9 DOLPHIN STREET
MANCHESTER

OVERARCHING GEO-ENVIRONMENTAL ASSESSMENT REPORT

Job Number: LKC 22 1483
Date: October 2022
Client: Manchester Turkish Community Association

INCREASING LAND VALUE

LK GROUP

LK Consult Document Verification			
Site Address	9 Dolphin Street, Ardwick, Manchester, M12 6BG		
Report Title	Overarching Geo-Environmental Assessment Report		
Job Number	LKC 22 1483	**Document Ref.**	CL-602-LKC 22 1483-01
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Prepared By	Michelle Thorniley Hannah Moss	**Reviewed By**	Colin Crompton

Revision Record			
Revision No.	**Date**	**Nature of Revision**	**Approved By**

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EXECUTIVE SUMMARY

Site Details

Site Location:	To the north of Dolphin Street in the Ardwick area of Manchester. Centred at approximate National Grid Reference 385417E 397135N.
Site Area:	800m^2.
Current Land Use:	Rough ground in the east and tarmacadam / concrete car park in the west.
Development:	Community centre and associated car park.
Purpose of Report:	Contamination Assessment.

Preliminary Risk Assessment

PRA Details:	Undertaken by Geo-Historic Ground Investigations Ltd in April 2017. Ref: 1718-0019-DS.
History:	Onsite: 3no. residential dwellings (nos. 3, 5 and 7) constructed by 1889 and the site had been cleared by the 1981. The site may have been used for vehicle parking following demolition of the buildings.
Geology / Hydrogeology:	Glacial Till (Secondary Undifferentiated Aquifer) over Chester Pebble Beds Formation (Principal Aquifer).
Preliminary Conceptual Model: PL=Pollutant Linkage	PL1 Direct Contact (Human Health): No pollutant linkage. PL2 Inhalation of Vapours: Moderate / Low Risk (volatile contaminants). PL3 Gas: Low Risk (hazardous gas). PL4 Controlled waters: Low Risk (mobile contaminants).

Investigation Work Undertaken

Date of Investigation:	23rd to 25th January 2016.
Intrusive Investigation Work Undertaken:	3no. window sample boreholes (1-3).
Soil Sampling:	3no. Waste Acceptance Criteria Tests.
Internal Monitoring:	Internal monitoring within the building and external drains for carbon dioxide, methane and vapours. No elevated concentrations identified.

Ground Conditions

Depth to Top of Strata (mbgl)	Depth to Base of Strata (mbgl)	Thickness of Strata (m)	Description
0.0 to 0.4	0.4 to 2.0	0.4 to 0.5	**MADE GROUND 1:** sand with black ash, gravel, brick fragments and litter.
0.4 to 1.2	0.9 to 2.1	0.5 to 0.9	**MADE GROUND 2:** sand, sandy clay gravel, brick, slate, concrete and glass fragments.
0.9 to 1.2	1.9 to 2.1	1.0 to 0.9	**MADE GROUND 3:** black ash and clinker with coal and brick fragments.
1.7 to 2.1	1.9 to 2.5	0.2 to 0.6	**MADE GROUND 4:** soft sandy clay / very clayey sand.
0.0 to 0.3	1.2 to 1.7	1.2 to 1.4	**MADE GROUND 5:** brick rubble with sand, gravel and slate and glass fragments. -Present in 2.
1.9 to 2.5	2.5 to 2.8	0.3 to 0.6	**CLAY:** sandy clay. Only identified in 1 and 2.
2.5 to 2.8	>3.7 to >4.0	>1.2 to >1.4	**SAND:** medium to fine grained sand with gravelly lenses. -Possible refusal on sandstone bedrock at base in all boreholes.

Contamination Risk Assessment

The table below shows a summary of the risk assessments undertaken for each pollutant linkage.

Pollutant Linkage		Risk	Recommendations
1	No viable pathways (dermal, inhalation, ingestion).	-	- No pollutant linkage identified as no soft landscaping on site.
2	Volatile contaminants posing a risk to site users via the inhalation of vapours.	**Low**	- No indication of volatile contamination. - **Recommendations:** No remediation required.
3	Gas posing a risk to buildings and site users via the migration of gas into building causing explosion and asphyxiation.	Moderate / **Low**	- Given the ground conditions and incorporation of a gas membrane in the building construction, the risk from gas is considered low. - **Recommendations:** No further assessment required.
4	Mobile contamination posing a risk to controlled waters via the migration through permeable strata.	**Low**	- No evidence of significant mobile contamination in the soils on site. - **Recommendations:** No remediation required.

Based on the information contained in this report LKC considers the development site is 'suitable for use' for a community centre.

LKC considers there is sufficient information in this report to discharge condition 8 of planning approval 115958/FO/2017.

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1 Introduction

1.1 Background

LK Consult Ltd (LKC) has been commissioned by Manchester Turkish Community Association to carry out an overarching Geo-Environmental Assessment for 9 Dolphin Street, Manchester. The investigation was undertaken in support of discharging Condition 8 of planning approval (reference number 115958/FO/2017) to develop the site for a community centre.

The following work has previously been undertaken:

- Desk Study and Phase I Risk Assessment undertaken by Geo-Historic Ground Investigations Ltd (Ref: 1718-0019-DS, dated April 2017).
- 3no. boreholes were undertaken by Mini Bore Site Investigation.
- 3no. samples tested for Waste Acceptance Criteria.

