %	✓	
		215-160-9	1308-38-9									
4		copper { dicopper oxide ; copper (I) oxide }			31	mg/kg	1.126	30.016 mg/kg		0.003 %	✓	
	029-002-00-X	215-270-7	1317-39-1									
5		mercury { mercury dichloride }			<1	mg/kg	1.353	<1.353 mg/kg		<0.000135 %		<LOD
	080-010-00-X	231-299-8	7487-94-7									
6		nickel { nickel(II) oxide (nickel monoxide) }			11	mg/kg	1.273	12.039 mg/kg		0.0012 %	✓	
	028-003-00-2	215-215-7 [1] 234-323-5 [2] - [3]	1313-99-1 [1] 11099-02-8 [2] 34492-97-2 [3]									
7		lead {  lead compounds with the exception of those specified elsewhere in this Annex }			1	125	mg/kg	107.5 mg/kg		0.0107 %	✓	
	082-001-00-6											
8		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }			<2	mg/kg	1.405	<2.81 mg/kg		<0.000281 %		<LOD
	034-002-00-8											
9		vanadium { divanadium pentaoxide ; vanadium pentoxide }			23	mg/kg	1.785	35.311 mg/kg		0.00353 %	✓	
	023-001-00-8	215-239-8	1314-62-1									
10		zinc { zinc oxide }			78	mg/kg	1.245	83.495 mg/kg		0.00835 %	✓	
	030-013-00-7	215-222-5	1314-13-2									
11		chromium in chromium(VI) compounds { chromium(VI) oxide }			<2	mg/kg	1.923	<3.846 mg/kg		<0.000385 %		<LOD
	024-001-00-0	215-607-8	1333-82-0									
12		boron { diboron trioxide }			<1	mg/kg	3.22	<3.22 mg/kg		<0.000322 %		<LOD
	005-008-00-8	215-125-8	1303-86-2									
13		TPH (C6 to C40) petroleum group			<19.06	mg/kg		<19.06 mg/kg		<0.00191 %		<LOD
			TPH									

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %			<LOD
	603-181-00-X	216-653-1	1634-04-4								
15	benzene				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %			<LOD
	601-020-00-8	200-753-7	71-43-2								
16	toluene				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
17	ethylbenzene				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
18	xylene				<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %			<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
19	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				1 mg/kg	1.884	1.62 mg/kg	0.000162 %	✓		
	006-007-00-5										
20	pH				7.9 pH		7.9 pH	7.9 pH			
			PH								
21	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
22	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-917-1	208-96-8								
23	acenaphthene				0.14 mg/kg		0.12 mg/kg	0.000012 %	✓		
		201-469-6	83-32-9								
24	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-695-5	86-73-7								
25	phenanthrene				0.97 mg/kg		0.834 mg/kg	0.0000834 %	✓		
		201-581-5	85-01-8								
26	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		204-371-1	120-12-7								
27	fluoranthene				0.6 mg/kg		0.516 mg/kg	0.0000516 %	✓		
		205-912-4	206-44-0								
28	pyrene				0.56 mg/kg		0.482 mg/kg	0.0000482 %	✓		
		204-927-3	129-00-0								
29	benzo[a]anthracene				0.15 mg/kg		0.129 mg/kg	0.0000129 %	✓		
	601-033-00-9	200-280-6	56-55-3								
30	chrysene				0.22 mg/kg		0.189 mg/kg	0.0000189 %	✓		
	601-048-00-0	205-923-4	218-01-9								
31	benzo[b]fluoranthene				0.15 mg/kg		0.129 mg/kg	0.0000129 %	✓		
	601-034-00-4	205-911-9	205-99-2								
32	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-036-00-5	205-916-6	207-08-9								
33	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-032-00-3	200-028-5	50-32-8								
34	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-893-2	193-39-5								
35	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-041-00-2	200-181-8	53-70-3								
36	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-883-8	191-24-2								
37	polychlorobiphenyls; PCB				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	602-039-00-4	215-648-1	1336-36-3								
38	monohydric phenols				<2 mg/kg		<2 mg/kg	<0.0002 %			<LOD
			P1186								
Total:									0.034 %		

