Jurby Avenue, Blackley

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



Job Number: LKC241648

Date: April 2025

Client: Irwell Valley Housing Association

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EXECUTIVE SUMMARY

Site Details

Location	South of Jurby Avenue, Manchester. National Grid Reference 385543E, 403523N.
Area	5,800m^2.
Topography	87 metres Above Ordnance Datum (AOD). Site is approximately level.
Current Site Use	Public open space.
Proposed Development	2 storey building comprising 16no. self-contained dwellings.

Site Setting

Main Historical Features	Onsite: Undeveloped greenfield, housing, access roads. Surrounding Area: Sand pits, pond, Blackley Steel Works, Pike Fold Mills, old clay pit, allotments, residential developments.
Geology / Hydrogeology	Superficial: Glacial Till (Devensian). Secondary Aquifer (Undifferentiated). Bedrock: Chester Pebble Beds (Triassic sandstone, conglomerate, siltstone). Principal Aquifer.
Landfills / Infilled Ground	No recorded landfills. Potentially infilled ground identified.
Site Reconnaissance	A site reconnaissance was undertaken by a Caulmert Engineer in March 2017. Reconnaissance identified open grassland, a gentle slope towards the south and west and a public footpath.

Ground Investigation Work Undertaken

Date of Investigation:	10th January 2025
Intrusive Investigation Work Undertaken:	5no. window sample boreholes. Contamination and geotechnical testing. Gas monitoring.

Ground Conditions

Made Ground	Recorded in all boreholes to depths of between 0.60-1.50mbgl. Horizons of sand and clay with anthropogenic material including ash, clinker, brick, glass and plastic.
Superficial	Soft to very stiff clay, with loose to medium dense sand recorded in WS104.
Bedrock	No bedrock encountered.
Groundwater	Groundwater strikes were recorded between 2.90mbgl and 3.90mbgl in WS101, WS102 and WS104 during intrusive investigation. No groundwater strikes were recorded in WS103 and WS105 during intrusive investigation. Monitoring levels were recorded between 1.07mbgl and 2.27mbgl.
Obstructions	N/A

Geotechnical Assessment

Allowable Bearing Pressure	A conservative su of 60kPa is assigned to the cohesive material from a depth of c. 1.0-2.0mbgl for the natural superficial deposits, returning an Allowable Bearing Capacity (ABC) of 100kN/m2 for strip/trench fill foundations
Anticipated Foundation Type	Strip foundations should be constructed at least 150mm into the underlying stiff clay, this may require foundations locally to be taken down to 1.5-2.0mbegl.
Concrete Requirements	Based on BRE Digest 20051 – DS-1 AC-1 recommended.
Services	Services – consideration to the presence of services running through the site. Services may need to be re-routed.
Temporary support of excavation	Due to the variability of the made ground all excavations should be supported or battered back.
Plasticity	Low plasticity and low volume change potential. Foundation depths should take account proposed trees with foundations deepened locally in accordance with the requirements of NHBC Standards for a clay of low plasticity. It is recommended that at working drawing stage a foundation schedule is prepared.
Road / Pavement Design	For design purposes a CBR of less than 2% should be assumed. However, it is recommended that this be re-assessed using on site plate tests of the formation. It is possible that a higher design CBR can be achieved.

Contamination Risk Assessment

PL	Contaminant	Risk	Recommendations
1	Metals Asbestos PAHs	Low	No remediation required.
2	Naphthalene	Low	No remediation required.
3	Carbon dioxide and methane	Moderate / Low	No remediation required.
4	Groundwater (mobile contaminants)	Low	No remediation required.
5	Organic contaminants.	Low	Utility provider risk assessment to be completed. Unlikely to require barrier piping.

PL	Recommendation
1	No remediation required.
2	No remediation required.
3	No remediation required.
4	No remediation required.
5	Utility provider risk assessment to be completed. Unlikely to require barrier piping.

Further Work Requirements
To characterise the soil for waste disposal purposes, Waste Acceptance Criteria (WAC) testing and a HazWasteOnline™ assessment are recommended

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1. Introduction

1.1. Background

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

The following work has previously been undertaken:

- Phase 1 and 2 Geo-Environmental Report, undertaken by Caulmert Limited (Ref: C3025-CAU-XX-XX-RP-V-0306.A0-C1).

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.

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	South of Jurby Avenue, Manchester. National Grid Reference 385543E, 403523N.
Area	5,800m^2.
Topography	87 metres Above Ordnance Datum (AOD).
Current Site Use	Public open space.
Proposed Development	2 storey building comprising 16no. self-contained dwellings.

Table 1-1: Summary of site details.

2. Summary of Previous Work

Pertinent information has been summarised from the PRA in Table 2-1.

Main Historical Features	Onsite: Undeveloped greenfield, housing, access roads. Surrounding Area: Sand pits, pond, Blackley Steel Works, Pike Fold Mills, old clay pit, allotments, residential developments.
Geology / Hydrogeology	Superficial: Glacial Till (Devensian). Secondary Aquifer (Undifferentiated). Bedrock: Chester Pebble Beds (Triassic sandstone, conglomerate, siltstone). Principal Aquifer.
Landfills / Infilled Ground	No recorded landfills. Potentially infilled ground identified.
Site Reconnaissance	A site reconnaissance was undertaken by a Caulmert Engineer in March 2017. Reconnaissance identified open grassland, a gentle slope towards the south and west and a public footpath.

Table 2-1: Summary of site details, historical review, environmental settings, and site reconnaissance.

2.1. Previous Site Investigations

Caulmert Limited undertook an intrusive investigation in March 2017, which comprised the following:

- 5no. window sample boreholes to depths of between 3.45-5.45mbgl.
- Follow on Dynamic Probing at the base of WS1-6 to depths of between 4.00-6.00mbgl.
- 1no falling head test in WS3.
- Gas and groundwater monitoring.

Ground conditions comprised:

- Made Ground: recorded in all locations besides one location to depths between 0.2-1.0mbgl, comprising soft clay with brick, concrete, ash and clinker. Reworked topsoil was recorded between 0.05-0.20mbgl.
- Superficial: soft to stiff brown grey mottled sandy slightly gravelly clay below made ground with occasional sand lenses.

An extract from the report summarised ground conditions is shown below in Plate 2-1.

Expl. Hole Ref	Depth of Stratum (m)				Ground water (m)	Comment
	Topsoil	Made Ground	Cohesive Glacial Till	Granular horizon		
WS1-6	0.10	0.10-0.60	0.60-2.10 2.70-4.00	2.10-2.70	2.10 1.85 after 50 min	Dynamic probing from 4.00-6.00m.
WS2-6	0.20	-	0.20-3.65	3.65-4.00	3.00 2.93 after 30 min	
WS3-6	0.05	0.05-1.00	1.00-4.00	-	Dry	
WS4-6	0.10	0.10-0.20	0.20-4.45	3.60-3.80	3.60 3.44 after 30 min	
WS5-6	0.15	0.15-0.30	0.30-2.15 2.50-2.70	2.15-2.50 2.70-5.45	2.70 Damp	

Plate 2-1: Extract showing stratigraphy summary.

2no. gas monitoring visits were undertaken. A summary of the results is provided in Plate 2-2 below.

Expl. Hole Ref	Round 1 21/03/17	Round 2 30/03/17	Round 3	Round 4	Round 5	Round 6
WS4-5						
O_2 (%)	21.0	20.8	TBC	TBC	TBC	TBC
CO_2 (%)	0.2	0.0	TBC	TBC	TBC	TBC
CH_4 (%)	0.0	0.0	TBC	TBC	TBC	TBC
Flow (l/hr)	0.0	0.01	TBC	TBC	TBC	TBC

Plate 2-2: Extract showing gas monitoring data summary.

No elevated gas concentrations were identified and no significant flow was recorded. It was recommended that further monitoring was undertaken to confirm the low risk.

3no. samples of made ground were tested for contaminants of concerns. Results were compared against assessment criteria for residential use with plant uptake. Elevated levels of total chromium were identified when compared to hexavalent chromium assessment criteria. Asbestos was identified in 1no. sample at a trace quantity of <0.001%. Further soil testing was recommended to provide a full assessment. It was considered likely that a clean cover system would be required in proposed gardens.

2.2. Conceptual Model

The contamination conceptual model in the Caulmert Limited report has been updated to be in line with LKC current risk assessment methodology (detailed below). The model is based on the contamination sources, pathways and receptors identified in the original report. LKC also consider the following should be considered:

- Inhalation of vapours and Migration via permeable strata and preferential pathways.
- Migration of water and gas through preferential pathway and permeable strata.
- Potable water supply.

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	Contaminants of Concern (source)	Pathway	Receptor	Probability	Consequence	Risk
1	Asbestos (demolished buildings) Metals, PAHs (made ground, demolished buildings)	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
2	Volatile contaminants: PAHs such as naphthalene (made ground)	Inhalation of vapours. Migration via permeable strata and preferential pathways.	Future site users. Offsite receptors.	Low Likelihood	Medium	Moderate / Low
3	Hazardous gas: methane, carbon dioxide (potentially infilled features with 250m, landfills, made ground)	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	Mobile contaminants such as heavy metals, PAHs (made ground, former buildings)	Migration via permeable strata and preferential pathways. Perched waters migration.	Groundwater	Low Likelihood	Medium	Moderate / Low
5	Organic contaminants such as naphthalene (made ground, former buildings)	Ingestion of tainted water supply.	Future site users. Water pipes.	Low Likelihood	Medium	Moderate / Low

Table 2-2: Preliminary Contamination Conceptual Model.

3. Ground Investigation

3.1. Site Investigation Design and Methodology

The investigation was carried out on 10th of January 2025 and comprised the following:

- 5no. window sample boreholes drilled to 5.45 metres below ground level (mbgl) (ref. WS101 to WS105).

All site investigation locations are shown in Figure 3.

The locations were chosen to allow adequate assessment of ground conditions across the site Table 3-1 details the site investigation locations.

Site Investigation Locations	Rationale
WS101-WS102	Beneath proposed building footprint.
WS103-WS105	General site coverage.

Table 3-1: Summary of Sampling Locations.

The number of sampling points corresponds to one location per 24m square centres. This is considered appropriate given the size of the site, the historical land use and the relatively homogeneous ground conditions encountered.

All profile logs are provided in Appendix B and are in line with BS14688-1[5] and BS5930[6].

3.2. Well Installations

All of the boreholes were installed with monitoring wells for gas and groundwater monitoring. Monitoring wells were installed in accordance with BS10175 and CIRIA C665[7] 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 investigation[8].

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 onsite monitoring was carried out in line CIRIA C665[9] 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 3-2 shows the soil testing undertaken.

Testing	No. Samples	Justification
Metals / metalloids, pH, water soluble sulphate, speciated PAHs, SOM and asbestos screen.	4	A basic suite with a broad selection of contaminants where no significant evidence of contamination was identified (except for occasional ash and coal).
Metals / metalloids, pH, water soluble sulphate, cyanide suite, phenol, TPHCWG, BTEX, MTBE, speciated PAHs, SOM and asbestos screen.	1	Although no evidence of contamination identified, detailed suite undertaken to confirm the absence of contamination and to support waste classification.
Waste Acceptance Criteria (WAC)	1	Samples of representative material which may be earmarked for disposal.

Table 3-2: 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, and bulk bags then sent to Murray Rix Laboratories / DETS for geotechnical testing.

Further details are given in the laboratory report presented in Appendix D. Table 3-3 shows the geotechnical testing undertaken.

Testing	No. Samples
Atterberg Limits (plasticity testing)	5
BRE Suite Short	3

Table 3-3: Summary of Geotechnical Testing Undertaken.

3.3.3. Water Sampling / Leaching Testing

Groundwater sampling / leaching testing was not carried out as part of this investigation.

A low risk was identified in the preliminary contamination conceptual model for controlled waters (Pollutant Linkage 4) and further action was only recommended if significant soil contamination was identified on site. Based on the ground conditions encountered, LKC did not consider testing to be required. This is discussed further in Section 5.4.

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 at approximately 1m intervals.
- Pocket penetrometer tests (giving undrained shear strength) were performed in the window sample boreholes and within cohesive strata.

The results are provided within Appendix B.

3.5. Gas Monitoring

All the installed boreholes have been monitored for gas on 6no. occasions over a 12 week period.

Monitoring was undertaken using a Geotechnical Instruments GA5000 in accordance with the monitoring protocol outlined in CIRIA C665[10] (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 E.

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 between 0.60-1.50mbgl. The made ground comprised horizons of sand and clay with anthropogenic material including ash, clinker, brick, glass and plastic.

4.1.2. Natural Strata

Superficial strata comprised horizons of soft to very stiff clay with loose to medium dense sand within WS104.

No bedrock was encountered through the course of the investigation.

4.1.3. Contamination

There was no visual / olfactory evidence of hydrocarbons or volatile contaminants in any locations. The PID recorded a maximum of 0.3ppm TVOC in the samples.

4.1.4. Obstructions

No obstructions were identified within any investigation location.

4.2. Groundwater

4.2.1. Groundwater Levels

Groundwater strikes were recorded during the investigation. This data is provided in the profile logs (Appendix B). Groundwater strikes were recorded between 2.90mbgl and 3.90mbgl in WS101, WS102 and WS104. No groundwater strikes were recorded in WS103 and WS105.

Groundwater monitoring within the borehole wells has been undertaken on six occasions. An oil-water interface probe was used to detect the presence of free phase hydrocarbons within each borehole. This data is provided in Appendix E. Monitoring levels were recorded between 1.07mbgl and 2.27mbgl.

4.2.2. Contamination

No evidence of contamination was identified in the groundwater during investigation work or monitoring.

5. Geotechnical Assessment

5.1. Proposed Development

It is understood that the proposed development will comprise an irregularly shaped 2 storey building which will contain 16no. self-contained dwellings. There will also be parking and landscaping.

Details of the proposed loadings are not known and therefore a line loading of 75kN/m has been assumed for preliminary assessment purposes only. Live loadings on the ground floor slabs are likely to be low and in the order of 5-7.5kN/m^2.

The finished ground levels are not anticipated to 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.

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 1.50mbgl (average 0.95m) over cohesive (but sandy) superficial deposits of gravelly sandy clay, typical of Devensian Till Deposits.

