Kelbrook Road, Openshaw

Additional Ground Investigation – Addendum Report

Job Number	Report Date	Client
LKC261139	**30th April 2026**	**GH Sheldon Wholesale Bakers Ltd**

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1. Introduction

LK Consult Ltd (LKC) has been commissioned to carry out additional ground investigation work for a development site at Kelbrook Road, Openshaw. The site is to be developed as a new commercial / industrial building (bakery).

The following work has previously been undertaken:

- Phase 2 Geo-investigation and Risk Assessment and Remediation Strategy, undertaken by LKC (Ref: LKC 21 1095-02 R0, dated September 2021).

The Phase 2 report should be read in conjunction with this report.

This investigation has been undertaken to confirm the ground conditions below previously inaccessible areas of the site, to delineate an area where asbestos was previous identified and provide the CBR values for road design.

Assessments provided in the above report will be updated with this additional information.

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	Site is located to the west of Kelbrook Road, north of Parkhouse Street, Openshaw, Manchester. Centred at approximate National Grid Reference 387680E, 397725N.
Area	2.15ha.
Topography	Site is relatively flat (61.00-61.50m AOD) with a steep slope down to the south-west and south of about 1.50m. (58.50-59.60m AOD).
Current Site Use	The site is currently vegetated vacant land.
Proposed Development	Bakery building covering the central and northern area. Site access in the south-eastern area of the site (off Kelbrook Road and Parkhouse Street). Car park in the south-east. Service yards in the south and north with vehicle access road in the west. Areas of vegetation around the site perimeter. Note - there have been some variations to the layout since the above reports were produced (land-use (bakery) remains the same).

Table 1-1: Summary of site details.

2. Summary of Previous Work

2.1. Phase 1 Preliminary Risk Assessment (PRA)

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

Main On-Site Historical Features	Clayton Brook, Clayton Dye Works, Clayton Brick Works, terraced housing, works buildings, railway land, reservoirs, tanks, landscaping.
Geology / Hydrogeology	Artificial: No BGS recorded artificial. Superficial: Till. Secondary A Aquifer. Bedrock: Chester Sandstone Formation. Principal Aquifer.
Landfills / Infilled Ground	No recorded landfills. Potentially infilled ground identified.
Geotechnical Hazards	Unknown depth and constituent of made ground – likely to be relatively deep with in-ground structures. Unlikely to be a suitable foundation strata. Unknown strength of superficial deposits (clay anticipated). Unknown depth and variability of groundwater. Plasticity of clay to be confirmed to assess the shrink / swell risk. Unknown sulphate content. Unknow CBR values.
Contamination Risk	Human health – Moderate risk. Gas – High risk. Controlled waters – Moderate risk. Sulphate – Moderate risk. Potable water – Moderate risk. Flora – Low risk.

Table 2-1: Summary of PRA.

2.2. Phase 2 Geo-Environmental Investigation

2.2.1. Work Undertaken

Ground investigation work was carried out in 2021 (2 phases). The work comprised:

- 10no. machine excavated trial pits.
- 9no. window sample boreholes (6no. monitoring installations).
- 3no. cable percussion boreholes.
- In-situ testing of soils.
- Laboratory testing of soils and water.
- Gas monitoring (4no. visits over 2no. months).

2.2.2. Ground Conditions

Ground conditions comprised:

- Made ground recorded across the site to a maximum depth of 4.60mbgl. Localised visual / olfactory evidence of hydrocarbons. In-ground structures noted.
- Localised organic clay was recorded in 2no. locations (TP105 at 0.70-1.40m and TP106 1.30-1.40mbgl).
- Firm to very stiff variably sandy gravelly clay (Glacial Till) was recorded to the completion depth of the exploratory holes where natural was encountered.
- Localised groundwater was encountered at approximately 2-4mbgl which is assumed to be perched groundwater sat above the Glacial Till. A deeper groundwater strike was encountered within the Glacial Till in CP103 at 9mbgl.

2.2.3. Contamination Risk Assessment

Contamination Risk Assessment is summarised below:

- Human health – when compared to commercial end use no elevated contaminants were identified. However, asbestos was recorded in 2no. locations. No remediation required. However, consideration needs to be given to the risk associated with asbestos during groundworks.
- Gas – Maximum CH_4 <0.1%. Maximum CO_2 6.8%. Maximum flow 0.3l/hr. Site classified as Characteristic Situation 1. No gas protection measures required.
- Controlled waters – No elevated contaminants. No remediation required.
- Concrete – Site classified as DS-2 AC-3z.
- Potable Water Supply – elevated petroleum hydrocarbons and naphthalene. Barrier pipe may be required, subject to the depth and location of water pipes.
- Flora - no remediation required.

The conceptual model is summarised in Table 2-2. The methodology for determining the risk is provided in Appendix A (risk matrix).