Key

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

Classification of sample: TP102-0.00 - 0.50-29/04/2024

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

Sample details

Sample name:	LoW Code:
TP102-0.00 - 0.50-29/04/2024	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.00 - 0.50 m	
Moisture content:	
13%	
(wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 13% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				20 mg/kg	1.32	22.974 mg/kg	0.0023 %	✓	
	033-003-00-0	215-481-4	1327-53-3							
2	cadmium { cadmium oxide }				2.1 mg/kg	1.142	2.087 mg/kg	0.000209 %	✓	
	048-002-00-0	215-146-2	1306-19-0							
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				16 mg/kg	1.462	20.345 mg/kg	0.00203 %	✓	
		215-160-9	1308-38-9							
4	copper { dicopper oxide; copper (I) oxide }				101 mg/kg	1.126	98.932 mg/kg	0.00989 %	✓	
	029-002-00-X	215-270-7	1317-39-1							
5	mercury { mercury dichloride }				<1 mg/kg	1.353	<1.353 mg/kg	<0.000135 %		<LOD
	080-010-00-X	231-299-8	7487-94-7							
6	nickel { nickel(II) oxide (nickel monoxide) }				17 mg/kg	1.273	18.822 mg/kg	0.00188 %	✓	
	028-003-00-2	215-215-7 [1] 234-323-5 [2] - [3]	1313-99-1 [1] 11099-02-8 [2] 34492-97-2 [3]							
7	lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	171 mg/kg		148.77 mg/kg	0.0149 %	✓	
	082-001-00-6									
8	selenium { selenium compounds with the exception of cadmium selenide and those specified elsewhere in this Annex }				<2 mg/kg	1.405	<2.81 mg/kg	<0.000281 %		<LOD
	034-002-00-8									
9	vanadium { divanadium pentaoxide; vanadium pentoxide }				29 mg/kg	1.785	45.04 mg/kg	0.0045 %	✓	
	023-001-00-8	215-239-8	1314-62-1							
10	zinc { zinc oxide }				623 mg/kg	1.245	674.647 mg/kg	0.0675 %	✓	
	030-013-00-7	215-222-5	1314-13-2							
11	chromium in chromium(VI) compounds { chromium(VI) oxide }				<2 mg/kg	1.923	<3.846 mg/kg	<0.000385 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
12	boron { triboron trioxide }				<1 mg/kg	3.22	<3.22 mg/kg	<0.000322 %		<LOD
	005-008-00-8	215-125-8	1303-86-2							
13	TPH (C6 to C40) petroleum group				298 mg/kg		259.26 mg/kg	0.0259 %	✓	
			TPH							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	603-181-00-X	216-653-1	1634-04-4							
15	benzene				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
16	toluene				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
17	ethylbenzene				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
18	xylene				<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
19	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
	006-007-00-5									
20	pH				7.8 pH		7.8 pH	7.8 pH		
			P1186							
21	naphthalene				1.16 mg/kg		1.009 mg/kg	0.000101 %	✓	
	601-052-00-2	202-049-5	91-20-3							
22	acenaphthylene				0.25 mg/kg		0.218 mg/kg	0.0000218 %	✓	
		205-917-1	208-96-8							
23	acenaphthene				0.93 mg/kg		0.809 mg/kg	0.0000809 %	✓	
		201-469-6	83-32-9							
24	fluorene				0.84 mg/kg		0.731 mg/kg	0.0000731 %	✓	
		201-695-5	86-73-7							
25	phenanthrene				11.7 mg/kg		10.179 mg/kg	0.00102 %	✓	
		201-581-5	85-01-8							
26	anthracene				2.35 mg/kg		2.045 mg/kg	0.000204 %	✓	
		204-371-1	120-12-7							
27	fluoranthene				30.6 mg/kg		26.622 mg/kg	0.00266 %	✓	
		205-912-4	206-44-0							
28	pyrene				27.4 mg/kg		23.838 mg/kg	0.00238 %	✓	
		204-927-3	129-00-0							
29	benzo[a]anthracene				13 mg/kg		11.31 mg/kg	0.00113 %	✓	
	601-033-00-9	200-280-6	56-55-3							
30	chrysene				15.3 mg/kg		13.311 mg/kg	0.00133 %	✓	
	601-048-00-0	205-923-4	218-01-9							
31	benzo[b]fluoranthene				17.8 mg/kg		15.486 mg/kg	0.00155 %	✓	
	601-034-00-4	205-911-9	205-99-2							
32	benzo[k]fluoranthene				5.28 mg/kg		4.594 mg/kg	0.000459 %	✓	
	601-036-00-5	205-916-6	207-08-9							
33	benzo[a]pyrene; benzo[def]chrysene				11.5 mg/kg		10.005 mg/kg	0.001 %	✓	
	601-032-00-3	200-028-5	50-32-8							
34	indeno[123-cd]pyrene				5.77 mg/kg		5.02 mg/kg	0.000502 %	✓	
		205-893-2	193-39-5							
35	dibenz[a,h]anthracene				1.43 mg/kg		1.244 mg/kg	0.000124 %	✓	
	601-041-00-2	200-181-8	53-70-3							
36	benzo[ghi]perylene				5.16 mg/kg		4.489 mg/kg	0.000449 %	✓	
		205-883-8	191-24-2							
37	monohydric phenols				<2 mg/kg		<2 mg/kg	<0.0002 %		<LOD
			P1186							
Total:								0.144 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 1000 mg/kg (0.1%)
because: Concentrations at less than 1.0% are "unlikely to be flammable". Flammability of soils is unlikely to result in a hazardous classification in soils (AGS Waste Classification – A Practitioner's Guide).

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.0259%)

Classification of sample: TP103-0.00 - 1.00-29/04/2024

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

Sample details

Sample name:	LoW Code:
TP103-0.00 - 1.00-29/04/2024	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.00 - 1.00 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
12.2%	
(wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 12.2% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number								
1		arsenic { arsenic trioxide }				12 mg/kg	1.32	13.911 mg/kg	0.00139 %	✓		
		033-003-00-0	215-481-4	1327-53-3								
2		cadmium { cadmium oxide }				<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD	
		048-002-00-0	215-146-2	1306-19-0								
3		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				20 mg/kg	1.462	25.665 mg/kg	0.00257 %	✓		
			215-160-9	1308-38-9								
4		copper { dicopper oxide; copper (I) oxide }				51 mg/kg	1.126	50.415 mg/kg	0.00504 %	✓		
		029-002-00-X	215-270-7	1317-39-1								
5		mercury { mercury dichloride }				<1 mg/kg	1.353	<1.353 mg/kg	<0.000135 %		<LOD	
		080-010-00-X	231-299-8	7487-94-7								
6		nickel { nickel(II) oxide (nickel monoxide) }				19 mg/kg	1.273	21.229 mg/kg	0.00212 %	✓		
		028-003-00-2	215-215-7 [1] 234-323-5 [2] - [3]	1313-99-1 [1] 11099-02-8 [2] 34492-97-2 [3]								
7		lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	85 mg/kg		74.63 mg/kg	0.00746 %	✓		
		082-001-00-6										
8		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<2 mg/kg	1.405	<2.81 mg/kg	<0.000281 %		<LOD	
		034-002-00-8										
9		vanadium { divanadium pentaoxide; vanadium pentoxide }				24 mg/kg	1.785	37.617 mg/kg	0.00376 %	✓		
		023-001-00-8	215-239-8	1314-62-1								
10		zinc { zinc oxide }				120 mg/kg	1.245	131.143 mg/kg	0.0131 %	✓		
		030-013-00-7	215-222-5	1314-13-2								
11		chromium in chromium(VI) compounds { chromium(VI) oxide }				<2 mg/kg	1.923	<3.846 mg/kg	<0.000385 %		<LOD	
		024-001-00-0	215-607-8	1333-82-0								
12		boron { diboron trioxide }				<1 mg/kg	3.22	<3.22 mg/kg	<0.000322 %		<LOD	
		005-008-00-8	215-125-8	1303-86-2								
13		TPH (C6 to C40) petroleum group				67 mg/kg		58.826 mg/kg	0.00588 %	✓		
				TPH								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %			<LOD
	603-181-00-X	216-653-1	1634-04-4								
15	benzene				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %			<LOD
	601-020-00-8	200-753-7	71-43-2								
16	toluene				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
17	ethylbenzene				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
18	xylene				<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %			<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
19	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %			<LOD
	006-007-00-5										
20	pH				7.7 pH		7.7 pH	7.7 pH			
			PH								
21	naphthalene				1.09 mg/kg		0.957 mg/kg	0.0000957 %		✓	
	601-052-00-2	202-049-5	91-20-3								
22	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-917-1	208-96-8								
23	acenaphthene				1.73 mg/kg		1.519 mg/kg	0.000152 %		✓	
		201-469-6	83-32-9								
24	fluorene				1.24 mg/kg		1.089 mg/kg	0.000109 %		✓	
		201-695-5	86-73-7								
25	phenanthrene				8.98 mg/kg		7.884 mg/kg	0.000788 %		✓	
		201-581-5	85-01-8								
26	anthracene				1.79 mg/kg		1.572 mg/kg	0.000157 %		✓	
		204-371-1	120-12-7								
27	fluoranthene				6.31 mg/kg		5.54 mg/kg	0.000554 %		✓	
		205-912-4	206-44-0								
28	pyrene				5.26 mg/kg		4.618 mg/kg	0.000462 %		✓	
		204-927-3	129-00-0								
29	benzo[a]anthracene				1.71 mg/kg		1.501 mg/kg	0.00015 %		✓	
	601-033-00-9	200-280-6	56-55-3								
30	chrysene				1.77 mg/kg		1.554 mg/kg	0.000155 %		✓	
	601-048-00-0	205-923-4	218-01-9								
31	benzo[b]fluoranthene				1.41 mg/kg		1.238 mg/kg	0.000124 %		✓	
	601-034-00-4	205-911-9	205-99-2								
32	benzo[k]fluoranthene				0.47 mg/kg		0.413 mg/kg	0.0000413 %		✓	
	601-036-00-5	205-916-6	207-08-9								
33	benzo[a]pyrene; benzo[def]chrysene				1.2 mg/kg		1.054 mg/kg	0.000105 %		✓	
	601-032-00-3	200-028-5	50-32-8								
34	indeno[123-cd]pyrene				0.52 mg/kg		0.457 mg/kg	0.0000457 %		✓	
		205-893-2	193-39-5								
35	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-041-00-2	200-181-8	53-70-3								
36	benzo[ghi]perylene				0.39 mg/kg		0.342 mg/kg	0.0000342 %		✓	
		205-883-8	191-24-2								
37	monohydric phenols				<2 mg/kg		<2 mg/kg	<0.0002 %			<LOD
			P1186								
Total:									0.0459 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 1000 mg/kg (0.1%) because: Concentrations at less than 1.0% are "unlikely to be flammable". Flammability of soils is unlikely to result in a hazardous classification in soils (AGS Waste Classification – A Practitioner's Guide).