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 Works[12]. This should include:

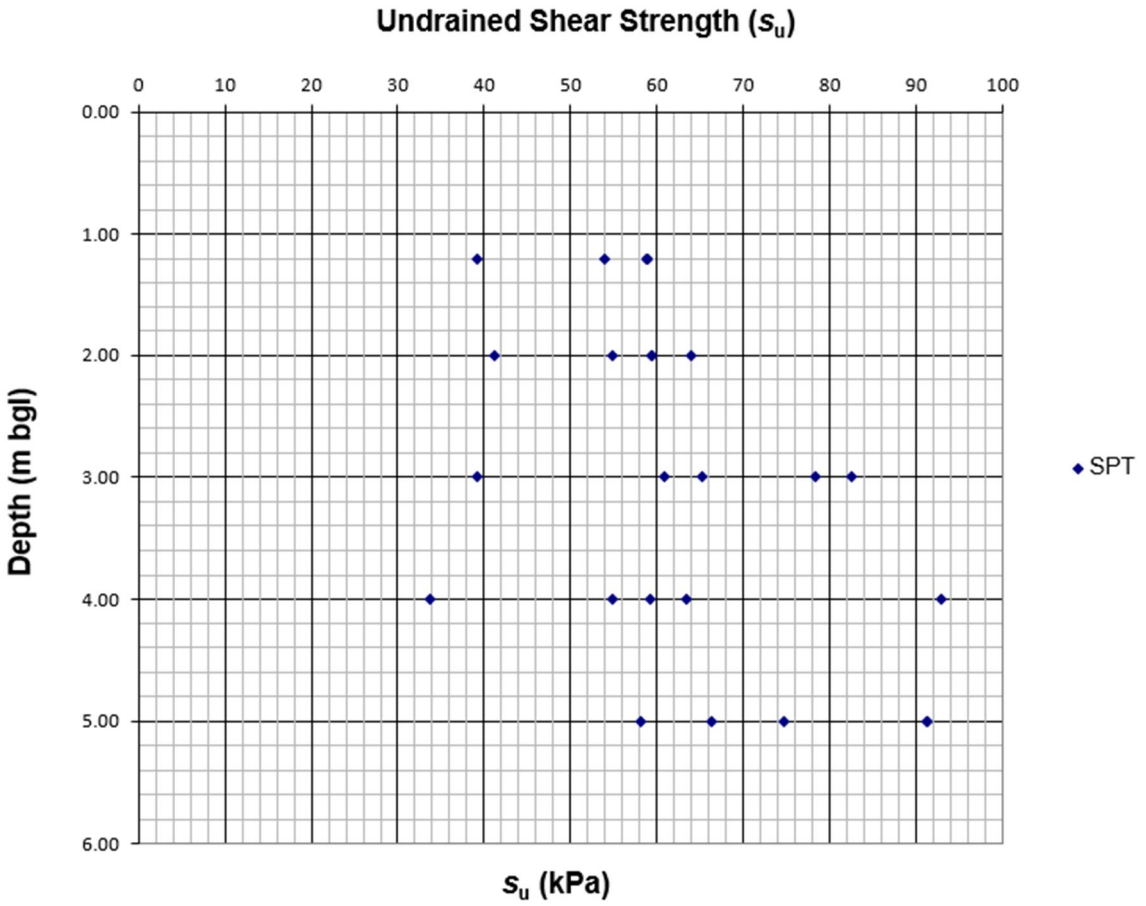
- Roots present below the footprint of proposed structures and infrastructure should be grubbed out and the resulting void infilled with suitable compacted engineered fill.
- Redundant services should be sealed off and grubbed out and replaced with suitable compacted engineered fill.

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. Based on site observations the near surface soils may require at least some treatment or reinforcing to allow safe movement of construction plant and labour..

5.4. Foundation Conditions and Bearing Capacity

5.4.1. General

The natural cohesive material has been assessed using in-situ testing by SPT testing and the results have been plotted against depth and is shown in Graph 5-1.



Graph 5-1: Summary of S_u Vs. Depth from In-Situ SPT Testing.

Graph 5-1 demonstrates that the strength of the cohesive deposits typically increase slightly with depth, typically firm to stiff becoming stiff to very stiff at depth.

A conservative s_u of 60kPa is assigned to the cohesive material from a depth of *c*. 1.0-2.0mbgl for the natural superficial deposits, returning an Allowable Bearing Capacity (ABC) of 100kN/m^2 for strip/trench fill foundations.

5.4.2. Plasticity

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

The clay is classified as low plasticity.

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

5.4.3. Foundations Options

The made ground is not suitable for a founding material due to the inherent variability of the material.

Strip foundations should be constructed at least 150mm into the underlying stiff clay, this may require foundations locally to be taken down to 1.5-2.0mbgl. At these depths

an Allowable Bearing Capacity of 100kN/m² has been calculated using a Factor of Safety of 3 and an undrained shear strength of 60kN/m².

Atterberg Limit determinations, show the clay to be of low plasticity and low volume change potential.

Foundation depths should take account proposed trees with foundations deepened locally in accordance with the requirements of NHBC Standards for a clay of low plasticity. It is recommended that at working drawing stage a foundation schedule is prepared for the development taking account of the soil plasticity and the locations of trees.

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' up to 1.5m depth of Made Ground across the site, it is considered that a suspended floor slab will be required for the proposed structures.

5.6. Pavement Construction

An assessment of the likely California Bearing Ratio (CBR) for the made ground has been assessed from the description of the materials encountered in the exploratory holes.

For design purposes a CBR of less than 2% should be assumed. However, it is recommended that this be re-assessed using on site plate tests of the formation. It is possible that a higher design CBR can be achieved.

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.

5.7. Drainage

The soil infiltration tests have not been completed, however, the Glacial Till is likely to be very low permeability and conventional soakaway drainage is not likely to be suitable at this site.

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

Site observations indicated that excavations should be feasible in the near surface with normal plant.

Groundwater seepage was recorded in several of the window samples, and the groundwater is likely to be perched at the base of the Made Ground. This may induce instability in deeper excavations and appropriate temporary support will be required.

Due to the variability of the made ground all excavations should be supported or battered back in accordance with guidance contained in CIRIA R97[18].

.

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 (LCRM[21]). 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) [22, 23].
- LQM Suitable 4 Use Levels (S4ULs) [24, 25, 26, 27].

The proposed development is for a self-contained residential apartment block with shared landscaping, therefore the assessment criteria for residential without plant uptake has been used.

All criteria have been generated using the CLEA V1.06 model[29] based either on 1%, 2.5% and 6% Soil Organic matter (SOM). Results will be compared to the nearest appropriate SOM.

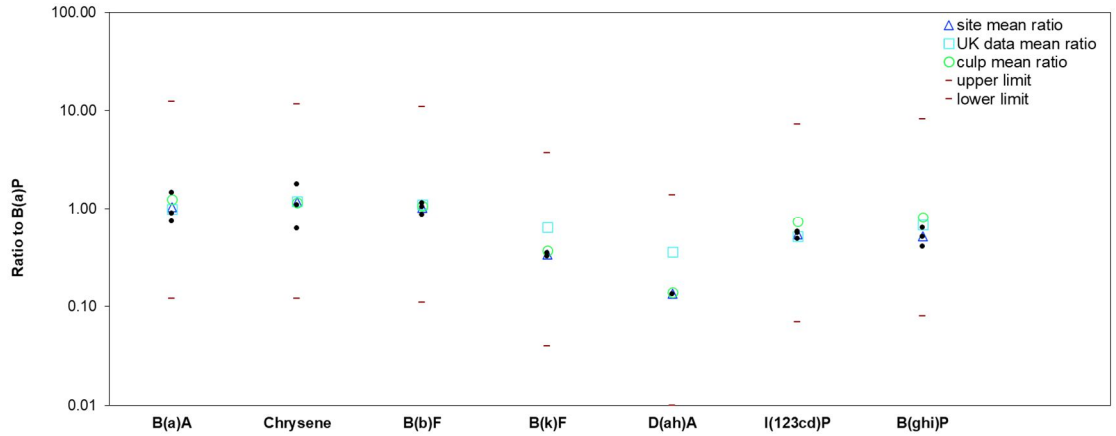
A summary of the generic assessment criteria used in this assessment is provided in Appendix F.

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[30,31] and naphthalene the most volatile and soluble[32]. 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 negligible[33]. For B(a)P to be used as a surrogate marker it should follow the profile described by the HPA (2008)[34] 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*[35], 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 3 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.

Results have been compared to the relevant assessment criteria and no elevated contaminants were identified.

No asbestos was identified in any soil samples analysed.

6.2.3. Direct Contact Risk – Pollutant Linkage 1

No asbestos was identified in any of the samples.

The previous Caulmert Phase 2 identified trace amount of asbestos (<0.001% amosite fibres) in one location out of three, therefore is considered very localised. No significant quantities were identified as only trace quantities identified. Moisture content can significantly reduce the potential for airborne fibre release from soil in a typical UK climate. Swartjes and Tromp (2008)[40] based on work by Addison *et al*.[41] note that the addition of 10% water to soil decreases the risk of potential fibre release by a factor of between 2 and 10. The moisture content of the soil from this area was 15% making fibre release unlikely.

Given the above, the probability of asbestos affected site users is considered to be unlikely. With a medium consequence, the risk is moderate / low and remediation is not required.

However, as a precaution, construction workers should be vigilant for any suspected ACM during groundworks.

No elevated concentrations of heavy metals or PAHs were identified, therefore the probability of these contaminants posing a risk to site users in considered unlikely. With

a medium consequence, the risk is considered to be moderate, 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 potentially volatile PAHs or light end petroleum hydrocarbon fractions 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

6no. gas monitoring visits have been undertaken on the study site by LKC. Gas monitoring results in full are presented in Appendix E and summarised in Table 6-1. Following guidance set out in CIRIA C665[49] and BS8485[50] 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 CH4 (%v/v)	Peak CO2 (%v/v)	Min O2 (%v/v)	Flow (l/h)	Groundwater Level (mbgl)	Pressure (mb)	Prev 24hr Pressure Trend
WS101	1	0.0	3.1	15.5	0.0	1.84	999	Falling
	2	0.0	**7.4**	9.1	0.0	1.74	1020	Falling
	3	0.0	**8.6**	8.4	0.0	1.59	1001	Rising
	4	0.0	**9.4**	7.5	0.0	1.74	1000	Steady
	5	0.0	**9.1**	9.7	0.0	2.28	1017	Falling
	6	0.0	**9.4**	12.0	0.0	2.49	1000	Rising
WS102	1	0.0	2.3	19.4	0.0	1.22	1000	Falling
	2	0.0	3.1	18.3	0.3	1.07	1021	Falling
	3	0.0	2.8	14.2	0.7	1.28	1001	Rising
	4	0.0	2.5	14.4	-1.2	1.18	1000	Steady
	5	0.2	3.6	12.6	-0.3	1.93	1017	Falling
	6	0.0	3.9	13.2	0.0	2.45	1001	Rising
WS103	1	0.0	1.2	19.8	0.0	1.49	1000	Falling
	2	0.0	3.4	14.3	0.0	1.47	1021	Falling
	3	0.0	4.5	11.4	0.0	1.41	1002	Rising
	4	0.0	**5.2**	9.9	0.0	1.51	1001	Steady
	5	0.0	**5.5**	10.2	0.0	1.89	1018	Falling
	6	0.0	**6.0**	14.1	0.0	2.21	1001	Rising
WS104	1	0.0	2.1	19.8	0.0	2.07	999	Falling
	2	0.0	2.1	18.6	0.0	1.86	1021	Falling
	3	0.0	3.5	17.4	0.0	2.13	1002	Rising
	4	0.0	2.8	18.0	0.0	2.14	1001	Steady
	5	0.0	3.0	17.6	0.0	2.99	1018	Falling
	6	0.0	3.0	19.2	0.0	3.15	1001	Rising
WS105	1	0.0	2.2	19.6	0.0	2.27	1000	Falling
	2	0.0	1.8	14.8	0.0	2.18	1021	Falling
	3	0.0	2.6	13.4	0.2	2.5	1002	Rising
	4	0.0	2.5	12.5	-0.2	2.65	1001	Steady
	5	0.0	2.2	14.8	0.0	3.22	1018	Falling
	6	0.0	2.5	15.0	0.0	3.38	1001	Rising

Table 6-1: Gas Monitoring Assessment. **Concentrations of CO2 above 5%v/v shown in bold.**

Negligible to very low flow concentrations have been recorded in all boreholes (maximum concentrations of 0.7%v/v). A negative flow of -1.2l/hr was recorded in WS102 on visit no.4. This flow rate is not considered to be representative of the true conditions on site as it is likely the result of pressurisation within the well where groundwater was higher and likely above the response zone of the well. It has therefore been omitted from the assessment.

Very low methane concentrations have been recorded across the site (maximum 0.2%v/v in WS102 on Visit no.5 only).

Marginally elevated carbon dioxide above 5%v/v was recorded in WS101 (maximum of 9.4%v/v) and WS103 (maximum of 6.0%v/v). This did not appear to correlate with worst case conditions such as low atmospheric pressure or when groundwater levels were high.

No other concentrations of elevated carbon dioxide have been recorded in any other boreholes (maximum 3.9%v/v in WS102).

Steady state readings for carbon monoxide was >1ppm in boreholes on the first visit. The maximum peak concentration was recorded as 30ppm (WS102). This did not appear to correlate with significant oxygen depletion in any of these locations and decreased to a steady concentration of 15ppm. By Visit 2, carbon monoxide was recorded as a maximum of 3ppm.

Only workplace exposure limits defined by the HSE are available for carbon monoxide and are not fully applicable to a residential setting. A Short-Term Exposure Limit of 200ppm (15-minute period) and Long-Term Exposure Limit of 30ppm have been defined (8-hour period).

Carbon monoxide is not expected to pose a significant risk to the proposed site receptors.

Gas Screening Value

In accordance with CIRIA C665[52], 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 6-2 shows the maximum GSV for each borehole and the appropriate characteristic situation (based on GSV only). An overall site assessment (WS101-WS105) has also been included (worst case values across the site).

Boreholes	Max GSV (l/hr)	CS	TL
WS101	0.0094	CS1	Green
WS102	0.0273	CS1	Green
WS103	0.0060	CS1	Green
WS104	0.0035	CS1	Green
WS105	0.0052	CS1	Green
WS101-105	0.0014 (CH_4) 0.0658 (CO_2)	CS1	Green

Table 6-2: Summary of Worst-Case Gas Screening Values (GSV).

Notes:

CS = Characteristic Situation; TL= Traffic Light.

In addition, in accordance with CIRIA C665[53], 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 above 5% has been recorded in WS101 and WS104 (maximum 9.4%v/v). Upgrading from CS1 to CS2 if carbon dioxide concentrations are recorded above 5% v/v is not a mandatory requirement and is only required where there is a high-risk gas source (such as a domestic landfill) is present, as described in NHBC NF94[54]. The document also states that this approach is highly conservative when carbon dioxide is above 5%. No evidence of landfill material such as substantial portions of putrescible materials such as vegetation, food waste, paper, cardboard and wood were identified therefore the ground conditions are not considered a high risk gas source.

Furthermore, RB17 states *"CO_2 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 peak concentration of CO_2 observed on site was 9.4%v/v, which is below this value, and concentrations are unlikely to exceed 15% on site.

The marginally elevated concentrations of carbon dioxide are not considered a significant risk given the above.

No menthane concentrations and no significant carbon dioxide concentrations have been recorded to date with negligible flow rates; therefore, LKC consider the probability of carbon dioxide and methane gas affecting site users and buildings as unlikely. Assuming a severe consequence, there is a moderate/low risk. No remediation is required.

6.4. Controlled Water Assessment

The PRA identified a low risk with respect to controlled waters as no significant source of mobile contamination was anticipated. Furthermore, although a Principal Aquifer is present below the site, no abstractions have been identified within influencing distance and the site is not located in a Source Protection Zone.

The site investigation did not identify any significant sources of likely mobile contamination within the soils. The clay present at depth across the site should significantly reduce any sub-surface migration and processes including dilution, attenuation and biodegradation will reduce the concentration of contamination.

This confirms an unlikely probability of onsite contamination affecting controlled waters. With a medium consequence the risk is anticipated to be low, and no remediation is required.

6.5. Potable Water Supply (Pollutant Linkage 5)

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.

No elevated organic contaminants were identified when compared against UU guidelines.

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

Once details of the pipeline location and depths are known a UU Water Pipe Risk Assessment in line with the utility provider should be undertaken to confirm the most appropriate pipework for potable water.

6.6. Revised Contamination Conceptual Model

The preliminary contamination conceptual model (Table 2-2) 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 6-3.