Pollutant Linkage		Risk	Recommendations
1	Contaminants posing a risk to site users via dermal contact, ingestion and inhalation (of soil, dust, fibres).	**Low**	No remediation required.
2	Volatile contaminants posing a risk to site users via the inhalation of vapours.	**Low**	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**	No gas protection measures required.
4	Mobile contamination posing a risk to controlled waters via the migration through permeable strata.	**Low**	No remediation required.
5	Sulphate posing a risk to building via direct contact (sulphate attack).	**Moderate /** Low	Sulphate resistant concrete (DS-2 AC-3z) required.
6	Organic contaminants posing a risk to water pipes.	**Moderate**	UU risk assessment to be completed. The site may require barrier pipe dependent on route and depth of potable water pipes.
7	Phytotoxic metals posing a risk to flora via root uptake.	**Low**	No remediation required.

Table 2-2: Summary Risk Table from the Phase 2 Geo-Environmental Investigation (2021).

2.2.4. Geotechnical Assessment

The geotechnical assessment is summarised in Table 2-3.

Existing Foundations / Obstructions	- The site has previously been developed and as such obstructions within near surface soils can be anticipated. - Live services are known to cross the southern section of the site (6-6.6kV cable). - A 1200mm culvert is marked on United Utilities plans to cross the site.
Undrained Shear Strength (s_u)	- Natural CLAY encountered beneath the Made Ground returned undrained shear strengths of 50kPa up to 3.0mbgl, increasing to 100kPa from 3.00mbgl.
Anticipated Foundation Type	- Ground conditions below the proposed structure are variable with varying depths of made ground (0.7-4.6mbgl), comprising silt, sand and gravel. - Traditional shallow foundations are not expected to be suitable for the proposed development given the ground conditions encountered. - It is recommended that the structure is piled to competent strata. Sleeving should be used at shallow depth to ensure the piles are not affected by negative skin friction from the significant thickness of Made Ground. -The appointed specialist piling contractor will be able to optimise pile design such as pile grouping per pile cap, pile diameter & pile spacing, installation methodology, pile cap settlement, and socket lengths to suit from the SI data.
Shallow Groundwater	- Shallow groundwater identified on the site which may present a constraint to the development. - Suitable drainage should be considered in the proposed development layout.
Concrete Requirements	- Based on BRE Digest 2005[1] – DS-2 AC-3z recommended.
Services	- Consideration to the presence of services running through the site. Services may need to be re-routed.
Culvert	- The United Utilities service plans show a 1,200mm culvert crossing the site. The location and depth of the culvert should be accurately determined before finalising any development plans.
Temporary support of excavations	- Will be required; trial pits were generally recorded as unstable in granular Made Ground.
Plasticity	- Consideration will need to be given to the shrink / swell of the clay strata if it is to be used as founding strata, particularly where trees/hedges are present. Foundations may need to be deepened. A medium volume change potential has been calculated for the site.
Road / Pavement Design	- Topsoil and untreated Made Ground is considered unsuitable as a sub-grade material. 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 at a later date through in-situ CBR tests.

Table 2-3: Geotechnical Observations and Conclusions.

2.2.5. Waste Assessment

The majority of soil tested indicate the made ground would be classified as non-hazardous waste. However, soil which would be classified as hazardous waste if excavated for removal from site was identified in two locations, TP103 (associated with TPH) and TP108 (associated with zinc).

Asbestos was recorded in TP102 at a quantity of 0.14% which would also constitute hazardous waste if this were to be excavated for disposal offsite.

WAC tests were also undertaken and should be provided to the waste operators.

3. Ground Investigation

3.1. Site Investigation Design and Methodology

The additional investigation was carried out on 1st and 2nd April 2026 and comprised 13no. trial pits excavated to a maximum 2.8mbgl (TP201-TP213).

All site investigation locations are shown in Figure 3. Figure 3 also include the locations from the previous investigation.

The locations were chosen to supplement the previous investigation work. Table 3-1 details the site investigation locations.

Site Investigation Locations	Rationale
TP201-TP207	To further assess the extent and risk associated with asbestos in the north-western area of the site (previously identified in TP102 and TP103).
TP208-TP209	Additional site coverage.
TP201, TP208, TP209, TP211, TP212, TP213	CBR tests located in the proposed access and parking areas. Include plate load tests and lightweight deflectometer tests.

Table 3-1: Summary of Sampling Locations.

Profile logs are provided in Appendix B and CBR results are provided in Appendix C.

3.2. Soil Sampling Protocol

Standard sampling protocol and preservation of samples was undertaken as described in the EA guidance on site investigation[2].

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[3] 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 D. Table 3-2 shows the soil testing undertaken.

Testing	No. Samples	Justification
Metals / metalloids, pH, water soluble sulphate, speciated PAHs, SOM and asbestos screen (plus quantification if positive ID).	5	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, speciated PAHs, SOM, cyanide, TPHCWG, BTEX, MBTE and asbestos screen (plus quantification if positive ID).	1	Localised contamination identified in TP206, therefore detailed contamination suite undertaken.
Asbestos Screen (plus quantification if positive ID)	7	Asbestos screen undertaken in the north-west of the site to further assess the asbestos risk.