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.00588%)

Classification of sample: WS101-0.00 - 0.50-02/05/2024

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

Sample details

Sample name:	LoW Code:
WS101-0.00 - 0.50-02/05/2024	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.00 - 0.50 m	
Moisture content:	
10.6%	
(wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 10.6% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				11 mg/kg	1.32	12.984 mg/kg	0.0013 %	✓	
	033-003-00-0	215-481-4	1327-53-3							
2	cadmium { cadmium oxide }				0.3 mg/kg	1.142	0.306 mg/kg	0.0000306 %	✓	
	048-002-00-0	215-146-2	1306-19-0							
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				11 mg/kg	1.462	14.373 mg/kg	0.00144 %	✓	
		215-160-9	1308-38-9							
4	copper { dicopper oxide; copper (I) oxide }				30 mg/kg	1.126	30.196 mg/kg	0.00302 %	✓	
	029-002-00-X	215-270-7	1317-39-1							
5	mercury { mercury dichloride }				<1 mg/kg	1.353	<1.353 mg/kg	<0.000135 %		<LOD
	080-010-00-X	231-299-8	7487-94-7							
6	nickel { nickel(II) oxide (nickel monoxide) }				11 mg/kg	1.273	12.515 mg/kg	0.00125 %	✓	
	028-003-00-2	215-215-7 [1] 234-323-5 [2] - [3]	1313-99-1 [1] 11099-02-8 [2] 34492-97-2 [3]							
7	lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	90 mg/kg		80.46 mg/kg	0.00805 %	✓	
	082-001-00-6									
8	selenium { selenium compounds with the exception of cadmium selenosulfide and those specified elsewhere in this Annex }				<2 mg/kg	1.405	<2.81 mg/kg	<0.000281 %		<LOD
	034-002-00-8									
9	vanadium { divanadium pentaoxide; vanadium pentoxide }				22 mg/kg	1.785	35.111 mg/kg	0.00351 %	✓	
	023-001-00-8	215-239-8	1314-62-1							
10	zinc { zinc oxide }				91 mg/kg	1.245	101.262 mg/kg	0.0101 %	✓	
	030-013-00-7	215-222-5	1314-13-2							
11	chromium in chromium(VI) compounds { chromium(VI) oxide }				<2 mg/kg	1.923	<3.846 mg/kg	<0.000385 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
12	pH		PH		7.7 pH		7.7 pH	7.7 pH		
13	naphthalene				0.16 mg/kg		0.143 mg/kg	0.0000143 %	✓	
	601-052-00-2	202-049-5	91-20-3							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
14	• acenaphthylene	205-917-1	208-96-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
15	• acenaphthene	201-469-6	83-32-9		0.35 mg/kg		0.313 mg/kg	0.0000313 %	✓	
16	• fluorene	201-695-5	86-73-7		0.22 mg/kg		0.197 mg/kg	0.0000197 %	✓	
17	• phenanthrene	201-581-5	85-01-8		2.14 mg/kg		1.913 mg/kg	0.000191 %	✓	
18	• anthracene	204-371-1	120-12-7		0.46 mg/kg		0.411 mg/kg	0.0000411 %	✓	
19	• fluoranthene	205-912-4	206-44-0		2.38 mg/kg		2.128 mg/kg	0.000213 %	✓	
20	• pyrene	204-927-3	129-00-0		2.07 mg/kg		1.851 mg/kg	0.000185 %	✓	
21	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	0.87 mg/kg		0.778 mg/kg	0.0000778 %	✓	
22	chrysene	601-048-00-0	205-923-4	218-01-9	0.98 mg/kg		0.876 mg/kg	0.0000876 %	✓	
23	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	0.84 mg/kg		0.751 mg/kg	0.0000751 %	✓	
24	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	0.32 mg/kg		0.286 mg/kg	0.0000286 %	✓	
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	0.86 mg/kg		0.769 mg/kg	0.0000769 %	✓	
26	• indeno[123-cd]pyrene	205-893-2	193-39-5		0.44 mg/kg		0.393 mg/kg	0.0000393 %	✓	
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
28	• benzo[ghi]perylene	205-883-8	191-24-2		0.38 mg/kg		0.34 mg/kg	0.000034 %	✓	
Total:								0.0307 %		