This report provides an assessment of the existing information to suitably risk assess the site. Remediation measures undertaken during development works are also documented within this report.

1.2 Site Details

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

Site Location	To the north of Dolphin Street in the Ardwick area of Manchester. Centred at approximate National Grid Reference 385417E 397135N.
Approximate Area	800m^2.
Topography	45 metres Above Ordnance Datum (AOD). Site is approximately level.
Current Site Use	Community centre building with car parking.
Purpose of Report	Planning.
Planning Ref.	115958/FO/2017

Table 1-1. Summary of site details.

2 Review of Previous Work

2.1 Preliminary Risk Assessment (PRA)

A PRA report has previously been undertaken by Geo-Historic Ground Investigations Ltd (Ref: 1718-0019-DS, dated April 2017).

Table 2-1 summarises the site details, historical review, environmental settings and site reconnaissance.

Main Historical Features	Onsite: 3no. residential dwellings (nos. 3,5 and 7) constructed by 1889 and the site had been cleared by the 1981. The site may have been used for vehicle parking following demolition of the buildings. Surrounding Area (within 100m): Smithy, waterproof garment works, laundry, clothing works, engineering works (automobile), paint and varnish works and an engraving works.
Geology / Hydrogeology	Artificial: No BGS recorded artificial. Superficial: Till. Secondary Undifferentiated Aquifer. Bedrock: Chester Pebble Beds Formation (sandstone). Principal Aquifer.
Landfills / Infilled ground	No recorded landfills. Potentially infilled ground identified. These are not considered to pose a significant risk given their size, age and distance from site.
Hydrology	No surface water features within 250m.
Site walkover	Vacant rectangular parcel of land. The site was surfaced with crushed recycled stone with some vegetation along the site perimeters particularly the north-western corner of the site.

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

The preliminary contamination conceptual model (PCCM) has been produced by LKC based on available information and is provided in Table 2-2.

Each pollutant linkage is described along with an assessment of the risk based upon guidance on probabilities and consequences outlined in CIRIA C552[1]. The risk matrix is provided in Appendix A.

The PCCM does not consider sulphate and potable water pipes pollutant linkages. Justification is provided below:

LKC assume the risk to buildings associated with elevated sulphate has been considered by the structural engineer and will not be included in the contamination risk assessment.

The installation of new potable water supplies will be carried out to the satisfaction of United Utilities who will provide ultimate approval by creating a water meter point. Without their approval, no supply and billing point will be sanctioned.

It should be noted that there may be risk from short term exposure from contaminated soil to site workers during development work. The Preliminary Contamination Conceptual Model deals with long term exposure to key receptors associated with the future use of the site. Acute risks can be easily mitigated by good environmental management of the site during site works. Standard health and safety precautions (as per HSE guidance[2]) should be adopted by all workers involved with site enabling and

[1] CIRIA (2001). "Contaminated Land Risk Assessment: A Guide to Good Practice". C552.
[2] HSE (1991). "Protection of Workers and the General Public During Development of Contaminated Land" London HMSO.

construction works. Therefore, this receptor is not considered in the contamination conceptual model.

PL	Pathway	Receptor	Contaminants of Concern (CoC)	Probability	Consequence	Risk	Recommendations
1	- No viable pathways (dermal, inhalation, ingestion).	- Future site users. - Offsite receptors.	- ACMs, heavy metals, PAHs, hydrocarbons, phenols.	-	-	-	No viable human health pathways as no soft landscaping. No pollutant linkage therefore no further assessment required.
2	- Inhalation of vapours. - Migration via permeable strata and preferential pathways.	- Future site users. - Offsite receptors.	- Volatile contaminants (TPHCWG, naphthalene).	Low Likelihood (given site history)	Medium	**Moderate** / Low (moderate assumed until ground conditions confirmed)	Intrusive investigation required.
3	- Inhalation of gas. - Migration via permeable strata and preferential pathways. - Explosion in confined spaces.	- Future site users. - Buildings. - Offsite land users.	- Hazardous gas (carbon dioxide, methane).	Unlikely (given no significant gas source and limited pathway)	Severe	Moderate / **Low** (low assumed as no significant source or pathway)	No further assessment required.
4	- Surface run-off. - Migration via permeable strata and preferential pathways. - Perched waters migration.	- Groundwater (Principal Aquifer).	- Mobile contaminants such as metals, PAHs, hydrocarbons.	Unlikely (no significant mobile contamination and limited pathway)	Medium	**Low**	Watching brief during groundworks.

Table 2-2: Preliminary Contamination Conceptual Model.

2.2 Ground Investigation

2.3 Scope of Works

The investigation was carried out on 12th September 2017 and comprised the following:

- 3no. window sample boreholes drilled to 3.7-4.0 metres below ground level (mbgl) (ref. 1 to 3).

All site investigation locations are shown in Figure 2.

The number of site investigation points corresponds to approximately one location per 16m square centres. This is considered to be a conservative sampling density and is in line with BS10175[3] for a 'detailed investigation'.

2.4 Soil Sampling

3no. soil samples were collected from the borehole locations on site and subjected to Waste Acceptance Criteria testing.

The Certificate of Analysis presented in Appendix C.

2.5 Geology – Generalised Sequence

The ground conditions beneath the site comprised made ground underlain by natural sandy gravelly clay. A summary is provided in Table 3-1.