Table 3-2: Summary of Soil Testing.

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

3.3. CBR Testing

Plate load tests were undertaken in TP208, TP209, TP211, TP212, TP213 at approximately 0.5m depth.

A Lightweight Deflectometer (LWD) test (reporting dynamic modulus (Evd) to provide a screening assessment of potential CBR values) was undertaken in TP201 as an alternative to the plate load test to minimise ground disturbance and contact with the soils in the suspected asbestos area.

The results are provided within Appendix C.

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 trial pits to a depth of 0.60-2.00mbgl and generally comprised very gravelly slightly silty sand with anthropogenic material including; brick, concrete, metal, ceramic, plastic, ash, clinker and metalliferous slag.

The strata was generally typical of the made ground encountered in the previous investigation.

4.1.2. Natural Strata

Superficial strata comprised slightly gravelly slightly sandy silty clay recorded to depth of 1.40-2.80mbgl.

The strata was generally typical of the superficial encountered in the previous investigation.

4.1.3. Contamination

Visual / olfactory evidence of contamination was identified as follows:

- TP106 1.10-1.20mbgl: Viscous hydrocarbon contamination noted beneath oversized concrete obstruction. PID recorded at 63.0ppm.

4.1.4. Obstructions

The following obstructions were encountered:

- TP205: Concrete obstruction noted at 0.90mbgl in base of trial pit.
- TP206: Concrete obstruction at 1.10mbgl.
- TP209: Remnant brick footing at 0.10mbgl noted on the south-east side of trial pit.
- TP210: Concrete obstruction at 0.85mbgl in base of trial pit.
- TP211: Concrete obstruction at 1.30mbgl in base of trial pit.

4.2. Groundwater

4.2.1. Groundwater Levels

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

5. Geotechnical Assessment

5.1. Geotechnical – Addendum Update

The geotechnical assessment carried out in the previous Phase 2 report is still considered to be valid. The supplementary investigation confirmed similar ground conditions across the site.

Although there have been some amendments to the proposed layout, this does not affect the recommendations.

The assessment is summarised in Section 2.2.4.

It is understood from the structural engineers (SLR Consulting) that the structural design will require the following:

- Shallow pad foundations beneath building frame columns = Allowable Bearing Capacity of 150 kN/sq.m
- Ground bearing floor slabs = Allowable Bearing Capacity of 30 kN/sq.m
- External areas will be designed on the assumption that the existing soils can achieve 5% CBR when subject to cut and fill earthworks (plus lime/cement stabilisation, if required)

And it is assumed that the required bearing capacity beneath the building floor and pad foundations can be achieved through ground improvement, comprising; cut/fill earthworks, removal of inground remnant obstructions/foundations, and vibro stone columns to improve the made ground.

LKC confirm that the above is considered feasible given the ground conditions encountered and geotechnical assessment undertaken.

The CBR tests undertaken in the additional investigation work are detailed in Section 5.2.

5.2. Road / Parking Construction

An assessment of the likely California Bearing Ratio (CBR) for the made ground has been assessed from the following sources:

- Plate load tests.
- In Situ CBR tests undertaken using the Lightweight Deflectometer (LWD).

The plate load tests recorded 1-10.2% CBR at 0.50m depth within the made ground on site.

An empirical correlation of Evd results recorded by the LWD has been used to provide estimates of CBR values based on various ground types encountered during the site investigation (refer to Table 5-1, below). An empirical correlation is supported by various literature sources cited in international research and standards and can be used as a practical means of rapid assessment, correlations should not be used as a basis for design.

Test Location	Test Depth (mbgl)	Evd (MPa)	Strata	Converted CBR%*
TP201	0.30	35.71	Made Ground (granular)	14.284
TP201	0.60	11.77	Made Ground (granular)	4.708

Table 5-1: Evd Empirical Conversion.

Notes:

*based on literature derived empirical conversion factor, dependent on soil types, ground conditions, etc. Should not be used for detailed design.

At the locations of the PLTs, CBR values ranged between 1-3%, with one test returning a high CBR of 10%. The LWD tests indicate that the granular made ground is variable in density, which is indicative of the made ground strata.

Following suitable preparation of the ground by cut and fill earthworks or lime/cement stabilisation (if required), a CBR of 5% should be achievable.

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[4]). Information gathered from the risk assessment has been collated in the revised contamination conceptual model in Section 6.8.

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) [5, 6].
- LQM Suitable 4 Use Levels (S4ULs) [7, 8, 9, 10].

The proposed development is for a commercial development, therefore the assessment criteria for commercial / industrial has been used.

All criteria have been generated using the CLEA V1.06 model[11] 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 E.