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 of Concern	Pathway	Receptor	Probability	Consequence	Risk	Recommendations
1	Asbestos Metals, PAHs.	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. Groundworks should remain vigilant for ACM.
2	Volatile contaminants: PAHs such as naphthalene.	Inhalation of vapours. Migration via permeable strata and preferential pathways.	Future site users. Offsite receptors.	Unlikely	Medium	Low	No remediation required.
3	Hazardous gas: methane, carbon dioxide	Migration via permeable strata and preferential pathways. Inhalation of gas. Explosion in confined spaces.	Future site users. Buildings. Offsite receptors.	Unlikely	Severe	Moderate/Low	No remediation required.
4	Mobile contaminants such as heavy metals, PAHs	Surface run-off. Migration via permeable strata and preferential pathways. Perched waters migration.	Groundwater	Unlikely	Medium	Low	No remediation required.
5	Organic contaminants such as naphthalene.	Ingestion of tainted water supply.	Future site users. Water pipes.	Unlikely	Medium	Low	Utility provider pipeline risk assessment should be undertaken Barrier piping unlikely to be required.

Table 6-3: 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 G.

7.2. Waste Acceptance Criteria (WAC) Testing

Waste Acceptance Criteria (WAC) testing was also undertaken on 1no. sample representative of material which may be earmarked for off-site disposal. WAC test results are included in Appendix C.

The WAC limits cannot be used to assess whether a waste is non-hazardous or hazardous. It is recommended that waste assessment and WAC data is forwarded to a licensed waste disposal operator.

8. Summary Conclusions & Recommendations

8.1. Ground Conditions

Ground conditions are summarised in Table 8-1 below.

Made Ground	Recorded in all boreholes to depths of between 0.60-1.50mbgl. Horizons of sand and clay with anthropogenic material including ash, clinker, brick, glass and plastic.
Superficial	Soft to very stiff clay, with loose to medium dense sand recorded in WS104.
Bedrock	No bedrock encountered.
Groundwater	Groundwater strikes were recorded between 2.90mbgl and 3.90mbgl in WS101, WS102 and WS104 during intrusive investigation. No groundwater strikes were recorded in WS103 and WS105 during intrusive investigation. Monitoring levels were recorded between 1.07mbgl and 2.27mbgl.
Obstructions	None encountered during site investigation

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	A conservative su of 60kPa is assigned to the cohesive material from a depth of c. 1.0-2.0mbgl for the natural superficial deposits, returning an Allowable Bearing Capacity (ABC) of 100kN/m^2 for strip/trench fill foundations
Anticipated Foundation Type	Strip foundations should be constructed at least 150mm into the underlying stiff clay, this may require foundations locally to be taken down to 1.5-2.0mbgl.
Concrete Requirements	Based on BRE Digest 200572 – DS-1 AC-1 recommended.
Services	Services – consideration to the presence of services running through the site. Services may need to be re-routed.
Temporary support of excavation	Due to the variability of the made ground all excavations should be supported or battered back.
Plasticity	Low plasticity and low volume change potential. Foundation depths should take account proposed trees with foundations deepened locally in accordance with the requirements of NHBC Standards for a clay of low plasticity. It is recommended that at working drawing stage a foundation schedule is prepared.
Road / Pavement Design	For design purposes a CBR of less than 2% should be assumed. However, it is recommended that this be re-assessed using on site plate tests of the formation. It is possible that a higher design CBR can be achieved.

Table 8-2: 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	Metals Asbestos PAHs	Low	No remediation required.
2	Naphthalene	Low	No remediation required.
3	Carbon dioxide and methane	Moderate / Low	No remediation required.
4	Groundwater (mobile contaminants)	Low	No remediation required.
5	Organic contaminants.	Low	Utility provider risk assessment to be completed. Unlikely to require barrier piping.

Table 8-3: Summary Risk Table.
PL=Pollutant Linkage, see Table 6-3 for details.

8.4. Recommendations

The recommendations provided below are considered appropriate for the site based on the site investigation work undertaken. 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	Utility provider risk assessment to be completed. Unlikely to require barrier piping.

Table 8-4: Remediation Summary.

Based on the findings of the site investigation and risk assessment, no specific remediation is considered necessary.

8.4.1. 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.

8.4.2. 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 used[74]):

- 5,000 tonnes (c. 2,500m^3) treatment of crushed concrete / stone.
- 1,000 tonnes (c. 500m^3) use of non-hazardous soil.
- 5,000 tonnes (c. 2,500m^3) use of clays, sand, gravel, brick, concrete, stone etc.
- 50,000 tonnes (c. 25,000m^3) use of bituminous material to be used in roadways.

A Materials Management Plan (MMP) with recourse to the CL:AIRE Code of Practice[75] 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 8-5.

8.4.3. 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.

8.4.4. Disposal

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.

8.5. Validation of Imported / Site Won Soils

Chemical validation of all imported and site-won 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 8-5, based on MCC 'Guidelines to Developer' (2021) [76]. 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.

It should be ensured that the matrix of imported topsoil is suitable as a growing medium in line with BS3882[77].Topsoil soil shall be free of weeds, roots or perennial weeds, pests, diseases, debris, tree roots, sticks, subsoil and foreign matter and shall be capable of being broken down to a fine tilth. 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).

8.6. Site Completion Report

All remediation, including the findings of a watching brief, material import testing and validation work should be documented in a Site Completion Report. The Site Completion Report will allow discharge of relevant planning conditions.

Figures





Client: Irwell Valley Housing Association				Title: Site Location & Boundary Plan	LK CONSULT
Site: Jurby Avenue, Blackley				Scale (see scale bar): 1:10,000 & 1:1,000 @ A4	Figure: 1	Revision:
Job No.: LKC241648	Drawn By: AE	Checked By: HM	Drawn: Jan 2024		



0 5 10 15

SCALE (Metres)

Extract From: JDA Architects
Drawing Ref: Proposed Site Plan, No.JDA-Z1-00-A-DR-0003, Rev:P03 (13/12/2021)

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.

LK CONSULT LIMITED

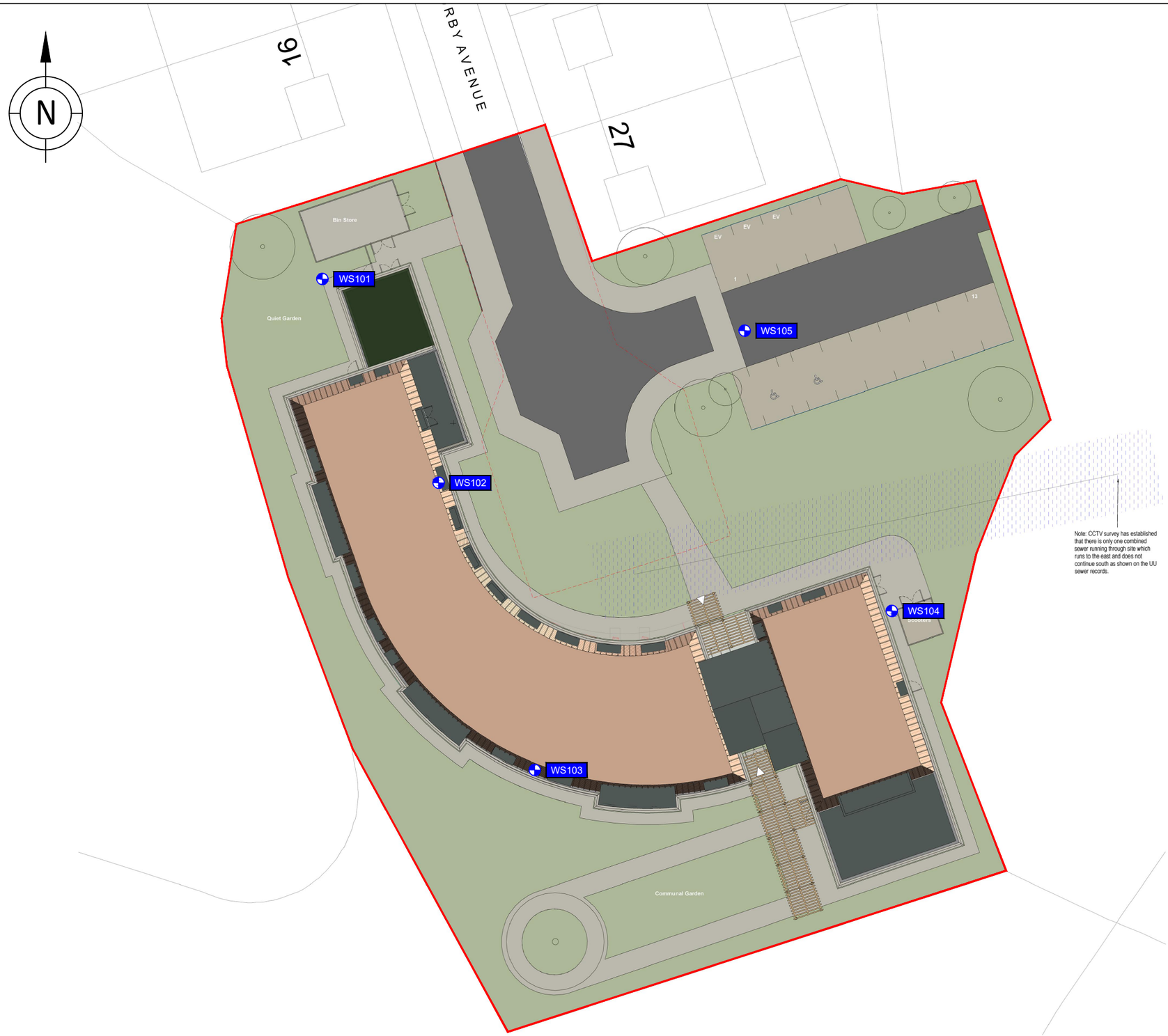
Client: Irwell Valley Housing Association

Site: Jurby Avenue, Blackley

Title: Proposed Development Plan

Job No.:	Scale (See Scale Bar):	Figure:	Revision:
LKC241648	See Scale Bar	2	

Drawn By:	Checked By:	Drawn:
AC	AE	Jan 2025



Extract From: JDA Architects
Drawing Ref: Proposed Site Plan, No.JDA-Z1-00-A-DR-0003, Rev:P03 (13/12/2021)

KEY

- Site Boundary
- Window Sample Borehole (WS)

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: Irwell Valley Housing Association

Site: Jurby Avenue, Blackley

Title: Site Investigation Location Plan

Job No.:	Scale (See Scale Bar):	Figure:	Revision:
LKC241648	See Scale Bar	3	

Drawn By:	Checked By:	Drawn:
AC	AE	Jan 2025

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 552[78]. It involves the classification of the:

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

Consequence (Severity)		
Classification	**Definition**	**Example**
Severe	Short term (acute) risk to human health likely to results 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 sever harm to a designated receptor is currently happening. This risk, if realised, is likely to results 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

Window Sample Borehole Log

Location Number: **WS101**

Project Name: Jurby Avenue, Blackley	Client: Irwell Valley Housing Association	Date: 10/01/2025
Project No. : LKC241648	Contractor: D & I Drilling Ltd	
Equipment: Window Sample Rig: Competitor Dart	Level	Logged By: AE
Scale: 1:40	Page Number: Sheet 1 of 1	

Depth (m)	Samples / Tests	Depth (m)	Legend	Stratum Description	Level (m)	Water Strikes	Well
0.00 - 0.70 0.00 - 0.70	ES PID=0.0ppm			MADE GROUND: Dark brown gravelly silty SAND with frequent brick fragments, occasional ash, clinker and rare glass fragments. Sand is fine to coarse. Gravel is fine to coarse subangular to subrounded comprising sandstone.			
0.70 - 1.00 0.70 - 1.00 0.90	ES PID=0.1ppm PP=122.6kPa	0.70		MADE GROUND: Stiff consistency brown gravelly sandy silty CLAY with occasional brick fragments and rare ash. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded comprising sandstone.			
1.20 - 1.65 1.20 - 1.65 1.30	D N=12 (2,3/3,3,3,3) PP=147.2kPa						
1.50 - 2.00 1.50 - 2.00 1.80	ES PID=0.0ppm PP=147.2kPa	1.50		Stiff consistency high strength brown gravelly slightly sandy silty CLAY. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded comprising sandstone.			
2.00 - 2.45 2.00 - 2.45 2.20	D N=12 (2,2/3,3,3,3) PP=147.2kPa						
2.50 - 3.00 2.60	D PP=122.6kPa						
2.90	PP=147.2kPa						
3.00 - 3.45 3.00 - 3.45 3.30	D N=15 (2,2/3,4,4,4) PP=147.2kPa						
3.50 - 4.00	D						
4.00 - 4.45 4.00 - 4.45 4.30	D N=13 (3,4/3,3,3,4) PP=147.2kPa						
4.50 - 5.00	D						
4.90	PP=134.9kPa						
5.00 - 5.45 5.00 - 5.45 5.20	D N=22 (3,3/4,6,6,6) PP=122.6kPa						
		5.45		End of Borehole at 5.45m			

Remarks:

Water strike at 2.90mbgl.
Borehole stable.

Window Sample Borehole Log

Location Number: **WS102**

Project Name: Jurby Avenue, Blackley	Client: Irwell Valley Housing Association	Date: 10/01/2025
Project No. : LKC241648	Contractor: D & I Drilling Ltd	
Equipment: Window Sample Rig: Competitor Dart	Level	Logged By: AE
Scale: 1:40	Page Number: Sheet 1 of 1	

Depth (m)	Samples / Tests	Depth (m)	Legend	Stratum Description	Level (m)	Water Strikes	Well
0.00 - 0.10	ES	0.10		MADE GROUND: Dark brown gravelly silty SAND with frequent rootlets, brick fragments, ash, occasional clinker and rare glass fragments. Sand is fine to coarse. Gravel is fine to coarse subangular to subrounded comprising sandstone.			
0.10 - 0.60	ES						
0.10 - 0.60	PID=0.0ppm						
0.60 - 1.00	ES	0.60		MADE GROUND: Stiff consistency brown gravelly sandy silty CLAY with occasional brick fragments and rare ash. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded comprising sandstone.			
0.60 - 1.00	PID=0.0ppm						
1.20 - 1.65	D			Soft to very stiff consistency low to very high strength brown gravelly slightly sandy silty CLAY. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded comprising sandstone.			
1.20	PP=147.2kPa			1.20m to 3.30mbgl - Strata is stiff consistency high strength.			
1.20 - 1.65	N=12 (2,3/3,3,3,3)						
1.50 - 2.00	D						
1.80	PP=147.2kPa						
2.00 - 2.45	D						
2.00 - 2.45	N=9 (1,2/2,2,2,3)						
2.30	PP=134.9kPa						
2.50 - 3.00	D						
2.80	PP=147.2kPa						
3.00 - 3.45	D						
3.00 - 3.45	N=18 (4,4/4,5,5,4)						
3.30	PP=24.5kPa			3.30m to 3.50mbgl - Strata is soft consistency low strength.			
3.50 - 4.00	D			3.50m to 3.90mbgl - Strata is stiff consistency high strength.			
3.50	PP=147.2kPa						
3.90	PP=159.4kPa			3.90m to 4.20mbgl - Strata is very stiff consistency very high strength.			
4.00 - 4.45	D						
4.00 - 4.45	N=15 (3,3/3,4,4,4)						
4.20	PP=98.1kPa			4.20m to 5.45mbgl - Strata is stiff consistency high strength.			
4.50 - 5.00	D						
4.90	PP=73.6kPa						
5.00 - 5.45	D						
5.00 - 5.45	N=18 (3,3/3,4,5,6)						
		5.45		End of Borehole at 5.45m			

1 2 3 4 5 6 7 8

Remarks:

Water strike at 3.40mbgl.
Borehole stable.