Depth to Top of Strata (mbgl)	Depth to Base of Strata (mbgl)	Thickness of Strata (m)	Description
0.0 to 0.4	0.4 to 2.0	0.4 to 0.5	**MADE GROUND 1:** sand with black ash, gravel, brick fragments and litter.
0.4 to 1.2	0.9 to 2.1	0.5 to 0.9	**MADE GROUND 2:** sand, sandy clay gravel, brick, slate, concrete and glass fragments.
0.9 to 1.2	1.9 to 2.1	1.0 to 0.9	**MADE GROUND 3:** black ash and clinker with coal and brick fragments.
1.7 to 2.1	1.9 to 2.5	0.2 to 0.6	**MADE GROUND 4:** soft sandy clay / very clayey sand.
0.0 to 0.3	1.2 to 1.7	1.2 to 1.4	**MADE GROUND 5:** brick rubble with sand, gravel and slate and glass fragments. -Present in 2.
1.9 to 2.5	2.5 to 2.8	0.3 to 0.6	**CLAY:** sandy clay. Only identified in 1 and 2.
2.5 to 2.8	>3.7 to >4.0	>1.2 to >1.4	**SAND:** medium to fine grained sand with gravelly lenses. -Possible refusal on sandstone bedrock at base in all boreholes.

Table 2-3: Summary of ground conditions.

2.6 Groundwater

No groundwater strikes were recorded on the borehole logs.

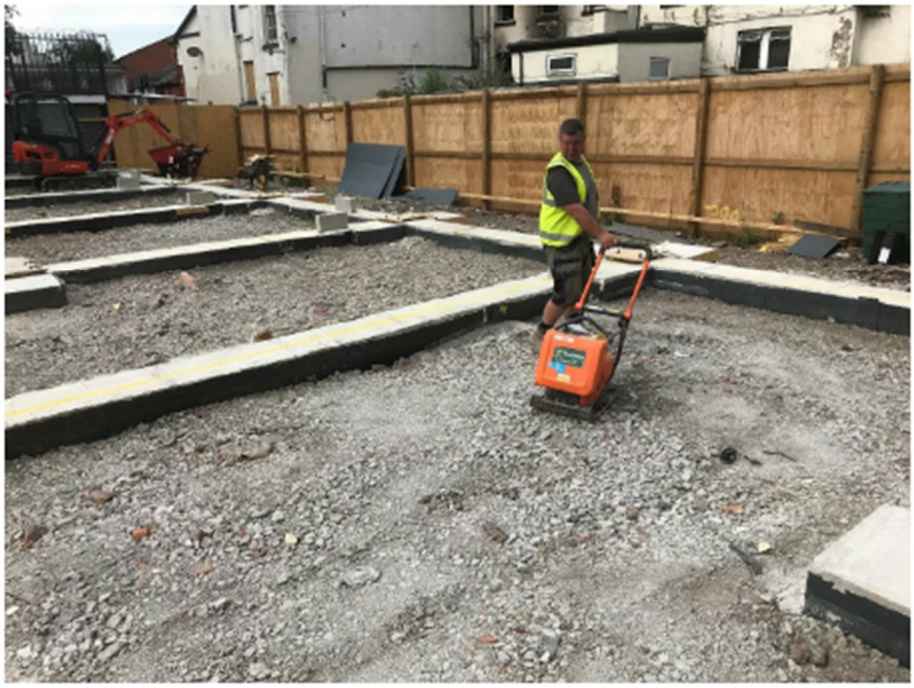
[3] British Standard (2017). "Investigation of Potentially Contaminated Sites – Code of Practice." BS10175:2017.

3 Additional Site Work

3.1 Site Enabling Works

LKC understands that during the enabling works the upper 600mm of ground was excavated and removed from site and replaced with imported MOT Type 1 gravel. Photographs provided by the client are presented in Plate 4-1 below:

CLEAN MOT BEING INSTALLED



3.2 Gas Membrane Installation

As part of the construction works, a Visqueen gas membrane was installed as per manufacturer's guidance beneath the cast in-situ floor slab. Photographs provided by the client are presented on Plate 4-2 below.

Plate 4-2: Membrane installation photographs.

3.3 Gas and Vapour Monitoring

LKC visited site on the 25th October 2022 to undertake internal monitoring within enclosed spaces in the building and grids in the car park area.

The monitoring was undertaken using a PhoCheck Tiger photo ionisation detector (PID) to detect vapours (LOD 1.0ppm) and a GA5000 to detect hazardous gases (LOD 0.1%v/v).

The results of the monitoring are provided in Table 2-4 below:

Ambient Readings Internal	CO_2 (%v/v)	CH_4 (%v/v)	O_2 (%v/v)
	0.3	<0.1	21.2
Weather:	Sunny, Dry, Breezy		
Ground Conditions:	Dry		
Barometric. Pressure (mb)	1004		

Location	CO2 (%v/v)	CH4 (%v/v)	O2 (%v/v)	PID (ppm)	Time
Hall	0.2	<0.1	21.1	<1.0	10:19
Hall 2	0.1	<0.1	21.1	<1.0	10:22
Dining Hall	0.1	<0.1	21.0	<1.0	10:30
Study Room 2	0.2	<0.1	20.8	<1.0	10:34
Study Room 1	0.2	<0.1	20.9	<1.0	10:38
Hallway – understairs	0.2	<0.1	20.7	<1.0	10:42
Car Park Grid 1	0.1	<0.1	20.8	<1.0	10:47
Car Park Grid 2	0.1	<0.1	20.9	<1.0	10:51

Table 2-4: Site monitoring results.