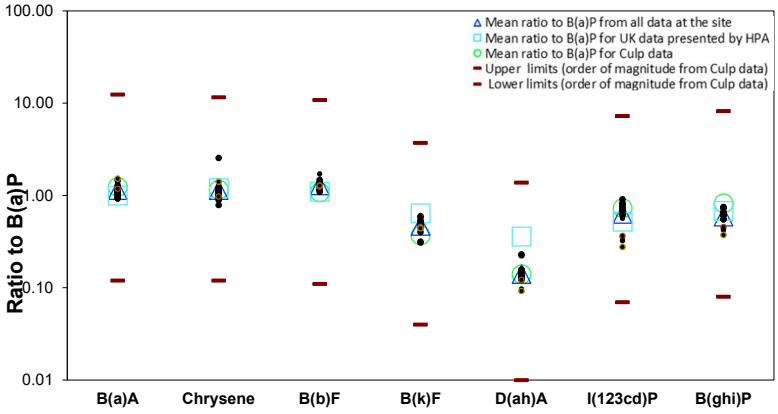
B(a)P as Surrogate Marker

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[12,13] and naphthalene the most volatile and soluble[14]. 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[15]. For B(a)P to be used as a surrogate marker it should follow the profile described by the HPA (2008)[16] 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*[17], 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.

The assessment was undertaken on current and previous data to provide a more accurate representation of the site conditions.



Graph 6-1: The ratio of PAH to B(a)P in soil for all available data at the site based on 24 samples (where values were >LOD to allow the calculation of a ratio).

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 D. No elevated contaminants were identified from this round of analysis, with the exception of TP206.

Visual / olfactory evidence of a bitumen-type material was identified in TP206 and a number of carbon bands are above the assessment criteria, as detailed in Table 6-1.

TPH Carbon Split	Unit	TP206 concentration	Assessment Criteria (AC) (2.5% SOM)	Elevated above AC
Aliphatic C5-C6	mg/kg	< 0.10	5,900 (558)[sol]	No
Aliphatic C6-C8	mg/kg	84	17,000 (322) [sol]	No
Aliphatic C8-C10	mg/kg	250	4,800 (190) [vap]	Above Vapour Limit Only
Aliphatic C10-C12	mg/kg	11,000	23,000 (118) [vap]	Above Vapour Limit Only
Aliphatic C12-C16	mg/kg	27,000	82,000 (59) [sol]	Above Solubility Limit Only
Aliphatic C16-C21	mg/kg	72,000	1,700,000	No
Aliphatic C21-C35	mg/kg	360,000		
Aliphatic C35-C40	mg/kg	25,000	1,700,000	No
Aromatic C5-C7	mg/kg	< 0.10	46,000 (2,260) [sol]	No
Aromatic C7-C8	mg/kg	1.2	110,000 (1,920) [sol]	No
Aromatic C8-C10	mg/kg	< 0.10	8,100 (1,500)[vap]	No
Aromatic C10-C12	mg/kg	9,800	28,000 (899) [sol]	Above Solubility Limit Only
Aromatic C12-C16	mg/kg	51,000	37,000	Yes
Aromatic C16-C21	mg/kg	160,000	28,000	Yes
Aromatic C21-C35	mg/kg	690,000	28,000	Yes
Aromatic C35-C40	mg/kg	75,000	28,000	Yes

Table 6-1: TPH concentrations in TP206.
sol/vap = solubility/vapour limit (potentially use if free product identified, although highly conservative)

No elevated contaminants compared to assessment criteria were identified in the previous investigation work undertaken.

In addition to the above, asbestos was identified as detailed in Table 6-2. The details of the asbestos found in the previous investigation is also shown in Table 6-1 (TP102 and TP103).

Sample Location	ID	Type	Total Asbestos (% w/w)
TP204 0.00-1.00mbgl	Chrysotile and Amosite	Fibre bundles	0.004
TP205 0.00-0.90mbgl	Chrysotile and Amosite	Fibre bundles	0.009
TP206 0.00-0.80mbgl	Chrysotile	Fibre bundles	0.001
TP207 0.00-1.00mbgl	Chrysotile and Amosite	Amosite - fibre bundles Chrysotile – microscopic insulation debris	0.021
TP209 0.00-0.50mbgl	Chrysotile and Amosite	Fibre bundles	0.007
TP210 0.00-0.40mbgl	Chrysotile and Amosite	Microscopic insulation debris	0.035
TP102 0.00-1.00mbgl	Amosite	Fibres/Clumps	0.14
TP103 0.50-0.90mbgl	Amosite	Fibres/Clumps	<0.001

Table 6-1: Details of Asbestos Identified.

The risk associated with the hydrocarbon contamination and the asbestos are discussed further in the following sections.

6.2.3. Direct Contact Risk – Pollutant Linkage 1

Petroleum Hydrocarbons

A bitumen-type material was identified in TP206 and elevated carbon bands have been identified, when compared to assessment criteria. The contamination appeared to be relatively small quantities and localised.

Aliphatic EC8-10, EC10-12, EC12-16 and Aromatic C10-12 are elevated above the solubility / vapour limit assessment criteria but are well below the standard assessment criteria. Aromatic EC12-16, EC16-21, EC21-35 and EC35-40 are elevated above the standard assessment criteria.