Key

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

Classification of sample: WS102-0.20 - 0.50-02/05/2024

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

Sample details

Sample name:	LoW Code:
WS102-0.20 - 0.50-02/05/2024	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.20 - 0.50 m	
Moisture content:	
17.1%	
(wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 17.1% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number								
1		arsenic { arsenic trioxide }			11	mg/kg	1.32	12.04	mg/kg	0.0012 %	✔	
		033-003-00-0	215-481-4	1327-53-3								
2		cadmium { cadmium oxide }			<0.2	mg/kg	1.142	<0.228	mg/kg	<0.0000228 %		<LOD
		048-002-00-0	215-146-2	1306-19-0								
3		chromium in chromium(III) compounds {  chromium(III) oxide (worst case) }			32	mg/kg	1.462	38.772	mg/kg	0.00388 %	✔	
			215-160-9	1308-38-9								
4		copper { dicopper oxide; copper (I) oxide }			37	mg/kg	1.126	34.534	mg/kg	0.00345 %	✔	
		029-002-00-X	215-270-7	1317-39-1								
5		mercury { mercury dichloride }			<1	mg/kg	1.353	<1.353	mg/kg	<0.000135 %		<LOD
		080-010-00-X	231-299-8	7487-94-7								
6		nickel { nickel(II) oxide (nickel monoxide) }			58	mg/kg	1.273	61.189	mg/kg	0.00612 %	✔	
		028-003-00-2	215-215-7 [1] 234-323-5 [2] - [3]	1313-99-1 [1] 11099-02-8 [2] 34492-97-2 [3]								
7		lead {  lead compounds with the exception of those specified elsewhere in this Annex }			1	23	mg/kg	19.067	mg/kg	0.00191 %	✔	
		082-001-00-6										
8		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }			<2	mg/kg	1.405	<2.81	mg/kg	<0.000281 %		<LOD
		034-002-00-8										
9		vanadium { divanadium pentaoxide; vanadium pentoxide }			34	mg/kg	1.785	50.317	mg/kg	0.00503 %	✔	
		023-001-00-8	215-239-8	1314-62-1								
10		zinc { zinc oxide }			90	mg/kg	1.245	92.868	mg/kg	0.00929 %	✔	
		030-013-00-7	215-222-5	1314-13-2								
11		chromium in chromium(VI) compounds { chromium(VI) oxide }			<2	mg/kg	1.923	<3.846	mg/kg	<0.000385 %		<LOD
		024-001-00-0	215-607-8	1333-82-0								
12		pH			6.9	pH		6.9	pH	6.9 pH		
				PH								
13		naphthalene			<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-052-00-2	202-049-5	91-20-3								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
14	• acenaphthylene	205-917-1	208-96-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
15	• acenaphthene	201-469-6	83-32-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
16	• fluorene	201-695-5	86-73-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
17	• phenanthrene	201-581-5	85-01-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
18	• anthracene	204-371-1	120-12-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
19	• fluoranthene	205-912-4	206-44-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
20	• pyrene	204-927-3	129-00-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
21	benzo[a]anthracene	601-033-00-9	200-280-6		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
22	chrysene	601-048-00-0	205-923-4		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
26	• indeno[123-cd]pyrene	205-893-2	193-39-5		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
28	• benzo[ghi]perylene	205-883-8	191-24-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
Total:								0.0319 %		