The monitoring did not identify potentially significant concentrations of hazardous gas or vapour within or outside the building onsite.

3.4 LKC Site Visit Observations

The site has been developed as a two storey brick building. The building is approximately 1.0m higher than Dolphin Street. External areas are surfaced with tarmac. A storage container is present to the rear of the building on the northern part of the site. The eastern part of the site is used as a car park. The site is secured with metal and wooden fencing and bounded to east and west by multi-storey buildings.

Plate 4-3: Photograph of completed development.

4 Generic Risk Assessment

4.1 Soil and Vapour Risk Assessment

The borehole logs identified made ground to a maximum of 2.5m containing brick rubble, ash, clinker, concrete, coal and glass fragments. Contamination associated with this type of material may include asbestos, heavy metals and PAHs[4]. The principal pathways are the ingestion, dermal contact and inhalation pathways.

No visual or olfactory evidence of petroleum hydrocarbon or other volatile contaminants were noted within made ground during logging of the ground conditions.

Although only WAC testing has been undertaken, the results do not indicate elevated contaminants are present within the soils.

The site is fully hardstood, therefore, the direct contact pollutant linkage has been discounted.

Internal monitoring of the building has not identified any elevated PID readings. Therefore a significant risk from vapours is not anticipated.

4.2 Gas Risk Assessment

No significant quantities of organic / putrescible material were recorded in the borehole logs. Made ground comprised brick rubble, ash, clinker, sands and clays underlain by reworked natural ground to a maximum depth of 2.5mbgl.

A Visqueen gas membrane was installed as per manufacturer's guidance beneath the cast in-situ floor slab as a precaution.

Subsequent internal monitoring undertaken by LKC did not identify any elevated concentrations of gas within the building or drains in the car park.

Given the ground conditions encountered and the presence of a gas membrane, LKC considers the probability of gas posing a risk to site users as unlikely. The consequence is severe, which gives a moderate / low risk. LKC considers there to be a low risk and no further action is required with respect to pollutant linkage 3.

4.3 Controlled Water Assessment

LKC considers the Principal Aquifer as the primary receptor.

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

- River Basin District Standards[5] and updated Water Framework Directive[6] for Annual Average / Maximum Allowable Concentration Environmental Quality Standards (AA-MAC-EQS) for priority substances (surface water risk).
- 2016 private water supply standards (UKDWS potable)[7].

[4] Defra (2002). "Potential Contaminants for the Assessment of Land". R&D Publication CLR 8.
[5] Defra (2010). "The River Basin Districts Typology, Standards and Groundwater Threshold Values". Water Framework Directive (England and Wales) Directions 2010.
[6] Defra (2015). " Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015".
[7] Statutory Instruments (2016). "The Private Water Supplies Regulation 2016." No. 614

- 2001 Environment Agency Values for Environmental Quality Standards (EQS) and UK Drinking Water Standard (UKDWS)[8].

With regards to hydrocarbon mixtures (TPHCWG) for UKDWS, LKC will use the CL:AIRE guidance on petroleum hydrocarbons in groundwater[9] based on WHO guidelines.

It should be noted that the leaching test is aggressive (de-ionised water) and is not in aqueous equilibrium (steady state) with the solid sample. This may cause rapid dissolution and overestimation of the aqueous phase concentrations compared to groundwater in contact with contaminated soils. Although dissolution may be reduced for highly hydrophobic contaminants[10], such as B(a)P it is likely that the initial leaching will remove the most readily available hydrocarbons and subsequent flushing would reduce the leachable concentrations[11]. Traditionally the leaching test was developed for inorganic constituents and the leaching of organics is poorly understood[12].

No elevated contaminants above detection limits were identified in any water sample.

In addition, no evidence of significant mobile contamination was identified on the site. Although ash and clinker was noted within the made ground contaminants from this source are not anticipated to be mobile due to the residual crystalline nature of the matrix.

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

4.4 Revised Contamination Conceptual Model

The preliminary contamination conceptual model (Table 2-2) has been revised following the risk assessments undertaken in Sections 4.1-4.3. 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 4-1.

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

[8] EA (2002). "Environment Agency technical advice to third parties on Pollution of Controlled Waters for Part IIA of the Environment Protection Act 1990."
[9] CL:AIRE (2017). "Petroleum Hydrocarbons in Groundwater: Guidance on Assessing Petroleum Hydrocarbons Using Existing Hydrological Risk Assessment Methodologies."
[10] EA (1999)."Methodology for the Derivation of Remedial Targets for the Soil and Groundwater to Protect Water Resources." R&D Technical Report, P20
[11] EA (2006)."Remedial targets Methodology: Hydrological Risk Assessment for Land Contamination."
[12] EA (2009). "Petroleum Hydrocarbons in Groundwater: Supplementary Guidance for Hydrological Risk Assessment."