It is assumed that this localised contamination could pose a risk to site users via the inhalation of vapours, ingestion and dermal contact.

The inhalation risk is discussed in Section 6.2.4.

With regards to the ingestion and dermal contact pathways, given the area of concern is below the building (warehouse), there will be no pollutant linkage to site users.

LKC considers the probability of hydrocarbon contamination affecting site users (via ingestion and dermal contact) as unlikely. Given a medium consequence a low risk is considered appropriate.

No further elevated hydrocarbon contamination has been identified across the remainder of the site. The probably of hydrocarbon contamination across the remainder of the site is considered to be unlikely. Given a medium consequence a low risk is considered appropriate and no remediation is required.

Asbestos

Asbestos has been identified on site. Although the extent is predominantly in the north-west of the site, sporadic asbestos across the remainder of the site cannot be ruled out (localised asbestos also identified in TP210). Various buildings and structures have previously been present on site which are likely to be the source of the asbestos (demolition materials).

Asbestos may pose a risk to site users in soft landscaping areas via the inhalation of fibres. There is minimal soft landscaping proposed and the receptors will be adults only (lower sensitivity receptors), who are not expected to spend significant time within the areas of concern. The probability of asbestos affecting site users is low likelihood. With a medium consequence, the risk is anticipated to be moderate / low. As a precaution, some remediation is recommended in soft landscaping areas (shallow environmental cover system).

LKC have utilised the Joint Industry Working Group (JIWG) Decision Support Tool for receptor risk ranking of ACM onsite. This model incorporates guidance from CL:AIRE CAR-SOIL[18]and CIRIA C733[19]. The following assumptions have been incorporated into the model:

Asbestos type, nature and concentrations as encountered during the site investigation and reported in laboratory data.

In this the receptor category is classified as commercial / industrial, the age of the receptor young adult (>16 and <24) with the duration of exposure of <1hr per day.

The distance to the source was input as in or within 10m of the area of disturbance and the depth to impacted material input as material buried at shallow depth (assuming that a shallow cover system is implemented).

Medium respirable index was assumed based on the ACM identified onsite as per RIVM[20].

For added conservatism, the model does not consider moisture content, which can significantly reduce the potential for airborne fibre release from soil in a typical UK climate. Swartjes and Tromp (2008)[21] based on work by Addison *et al*.[22] 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 15-25% making fibre release unlikely.

Data from Addison *et al.* shows that a sandy soil with Chrysotile fibre concentrations of 0.01%w/w (1 order of magnitude lower recorded) when agitated in a moderately aggressive way, produced between 0.01fibres/ml and no recordable fibres at moisture contents of 5% and above.

The JIWG model output sheet is presented in Appendix F. A very low risk was identified to key receptors based on general worst-case scenario and assuming that the impacted material will be buried as shallow depth. This confirms that a shallow environmental cover system will be suitable for the proposed development scheme.

Additional consideration should also be given to the risk to workers and offsite receptors during groundworks and construction. This is discussed further in Section 8.

Other Contaminants

No further contaminants have been identified. A low risk is assumed, and no further remediation is required.

6.2.4. Risk from Inhalation of Vapours – Pollutant Linkage 2

Localised elevated petroleum hydrocarbons were identified in TP206, which could pose a risk to site users via the inhalation of vapours. The contamination is expected to be of small volume and localised, and given the proposed development scheme (warehouse building, assumed to be well ventilated), there is not expected to be significant build-up of vapours indoors.

The probability of volatile contaminants posing a risk to site user is expected to be low likelihood. With a medium consequence, the risk is anticipated to be moderate / low. As a precaution, some remediation is recommended (source removal).

The probability of vapours posing a risk to site users across the remainder of the site is considered to be unlikely. With a medium consequence, the risk is expected to be low, and no further investigation / assessment is recommended.

6.3. Gas Risk Assessment

The gas risk assessment carried out in the previous Phase 2 report remains valid (low risk and no remediation required). The ground conditions encountered in the additional investigation did not identify any other significant gas sources or pathways.

6.4. Controlled Water Assessment

The controlled waters risk assessment carried out in the previous Phase 2 report remains valid across the majority of the site. The risk was identified as low.

Although a small amount of bitumen-type material was identified in TP206, this is assumed to be of small volume and localised. No contamination was identified in the previous groundwater testing undertaken. The clay present below the site will also limit migration of potential contaminants.

The probability of contamination posing a risk to controlled waters is considered to be unlikely. The consequence is medium, given a low risk. Precautionary remediation is recommended as part of Pollutant Linkage 2, which will comprise source removal. This should also ensure the risk to controlled is kept to a minimum. No further specific remediation is recommended.

6.5. Sulphate Classification

The sulphate assessment carried out in the previous Phase 2 report remains valid (concrete classification of DS-2 AC-3z).

6.6. Potable Water Supply

The controlled waters risk assessment carried out in the previous Phase 2 report remains valid. Barrier pipe is already recommended within the development. The localised contamination identified in TP206 is expected to be removed, as such will not significantly impact the potable water pipes selection.