Key

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

Classification of sample: WS103-0.00 - 0.30-02/05/2024

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

Sample details

Sample name:	LoW Code:
WS103-0.00 - 0.30-02/05/2024	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.00 - 0.30 m	
Moisture content:	
6.6%	
(wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 6.6% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				2 mg/kg	1.32	2.466 mg/kg	0.000247 %	✓	
	033-003-00-0	215-481-4	1327-53-3							
2	cadmium { cadmium oxide }				<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
	048-002-00-0	215-146-2	1306-19-0							
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				4 mg/kg	1.462	5.46 mg/kg	0.000546 %	✓	
		215-160-9	1308-38-9							
4	copper { dicopper oxide; copper (I) oxide }				6 mg/kg	1.126	6.309 mg/kg	0.000631 %	✓	
	029-002-00-X	215-270-7	1317-39-1							
5	mercury { mercury dichloride }				<1 mg/kg	1.353	<1.353 mg/kg	<0.000135 %		<LOD
	080-010-00-X	231-299-8	7487-94-7							
6	nickel { nickel(II) oxide (nickel monoxide) }				4 mg/kg	1.273	4.754 mg/kg	0.000475 %	✓	
	028-003-00-2	215-215-7 [1] 234-323-5 [2] - [3]	1313-99-1 [1] 11099-02-8 [2] 34492-97-2 [3]							
7	lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	9 mg/kg		8.406 mg/kg	0.000841 %	✓	
	082-001-00-6									
8	selenium { selenium compounds with the exception of cadmium selenosulfide and those specified elsewhere in this Annex }				<2 mg/kg	1.405	<2.81 mg/kg	<0.000281 %		<LOD
	034-002-00-8									
9	vanadium { divanadium pentaoxide; vanadium pentoxide }				7 mg/kg	1.785	11.672 mg/kg	0.00117 %	✓	
	023-001-00-8	215-239-8	1314-62-1							
10	zinc { zinc oxide }				15 mg/kg	1.245	17.438 mg/kg	0.00174 %	✓	
	030-013-00-7	215-222-5	1314-13-2							
11	chromium in chromium(VI) compounds { chromium(VI) oxide }				<2 mg/kg	1.923	<3.846 mg/kg	<0.000385 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
12	boron { triboron trioxide }				<1 mg/kg	3.22	<3.22 mg/kg	<0.000322 %		<LOD
	005-008-00-8	215-125-8	1303-86-2							
13	TPH (C6 to C40) petroleum group				153 mg/kg		142.902 mg/kg	0.0143 %	✓	
			TPH							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	603-181-00-X	216-653-1	1634-04-4							
15	benzene				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
16	toluene				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
17	ethylbenzene				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
18	xylene				<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
19	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
	006-007-00-5									
20	pH				7.7 pH		7.7 pH	7.7 pH		
			PH							
21	naphthalene				0.21 mg/kg		0.196 mg/kg	0.0000196 %	✓	
	601-052-00-2	202-049-5	91-20-3							
22	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8							
23	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9							
24	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7							
25	phenanthrene				0.66 mg/kg		0.616 mg/kg	0.0000616 %	✓	
		201-581-5	85-01-8							
26	anthracene				0.14 mg/kg		0.131 mg/kg	0.0000131 %	✓	
		204-371-1	120-12-7							
27	fluoranthene				1.1 mg/kg		1.027 mg/kg	0.000103 %	✓	
		205-912-4	206-44-0							
28	pyrene				1.07 mg/kg		0.999 mg/kg	0.0000999 %	✓	
		204-927-3	129-00-0							
29	benzo[a]anthracene				0.5 mg/kg		0.467 mg/kg	0.0000467 %	✓	
	601-033-00-9	200-280-6	56-55-3							
30	chrysene				0.71 mg/kg		0.663 mg/kg	0.0000663 %	✓	
	601-048-00-0	205-923-4	218-01-9							
31	benzo[b]fluoranthene				1.01 mg/kg		0.943 mg/kg	0.0000943 %	✓	
	601-034-00-4	205-911-9	205-99-2							
32	benzo[k]fluoranthene				0.29 mg/kg		0.271 mg/kg	0.0000271 %	✓	
	601-036-00-5	205-916-6	207-08-9							
33	benzo[a]pyrene; benzo[def]chrysene				0.86 mg/kg		0.803 mg/kg	0.0000803 %	✓	
	601-032-00-3	200-028-5	50-32-8							
34	indeno[123-cd]pyrene				0.65 mg/kg		0.607 mg/kg	0.0000607 %	✓	
		205-893-2	193-39-5							
35	dibenz[a,h]anthracene				0.13 mg/kg		0.121 mg/kg	0.0000121 %	✓	
	601-041-00-2	200-181-8	53-70-3							
36	benzo[ghi]perylene				0.59 mg/kg		0.551 mg/kg	0.0000551 %	✓	
		205-883-8	191-24-2							
37	polychlorobiphenyls; PCB				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	602-039-00-4	215-648-1	1336-36-3							
38	monohydric phenols				<2 mg/kg		<2 mg/kg	<0.0002 %		<LOD
			P1186							
Total:								0.0223 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 1000 mg/kg (0.1%) because: Concentrations at less than 1.0% are "unlikely to be flammable". Flammability of soils is unlikely to result in a hazardous classification in soils (AGS Waste Classification – A Practitioner's Guide).

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.0143%)

Classification of sample: WS104-0.00 - 0.20-02/05/2024

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

Sample details

Sample name:	LoW Code:
WS104-0.00 - 0.20-02/05/2024	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.00 - 0.20 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
23.6%	
(wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 23.6% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number								
1		arsenic { arsenic trioxide }				7 mg/kg	1.32	7.061 mg/kg	0.000706 %	✓		
		033-003-00-0	215-481-4	1327-53-3								
2		cadmium { cadmium oxide }				<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD	
		048-002-00-0	215-146-2	1306-19-0								
3		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				10 mg/kg	1.462	11.166 mg/kg	0.00112 %	✓		
			215-160-9	1308-38-9								
4		copper { dicopper oxide; copper (I) oxide }				21 mg/kg	1.126	18.064 mg/kg	0.00181 %	✓		
		029-002-00-X	215-270-7	1317-39-1								
5		mercury { mercury dichloride }				<1 mg/kg	1.353	<1.353 mg/kg	<0.000135 %		<LOD	
		080-010-00-X	231-299-8	7487-94-7								
6		nickel { nickel(II) oxide (nickel monoxide) }				9 mg/kg	1.273	8.75 mg/kg	0.000875 %	✓		
		028-003-00-2	215-215-7 [1] 234-323-5 [2] - [3]	1313-99-1 [1] 11099-02-8 [2] 34492-97-2 [3]								
7		lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	82 mg/kg		62.648 mg/kg	0.00626 %	✓		
		082-001-00-6										
8		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<2 mg/kg	1.405	<2.81 mg/kg	<0.000281 %		<LOD	
		034-002-00-8										
9		vanadium { divanadium pentaoxide; vanadium pentoxide }				12 mg/kg	1.785	16.367 mg/kg	0.00164 %	✓		
		023-001-00-8	215-239-8	1314-62-1								
10		zinc { zinc oxide }				68 mg/kg	1.245	64.665 mg/kg	0.00647 %	✓		
		030-013-00-7	215-222-5	1314-13-2								
11		chromium in chromium(VI) compounds { chromium(VI) oxide }				<2 mg/kg	1.923	<3.846 mg/kg	<0.000385 %		<LOD	
		024-001-00-0	215-607-8	1333-82-0								
12		pH				6.7 pH		6.7 pH	6.7 pH			
				PH								
13		naphthalene				0.14 mg/kg		0.107 mg/kg	0.0000107 %	✓		
		601-052-00-2	202-049-5	91-20-3								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
14	● acenaphthylene	205-917-1	208-96-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
15	● acenaphthene	201-469-6	83-32-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
16	● fluorene	201-695-5	86-73-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
17	● phenanthrene	201-581-5	85-01-8		0.93 mg/kg		0.711 mg/kg	0.0000711 %	✓	
18	● anthracene	204-371-1	120-12-7		0.16 mg/kg		0.122 mg/kg	0.0000122 %	✓	
19	● fluoranthene	205-912-4	206-44-0		1.32 mg/kg		1.008 mg/kg	0.000101 %	✓	
20	● pyrene	204-927-3	129-00-0		1.23 mg/kg		0.94 mg/kg	0.000094 %	✓	
21	benzo[a]anthracene	601-033-00-9	200-280-6		0.46 mg/kg		0.351 mg/kg	0.0000351 %	✓	
22	chrysene	601-048-00-0	205-923-4		0.6 mg/kg		0.458 mg/kg	0.0000458 %	✓	
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.58 mg/kg		0.443 mg/kg	0.0000443 %	✓	
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.21 mg/kg		0.16 mg/kg	0.000016 %	✓	
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.44 mg/kg		0.336 mg/kg	0.0000336 %	✓	
26	● indeno[123-cd]pyrene	205-893-2	193-39-5		0.25 mg/kg		0.191 mg/kg	0.0000191 %	✓	
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
28	● benzo[ghi]perylene	205-883-8	191-24-2		0.21 mg/kg		0.16 mg/kg	0.000016 %	✓	
Total:								0.0202 %		