Window Sample Borehole Log

Location Number: **WS103**

Project Name: Jurby Avenue, Blackley	Client: Irwell Valley Housing Association	Date: 10/01/2025
Project No. : LKC241648	Contractor: D & I Drilling Ltd	
Equipment: Window Sample Rig: Competitor Dart	Level	Logged By: AE
Scale: 1:40	Page Number: Sheet 1 of 1	

Depth (m)	Samples / Tests	Depth (m)	Legend	Stratum Description	Level (m)	Well
0.00 - 0.80 0.00 - 0.80	ES PID=0.1ppm			MADE GROUND: Dark brown gravelly silty SAND with frequent brick fragments, occasional ash, and rare glass fragments. Sand is fine to coarse. Gravel is fine to coarse subangular to subrounded comprising sandstone.		
		0.80		Stiff to very stiff consistency high to very high strength brown gravelly sandy silty CLAY. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded comprising sandstone.		
1.20 - 1.65 1.20 - 1.65 1.30 1.50 - 2.00 1.50 - 2.00 1.80	D N=11 (2,2/2,3,3,3) PP=147.2kPa ES PID=0.0ppm PP=147.2kPa			1.30m to 2.40mbgl - Strata is stiff consistency high strength.		
2.00 - 2.45 2.00 - 2.45 2.40 2.50 - 3.00	D N=13 (2,2/3,3,3,4) PP=159.4kPa D			2.40m to 4.20mbgl - Strata is very stiff consistency very high strength.		
2.90 3.00 - 3.45 3.00 - 3.45 3.20 3.50 - 4.00 3.70	PP=183.9kPa D N=14 (3,3/3,3,3,5) PP=196.2kPa D PP=183.9kPa					
4.00 - 4.45 4.00 - 4.45 4.20 4.50 - 5.00	D N=22 (3,3/4,5,6,7) PP=147.2kPa D			4.20m to 5.45mbgl - Strata is stiff consistency high strength.		
5.00 - 5.45 5.00 5.00 - 5.45	D PP=134.9kPa N=14 (3,3/3,3,4,4)					
		5.45		End of Borehole at 5.45m		

1 2 3 4 5 6 7 8

Remarks:

Borehole dry and stable.

Window Sample Borehole Log

Location Number: **WS104**

Project Name: Jurby Avenue, Blackley	Client: Irwell Valley Housing Association	Date: 10/01/2025
Project No. : LKC241648	Contractor: D & I Drilling Ltd	
Equipment: Window Sample Rig: Competitor Dart	Level	Logged By: AE
Scale: 1:40	Page Number: Sheet 1 of 1	

Depth (m)	Samples / Tests	Depth (m)	Legend	Stratum Description	Level (m)	Water Strikes	Well
0.00 - 0.10	ES	0.10		MADE GROUND: Dark brown gravelly silty SAND with frequent rootlets and occasional brick fragments. Sand is fine to coarse. Gravel is fine to coarse subangular to subrounded comprising sandstone.			
0.10 - 1.00	ES			MADE GROUND: Orangish brown gravelly silty SAND with rare brick fragments. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded comprising sandstone.			
0.10 - 1.00	PID=0.0ppm						
1.20 - 1.65	D	1.30		Stiff consistency high strength brown gravelly sandy silty CLAY. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded comprising sandstone.			
1.20 - 1.65	N=8 (2,2/2,2,2,2)						
1.50 - 2.00	ES						
1.50 - 2.00	PID=0.0ppm						
1.60	PP=122.6kPa						
2.00 - 2.45	D	2.40		Stiff consistency high strength orangish brown slightly gravelly very sandy clayey SILT. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded comprising sandstone.			
2.00 - 2.45	N=14 (3,3/3,3,4,4)						
2.10	PP=122.6kPa						
2.50 - 3.00	D						
2.80	PP=110.4kPa						
3.00 - 3.45	D						
3.00 - 3.45	N=19 (2,3/4,5,5,5)						
3.50 - 4.00	D						
3.50	PP=122.6kPa						
4.00 - 4.45	N=8 (3,2/2,2,2,2)						
4.20	PP=122.6kPa						
4.50 - 5.00	D						
4.90	PP=110.4kPa						
5.00 - 5.45	D						
5.00 - 5.45	N=22 (3,5/6,6,5,5)	5.45		End of Borehole at 5.45m			

1 2 3 4 5 6 7 8

Remarks:

Water strike at 3.90mbgl.
Borehole stable.

Window Sample Borehole Log

Location Number: **WS105**

Project Name: Jurby Avenue, Blackley	Client: Irwell Valley Housing Association	Date: 10/01/2025
Project No. : LKC241648	Contractor: D & I Drilling Ltd	
Equipment: Window Sample Rig: Competitor Dart	Level	Logged By: AE
Scale: 1:40	Page Number: Sheet 1 of 1	

Depth (m)	Samples / Tests	Depth (m)	Legend	Stratum Description	Level (m)	Well
0.00 - 0.50 0.00 - 0.50	ES PID=0.3ppm			MADE GROUND: Dark brown gravelly silty SAND with frequent brick fragments, occasional ash, clinker, plastic fragments and rare glass fragments. Sand is fine to coarse. Gravel is fine to coarse subangular to subrounded comprising sandstone.		
0.50 - 1.00 0.50 - 1.00	ES PID=0.0ppm	0.50		Firm to very stiff consistency medium to very high strength brown gravelly slightly sandy silty CLAY. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded comprising sandstone.		
1.20 - 1.65 1.20 1.20 - 1.65 1.50 - 2.00 1.70	D PP=147.2kPa N=12 (3,2/3,3,3,3) D PP=171.7kPa			1.20m to 1.70mbgl - Strata is stiff consistency high strength.		
2.00 - 2.45 2.00 - 2.45 2.20	D N=13 (3,3/3,3,3,4) PP=147.2kPa			1.70m to 2.20mbgl - Strata is very stiff consistency very high strength.		
2.50 - 3.00 2.80	D PP=196.2kPa			2.20m to 3.30mbgl - Strata is very stiff consistency very high strength.		
3.00 - 3.45 3.00 - 3.45 3.30 3.50 - 4.00	D N=9 (2,2/2,2,2,3) PP=49.0kPa D			3.30m to 5.45mbgl - Strata is firm consistency medium strength.		
3.90 4.00 - 4.45 4.00 - 4.45 4.20 4.50 - 5.00	PP=73.6kPa D N=14 (2,2/3,3,4,4) PP=73.6kPa D					
4.90 5.00 - 5.45 5.00 - 5.45	PP=85.8kPa D N=16 (2,3/3,4,4,5)					
		5.45		End of Borehole at 5.45m		

1 2 3 4 5 6 7 8

Remarks:

Borehole dry and stable.

Appendix C – Certificates of Analysis (Soil)

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M26 2ZS

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

DETS Report No: 25-00217

Site Reference:	Jurby Avenue, Blackley
Project / Job Ref:	LKC241648
Order No:	PO-C000785
Sample Receipt Date:	14/01/2025
Sample Scheduled Date:	14/01/2025
Report Issue Number:	1
Reporting Date:	23/01/2025

Authorised by:

Dave Ashworth
Technical 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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4480

Soil Analysis Certificate						
DETS Report No: 25-00217	**~Date Sampled**	10/01/25	10/01/25	10/01/25	10/01/25	10/01/25
LK Consult Limited	**~Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: Jurby Avenue, Blackley	**~TP / BH No**	WS101	WS101	WS102	WS103	WS103
~Project / Job Ref: LKC241648	**~Additional Refs**	ES	ES	ES	ES	ES
~Order No: PO-C000785	**~Depth (m)**	0.00 - 0.70	1.50 - 2.00	0.10 - 0.60	0.00 - 0.80	1.50 - 2.00
Reporting Date: 23/01/2025	**DETS Sample No**	759001	759002	759003	759004	759005

Determinand	**Unit**	**RL**	**Accreditation**					
						(n)		
Asbestos Screen (S)	N/a	N/a	**ISO17025**	Not Detected		Not Detected	Not Detected	
pH	pH Units	N/a	**MCERTS**	7.5	7.0	7.3	7.5	7.4
Total Cyanide	mg/kg	< 1	NONE					
Free Cyanide	mg/kg	< 1	NONE					
W/S Sulphate as SO_4 (2:1)	mg/l	< 10	**MCERTS**	17	35	32	13	27
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	**MCERTS**	0.02	0.03	0.03	0.01	0.03
Organic Matter (SOM)	%	< 0.1	**MCERTS**	4.6		1.8	6.2	
W/S Chloride (2:1)	mg/kg	< 1	**MCERTS**		9			7
W/S Chloride (2:1)	mg/l	< 0.5	**MCERTS**		4.7			3.3
Water Soluble Nitrate (2:1) as NO_3	mg/kg	< 3	**MCERTS**		4			< 3
Water Soluble Nitrate (2:1) as NO_3	mg/l	< 1.5	**MCERTS**		1.9			< 1.5
Arsenic (As)	mg/kg	< 2	**MCERTS**	7		8	23	
W/S Boron	mg/kg	< 1	NONE					
Cadmium (Cd)	mg/kg	< 0.2	**MCERTS**	0.4		< 0.2	0.3	
Chromium (Cr)	mg/kg	< 2	**MCERTS**	12		18	15	
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2		< 2	< 2	
Copper (Cu)	mg/kg	< 4	**MCERTS**	30		20	63	
Lead (Pb)	mg/kg	< 3	**MCERTS**	39		29	91	
W/S Magnesium	mg/l	< 0.1	NONE		5.9			4.6
Mercury (Hg)	mg/kg	< 1	**MCERTS**	< 1		< 1	< 1	
Nickel (Ni)	mg/kg	< 3	**MCERTS**	11		14	15	
Selenium (Se)	mg/kg	< 2	**MCERTS**	< 2		< 2	< 2	
Vanadium (V)	mg/kg	< 1	**MCERTS**	15		22	29	
Zinc (Zn)	mg/kg	< 3	**MCERTS**	75		43	48	
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 customer and can affect the validity of results
(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
Subcontracted analysis (S)

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Soil Analysis Certificate						
DETS Report No: 25-00217	**~Date Sampled**	10/01/25	10/01/25	10/01/25		
LK Consult Limited	**~Time Sampled**	None Supplied	None Supplied	None Supplied		
~Site Reference: Jurby Avenue, Blackley	**~TP / BH No**	WS104	WS104	WS105		
~Project / Job Ref: LKC241648	**~Additional Refs**	ES	ES	ES		
~Order No: PO-C000785	**~Depth (m)**	0.10 - 1.00	1.50 - 2.00	0.00 - 0.50		
Reporting Date: 23/01/2025	**DETS Sample No**	759006	759007	759008		

Determinand	Unit	RL	Accreditation					
Asbestos Screen (S)	N/a	N/a	ISO17025	Not Detected		Not Detected		
pH	pH Units	N/a	MCERTS	8.1	7.0	8.5		
Total Cyanide	mg/kg	< 1	NONE	< 1				
Free Cyanide	mg/kg	< 1	NONE	< 1				
W/S Sulphate as SO_4 (2:1)	mg/l	< 10	MCERTS	< 10	22	249		
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	MCERTS	< 0.01	0.02	0.25		
Organic Matter (SOM)	%	< 0.1	MCERTS	0.7		3.5		
W/S Chloride (2:1)	mg/kg	< 1	MCERTS		5			
W/S Chloride (2:1)	mg/l	< 0.5	MCERTS		2.4			
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	5		6		
W/S Boron	mg/kg	< 1	NONE	< 1				
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	< 0.2		1.9		
Chromium (Cr)	mg/kg	< 2	MCERTS	8		11		
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2		< 2		
Copper (Cu)	mg/kg	< 4	MCERTS	10		27		
Lead (Pb)	mg/kg	< 3	MCERTS	10		64		
W/S Magnesium	mg/l	< 0.1	NONE		3.5			
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1		< 1		
Nickel (Ni)	mg/kg	< 3	MCERTS	9		10		
Selenium (Se)	mg/kg	< 2	MCERTS	< 2		< 2		
Vanadium (V)	mg/kg	< 1	MCERTS	10		15		
Zinc (Zn)	mg/kg	< 3	MCERTS	26		82		
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 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 customer and can affect the validity of results

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4480

Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 25-00217	**~Date Sampled**	10/01/25	10/01/25	10/01/25	10/01/25	10/01/25
LK Consult Limited	**~Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: Jurby Avenue, Blackley	**~TP / BH No**	WS101	WS102	WS103	WS104	WS105
~Project / Job Ref: LKC241648	**~Additional Refs**	ES	ES	ES	ES	ES
~Order No: PO-C000785	**~Depth (m)**	0.00 - 0.70	0.10 - 0.60	0.00 - 0.80	0.10 - 1.00	0.00 - 0.50
Reporting Date: 23/01/2025	**DETS Sample No**	759001	759003	759004	759006	759008

Determinand	Unit	RL	Accreditation	(n)				
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.25	< 0.1	0.15
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.18	< 0.1	< 0.1
Phenanthrene	mg/kg	< 0.1	MCERTS	0.17	< 0.1	2.08	< 0.1	1.13
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.41	< 0.1	0.27
Fluoranthene	mg/kg	< 0.1	MCERTS	0.31	< 0.1	1.95	< 0.1	2.78
Pyrene	mg/kg	< 0.1	MCERTS	0.31	0.12	2.03	< 0.1	2.59
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	0.17	< 0.1	0.72	< 0.1	1.59
Chrysene	mg/kg	< 0.1	MCERTS	0.21	< 0.1	0.87	< 0.1	1.35
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	0.20	< 0.1	0.56	< 0.1	1.89
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.16	< 0.1	0.75
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	0.19	< 0.1	0.49	< 0.1	2.15
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	0.11	< 0.1	0.24	< 0.1	1.20
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	0.29
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	0.12	< 0.1	0.20	< 0.1	1.10
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	1.8	< 1.6	10.1	< 1.6	17.2

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

Normec DETS Limited
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Rose Lane
Lenham Heath
Maidstone
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Tel : 01622 850410

Soil Analysis Certificate - TPH CWG Banded						
DETS Report No: 25-00217	**~Date Sampled**	10/01/25				
LK Consult Limited	**~Time Sampled**	None Supplied				
~Site Reference: Jurby Avenue, Blackley	**~TP / BH No**	WS104				
~Project / Job Ref: LKC241648	**~Additional Refs**	ES				
~Order No: PO-C000785	**~Depth (m)**	0.10 - 1.00				
Reporting Date: 23/01/2025	**DETS Sample No**	759006				

Determinand	Unit	RL	Accreditation					
Aliphatic >C5 - C6 : HS_1D_MS_AL	mg/kg	< 0.01	NONE	< 0.01				
Aliphatic >C6 - C8 : HS_1D_MS_AL	mg/kg	< 0.05	NONE	< 0.05				
Aliphatic >C8 - C10 : EH_CU_1D_AL	mg/kg	< 2	MCERTS	< 2				
Aliphatic >C10 - C12 : EH_CU_1D_AL	mg/kg	< 2	MCERTS	< 2				
Aliphatic >C12 - C16 : EH_CU_1D_AL	mg/kg	< 3	MCERTS	< 3				
Aliphatic >C16 - C21 : EH_CU_1D_AL	mg/kg	< 3	MCERTS	< 3				
Aliphatic >C21 - C34 : EH_CU_1D_AL	mg/kg	< 10	MCERTS	< 10				
Aliphatic >C34 - C44 : EH_CU_1D_AL	mg/kg	< 10	NONE	< 10				
Aliphatic (C5 - C44) : HS_1D_MS+EH_CU_1D_AL	mg/kg	< 21	NONE	< 21				
Aromatic >C5 - C7 : HS_1D_MS_AR	mg/kg	< 0.01	NONE	< 0.01				
Aromatic >C7 - C8 : HS_1D_MS_AR	mg/kg	< 0.05	NONE	< 0.05				
Aromatic >C8 - C10 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2				
Aromatic >C10 - C12 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2				
Aromatic >C12 - C16 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2				
Aromatic >C16 - C21 : EH_CU_1D_AR	mg/kg	< 3	MCERTS	< 3				
Aromatic >C21 - C35 : EH_CU_1D_AR	mg/kg	< 10	MCERTS	< 10				
Aromatic >C35 - C44 : EH_CU_1D_AR	mg/kg	< 10	NONE	< 10				
Aromatic (C5 - C44) : HS_1D_MS+EH_CU_1D_AR	mg/kg	< 21	NONE	< 21				
Total >C5 - C44 : HS_1D_MS+EH_CU_1D_Total	mg/kg	< 42	NONE	< 42				