6.7. Flora

The risk assessment carried out in the previous Phase 2 report remains valid (low risk and no remediation required).

6.8. Revised Contamination Conceptual Model

The contamination conceptual model undertaken in Phase 2 report (summarised in Table 2-2) has been revised following the additional soil risk assessments. The revised contamination conceptual model follows the same methodology and guidance used in the previous 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	Pathway	Receptor	Contaminants of Concern (CoC)	Probability	Consequence	Risk	Recommendations
1	- Dermal contact. - Inhalation of soil, fibres and dust. - Ingestion of soils, dust. - Windblown dust.	- Future site users. - Offsite receptors.	- ACM.	Low likelihood	Medium	Moderate / Low	Precautionary remediation recommended (environmental cover system in soft landscaping areas).
			- Heavy metals. - PAHs. - Petroleum hydrocarbons. - Other contaminants.	Unlikely	Medium	Low	No remediation required.
2	- Inhalation of vapours. - Migration via permeable strata and preferential pathways.	- Future site users. - Offsite receptors.	- TPH (localised around TP206).	Low	Medium	Moderate / Low	Precautionary remediation recommended (source removal).
			- Volatile contaminants (remainder of the site).	Unlikely	Medium	Low	No remediation required.
3	- Inhalation of gas. - Migration via permeable strata and preferential pathways. - Explosion in confined spaces. - Exposure to radon.	- Future site users. - Buildings. - Offsite land users.	- Ground / hazardous gas (carbon dioxide, methane).	Unlikely	Severe	Moderate / Low	Gas protection measures not required.
			- Radon.	Unlikely	Medium	Low	No protective measures are necessary in the construction of new buildings or extensions.
4	- Surface run-off. - Migration via permeable strata and preferential pathways. - Perched waters migration.	- Groundwater (Principal Aquifer). - Surface water (Clayton Brook).	- Mobile contaminants such as metals, PAHs, hydrocarbons, volatile compounds.	Unlikely	Medium	Low	No remediation required. Precautionary source removal of the hydrocarbon hotspot as part of PL2.
5	- Sulphate attack on concrete.	- Building structure.	- Sulphate.	Likely	Mild	Moderate / Low	Concrete classification of DS-2 AC-3z.
6	- Ingestion of tainted water supply.	- Future site users. - Water pipes.	- Organic contaminants such as petroleum hydrocarbons, naphthalene, volatile compounds.	Likely	Medium	Moderate	Completion of United Utilities Risk Assessment. Barrier pipe may be required dependent on route and depth of potable water pipes.
7	- Direct contact (plant uptake).	- Flora.	- Phytotoxic contaminants such as heavy metals.	Low Likelihood	Minor	Low	No remediation required.

Table 6-3: Revised Contamination Conceptual Model.

7. Conclusions

7.1. Ground Conditions

Ground conditions are summarised in Table 7-1 below.

Made Ground	Recorded to a maximum depth of 4.6mbgl. Comprises silt sand and gravel with various anthropogenic materials.
Superficial	Firm to stiff variably sandy gravelly clay (Glacial Till) to base of investigation trial pits and boreholes.
Bedrock	Not encountered.
Groundwater	Localised groundwater was encountered at approximately 2-4mbgl which is assumed to be perched groundwater sat above the Glacial Till. A deeper groundwater strike was encountered within the Glacial Till at 9mbgl.

Table 7-1: Summary of Ground Conditions.

7.2. Geotechnical Assessment

Geotechnical observations and conclusions are contained in Table 7-2 below.

Obstructions / Services / Culvert	The site has previously been developed and as such obstructions within near surface soils can be anticipated. Services may need to be re-routed. Live services are known to cross the southern section of the site (6-6.6kV cable). A 1200mm culvert is marked on United Utilities plans to cross the site. The location and depth of the culvert should be accurately determined.
Undrained Shear Strength (s_u)	Natural CLAY encountered beneath the Made Ground returned undrained shear strengths of 50kPa up to 3.0mbgl, increasing to 100kPa from 3.00mbgl.
Anticipated Foundation Type	Ground conditions below the proposed structure are variable with varying depths of made ground (0.7-4.6mbgl), comprising silt, sand and gravel. Traditional shallow foundations are not expected to be suitable for the proposed development given the ground conditions encountered. It is recommended that the structure is piled to competent strata. Sleeving should be used at shallow depth to ensure the piles are not affected by negative skin friction from the significant thickness of Made Ground. The appointed specialist piling contractor will be able to optimise pile design such as pile grouping per pile cap, pile diameter & pile spacing, installation methodology, pile cap settlement, and socket lengths to suit from the SI data. Alternatively, the use of ground improvement techniques such as vibro granular columns will allow shallow foundations to be utilised with the Made Ground. The vibro granular columns should provide a bearing capacity of around 150kN/m² but will also remove variability within the Made Ground. Specialist advice should be sought from a suitably experienced contractor with regard to allowable bearing capacity and settlements.
Shallow Groundwater	Localised shallow groundwater identified on the site which may present a constraint to the development.
Concrete Requirements	DS-2 AC-3z recommended.
Temporary support of excavations	Will be required; trial pits were generally recorded as unstable in granular Made Ground.
Plasticity	Consideration will need to be given to the shrink / swell of the clay strata if it is to be used as founding strata, particularly where trees / hedges are present. Foundations may need to be deepened. A medium volume change potential has been calculated.
Road / Pavement Design	CBR values ranged between 1-3%, with one test returning a high CBR of 10%. The LWD tests indicate that the granular made ground is variable in density, which is indicative of the made ground strata. Following suitable preparation of the ground by cut and fill earthworks or lime/cement stabilisation (if required), a CBR of 5% should be achievable.