Key

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

Classification of sample: WS104-0.20 - 1.00-02/05/2024

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

Sample details

Sample name:	LoW Code:
WS104-0.20 - 1.00-02/05/2024	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.20 - 1.00 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
15%	
(wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 15% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				7 mg/kg	1.32	7.856 mg/kg	0.000786 %	✓	
	033-003-00-0	215-481-4	1327-53-3							
2	cadmium { cadmium oxide }				<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
	048-002-00-0	215-146-2	1306-19-0							
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				13 mg/kg	1.462	16.15 mg/kg	0.00162 %	✓	
		215-160-9	1308-38-9							
4	copper { dicopper oxide; copper (I) oxide }				23 mg/kg	1.126	22.011 mg/kg	0.0022 %	✓	
	029-002-00-X	215-270-7	1317-39-1							
5	mercury { mercury dichloride }				<1 mg/kg	1.353	<1.353 mg/kg	<0.000135 %		<LOD
	080-010-00-X	231-299-8	7487-94-7							
6	nickel { nickel(II) oxide (nickel monoxide) }				19 mg/kg	1.273	20.552 mg/kg	0.00206 %	✓	
	028-003-00-2	215-215-7 [1] 234-323-5 [2] - [3]	1313-99-1 [1] 11099-02-8 [2] 34492-97-2 [3]							
7	lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	20 mg/kg		17 mg/kg	0.0017 %	✓	
	082-001-00-6									
8	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<2 mg/kg	1.405	<2.81 mg/kg	<0.000281 %		<LOD
	034-002-00-8									
9	vanadium { divanadium pentaoxide; vanadium pentoxide }				17 mg/kg	1.785	25.796 mg/kg	0.00258 %	✓	
	023-001-00-8	215-239-8	1314-62-1							
10	zinc { zinc oxide }				58 mg/kg	1.245	61.364 mg/kg	0.00614 %	✓	
	030-013-00-7	215-222-5	1314-13-2							
11	chromium in chromium(VI) compounds { chromium(VI) oxide }				<2 mg/kg	1.923	<3.846 mg/kg	<0.000385 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
12	boron { diboron trioxide }				<1 mg/kg	3.22	<3.22 mg/kg	<0.000322 %		<LOD
	005-008-00-8	215-125-8	1303-86-2							
13	TPH (C6 to C40) petroleum group				<42 mg/kg		<42 mg/kg	<0.0042 %		<LOD
			TPH							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %			<LOD
	603-181-00-X	216-653-1	1634-04-4								
15	benzene				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %			<LOD
	601-020-00-8	200-753-7	71-43-2								
16	toluene				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
17	ethylbenzene				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
18	xylene				<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %			<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
19	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %			<LOD
	006-007-00-5										
20	pH				7.7 pH		7.7 pH	7.7 pH			
			PH								
21	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
22	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-917-1	208-96-8								
23	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-469-6	83-32-9								
24	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-695-5	86-73-7								
25	phenanthrene				0.35 mg/kg		0.298 mg/kg	0.0000298 %	✓		
		201-581-5	85-01-8								
26	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		204-371-1	120-12-7								
27	fluoranthene				0.45 mg/kg		0.383 mg/kg	0.0000383 %	✓		
		205-912-4	206-44-0								
28	pyrene				0.4 mg/kg		0.34 mg/kg	0.000034 %	✓		
		204-927-3	129-00-0								
29	benzo[a]anthracene				0.16 mg/kg		0.136 mg/kg	0.0000136 %	✓		
	601-033-00-9	200-280-6	56-55-3								
30	chrysene				0.21 mg/kg		0.179 mg/kg	0.0000179 %	✓		
	601-048-00-0	205-923-4	218-01-9								
31	benzo[b]fluoranthene				0.21 mg/kg		0.179 mg/kg	0.0000179 %	✓		
	601-034-00-4	205-911-9	205-99-2								
32	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-036-00-5	205-916-6	207-08-9								
33	benzo[a]pyrene; benzo[def]chrysene				0.19 mg/kg		0.161 mg/kg	0.0000161 %	✓		
	601-032-00-3	200-028-5	50-32-8								
34	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-893-2	193-39-5								
35	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-041-00-2	200-181-8	53-70-3								
36	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-883-8	191-24-2								
37	polychlorobiphenyls; PCB				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	602-039-00-4	215-648-1	1336-36-3								
38	monohydric phenols				<2 mg/kg		<2 mg/kg	<0.0002 %			<LOD
			P1186								
Total:									0.0231 %		