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

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Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 25-00217	**~Date Sampled**	10/01/25				
LK Consult Limited	**~Time Sampled**	None Supplied				
~Site Reference: Jurby Avenue, Blackley	**~TP / BH No**	WS104				
~Project / Job Ref: LKC241648	**~Additional Refs**	ES				
~Order No: PO-C000785	**~Depth (m)**	0.10 - 1.00				
Reporting Date: 23/01/2025	**DETS Sample No**	759006				

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

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

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Waste Acceptance Criteria Analytical Certificate

DETS Report No: 25-00217		**~Date Sampled**	10/01/25				**Landfill Waste Acceptance Criteria Limits**	
LK Consult Limited		**~Time Sampled**	None Supplied				**Inert Waste Landfill**	**Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
~Site Reference: Jurby Avenue, Blackley		**~TP / BH No**	WS104						
~Project / Job Ref: LKC241648		**~Additional Refs**	ES						
~Order No: PO-C000785		**~Depth (m)**	0.10 - 1.00						
Reporting Date: 23/01/2025		**DETS Sample No**	759006						
Determinand	**Unit**	**MDL**							
TOC[MU]	%	< 0.1	0.4				3%	5%	6%
Loss on Ignition[MU]	%	< 0.01	2.50				--	--	10%
BTEX[MU]	mg/kg	< 0.05	< 0.05				6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1				1	--	--
Mineral Oil[MU]	mg/kg	< 10	< 10				500	--	--
Total PAH[MU]	mg/kg	< 1.7	< 1.7				100	--	--
pH[MU]	pH Units	N/a	8.1				--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	< 1				--	To be evaluated	To be evaluated

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	0.0003		0.004	0.5	2	25
Barium[U]	0.0132	0.0075		0.085	20	100	300
Cadmium[U]	< 0.0002	< 0.0002		< 0.002	0.04	1	5
Chromium[U]	0.0005	0.0003		0.003	0.5	10	70
Copper[U]	0.0041	0.0048		0.047	2	50	100
Mercury[U]	< 0.00004	< 0.00004		< 0.0004	0.01	0.2	2
Molybdenum[U]	0.0044	0.0024		0.028	0.5	10	30
Nickel[U]	0.0004	0.0004		0.0044	0.4	10	40
Lead[U]	0.0003	< 0.0002		< 0.002	0.5	10	50
Antimony[U]	< 0.0002	< 0.0002		< 0.002	0.06	0.7	5
Selenium[U]	0.0003	< 0.0002		0.0015	0.1	0.5	7
Zinc[U]	0.017	0.033		0.31	4	50	200
Chloride[U]	2	2		19	800	15000	25000
Fluoride[U]	0.8	< 0.5		1.3	10	150	500
Sulphate[U]	4	2		25	1000	20000	50000
TDS	80	43		490	4000	60000	100000
Phenol Index[U]	< 0.01	< 0.01		< 0.5	1	-	-
DOC[U]	5.9	12.1		112	500	800	1000
Leach Test Information							
Sample Mass (kg)	0.10						
Dry Matter (%)	86.7						
Moisture (%)	15.4						
Stage 1							
Volume Eluate L2 (litres)	0.16						
Filtered Eluate VE1 (litres)	0.14						

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 discrepencies with current legislation
M Denotes MCERTS accredited test
U Denotes ISO17025 accredited test
~Sample details provided by customer and can affect the validity of results
* DETS are accredited for the testing of leachate and not the leachate preparation stage which is unaccredited

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Soil Analysis Certificate - Sample Descriptions
DETS Report No: 25-00217
LK Consult Limited
~Site Reference: Jurby Avenue, Blackley
~Project / Job Ref: LKC241648
~Order No: PO-C000785
Reporting Date: 23/01/2025

DETS Sample No	~TP / BH No	~Additional Refs	~Depth (m)	Moisture Content (%)	Sample Matrix Description
759001	WS101	ES	0.00 - 0.70	10.3	Brown clay
759002	WS101	ES	1.50 - 2.00	14	Brown clay
759003	WS102	ES	0.10 - 0.60	16.1	Brown clay with vegetation
759004	WS103	ES	0.00 - 0.80	20.4	Brown clay
759005	WS103	ES	1.50 - 2.00	13.9	Brown clay
759006	WS104	ES	0.10 - 1.00	12.8	Brown clayey sand
759007	WS104	ES	1.50 - 2.00	15.4	Brown sandy clay
759008	WS105	ES	0.00 - 0.50	10.6	Brown sandy clay with brick

Moisture content is part of procedure E003 & is not an accredited test
Insufficient Sample I/S
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: 25-00217
LK Consult Limited
~Site Reference: Jurby Avenue, Blackley
~Project / Job Ref: LKC241648
~Order No: PO-C000785
Reporting Date: 23/01/2025

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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Water Analysis Certificate - Methodology & Miscellaneous Information
DETS Report No: 25-00217
LK Consult Limited
~Site Reference: Jurby Avenue, Blackley
~Project / Job Ref: LKC241648
~Order No: PO-C000785
Reporting Date: 23/01/2025

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	F	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	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 dichlorometha	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
DETS Report No: 25-00217
LK Consult Limited
~Site Reference: Jurby Avenue, Blackley
~Project / Job Ref: LKC241648
~Order No: PO-C000785
Reporting Date: 23/01/2025

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

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 - 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
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 Uncertainity 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	%

Appendix D – Certificates of Analysis (Geotechnical)

MURRAY RIX
CONSULTANCY, SITE INVESTIGATION
CONSTRUCTION MATERIALS TESTING

TEST REPORT

Client LK Consult Ltd

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

Contract LKC 24 1648 -
Jurby Avenue, Blackley

Job Number MRN 25007/15
Date of Issue 06 February 2025

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.

MURRAY RIX

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

UKAS TESTING 1580

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

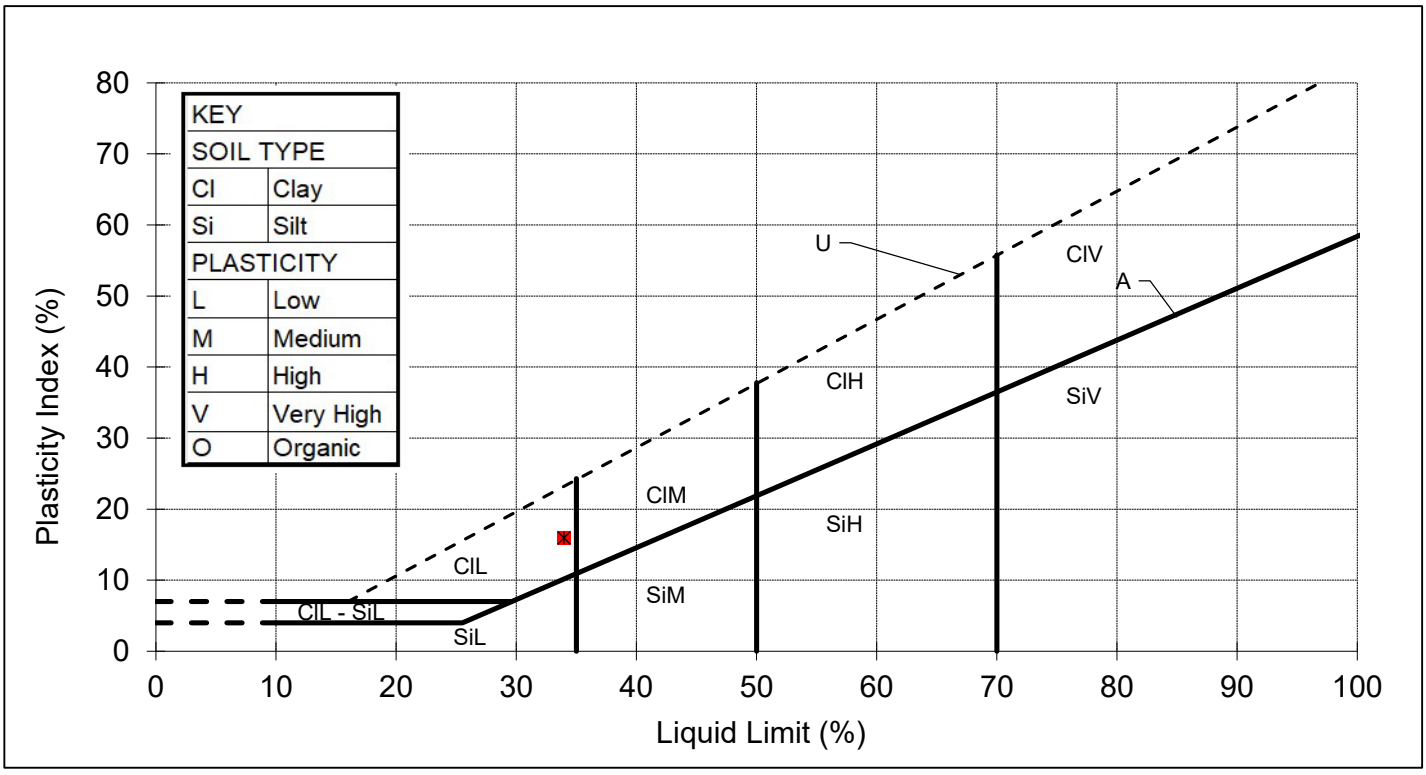
CLIENT	LK Consult Ltd
SITE	LKC 24 1648 - Jurby Avenue, Blackley
JOB NUMBER	MRN 25007/15

SAMPLE LABEL	WS101 1.50-2.00	DATE SAMPLED	Not advised
SAMPLE No.	5004801	DATE RECEIVED	15-Jan-25
DATE TESTED	21-Jan-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	Hand Picked

Test Readings mm (average)		Water Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	20.5	34.1	0.992	
Determination 2 (avg)	20.5	34.4		

Natural Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
20.7	34	18	16	98



REMARKS

SIGNED

NAME O.P. Davies BA (Hons) (Director / Head of Laboratory) DATE 06-Feb-25

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

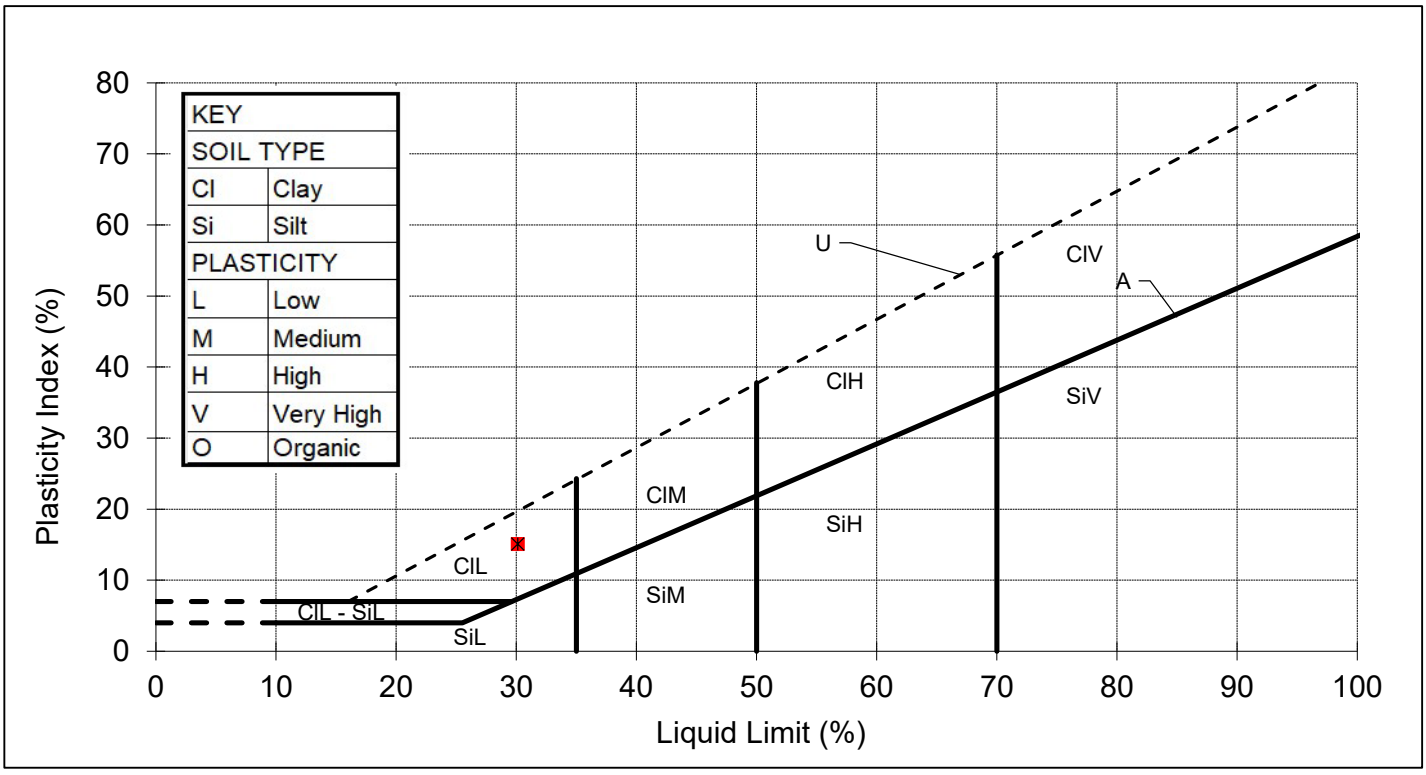
CLIENT	LK Consult Ltd
SITE	LKC 24 1648 - Jurby Avenue, Blackley
JOB NUMBER	MRN 25007/15

SAMPLE LABEL	WS102 2.0-2.45	DATE SAMPLED	Not advised
SAMPLE No.	5004802	DATE RECEIVED	15-Jan-25
DATE TESTED	21-Jan-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	Hand Picked

Test Readings mm (average)		Water Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	18.8	29.6	1.021	
Determination 2 (avg)	18.4	29.4		

Natural Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
23.2	30	15	15	99



REMARKS

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NAME O.P. Davies BA (Hons) (Director / Head of Laboratory) DATE 06-Feb-25

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TEL 0161 475 0870

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TEST CERTIFICATE

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PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5
WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