Table 7-2: Summary of Geotechnical Assessment.

7.3. Contamination Assessment

A revised contamination conceptual model has been produced by LKC which is summarised in Table 7-3 below.

PL	Contaminant	Risk	Recommendations
1	ACM	Moderate / Low	Precautionary remediation recommended (environmental cover system in soft landscaping areas).
	Heavy metals. PAHs. Petroleum hydrocarbons. Other contaminants.	Low	No remediation required.
2	TPH (localised around TP206)	Moderate / Low	Precautionary remediation recommended (source removal).
	Volatile contaminants (remainder of the site)	Low	No remediation required.
3	Ground / hazardous gas (carbon dioxide, methane).	Moderate / Low	Gas protection measures not required. No protective measures are necessary in the construction of new buildings or extensions.
	Radon	Low	
4	Controlled Waters (mobile contaminants)	Low	No remediation required. Precautionary source removal of the hydrocarbon hotspot as part of PL2.
5	Sulphate	Moderate / Low	Concrete classification of DS-2 AC-3z.
6	Organic contaminants.	Moderate	Completion of United Utilities Risk Assessment. Barrier pipe may be required dependent on route and depth of potable water pipes.
7	Phytotoxic Contaminants	Low	No remediation required.

Table 7-2: Summary Risk Table.
PL=Pollutant Linkage.
PL1=Human health risk (direct contact). PL2=Human health (vapours). PL3=Gas risk. PL4=Controlled waters risk. PL5=Concrete risk. PL6=Potable waters risk. PL7=Flora.

7.4. Waste Assessment

Although the majority of the soils are likely to be classified as non-hazardous, there is likely to be some soils that should be classified as hazardous, including where there is visual / olfactory evidence of hydrocarbons (localised around TP206) and where asbestos is present at >0.1%.

It may be advisable to carry out additional testing of soils earmarked for disposal offsite.

8. Recommendations and Remediation Strategy

The recommendations/requirements 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 8-1.

PL	Recommendation
1	Environmental cover system required in soft landscaping areas.
2	Removal of bitumen-type material in TP206 (source removal).
3	No remediation required.
4	Concrete classification of DS-2 AC-3z.
5	No remediation required.
6	Potable water pipe assessment required. Barrier pipe expected to be required.
7	No remediation required.

Table 8-1: Remediation Summary.
PL1=Human health risk (direct contact). PL2=Human health (vapours). PL3=Gas risk. PL4=Controlled waters risk. PL5=Concrete Classification. PL6=Potable waters risk. PL7=Flora

8.1. Remediation and Validation Recommendations

8.1.1. Environmental Cover System (PL1)

In soft landscaping areas, an environmental cover system will be required. The environmental cover system should comprise a geotextile membrane at the base with 300mm depth clean validation subsoil / topsoil above.

Validation of environmental cover soils will be required and should include measuring depth using a staff and providing photographic evidence. Photographic evidence of the geotextile layer should also be collected.

Chemical validation of imported soils is required, details are included in Section 8.3.

8.1.2. Vapour Remediation (PL2) – Source Removal

Localised bitumen-type material was identified around TP206.

Impacted soils (based on visual / olfactory evidence and the use of a PID) should be excavated and removed. Impacted soils should be placed on an impermeable surface to await removal from site (this may be subject to chemical testing to confirm suitable waste facility).

The work should be done under the supervision and instruction of an environmental consultant. Validation information will be required in support of the completion report and should include, as a minimum: details of work undertaken, photographic record, confirmatory samples of the remaining in-situ soils, consignment notes confirming the removal of impacted soil.

8.1.3. Sulphate Resistant Concrete

Sulphate resistant concrete in line with DS-2 AC-3z is recommended. It is assumed that this will be signed off by construction workers / building controlled and no specific validation measures are required by a geo-environmental consultant.

8.1.4. Potable Water Pipe Remediation (PL5)

It is recommended that a Water Pipeline Assessment[23] is undertaken once the location and depth of potable water pipes are known. It is likely that barrier pipe will be required.

Validation of pipeline installation should include delivery notes of pipe materials, photographs of installed pipe and confirmation of connections.