Key

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

Classification of sample: CP102-0.00 - 0.30-30/04/2024

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

Sample details

Sample name:	LoW Code:
CP102-0.00 - 0.30-30/04/2024	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.00 - 0.30 m	
Moisture content:	
15.6%	
(wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 15.6% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used	
		EU CLP index number	EC Number	CAS Number								
1		arsenic { arsenic trioxide }			23	mg/kg	1.32	25.63	mg/kg	0.00256 %	✔	
		033-003-00-0	215-481-4	1327-53-3								
2		cadmium { cadmium oxide }			0.3	mg/kg	1.142	0.289	mg/kg	0.0000289 %	✔	
		048-002-00-0	215-146-2	1306-19-0								
3		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }			17	mg/kg	1.462	20.97	mg/kg	0.0021 %	✔	
			215-160-9	1308-38-9								
4		copper { dicopper oxide; copper (I) oxide }			55	mg/kg	1.126	52.264	mg/kg	0.00523 %	✔	
		029-002-00-X	215-270-7	1317-39-1								
5		mercury { mercury dichloride }			<1	mg/kg	1.353	<1.353	mg/kg	<0.000135 %		<LOD
		080-010-00-X	231-299-8	7487-94-7								
6		nickel { nickel(II) oxide (nickel monoxide) }			18	mg/kg	1.273	19.333	mg/kg	0.00193 %	✔	
		028-003-00-2	215-215-7 [1] 234-323-5 [2] - [3]	1313-99-1 [1] 11099-02-8 [2] 34492-97-2 [3]								
7		lead { lead compounds with the exception of those specified elsewhere in this Annex }		1	178	mg/kg		150.232	mg/kg	0.015 %	✔	
		082-001-00-6										
8		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }			<2	mg/kg	1.405	<2.81	mg/kg	<0.000281 %		<LOD
		034-002-00-8										
9		vanadium { divanadium pentaoxide; vanadium pentoxide }			27	mg/kg	1.785	40.681	mg/kg	0.00407 %	✔	
		023-001-00-8	215-239-8	1314-62-1								
10		zinc { zinc oxide }			95	mg/kg	1.245	99.801	mg/kg	0.00998 %	✔	
		030-013-00-7	215-222-5	1314-13-2								
11		chromium in chromium(VI) compounds { chromium(VI) oxide }			<2	mg/kg	1.923	<3.846	mg/kg	<0.000385 %		<LOD
		024-001-00-0	215-607-8	1333-82-0								
12		pH			7.1	pH		7.1	pH	7.1 pH		
				PH								
13		naphthalene			0.13	mg/kg		0.11	mg/kg	0.000011 %	✔	
		601-052-00-2	202-049-5	91-20-3								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
14	acenaphthylene	205-917-1	208-96-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
15	acenaphthene	201-469-6	83-32-9		0.24 mg/kg		0.203 mg/kg	0.0000203 %	✓	
16	fluorene	201-695-5	86-73-7		0.14 mg/kg		0.118 mg/kg	0.0000118 %	✓	
17	phenanthrene	201-581-5	85-01-8		1.65 mg/kg		1.393 mg/kg	0.000139 %	✓	
18	anthracene	204-371-1	120-12-7		0.31 mg/kg		0.262 mg/kg	0.0000262 %	✓	
19	fluoranthene	205-912-4	206-44-0		2.04 mg/kg		1.722 mg/kg	0.000172 %	✓	
20	pyrene	204-927-3	129-00-0		1.77 mg/kg		1.494 mg/kg	0.000149 %	✓	
21	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	0.6 mg/kg		0.506 mg/kg	0.0000506 %	✓	
22	chrysene	601-048-00-0	205-923-4	218-01-9	0.84 mg/kg		0.709 mg/kg	0.0000709 %	✓	
23	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	0.73 mg/kg		0.616 mg/kg	0.0000616 %	✓	
24	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	0.24 mg/kg		0.203 mg/kg	0.0000203 %	✓	
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	0.58 mg/kg		0.49 mg/kg	0.000049 %	✓	
26	indeno[123-cd]pyrene	205-893-2	193-39-5		0.31 mg/kg		0.262 mg/kg	0.0000262 %	✓	
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
28	benzo[ghi]perylene	205-883-8	191-24-2		0.25 mg/kg		0.211 mg/kg	0.0000211 %	✓	
Total:								0.0426 %		

Key

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

Classification of sample: CP101-0.50 - 1.00-01/05/2024

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

Sample details

Sample name:	LoW Code:
CP101-0.50 - 1.00-01/05/2024	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.50 - 1.00 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
11.4%	
(wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 11.4% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				7 mg/kg	1.32	8.189 mg/kg	0.000819 %	✓	
	033-003-00-0	215-481-4	1327-53-3							
2	cadmium { cadmium oxide }				<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
	048-002-00-0	215-146-2	1306-19-0							
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				11 mg/kg	1.462	14.244 mg/kg	0.00142 %	✓	
		215-160-9	1308-38-9							
4	copper { dicopper oxide; copper (I) oxide }				26 mg/kg	1.126	25.936 mg/kg	0.00259 %	✓	
	029-002-00-X	215-270-7	1317-39-1							
5	mercury { mercury dichloride }				<1 mg/kg	1.353	<1.353 mg/kg	<0.000135 %		<LOD
	080-010-00-X	231-299-8	7487-94-7							
6	nickel { nickel(II) oxide (nickel monoxide) }				11 mg/kg	1.273	12.403 mg/kg	0.00124 %	✓	
	028-003-00-2	215-215-7 [1] 234-323-5 [2] - [3]	1313-99-1 [1] 11099-02-8 [2] 34492-97-2 [3]							
7	lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	51 mg/kg		45.186 mg/kg	0.00452 %	✓	
	082-001-00-6									
8	selenium { selenium compounds with the exception of cadmium selenosulfide and those specified elsewhere in this Annex }				<2 mg/kg	1.405	<2.81 mg/kg	<0.000281 %		<LOD
	034-002-00-8									
9	vanadium { divanadium pentaoxide; vanadium pentoxide }				15 mg/kg	1.785	23.725 mg/kg	0.00237 %	✓	
	023-001-00-8	215-239-8	1314-62-1							
10	zinc { zinc oxide }				50 mg/kg	1.245	55.141 mg/kg	0.00551 %	✓	
	030-013-00-7	215-222-5	1314-13-2							
11	chromium in chromium(VI) compounds { chromium(VI) oxide }				<2 mg/kg	1.923	<3.846 mg/kg	<0.000385 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
12	pH		PH		7.7 pH		7.7 pH	7.7 pH		
13	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
14	acenaphthylene	205-917-1	208-96-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
15	acenaphthene	201-469-6	83-32-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
16	fluorene	201-695-5	86-73-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
17	phenanthrene	201-581-5	85-01-8		0.29 mg/kg		0.257 mg/kg	0.0000257 %	✓	
18	anthracene	204-371-1	120-12-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
19	fluoranthene	205-912-4	206-44-0		0.35 mg/kg		0.31 mg/kg	0.000031 %	✓	
20	pyrene	204-927-3	129-00-0		0.32 mg/kg		0.284 mg/kg	0.0000284 %	✓	
21	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	0.11 mg/kg		0.0975 mg/kg	0.00000975 %	✓	
22	chrysene	601-048-00-0	205-923-4	218-01-9	0.15 mg/kg		0.133 mg/kg	0.0000133 %	✓	
23	benzo[k]fluoranthene	601-034-00-4	205-911-9	205-99-2	0.12 mg/kg		0.106 mg/kg	0.0000106 %	✓	
24	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
26	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
28	benzo[ghi]perylene	205-883-8	191-24-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
Total:								0.0195 %		

Key

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

Appendix A: Classifier defined and non GB MCL determinands

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

Description/Comments: Data from C&L Inventory Database

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

Data source date: 17 Jul 2015

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

lead compounds with the exception of those specified elsewhere in this Annex

GB MCL index number: 082-001-00-6

Description/Comments: Least-worst case: IARC considers lead compounds Group 2A; Probably carcinogenic to humans; Lead REACH Consortium, following MCL protocols, considers many simple lead compounds to be Carcinogenic category 2

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

Reason for additional Hazards Statement(s):

20 Nov 2021 - Carc. 2; H351 hazard statement sourced from: IARC Group 2A (Sup 7, 87) 2006; Lead REACH Consortium

www.reach-lead.eu/substanceinformation.html. Review date 29/09/2015

pH (CAS Number: PH)

Description/Comments: Appendix C4

Data source: WM3 1st Edition 2015

Data source date: 25 May 2015

Hazard Statements: None.