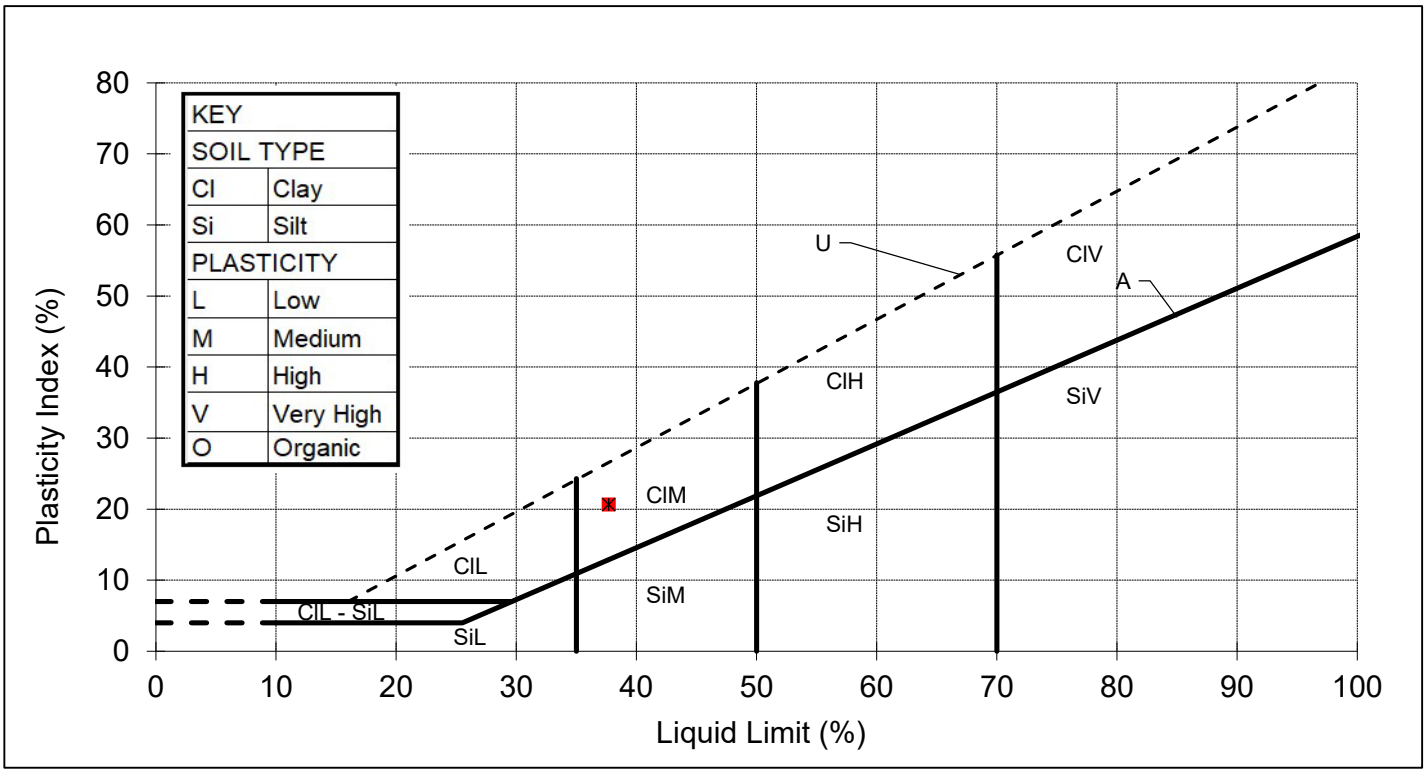
CLIENT	LK Consult Ltd
SITE	LKC 24 1648 - Jurby Avenue, Blackley
JOB NUMBER	MRN 25007/15

SAMPLE LABEL	WS103 1.5-2.0	DATE SAMPLED	Not advised
SAMPLE No.	5004803	DATE RECEIVED	15-Jan-25
DATE TESTED	21-Jan-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	Hand Picked

Test Readings mm (average)		Water Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	18.7	36.9	1.019	
Determination 2 (avg)	19.0	37.1		

Natural Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
18.0	38	17	21	99



REMARKS

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NAME O.P. Davies BA (Hons) (Director / Head of Laboratory) DATE 06-Feb-25

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TEST CERTIFICATE

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PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5
WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

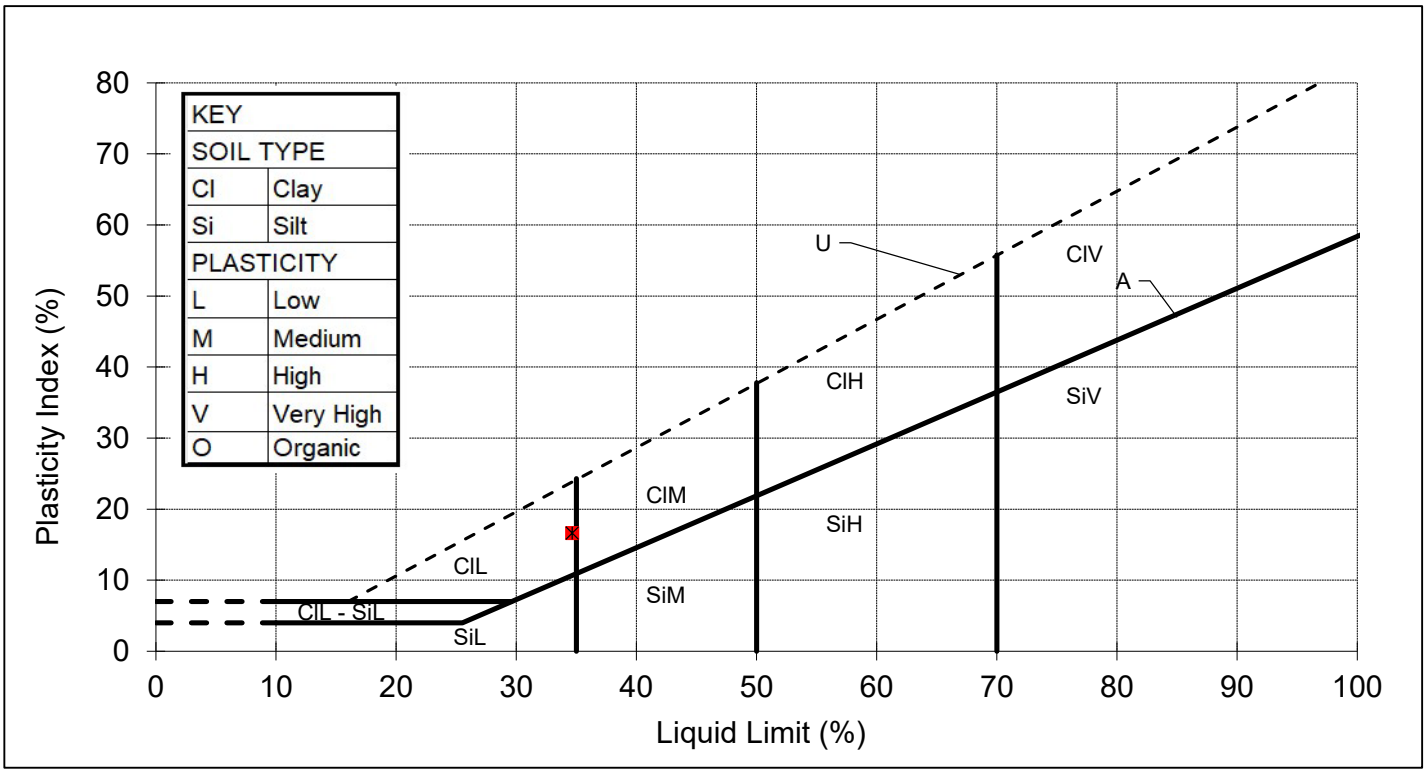
CLIENT	LK Consult Ltd
SITE	LKC 24 1648 - Jurby Avenue, Blackley
JOB NUMBER	MRN 25007/15

SAMPLE LABEL	WS105 1.2-1.65	DATE SAMPLED	Not advised
SAMPLE No.	5004804	DATE RECEIVED	15-Jan-25
DATE TESTED	21-Jan-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	Hand Picked

Test Readings mm (average)		Water Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	21.3	35.4	0.981	
Determination 2 (avg)	21.1	35.2		

Natural Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
20.6	35	18	17	95



REMARKS

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TEST CERTIFICATE

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PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5
WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

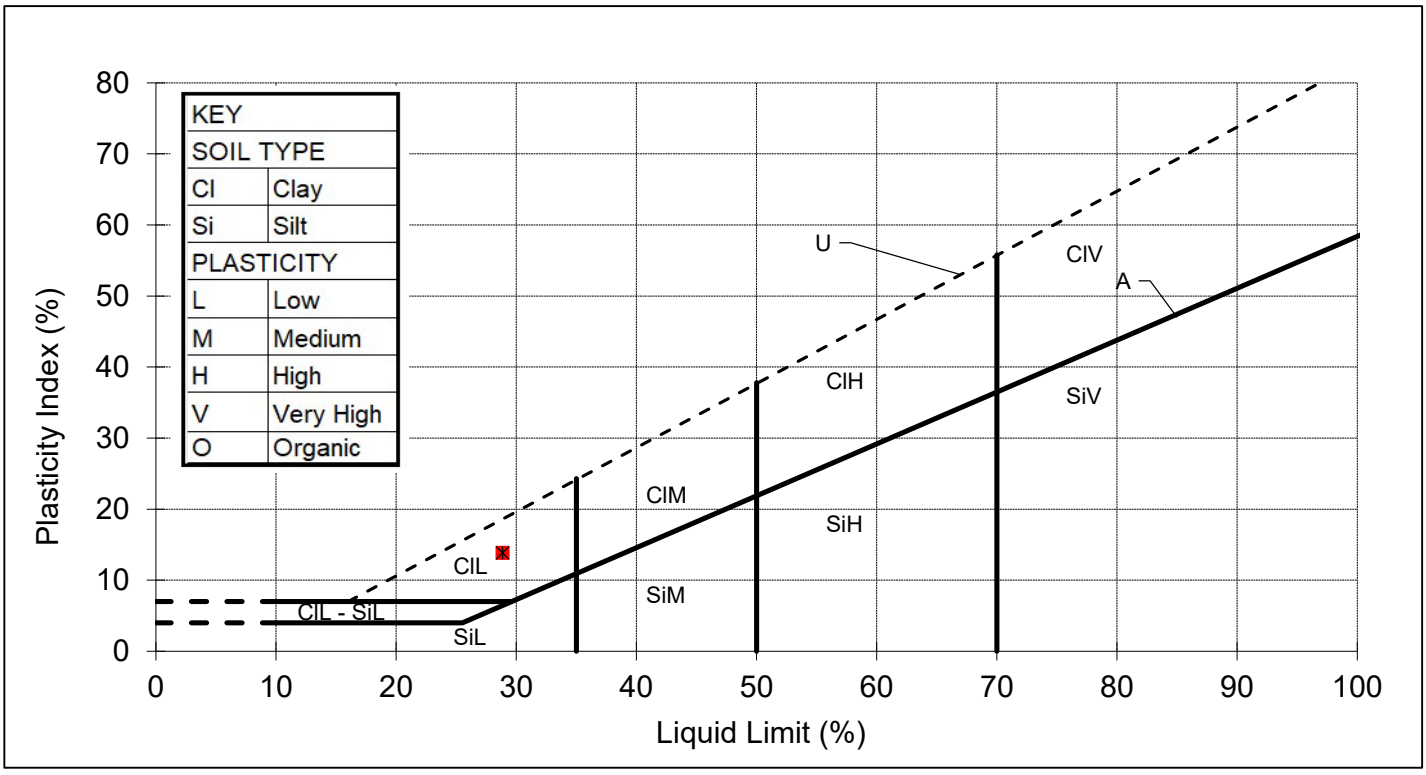
CLIENT	LK Consult Ltd
SITE	LKC 24 1648 - Jurby Avenue, Blackley
JOB NUMBER	MRN 25007/15

SAMPLE LABEL	WS104 2.5-3.0	DATE SAMPLED	Not advised
SAMPLE No.	5004805	DATE RECEIVED	15-Jan-25
DATE TESTED	21-Jan-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	Hand Picked

Test Readings mm (average)		Water Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	20.2	28.9	0.998	
Determination 2 (avg)	20.0	28.9		

Natural Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
17.0	29	15	14	97



REMARKS

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NAME O.P. Davies BA (Hons) (Director / Head of Laboratory) DATE 06-Feb-25

Appendix E – Gas Monitoring Results

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GAS MONITORING RECORD

Site Details		Monitoring Visit Conditions		Visit No.
Site Name	Jurby Avenue, Blackley	**Recent Weather**	Overcast, drizzle	1
Job Number	LKC241648	**Ground Conditions**	Wet	of
Engineer	EH	**Approx. Air temperature (°C)**	6°C	6
Date	21/01/2025	**Atmospheric Pressure (Prev. 24 hrs)**	Falling	

Site Monitoring	**BH Ref.**	WS101	WS102	WS103	WS104	WS105										
	Time	12:46:15	13:02:23	13:15:31	13:32:07	13:42:59										
	Barometric Pressure (mb)	999	1000	1000	999	1000										
	Relative Pressure (mb)	0.44	0.3	2.95	0.37	0.39										
Gas and Groundwater Monitoring Data	**Internal Flow[3] (l/hr)**	0	0	0	0	0										
	Peak Flow (l/hr)	0	0	-0.1	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)	3.1	1.7	1.2	2.1	1.7										
	Peak CO_2 (%v/v)	3.1	2.3	1.2	2.1	2.2										
	Steady O2 (%v/v)	15.5	19.6	19.8	19.8	19.9										
	Min O_2 (%v/v)	15.5	19.4	19.8	19.8	19.6										
	Balance (%)	81.5	78.7	79	78.2	78.4										
	Steady CO (ppm)	0	15	0	0	0										
	Peak CO (ppm)	5	30	13	3	2										
	Steady H_2S (ppm)	0	0	0	0	0										
	Peak H_2S (ppm)	0	0	0	0	0										
	Steady PID (ppm)	0.3	0.6	0.2	0.5	0.2										
	Max PID (ppm)	0.5	0.9	0.4	0.5	0.4										
	Standing Water Level (mbgl)	1.84	1.22	1.49	2.07	2.27										
	Installation Base Depth (mbgl)	4	4.03	4.93	3.98	4.57										
	Response Zone/Strata															
	Comments															

Equipment	
Gas Machine	Gas Analyser GA5000
	G502417
Dipmeter	Geotech Oil-in-Water Interface Meter
	1-800-833-7958
PID	Mini Rae Lite+ PGM7300
	590-913907

ABBREVIATIONS			
ND	Not detected	**ppm**	Parts per million
NR	Not recorded	**mb**	Millibars
UR	Unable to record	**l/hr**	Litres per hour
OS	Off recordable scale	**mbgl**	Metres below ground level
N/A	Not applicable	**LEL**	Lower explosive limit in air

NOTES

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).

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GAS MONITORING RECORD

Site Details		Monitoring Visit Conditions		Visit No.
Site Name	Jurby Avenue, Blackley	**Recent Weather**	Cold, clear, windy	2
Job Number	LKC241648	**Ground Conditions**	Damp	of
Engineer	JW	**Approx. Air temperature (°C)**	6°C	6
Date	07/02/2025	**Atmospheric Pressure (Prev. 24 hrs)**	Falling	

Site Monitoring	**BH Ref.**	WS101	WS102	WS103	WS104	WS105											
	Time	10:50:46	11:01:14	11:08:54	11:16:58	11:24:10											
	Barometric Pressure (mb)	1020	1021	1021	1021	1021											
	Relative Pressure (mb)	-0.14	3.25	0.12	-0.18	-1.2											
Gas and Groundwater Monitoring Data	**Internal Flow[3] (l/hr)**	0	0.3	0	0	0											
	Peak Flow (l/hr)	0	3.9	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)	7.4	1.2	3.4	2.1	1.8											
	Peak CO_2 (%v/v)	7.4	3.1	3.4	2.1	1.8											
	Steady O2 (%v/v)	9.1	20.3	14.3	18.6	14.8											
	Min O_2 (%v/v)	9.1	18.3	14.3	18.6	14.8											
	Balance (%)	83.5	78.5	82.3	79.3	83.4											
	Steady CO (ppm)	1	1	0	0	0											
	Peak CO (ppm)	2	3	3	2	0											
	Steady H_2S (ppm)	0	0	0	0	0											
	Peak H_2S (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)	1.74	1.07	1.47	1.86	2.18											
	Installation Base Depth (mbgl)	4	4.04	4.93	3.97	4.56											
	Response Zone/Strata																
	Comments		Pump fail at 100s. Monitoring continued for a futher 80s.														