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

Pollutant Linkage	Pathway	Receptor	Contaminant	Probability	Consequence	Risk	Assessment
PL1	– No viable pathways (dermal, inhalation, ingestion).	– Future site users. – Offsite receptors.	– ACMs, heavy metals, PAHs, hydrocarbons, phenols.	-	-	-	– No viable pathways (dermal inhalation, ingestion).
PL2	– Inhalation of vapours. – Migration through permeable strata and preferential pathways.	– Future site users. – Offsite receptors.	Volatile Contaminants - None identified.	Unlikely	Medium	**Low**	– No volatile contaminants identified. – **Recommendation:** No remediation required.
PL3	– Inhalation of gas. – Migration through permeable strata and preferential pathways. – Explosion in confined spaces (methane only).	– Future site users. – Buildings. – Offsite receptors.	- Carbon dioxide and methane.	Unlikely	Severe	Moderate / **Low**	– Given the ground conditions and incorporation of a gas membrane in the building construction the risk from gas is considered low. – **Recommendation**: No further assessment required.
PL4	– Surface Run-off. – Migration through permeable strata and preferential pathways – Perched waters migration.	– Groundwater (Principal Aquifer).	Mobile contaminants.	Unlikely	Medium	**Low**	– No evidence of significant mobile contamination identified. – **Recommendation**: No remediation required.

Table 4-1: Revised Contamination Conceptual Model.

5 Conclusions

A revised contamination conceptual model has been produced by LKC which is summarised in Table 5-1 below (more detailed model provided in Section 4).

Pollutant Linkage		Risk	Recommendations
1	No viable pathways (dermal, inhalation, ingestion).	-	- No pollutant linkage identified as no soft landscaping on site.
2	Volatile contaminants posing a risk to site users via the inhalation of vapours.	**Low**	- No indication of volatile contamination. - **Recommendations:** No remediation required.
3	Gas posing a risk to buildings and site users via the migration of gas into building causing explosion and asphyxiation.	Moderate / **Low**	- Given the ground conditions and incorporation of a gas membrane in the building construction, the risk from gas is considered low. - **Recommendations:** No further assessment required.
4	Mobile contamination posing a risk to controlled waters via the migration through permeable strata.	**Low**	- No evidence of significant mobile contamination in the soils on site. - **Recommendations:** No remediation required.

Table 5-1: Summary Risk Table.

Based on the information contained in this report LKC considers the development site is ‘suitable for use’ for a community centre.

LKC considers there is sufficient information in this report to discharge condition 8 of planning approval 115958/FO/2017.

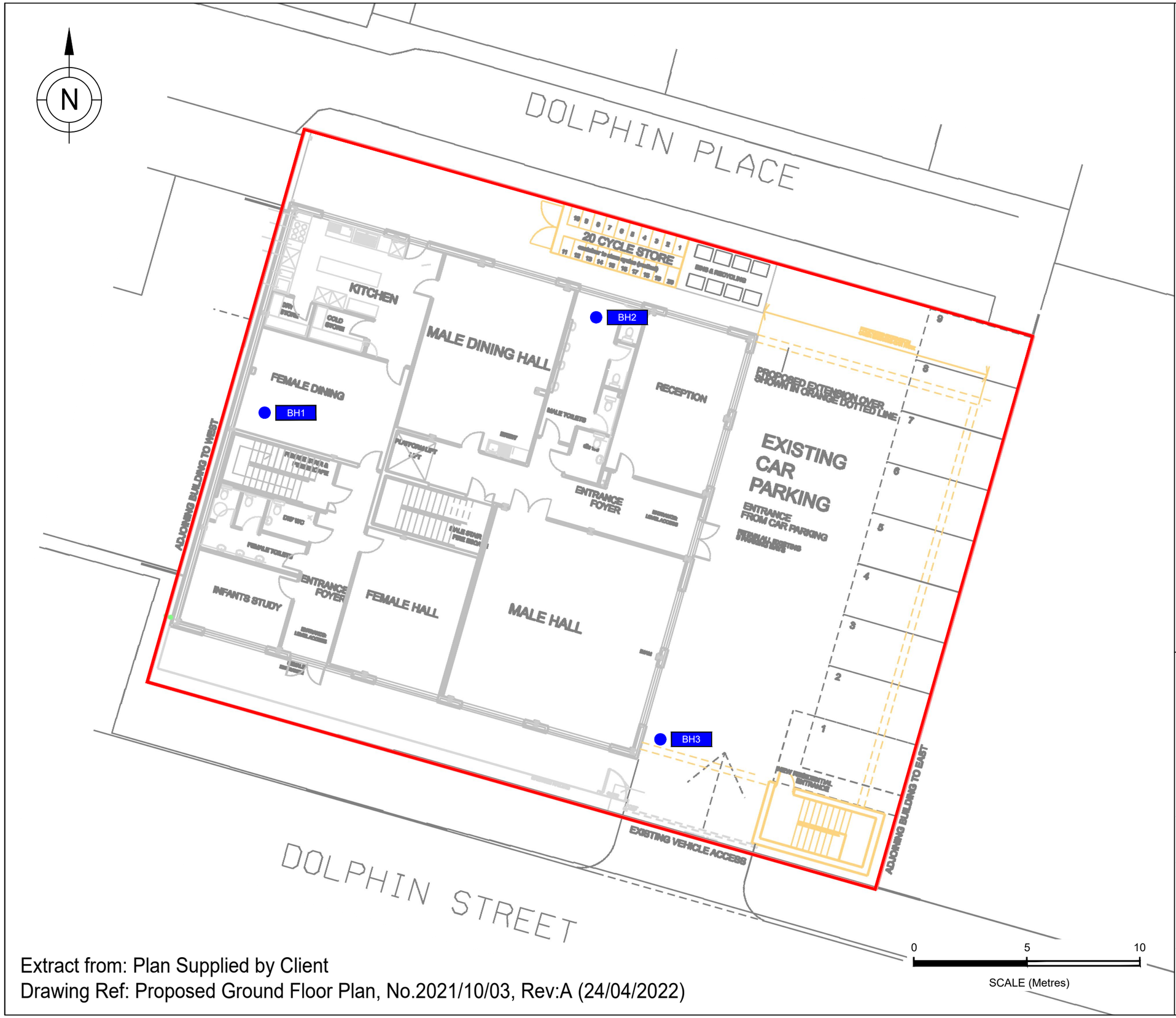
Figures

(C) OpenStreetMap Contributors

(C) Google 2021.