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

Description/Comments: Data from C&L Inventory Database

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

Data source date: 17 Jul 2015

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

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

Description/Comments: Data from C&L Inventory Database

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

Data source date: 17 Jul 2015

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

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

Description/Comments: Data from C&L Inventory Database

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

Data source date: 06 Aug 2015

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

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

Description/Comments: Data from C&L Inventory Database

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

Data source date: 06 Aug 2015

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

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

Description/Comments: Data from C&L Inventory Database

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

Data source date: 17 Jul 2015

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

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

Description/Comments: Data from C&L Inventory Database

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

Data source date: 21 Aug 2015

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

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

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

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

Data source date: 21 Aug 2015

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

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

Description/Comments: Data from C&L Inventory Database
Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 06 Aug 2015
Hazard Statements: Carc. 2; H351

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

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015
Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 23 Jul 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

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

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: Flam. Liq. 3; H226 , Asp. Tox. 1; H304 , STOT RE 2; H373 , Muta. 1B; H340 , Carc. 1B; H350 , Repr. 2; H361d , Aquatic Chronic 2; H411

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

GB MCL index number: 601-023-00-4
Description/Comments:
Additional Hazard Statement(s): Carc. 2; H351
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 2; H351 hazard statement sourced from: IARC Group 2B (77) 2000

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

GB MCL index number: 006-007-00-5
Description/Comments: Conversion factor based on a worst case compound: sodium cyanide
Additional Hazard Statement(s): EUH032 >= 0.2 %
Reason for additional Hazards Statement(s):
20 Nov 2021 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

▪ **polychlorobiphenyls; PCB** (EC Number: 215-648-1, CAS Number: 1336-36-3)

GB MCL index number: 602-039-00-4
Description/Comments: Worst Case: IARC considers PCB Group 1; Carcinogenic to humans;

POP specific threshold from ATP1 (Regulation 756/2010/EU) to POPs Regulation (Regulation 850/2004/EC). Where applicable, the calculation method laid down in European standards EN 12766-1 and EN 12766-2 shall be applied.

Additional Hazard Statement(s): Carc. 1A; H350
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 1A; H350 hazard statement sourced from: IARC Group 1 (23, Sup 7, 100C) 2012

▪ **monohydric phenols** (CAS Number: P1186)

Description/Comments: Combined hazards statements from harmonised entries in CLP for phenol, cresols and xylenols (604-001-00-2, 604-004-00-9, 604-006-00-X)
Data source: CLP combined data
Data source date: 26 Mar 2019
Hazard Statements: Muta. 2; H341 , Acute Tox. 3; H331 , Acute Tox. 3; H311 , Acute Tox. 3; H301 , STOT RE 2; H373 , Skin Corr. 1B; H314 , Skin Corr. 1B; H314 >= 3 % , Skin Irrit. 2; H315 1 <= conc. < 3 % , Eye Irrit. 2; H319 1 <= conc. < 3 % , Aquatic Chronic 2; H411

Appendix B: Rationale for selection of metal species

arsenic {arsenic trioxide}

Reasonable case CLP species based on hazard statements/molecular weight and most common (stable) oxide of arsenic. Industrial sources include: smelting; main precursor to other arsenic compounds

cadmium {cadmium oxide}

Reasonable case CLP species based on hazard statements/molecular weight, very low solubility in water. Industrial sources include: electroplating baths, electrodes for storage batteries, catalysts, ceramic glazes, phosphors, pigments and nematocides.

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

Reasonable case species based on hazard statements/molecular weight. Industrial sources include: tanning, pigment in paint, inks and glass

copper {dicopper oxide; copper (I) oxide}

Reasonable case CLP species based on hazard statements/molecular weight and insolubility in water. Industrial sources include: oxidised copper metal, brake pads, pigments, antifouling paints, fungicide. Worse case copper sulphate is very soluble and likely to have been leached away if ever present and/or not enough soluble sulphate detected.

mercury {mercury dichloride}

Worst case CLP species based on hazard statements/molecular weight

nickel {nickel(II) oxide (nickel monoxide)}

Worst case compound based on absence of CrVI and assumed metal oxides from a combustion, ash based source.

lead {lead compounds with the exception of those specified elsewhere in this Annex}

Worst case compound based on absence of CrVI and assumed metal oxides from a combustion, ash based source.

selenium {selenium compounds with the exception of cadmium selenoselenide and those specified elsewhere in this Annex}

Harmonised group entry used as most reasonable case. Pigment cadmium selenoselenide not likely to be present in this soil. No evidence for the other CLP entries: sodium selenite, nickel II selenite and nickel selenide, to be present in this soil.

vanadium {divanadium pentaoxide; vanadium pentoxide}

Most conservative species.

zinc {zinc oxide}

Worst case compound based on absence of CrVI and assumed metal oxides from a combustion, ash based source.

chromium in chromium(VI) compounds {chromium(VI) oxide}

Worst case CLP species based on hazard statements/molecular weight. Industrial sources include: production stainless steel, electroplating, wood preservation, anti-corrosion agents or coatings, pigments

boron {diboron trioxide}

Reasonable case CLP species based on hazard statements/ molecular weight, physical form and low solubility. Industrial sources include: fluxing agent for glass/enamels; additive for fibre optics, borosilicate glass.

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

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

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.2.GB - Oct 2021
HazWasteOnline Classification Engine Version: 2025.57.6464.11787 (26 Feb 2025)
HazWasteOnline Database: 2025.57.6464.11787 (26 Feb 2025)

This classification utilises the following guidance and legislation:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

2020 No. 1540 of 16th December 2020

GB MCL List - version 1.1 of 09 June 2021

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

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

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

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

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