Equipment	
Gas Machine	Gas Analyser GA5000
	G502417
Dipmeter	Geotech Oil-in-Water Interface Meter
	1-800-833-7958
PID	-
	-

ABBREVIATIONS			
ND	Not detected	**ppm**	Parts per million
NR	Not recorded	**mb**	Millibars
UR	Unable to record	**l/hr**	Litres per hour
OS	Off recordable scale	**mbgl**	Metres below ground level
N/A	Not applicable	**LEL**	Lower explosive limit in air

NOTES

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).

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GAS MONITORING RECORD

Site Details		Monitoring Visit Conditions		Visit No.
Site Name	Jurby Avenue, Blackley	**Recent Weather**	Overcast, mild	3
Job Number	LKC241648	**Ground Conditions**	Wet	of
Engineer	EH	**Approx. Air temperature (°C)**	6°C	6
Date	25/02/2025	**Atmospheric Pressure (Prev. 24 hrs)**	Rising	

Site Monitoring	**BH Ref.**	WS101	WS102	WS103	WS104	WS105											
	Time	10:08:29	10:23:01	10:34:05	10:45:48	10:59:04											
	Barometric Pressure (mb)	1001	1001	1002	1002	1002											
	Relative Pressure (mb)	-5.95	31.83	-4.68	-5.91	2.5											
Gas and Groundwater Monitoring Data	**Internal Flow[3] (l/hr)**	0	0.7	0	0	0.2											
	Peak Flow (l/hr)	0	16	0	0	6.2											
	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)	8.6	2.8	4.5	3.5	2.6											
	Peak CO_2 (%v/v)	8.6	2.8	4.5	3.5	2.6											
	Steady O2 (%v/v)	8.4	14.2	11.4	17.4	13.4											
	Min O_2 (%v/v)	8.4	14.2	11.4	17.4	13.4											
	Balance (%)	83	83	84.1	79.1	84.1											
	Steady CO (ppm)	0	0	0	0	0											
	Peak CO (ppm)	0	0	2	0	0											
	Steady H_2S (ppm)	0	0	0	0	0											
	Peak H_2S (ppm)	0	0	0	0	0											
	Steady PID (ppm)	-	-	-	-	-											
	Max PID (ppm)	-	-	-	-	-											
	Standing Water Level (mbgl)	1.59	1.28	1.41	2.13	2.5											
	Installation Base Depth (mbgl)	4	4.04	4.92	3.98	4.57											
	Response Zone/Strata	8.9	13	10	9.1	8.1											
	Comments		Flow taken for 3 minutes.			Flow taken for 3 minutes.											

Equipment	
Gas Machine	Gas Analyser GA5000
	G507783
Dipmeter	Geotech Oil-in-Water Interface Meter
	1-800-833-7958
PID	-
	-

ABBREVIATIONS			
ND	Not detected	**ppm**	Parts per million
NR	Not recorded	**mb**	Millibars
UR	Unable to record	**l/hr**	Litres per hour
OS	Off recordable scale	**mbgl**	Metres below ground level
N/A	Not applicable	**LEL**	Lower explosive limit in air

NOTES

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).

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GAS MONITORING RECORD

Site Details		Monitoring Visit Conditions		Visit No.
Site Name	Jurby Avenue, Blackley	**Recent Weather**	sunny, steady	4
Job Number	LKC241648	**Ground Conditions**	Dry	of
Engineer	LGD	**Approx. Air temperature (°C)**	12	6
Date	11/03/2025	**Atmospheric Pressure (Prev. 24 hrs)**	Steady	

Site Monitoring	**BH Ref.**	WS101	WS102	WS103	WS104	WS105											
	Time	09:44:18	10:17:00	10:23:52	10:33:27	10:43:56											
	Barometric Pressure (mb)	1000	1000	1001	1001	1001											
	Relative Pressure (mb)	-4.44	-101.75	-4.24	-4.06	-8.55											
Gas and Groundwater Monitoring Data	**Internal Flow[3] (l/hr)**	0	-1.2	0	0	-0.2											
	Peak Flow (l/hr)	0	-29.2	0	0	-3.6											
	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)	9.4	2.2	5.2	2.8	2.5											
	Peak CO_2 (%v/v)	9.4	2.5	5.2	2.8	2.5											
	Steady O2 (%v/v)	7.5	14.8	9.9	18.1	12.5											
	Min O_2 (%v/v)	7.5	14.4	9.9	18	12.5											
	Balance (%)	83.1	83	84.9	79.1	85											
	Steady CO (ppm)	1	0	0	0	0											
	Peak CO (ppm)	1	0	1	1	1											
	Steady H_2S (ppm)	0	0	0	0	0											
	Peak H_2S (ppm)	0	0	0	0	0											
	Steady PID (ppm)	N / A	N / A	N / A	N / A	N / A											
	Max PID (ppm)	N / A	N / A	N / A	N / A	N / A											
	Standing Water Level (mbgl)	1.74	1.18	1.51	2.14	2.65											
	Installation Base Depth (mbgl)	3.95	3.97	4.92	3.91	4.5											
	Response Zone/Strata																
	Comments		Pump flow failed after 120 seconds, Flow Ran for 3 minutes														

Equipment	
Gas Machine	Gas Analyser GA5000
	G502417
Dipmeter	Geotech Oil-in-Water Interface Meter
	HT-01
PID	-
	-

ABBREVIATIONS			
ND	Not detected	**ppm**	Parts per million
NR	Not recorded	**mb**	Millibars
UR	Unable to record	**l/hr**	Litres per hour
OS	Off recordable scale	**mbgl**	Metres below ground level
N/A	Not applicable	**LEL**	Lower explosive limit in air

NOTES

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).

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LK CONSULT LTD

GAS MONITORING RECORD

Site Details		Monitoring Visit Conditions		Visit No.
Site Name	Jurby Avenue, Blackley	**Recent Weather**	sunny, dry	5
Job Number	LKC241648	**Ground Conditions**	Dry	of
Engineer	EH	**Approx. Air temperature (°C)**	13°C	6
Date	31/03/2025	**Atmospheric Pressure (Prev. 24 hrs)**	Falling	

Site Monitoring	**BH Ref.**	WS101	WS102	WS103	WS104	WS105										
	Time	15:51:42	16:03:36	16:13:41	16:22:53	16:32:35										
	Barometric Pressure (mb)	1017	1017	1018	1018	1018										
	Relative Pressure (mb)	-7.81	-26.42	-7.86	-7.3	-7.88										
Gas and Groundwater Monitoring Data	**Internal Flow[3] (l/hr)**	0	-0.3	0	0	0										
	Peak Flow (l/hr)	0.1	-10.4	0	0	0										
	Steady CH_4 (%v/v)	0	<<<<	0	0	0										
	Peak CH_4 (%v/v)	0	0.2	0	0	0										
	% LEL[2]	0	0	0	0	0										
	Steady CO_2 (%v/v)	9.1	3.4	5.5	3	1.6										
	Peak CO_2 (%v/v)	9.1	3.6	5.5	3	2.2										
	Steady O2 (%v/v)	9.7	13.1	10.2	17.6	16.4										
	Min O_2 (%v/v)	9.7	12.6	10.2	17.6	14.8										
	Balance (%)	81.2	>>>>	84.3	79.4	82.1										
	Steady CO (ppm)	0	1	0	0	1										
	Peak CO (ppm)	1	1	1	2	2										
	Steady H_2S (ppm)	0	0	1	1	1										
	Peak H_2S (ppm)	0	1	1	1	1										
	Steady PID (ppm)	-	-	-	-	-										
	Max PID (ppm)	-	-	-	-	-										
	Standing Water Level (mbgl)	2.28	1.93	1.89	2.99	3.22										
	Installation Base Depth (mbgl)	4.01	4.03	4.93	3.98	4.56										
	Response Zone/Strata															
	Comments		Flow taken for 3 minutes. Pump failed at 160 seconds.													

Equipment	
Gas Machine	Gas Analyser GA5000
	G502417
Dipmeter	Geotech Oil-in-Water Interface Meter
	1-800-833-7958
PID	-
	-

ABBREVIATIONS			
ND	Not detected	**ppm**	Parts per million
NR	Not recorded	**mb**	Millibars
UR	Unable to record	**l/hr**	Litres per hour
OS	Off recordable scale	**mbgl**	Metres below ground level
N/A	Not applicable	**LEL**	Lower explosive limit in air

NOTES

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).

LK CONSULT

LK CONSULT LTD

GAS MONITORING RECORD

Site Details		Monitoring Visit Conditions		Visit No.
Site Name	Jurby Avenue, Blackley	**Recent Weather**	sunny, dry	6
Job Number	LKC241648	**Ground Conditions**	Dry	of
Engineer	CD	**Approx. Air temperature (°C)**	10°C	6
Date	17/04/2025	**Atmospheric Pressure (Prev. 24 hrs)**	Rising	

	BH Ref.	WS101	WS102	WS103	WS104	WS105
Site Monitoring	Time	08:02:13	08:13:51	08:25:52	08:37:56	08:50:30
	Barometric Pressure (mb)	1000	1001	1001	1001	1001
	Relative Pressure (mb)	0	-0.02	0.12	0.09	0.74
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)	9.4	3.9	6	3	2.4
	Peak CO_2 (%v/v)	9.4	3.9	6	3	2.5
	Steady O2 (%v/v)	12.1	13.2	14.2	19.2	15.1
	Min O_2 (%v/v)	12	13.2	14.1	19.2	15
	Balance (%)	78.5	82.9	79.8	77.8	82.5
	Steady CO (ppm)	0	0	0	0	0
	Peak CO (ppm)	0	1	1	1	1
	Steady H_2S (ppm)	0	0	0	0	0
	Peak H_2S (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)	2.49	2.45	2.21	3.15	3.38
	Installation Base Depth (mbgl)	4	4.01	4.92	3.99	4.57
	Response Zone/Strata					
	Comments	aken for 3 minutes. Pump failed at 160 seconds.				

Equipment	
Gas Machine	Gas Analyser GA5000
	G502417
Dipmeter	HydroTechnik
	1-800-833-7958
PID	

ABBREVIATIONS			
ND	Not detected	**ppm**	Parts per million
NR	Not recorded	**mb**	Millibars
UR	Unable to record	**l/hr**	Litres per hour
OS	Off recordable scale	**mbgl**	Metres below ground level
N/A	Not applicable	**LEL**	Lower explosive limit in air

NOTES

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).

Appendix F – Generic Assessment Criteria Values

Generic Assessment Criteria Values

	Contaminant	SOM	Res +	Res -	Allot.	Comm.	POSresi	POSpark	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 (2015 update)	N/A	130	180	53	980	230	800	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(a)pyrene (surrogate marker Coal Tar)	1%	0.8	1.2	0.32	15	2.2	4	LQM S4UL
		2.5%	1.0	1.2	0.67	15	2.2	5	LQM S4UL
		6%	1.1	1.2	1.20	15	2.2	5	LQM S4UL
	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%	15	15	65	1,600*	11,000*	8,400*	DEFRA C4SL
		2.5%	36	36	130	3,700*	15,000*	17,00*	DEFRA C4SL
		6%	85	85	200	8,400*	1,200*	1,900*	DEFRA C4SL
	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

	Contaminant	SOM	Res +	Res -	Allot.	Comm.	POSresi	POSpark	Source
BTEX Compounds	Benzene	1%	0.87	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) vap	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) vap	LQM S4UL
		6%	260	440	91	27,000 (2,840) vap	25,000	27,000 (2,840) vap	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) vap	LQM S4UL
		6%	320	450	170	31,000 (3,460) vap	43,000	32,000 (3,460) vap	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 Hydroc	**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%	110,000f	110,000f	270,000 f	1,800,000f	250,000 f	490,000 f	LQM S4UL
	EC>35-44	6%	110,000f	110,000f	270,000 f	1,800,000f	250,000 f	490,000 f	LQM S4UL
	Aromatic								
	EC5-7(benzene as non-	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	370f	28,000 f	3,800 f	7,800 f	LQM S4UL
	Aromatic								
	EC5-7(benzene as non-	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 non-	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%	930f	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

	Contaminant	SOM	Res +	Res -	Allot.	Comm.	POSresi	POSpark	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) vap	LQM S4UL
		2.5%	18	18	110	1,300	140,000	76,000 (2,915) vap	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
	cis 1,2-dichloroethene	1%	0.46	0.50	0.890	38	3,800	2,000	DEFRA C4SL
		2.5%	0.78	0.84	1.70	64	3,800	2,400	DEFRA C4SL
		6%	1.50	1.60	3.60	120	3,900	3,100	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
	Trans-1,2 Dichloroethene	1%	0.9	0.9	3.7	69	13,000	5,600	DEFRA C4SL
		2.5%	1.6	1.7	7.5	120	13,000	7,000	DEFRA C4SL
		6%	3.3	3.4	16.0	260	13,000	9,100	DEFRA C4SL
	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-Trinitritoluene (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.	POSresi	POSpark	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%	120	440 (460)	23	440 [dir] (26,000)	440 [dir] (10,000)	440 [dir] (7,600)	LQM S4UL
		2.5%	200	690	42	690 [dir] (30,000)	690 [dir] (10,000)	690 [dir] (8,300)	LQM S4UL
		6%	380	1,200	83	1,300 [dir] (34,000)	1,300 [dir] (10,000)	1,300 [dir] (9,300)	LQM S4UL

sol/vap = solubility/vapour limit (potenitally use if free product identified, although highly conservative)
*=naphthalene C4SL exceeds the CLEA calculated soil saturation concentration (76 mg kg-1 for 1% SOM,
183 mg kg-1 for 2.5% SOM and 432 mg kg-1 for 6% SOM)
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 G – HazWaste Online Classification 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:

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

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

DYJXG-RCV4D-8CSM4

Report is invalid if pages are removed.