Client: Manchester Turkish Community Association	Title: Site Location & Boundary Plan		
Site: 9 Dolphin Street, Manchester	Scale (see scale bar): 1:25,000 & 1:1,000 @ A4	Figure: 1	Revision:
Job No.: LKC 22 1483 / Drawn By: HF / Checked By: MT / Drawn: Oct 2022			

LK CONSULT



Extract from: Plan Supplied by Client
Drawing Ref: Proposed Ground Floor Plan, No.2021/10/03, Rev:A (24/04/2022)

KEY

- Site Boundary
- Borehole (BH)

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:	Manchester Turkish Community Association
Site:	Turkish Centre, Dolphin Street, Manchester
Title:	Sampling Location Plan on Development Layout

Job No.:	Scale (See Scale Bar):	Figure:	Revision:
LKC 22 1483	See Scale Bar	2	

Drawn By:	Checked By:	Drawn:
AC	MT	Oct 2022

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[13]. 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.

[13] CIRIA C552 (2001) Contaminated Land Risk Assessment - A Guide to Good Practice.

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

Drilling Apparatus: Auto-Trip Standard Penetration Test Drop Hammer

Borehole Diameter: Started at 100mm, reduced to 70mm by 4.0m deep.

Scheme: Proposed Turkish Centre, Dolphin Street, Manchester.

Date: 12/09/17

MINI BORE

Site Investigation

14 Pendle Drive, Whalley, Lancashire, BB7 9JT

Telephone/Fax: 01254 824959

Mobile: 07976 655490

Email: minibore@btinternet.com

Drillers Borehole Log No. 1

Depth (m)	Description	Shear Strength (kNm^{-2})	Symbol
0.0	MADE GROUND- a thin covering of limestone gravel over sand with black ash, gravel, brick fragments & with pieces of polythene, a toffee wrapper & a piece of leather		
0.5	MADE GROUND- sand, sandy clay, gravel, brick fragments, grey slate fragments, rare glass fragments & rare small pieces of concrete		
1.0	**Standard Penetration Tests** **From 1.0m to 1.45m 1 / 0 - 1, 0, 1, 0 N = 2 (cone)** MADE GROUND- black ash & clinker with frequent coal fragments & rare fragments of brick		
1.5			
2.0	**From 2.0m to 2.45m 3 / 1 - 0, 1, 1, 1 N = 3** MADE GROUND- soft brown & grey sandy clay		
2.5	Firm, orangey/brown & grey mottled, sandy CLAY		
	Medium dense, medium grained, brown SAND		
3.0	**From 3.1m to 3.55m 5 / 6 - 7, 9, 10, 13 N = 39** Medium dense, medium grained, brown, gravelly SAND		
3.5	Dense, fine grained, orangey/brown SAND (possibly becoming a weathered sandstone bedrock at depth) **From 3.7m to 4.0m 8 / 12 - 20, 24 N = 44+**		
4.0	Refusal - possible bedrock **Borehole dry during drilling** **Note: To prove the presence of bedrock beyond any doubt it would be necessary to use a rotary type drilling rig and drill into it for a least a further 3.0 metres.**		
4.5			
5.0	**Ground water levels are subject to seasonal variations & should not be taken as constant**		

Drilling Apparatus: Auto-Trip Standard Penetration Test Drop Hammer

Borehole Diameter: Started at 100mm, reduced to 70mm by 3.9m deep.

Scheme: Proposed Turkish Centre, Dolphin Street, Manchester.

Date: 12/09/17

MINI BORE

Site Investigation

14 Pendle Drive, Whalley, Lancashire, BB7 9JT

Telephone/Fax: 01254 824959

Mobile: 07976 655490

Email: minibore@btinternet.com

Drillers Borehole Log No. 2

Depth (m)	Description	Shear Strength (kNm^{-2})	Symbol
0.0	MADE GROUND- a thin covering of limestone gravel over brick rubble with sand, gravel & with rare fragments of grey slate & glass		
0.5	(with rare pieces of polythene visible up to 0.5m deep)		
1.0	**Standard Penetration Tests** **From 1.05m to 1.5m 2 / 2 - 1, 1, 2, 1 N = 5 (cone)**		
1.5	MADE GROUND- black ash with brick fragments **From 1.8m to 2.25m 2 / 1 - 1, 1, 1, 0 N = 3**		
2.0	Possible MADE GROUND- soft brown very sandy CLAY		
2.5	Possible MADE GROUND- loose, brown, very clayey SAND		
3.0	**From 2.6m to 3.05m 1 / 2 - 2, 3, 2, 2 N = 9** Loose to medium dense, medium grained, brown, gravelly SAND (becoming medium dense with depth) **From 3.3m to 3.75m 3 / 4 - 3, 4, 5, 6 N = 18**		
3.5	Dense, fine grained, orangey/brown SAND (possibly becoming a weathered sandstone bedrock at depth)		
4.0	Refusal - possible bedrock **Borehole dry during drilling**		
4.5			
5.0	**Ground water levels are subject to seasonal variations & should not be taken as constant**		

Drilling Apparatus: Auto-Trip Standard Penetration Test Drop Hammer

Borehole Diameter: Started at 100mm, reduced to 70mm by 3.7m deep.

Scheme: Proposed Turkish Centre, Dolphin Street, Manchester.

Date: 12/09/17

MINI BORE

Site Investigation

14 Pendle Drive, Whalley, Lancashire, BB7 9JT

Telephone/Fax: 01254 824959

Mobile: 07976 655490

Email: minibore@btinternet.com

Drillers Borehole Log No. 3

Depth (m)	Description	Shear Strength (kNm^{-2})	Symbol
0.0			
	Probable MADE GROUND- topsoil with gravel inclusions		
	MADE GROUND- brick rubble with rare fragments of glass		
0.5			
	Standard Penetration Tests		
1.0	**From 1.0m to 1.45m 1 / 2 - 0, 2, 1, 1 N = 4 (cone)**		
1.5			
	MADE GROUND- soft to firm, dark brown & grey, sandy, slightly gravelly clay		
2.0	**From 2.0m to 2.45m 1 / 2 - 2, 2, 2, 3 N = 9**		
	Firm, light brown, sandy CLAY	**52**	
	(becoming very sandy with depth)		
2.5			
	Medium dense, medium grained, brown, gravelly SAND		
	From 2.9m to 3.35m 4 / 4 - 4, 5, 7, 7 N = 23		
3.0			
	Dense, fine grained, orangey/brown SAND		
3.5			
	(possibly becoming a weathered sandstone bedrock at depth)		
	Refusal - Possible bedrock		
	Borehole dry during drilling		
4.0			
4.5			
5.0			

Ground water levels are subject to seasonal variations & should not be taken as constant

Appendix C

Certificates of Analysis

Steve Hutchings
Murray Rix (Northern Ltd).
Unit 33c Vauxhall Ind. Est.
Greg Street
Reddish
Stockport
SK5 7BR

e: MurrayRix

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

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

Analytical Report Number : 18-87353

Project / Site name:	Dolphin Street, Manchester	**Samples received on:**	31/05/2018
Your job number:		**Samples instructed on:**	31/05/2018
Your order number:	18-110	**Analysis completed by:**	11/06/2018
Report Issue Number:	1	**Report issued on:**	11/06/2018
Samples Analysed:	3 10:1 WAC samples		

Signed:

Dr Claire Stone
Quality Manager
For & on behalf of i2 Analytical Ltd.

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

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

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

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

Excel copies of reports are only valid when accompanied by this PDF certificate.

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The results included within the report are representative of the samples submitted for analysis.

i2 Analytical
7 Woodshots Meadow
Croxley Green Business Park
Watford, WD18 8YS

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results

Report No:	**18-87353**						
					Client:	**MURRAYRIX**	
Location	**Dolphin Street, Manchester**						
Lab Reference (Sample Number)	972088 / 972089				**Landfill Waste Acceptance Criteria**		
					Limits		
Sampling Date	30/05/2018				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	77027 A						
Depth (m)							
Solid Waste Analysis							
TOC (%)**	3.0				3%	5%	6%
Loss on Ignition (%) **	8.5				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg)	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	39				100	--	--
pH (units)**	7.5				--	>6	--
Acid Neutralisation Capacity (mol / kg)	1.1				--	To be evaluated	To be evaluated
Eluate Analysis	10:1			10:1	Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l			mg/kg			
Arsenic *	0.0082			0.0564	0.5	2	25
Barium *	0.105			0.714	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0039			0.026	0.5	10	70
Copper *	0.017			0.12	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	0.0032			0.0216	0.5	10	30
Nickel *	0.0018			0.013	0.4	10	40
Lead *	0.049			0.34	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.14			0.92	4	50	200
Chloride *	0.99			6.8	800	4000	25000
Fluoride	1.8			13	10	150	500
Sulphate *	3.8			26	1000	20000	50000
TDS*	78			530	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	5.26			35.9	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.71						
Dry Matter (%)	92						
Moisture (%)	8.2						

Results are expressed on a dry weight basis, after correction for moisture content where applicable.
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation

*= UKAS accredited (liquid eluate analysis only)
** = MCERTS accredited

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.

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i2 Analytical
7 Woodshots Meadow
Croxley Green Business Park
Watford, WD18 8YS

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results

Report No:	**18-87353**						
					Client: MURRAYRIX		
Location	**Dolphin Street, Manchester**						
Lab Reference (Sample Number)	972090 / 972091				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	30/05/2018				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	77028 B						
Depth (m)							
Solid Waste Analysis							
TOC (%)**	1.5				3%	5%	6%
Loss on Ignition (%) **	4.1				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg)	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	15				100	--	--
pH (units)**	8.2				--	>6	--
Acid Neutralisation Capacity (mol / kg)	13				--	To be evaluated	To be evaluated
Eluate Analysis	10:1			10:1	Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l			mg/kg			
Arsenic *	0.0038			0.0337	0.5	2	25
Barium *	0.0214			0.189	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0007			0.0065	0.5	10	70
Copper *	0.016			0.14	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	0.0026			0.0228	0.5	10	30
Nickel *	< 0.0003			< 0.0030	0.4	10	40
Lead *	0.0068			0.060	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0033			0.029	4	50	200
Chloride *	1.5			13	800	4000	25000
Fluoride	0.34			3.0	10	150	500
Sulphate *	7.1			63	1000	20000	50000
TDS*	52			460	4000	60000	100000
Phenol Index (Monhydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	5.10			45.0	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.89						
Dry Matter (%)	96						
Moisture (%)	4.4						

Results are expressed on a dry weight basis, after correction for moisture content where applicable.
*= UKAS accredited (liquid eluate analysis only)
Stated limits are for guidance only and i2 cannot be held responsible for any discrepencies with current legislation
** = MCERTS accrediited

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This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.