Job name

LKC241648

Description/Comments

Project

LKC241648

Site

Jurby Avenue

Classified by

Name:
Peter Dunn
Company:
LK Group
Date:
14 Feb 2025 15:23 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	Date
Hazardous Waste Classification	26 Mar 2015 *
Most recent 3 year Refresher	02 Aug 2022

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

Purpose of classification

2 - Material Characterisation

Address of the waste

Jurby Avenue, Blackely **Post Code** M9 6NQ

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	WS101-0.00 - 0.70-10/01/2025	0.00 - 0.70	Non Hazardous		3
2	WS101-1.50 - 2.00-10/01/2025	1.50 - 2.00	Non Hazardous		5
3	WS102-0.10 - 0.60-10/01/2025	0.10 - 0.60	Non Hazardous		6
4	WS103-0.00 - 0.80-10/01/2025	0.00 - 0.80	Non Hazardous		8
5	WS103-1.50 - 2.00-10/01/2025	1.50 - 2.00	Non Hazardous		10
6	WS104-0.10 - 1.00-10/01/2025	0.10 - 1.00	Non Hazardous		11
7	WS104-1.50 - 2.00-10/01/2025	1.50 - 2.00	Non Hazardous		14
8	WS105-0.00 - 0.50-10/01/2025	0.00 - 0.50	Non Hazardous		15

Related documents

#	Name	Description
1	25-00217.1.hwol	DETS South .hwol file used to populate the Job
2	LK SUITE 1 - 5	waste stream template used to create this Job

Report

Created by: Peter Dunn

Created date: 14 Feb 2025 15:23 GMT

Appendices	Page
Appendix A: Classifier defined and non GB MCL determinands	17
Appendix B: Rationale for selection of metal species	18
Appendix C: Version	19

Classification of sample: WS101-0.00 - 0.70-10/01/2025

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

Sample details

Sample name:
WS101-0.00 - 0.70-10/01/2025
Sample Depth:
0.00 - 0.70 m
Moisture content:
10.3%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 10.3% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		7 mg/kg	1.32	8.29 mg/kg	0.000829 %	✓	
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.4 mg/kg	1.142	0.41 mg/kg	0.000041 %	✓	
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		12 mg/kg	1.462	15.732 mg/kg	0.00157 %	✓	
4	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		30 mg/kg	1.126	30.298 mg/kg	0.00303 %	✓	
5	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<1 mg/kg	1.353	<1.353 mg/kg	<0.000135 %		<**LOD**
6	nickel { nickel(II) oxide (nickel monoxide) }	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]		11 mg/kg	1.273	12.557 mg/kg	0.00126 %	✓	
7	lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	39 mg/kg		34.983 mg/kg	0.0035 %	✓	
8	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<2 mg/kg	1.405	<2.81 mg/kg	<0.000281 %		<**LOD**
9	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		15 mg/kg	1.785	24.02 mg/kg	0.0024 %	✓	
10	zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		75 mg/kg	1.245	83.738 mg/kg	0.00837 %	✓	
11	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<2 mg/kg	1.923	<3.846 mg/kg	<0.000385 %		<**LOD**
12	pH			PH		7.5 pH		7.5 pH	7.5 pH		
13	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<**LOD**

#		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				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-917-1	208-96-8									
15	●	acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-469-6	83-32-9									
16	●	fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-695-5	86-73-7									
17	●	phenanthrene				0.17	mg/kg		0.152	mg/kg	0.0000152 %	✓	
			201-581-5	85-01-8									
18	●	anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			204-371-1	120-12-7									
19	●	fluoranthene				0.31	mg/kg		0.278	mg/kg	0.0000278 %	✓	
			205-912-4	206-44-0									
20	●	pyrene				0.31	mg/kg		0.278	mg/kg	0.0000278 %	✓	
			204-927-3	129-00-0									
21		benzo[a]anthracene				0.17	mg/kg		0.152	mg/kg	0.0000152 %	✓	
		601-033-00-9	200-280-6	56-55-3									
22		chrysene				0.21	mg/kg		0.188	mg/kg	0.0000188 %	✓	
		601-048-00-0	205-923-4	218-01-9									
23		benzo[b]fluoranthene				0.2	mg/kg		0.179	mg/kg	0.0000179 %	✓	
		601-034-00-4	205-911-9	205-99-2									
24		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-036-00-5	205-916-6	207-08-9									
25		benzo[a]pyrene; benzo[def]chrysene				0.19	mg/kg		0.17	mg/kg	0.000017 %	✓	
		601-032-00-3	200-028-5	50-32-8									
26	●	indeno[123-cd]pyrene				0.11	mg/kg		0.0987	mg/kg	0.00000987 %	✓	
			205-893-2	193-39-5									
27		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									
28	●	benzo[ghi]perylene				0.12	mg/kg		0.108	mg/kg	0.0000108 %	✓	
			205-883-8	191-24-2									
										Total:	0.022 %		

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 Deteminand - 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: WS101-1.50 - 2.00-10/01/2025

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

Sample details

Sample name:
WS101-1.50 - 2.00-10/01/2025
Sample Depth:
1.50 - 2.00 m
Moisture content:
14%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

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	•	pH		PH		7 pH		7 pH	7pH		
								Total:	0%		

Key

	User supplied data
•	Determinand defined or amended by HazWasteOnline (see Appendix A)

Classification of sample: WS102-0.10 - 0.60-10/01/2025

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

Sample details

Sample name:
WS102-0.10 - 0.60-10/01/2025
Sample Depth:
0.10 - 0.60 m
Moisture content:
16.1%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 16.1% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		8 mg/kg	1.32	8.862 mg/kg	0.000886 %	✓	
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		18 mg/kg	1.462	22.072 mg/kg	0.00221 %	✓	
4	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		20 mg/kg	1.126	18.892 mg/kg	0.00189 %	✓	
5	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<1 mg/kg	1.353	<1.353 mg/kg	<0.000135 %		<LOD
6	nickel { nickel(II) oxide (nickel monoxide) }	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]		14 mg/kg	1.273	14.948 mg/kg	0.00149 %	✓	
7	lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	29 mg/kg		24.331 mg/kg	0.00243 %	✓	
8	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<2 mg/kg	1.405	<2.81 mg/kg	<0.000281 %		<LOD
9	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		22 mg/kg	1.785	32.951 mg/kg	0.0033 %	✓	
10	zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		43 mg/kg	1.245	44.906 mg/kg	0.00449 %	✓	
11	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<2 mg/kg	1.923	<3.846 mg/kg	<0.000385 %		<LOD
12	pH			PH		7.3 pH		7.3 pH	7.3 pH		
13	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD

#		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				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-917-1	208-96-8									
15		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-469-6	83-32-9									
16		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-695-5	86-73-7									
17		phenanthrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-581-5	85-01-8									
18		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			204-371-1	120-12-7									
19		fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-912-4	206-44-0									
20		pyrene				0.12	mg/kg		0.101	mg/kg	0.0000101 %	✓	
			204-927-3	129-00-0									
21		benzo[a]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-033-00-9	200-280-6	56-55-3									
22		chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-048-00-0	205-923-4	218-01-9									
23		benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-034-00-4	205-911-9	205-99-2									
24		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-036-00-5	205-916-6	207-08-9									
25		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									
26		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-893-2	193-39-5									
27		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									
28		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-883-8	191-24-2									
										Total:	0.0177 %		

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 Deteminand - 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 - 0.80-10/01/2025

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

Sample details

Sample name:
WS103-0.00 - 0.80-10/01/2025
Sample Depth:
0.00 - 0.80 m
Moisture content:
20.4%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 20.4% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		23 mg/kg	1.32	24.173 mg/kg	0.00242 %	✓	
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.3 mg/kg	1.142	0.273 mg/kg	0.0000273 %	✓	
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		15 mg/kg	1.462	17.451 mg/kg	0.00175 %	✓	
4	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		63 mg/kg	1.126	56.461 mg/kg	0.00565 %	✓	
5	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<1 mg/kg	1.353	<1.353 mg/kg	<0.000135 %		<**LOD**
6	nickel { nickel(II) oxide (nickel monoxide) }	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]		15 mg/kg	1.273	15.195 mg/kg	0.00152 %	✓	
7	lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	91 mg/kg		72.436 mg/kg	0.00724 %	✓	
8	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<2 mg/kg	1.405	<2.81 mg/kg	<0.000281 %		<**LOD**
9	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		29 mg/kg	1.785	41.209 mg/kg	0.00412 %	✓	
10	zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		48 mg/kg	1.245	47.558 mg/kg	0.00476 %	✓	
11	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<2 mg/kg	1.923	<3.846 mg/kg	<0.000385 %		<**LOD**
12	pH			PH		7.5 pH		7.5 pH	7.5 pH		
13	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<**LOD**

#		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				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-917-1	208-96-8									
15		acenaphthene				0.25	mg/kg		0.199	mg/kg	0.0000199 %	✓	
			201-469-6	83-32-9									
16		fluorene				0.18	mg/kg		0.143	mg/kg	0.0000143 %	✓	
			201-695-5	86-73-7									
17		phenanthrene				2.08	mg/kg		1.656	mg/kg	0.000166 %	✓	
			201-581-5	85-01-8									
18		anthracene				0.41	mg/kg		0.326	mg/kg	0.0000326 %	✓	
			204-371-1	120-12-7									
19		fluoranthene				1.95	mg/kg		1.552	mg/kg	0.000155 %	✓	
			205-912-4	206-44-0									
20		pyrene				2.03	mg/kg		1.616	mg/kg	0.000162 %	✓	
			204-927-3	129-00-0									
21		benzo[a]anthracene				0.72	mg/kg		0.573	mg/kg	0.0000573 %	✓	
		601-033-00-9	200-280-6	56-55-3									
22		chrysene				0.87	mg/kg		0.693	mg/kg	0.0000693 %	✓	
		601-048-00-0	205-923-4	218-01-9									
23		benzo[b]fluoranthene				0.56	mg/kg		0.446	mg/kg	0.0000446 %	✓	
		601-034-00-4	205-911-9	205-99-2									
24		benzo[k]fluoranthene				0.16	mg/kg		0.127	mg/kg	0.0000127 %	✓	
		601-036-00-5	205-916-6	207-08-9									
25		benzo[a]pyrene; benzo[def]chrysene				0.49	mg/kg		0.39	mg/kg	0.000039 %	✓	
		601-032-00-3	200-028-5	50-32-8									
26		indeno[123-cd]pyrene				0.24	mg/kg		0.191	mg/kg	0.0000191 %	✓	
			205-893-2	193-39-5									
27		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									
28		benzo[ghi]perylene				0.2	mg/kg		0.159	mg/kg	0.0000159 %	✓	
			205-883-8	191-24-2									
										Total:	0.0291 %		

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 Deteminand - 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: WS103-1.50 - 2.00-10/01/2025

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

Sample details

Sample name:
WS103-1.50 - 2.00-10/01/2025
Sample Depth:
1.50 - 2.00 m
Moisture content:
13.9%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 13.9% 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	●	pH				7.4 pH		7.4 pH	7.4 pH		
				PH							
								Total:	0%		

Key

	User supplied data
●	Determinand defined or amended by HazWasteOnline (see Appendix A)

Classification of sample: WS104-0.10 - 1.00-10/01/2025

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

Sample details

Sample name:
WS104-0.10 - 1.00-10/01/2025
Sample Depth:
0.10 - 1.00 m
Moisture content:
12.8%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 12.8% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		5 mg/kg	1.32	5.757 mg/kg	0.000576 %	✓	
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<**LOD**
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		8 mg/kg	1.462	10.196 mg/kg	0.00102 %	✓	
4	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		10 mg/kg	1.126	9.818 mg/kg	0.000982 %	✓	
5	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<1 mg/kg	1.353	<1.353 mg/kg	<0.000135 %		<**LOD**
6	nickel { nickel(II) oxide (nickel monoxide) }	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]		9 mg/kg	1.273	9.987 mg/kg	0.000999 %	✓	
7	lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	10 mg/kg		8.72 mg/kg	0.000872 %	✓	
8	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<2 mg/kg	1.405	<2.81 mg/kg	<0.000281 %		<**LOD**
9	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		10 mg/kg	1.785	15.567 mg/kg	0.00156 %	✓	
10	zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		26 mg/kg	1.245	28.22 mg/kg	0.00282 %	✓	
11	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<2 mg/kg	1.923	<3.846 mg/kg	<0.000385 %		<**LOD**
12	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		<1 mg/kg	3.22	<3.22 mg/kg	<0.000322 %		<**LOD**
13	TPH (C6 to C40) petroleum group			TPH		<42 mg/kg		<42 mg/kg	<0.0042 %		<**LOD**

#		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				8.1	pH		8.1	pH	8.1 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				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			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				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-912-4	206-44-0									
28		pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-927-3	129-00-0									
29		benzo[a]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
30		chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
31		benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		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:	0.0147 %		

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 Deteminand - 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: WS104-1.50 - 2.00-10/01/2025

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

Sample details

Sample name:
WS104-1.50 - 2.00-10/01/2025
Sample Depth:
1.50 - 2.00 m
Moisture content:
15.4%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 15.4% 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	●	pH				7 pH		7 pH	7pH		
				PH							
								Total:	0%		

Key

	User supplied data
●	Determinand defined or amended by HazWasteOnline (see Appendix A)

Classification of sample: WS105-0.00 - 0.50-10/01/2025

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

Sample details

Sample name:
WS105-0.00 - 0.50-10/01/2025
Sample Depth:
0.00 - 0.50 m
Moisture content:
10.6%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

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

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		6 mg/kg	1.32	7.082 mg/kg	0.000708 %	✓	
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		1.9 mg/kg	1.142	1.94 mg/kg	0.000194 %	✓	
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		11 mg/kg	1.462	14.373 mg/kg	0.00144 %	✓	
4	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		27 mg/kg	1.126	27.177 mg/kg	0.00272 %	✓	
5	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<1 mg/kg	1.353	<1.353 mg/kg	<0.000135 %		<**LOD**
6	nickel { nickel(II) oxide (nickel monoxide) }	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]		10 mg/kg	1.273	11.377 mg/kg	0.00114 %	✓	
7	lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	64 mg/kg		57.216 mg/kg	0.00572 %	✓	
8	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<2 mg/kg	1.405	<2.81 mg/kg	<0.000281 %		<**LOD**
9	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		15 mg/kg	1.785	23.939 mg/kg	0.00239 %	✓	
10	zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		82 mg/kg	1.245	91.247 mg/kg	0.00912 %	✓	
11	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<2 mg/kg	1.923	<3.846 mg/kg	<0.000385 %		<**LOD**
12	pH			PH		8.5 pH		8.5 pH	8.5 pH		
13	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<**LOD**

#		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				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-917-1	208-96-8									
15	●	acenaphthene				0.15	mg/kg		0.134	mg/kg	0.0000134 %	✓	
			201-469-6	83-32-9									
16	●	fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-695-5	86-73-7									
17	●	phenanthrene				1.13	mg/kg		1.01	mg/kg	0.000101 %	✓	
			201-581-5	85-01-8									
18	●	anthracene				0.27	mg/kg		0.241	mg/kg	0.0000241 %	✓	
			204-371-1	120-12-7									
19	●	fluoranthene				2.78	mg/kg		2.485	mg/kg	0.000249 %	✓	
			205-912-4	206-44-0									
20	●	pyrene				2.59	mg/kg		2.315	mg/kg	0.000232 %	✓	
			204-927-3	129-00-0									
21		benzo[a]anthracene				1.59	mg/kg		1.421	mg/kg	0.000142 %	✓	
		601-033-00-9	200-280-6	56-55-3									
22		chrysene				1.35	mg/kg		1.207	mg/kg	0.000121 %	✓	
		601-048-00-0	205-923-4	218-01-9									
23		benzo[b]fluoranthene				1.89	mg/kg		1.69	mg/kg	0.000169 %	✓	
		601-034-00-4	205-911-9	205-99-2									
24		benzo[k]fluoranthene				0.75	mg/kg		0.671	mg/kg	0.0000671 %	✓	
		601-036-00-5	205-916-6	207-08-9									
25		benzo[a]pyrene; benzo[def]chrysene				2.15	mg/kg		1.922	mg/kg	0.000192 %	✓	
		601-032-00-3	200-028-5	50-32-8									
26	●	indeno[123-cd]pyrene				1.2	mg/kg		1.073	mg/kg	0.000107 %	✓	
			205-893-2	193-39-5									
27		dibenz[a,h]anthracene				0.29	mg/kg		0.259	mg/kg	0.0000259 %	✓	
		601-041-00-2	200-181-8	53-70-3									
28	●	benzo[ghi]perylene				1.1	mg/kg		0.983	mg/kg	0.0000983 %	✓	
			205-883-8	191-24-2									
										Total:	0.0258 %		

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 Deteminand - 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 sulphoselenide and those specified elsewhere in this Annex}

Harmonised group entry used as most reasonable case. Pigment cadmium sulphoselenide 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: 2025.24.6453.11761 (25 Jan 2025)
HazWasteOnline Database: 2025.24.6453.11761 (25 Jan 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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