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i2 Analytical
7 Woodshots Meadow
Croxley Green Business Park
Watford, WD18 8YS

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results

Report No:	**18-87353**						
					Client:	**MURRAYRIX**	
Location	**Dolphin Street, Manchester**						
Lab Reference (Sample Number)	972092 / 972093				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	30/05/2018				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	77029 C						
Depth (m)							
Solid Waste Analysis							
TOC (%)**	2.2				3%	5%	6%
Loss on Ignition (%) **	5.4				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg)	80				500	--	--
Total PAH (WAC-17) (mg/kg)	9.2				100	--	--
pH (units)**	8.1				--	>6	--
Acid Neutralisation Capacity (mol / kg)	6.4				--	To be evaluated	To be evaluated
Eluate Analysis	10:1			10:1	Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l			mg/kg			
Arsenic *	0.0047			0.0402	0.5	2	25
Barium *	0.0311			0.264	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0007			0.0061	0.5	10	70
Copper *	0.015			0.12	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	0.0030			0.0251	0.5	10	30
Nickel *	< 0.0003			< 0.0030	0.4	10	40
Lead *	0.0039			0.033	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0058			0.050	4	50	200
Chloride *	0.77			6.5	800	4000	25000
Fluoride	0.34			2.9	10	150	500
Sulphate *	4.4			37	1000	20000	50000
TDS*	48			400	4000	60000	100000
Phenol Index (Monhydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	5.21			44.2	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.76						
Dry Matter (%)	94						
Moisture (%)	6.4						

Results are expressed on a dry weight basis, after correction for moisture content where applicable.
Stated limits are for guidance only and i2 cannot be held responsible for any discrepencies with current legislation

*= UKAS accredited (liquid eluate analysis only)
** = MCERTS accrediited

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This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.

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Analytical Report Number : 18-87353

Project / Site name: Dolphin Street, Manchester

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
972088	77027	A	None Supplied	Grey loam and sand with rubble and vegetation.
972090	77028	B	None Supplied	Grey loam and sand with rubble.
972092	77029	C	None Supplied	Grey loam and sand with rubble.

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Analytical Report Number : 18-87353

Project / Site name: Dolphin Street, Manchester

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe.	In-house method based on Guidance an Sampling and Testing of Wastes to Meet Landfill Waste Acceptance""	L046-UK	W	NONE
BS EN 12457-2 (10:1) Leachate Prep	10:1 (as recieved, moisture adjusted) end over end extraction with water for 24 hours. Eluate filtered prior to analysis.	In-house method based on BSEN12457-2.	L043-PL	W	NONE
BTEX in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Chloride 10:1 WAC	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260.	L082-PL	W	ISO 17025
Dissolved organic carbon 10:1 WAC	Determination of dissolved inorganic carbon in leachate by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	NONE
Fluoride 10:1 WAC	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode.	In-house method based on Use of Total Ionic Strength Adjustment Buffer for Electrode Determination"	L033B-PL	W	ISO 17025
Loss on ignition of soil @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L047-PL	D	MCERTS
Metals in leachate by ICP-OES	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil""	L039-PL	W	ISO 17025
Mineral Oil (Soil) C10 - C40	Determination of mineral oil fraction extractable hydrocarbons in soil by GC-MS/GC-FID.	in-house method	L076-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols 10:1 WAC	Determination of phenols in leachate by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	ISO 17025
PCB's By GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	MCERTS
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate 10:1 WAC	Determination of sulphate in leachate by ICP-OES	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil""	L039-PL	W	ISO 17025
Total dissolved solids 10:1 WAC	Determination of total dissolved solids in water by electrometric measurement.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L004-PL	W	ISO 17025
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L009-PL	D	MCERTS

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Analytical Report Number : 18-87353

Project / Site name: Dolphin Street, Manchester

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

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Based across the UK with offices in Manchester, London, Liverpool and Glasgow.

Manchester (Head Office)
Unit 29,
Eton Business Park
Eton Hill Rd, Radcliffe
M26 2ZS

t: 0161 763 7200
e: info@thelkgroup.com

London
Brooklands Business Park
Wellington Way
Weybridge
KT13 0TT

t: 01932 871872
e: info@thelkgroup.com

Glasgow
Wright Business Centre
1 Lonmay Road
Glasgow
G33 4EL

t: 0141 773 6269
e: info@thelkgroup.com

Liverpool
The Corn Exchange
Fenwick Street
Liverpool
L2 7QL

t: 0151 235 8716
e: info@thelkgroup.com

Swindon
39 Bowman House Business Centre
Bowman Court
Whitehill Lane
Royal Wootton Bassett
Swindon
SN4 7DB

t : 01793 987 390
e : info@thelkgroup.com

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