8.2. Other Considerations

8.2.1. 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.

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

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

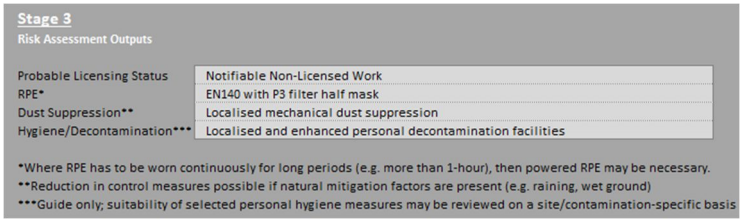
Validation requirements should include a log of work undertaken, including photographs and details of any sampling undertaken and validation of any potential additional remedial work.

8.2.2. Asbestos in Soils Management Plan

Due to the presence of asbestos containing material, it is recommended that additional precautions are taken during site clearance, earthworks, and construction in the area of concern. The presence of asbestos in the made ground at the site presents a potential risk of generation of airborne fibres if this material is disturbed, such as for excavations to construct new foundations.

LKC recommend that an appropriate 'Asbestos Management Strategy' is developed in line with CIRIA C733[24].

The workers category JIWG assessment was undertaken to assess the risk associated with groundworkers within the vicinity of the impacted soils. Worst-case asbestos values were used. The output sheets are provided in Appendix F. A medium risk was identified, and the following risk assessment outputs were provided:



Stage 3

Risk Assessment Outputs

Probable Licensing Status	Notifiable Non-Licensed Work
RPE*	EN140 with P3 filter half mask
Dust Suppression**	Localised mechanical dust suppression
Hygiene/Decontamination***	Localised and enhanced personal decontamination facilities

*Where RPE has to be worn continuously for long periods (e.g. more than 1-hour), then powered RPE may be necessary.
**Reduction in control measures possible if natural mitigation factors are present (e.g. raining, wet ground)
***Guide only; suitability of selected personal hygiene measures may be reviewed on a site/contamination-specific basis

The risks and appropriate controlled measures during groundworks should be further assessed in the Asbestos Management Strategy. It may be feasible to zone the site with more measures required in the north-west of the site where the asbestos appeared more prevalent.

8.2.3. Decommissioning of Boreholes

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

All borehole and borehole installation decommissioning is to be undertaken in accordance with current EA guidelines[25].

8.2.4. Grubbing Out of In-ground Structures

Surface hard standing and relict features including former foundations can be expected across the site wide. It is recommended that in-ground structures are grubbed out as part of the groundworks.

Hard materials can be used to generate suitable aggregates for re-use on site as part of engineered made ground and / or construction platforms (subject to geo-environmental testing and client design specifications). Suitable materials derived from grubbing-up should be stored in a location on site, to be agreed with the Engineer, prior to crushing. Any unsuitable materials should be removed to a suitably licensed landfill site.

8.2.5. Re-use of Site Generated Material

To ensure material is compliant with appropriate waste regulations, any site won material re-used onsite should be in recourse to appropriate exemptions. A U1 and T5 exemption should be registered. This will allow the following to be used onsite or brought in for use onsite (refer to guidance for types of waste that can be used[26]):

- 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[27] may be required if volumes exceed exemption limits. This must be registered before material movement starts onsite.

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

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

8.2.6. Stockpile Management

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

8.2.7. 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.

8.2.8. Control of Water

If significant organic contamination is present or to chase out deeper obstructions some localised excavation below the groundwater table may be required. Contingency arrangements to remove groundwater (including contaminated groundwater if encountered) from excavations/ relict structures should be allowed.

Small volumes of pumped fluids/ groundwater may be stored in appropriate, sealed tanks/containers and analysed for a range of determinants prior to disposal to suitable facility. Alternatively, a temporary

discharge licence, including their requirements for treatment/ testing should be agreed with local utility providers (United Utilities) prior to start on site.

Where relict structures are found to retain fluid contaminants, they should be drained prior to removal.

8.2.9. Health and Safety Considerations

In working with, removing, or treating any contaminating material it is important that any potential risks associated with the actual site works are mitigated by good environmental management of the site during the remedial phases. Standard health and safety precautions (as per HSE guidance[28]) should be adopted by all workers involved with site enabling and construction works.

8.2.10. Piling in Contaminated Land

If a piled foundation is being considered this may provide a preferential pathway for contaminants to the underlying aquifer. A piling risk assessment may be required. Good practice for the drilling of piles on contaminated sites should be adhered to, such as guidance provided by the Environment Agency[29].

8.3. Validation of Imported Soils

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

A summary of the required imported material sampling requirements is presented in Table 8-2, based on MCC 'Guidelines to Developer' (2021) [30]. 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 soft landscaping to ensure suitability for use.

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

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

Notes:

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

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

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

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

In addition, it should be ensured that the matrix of the topsoil is suitable as a growing medium and no undesirable material is present (in line with BS3882[31]). LKC advise this information is provided by the supplier before material is imported onto site.

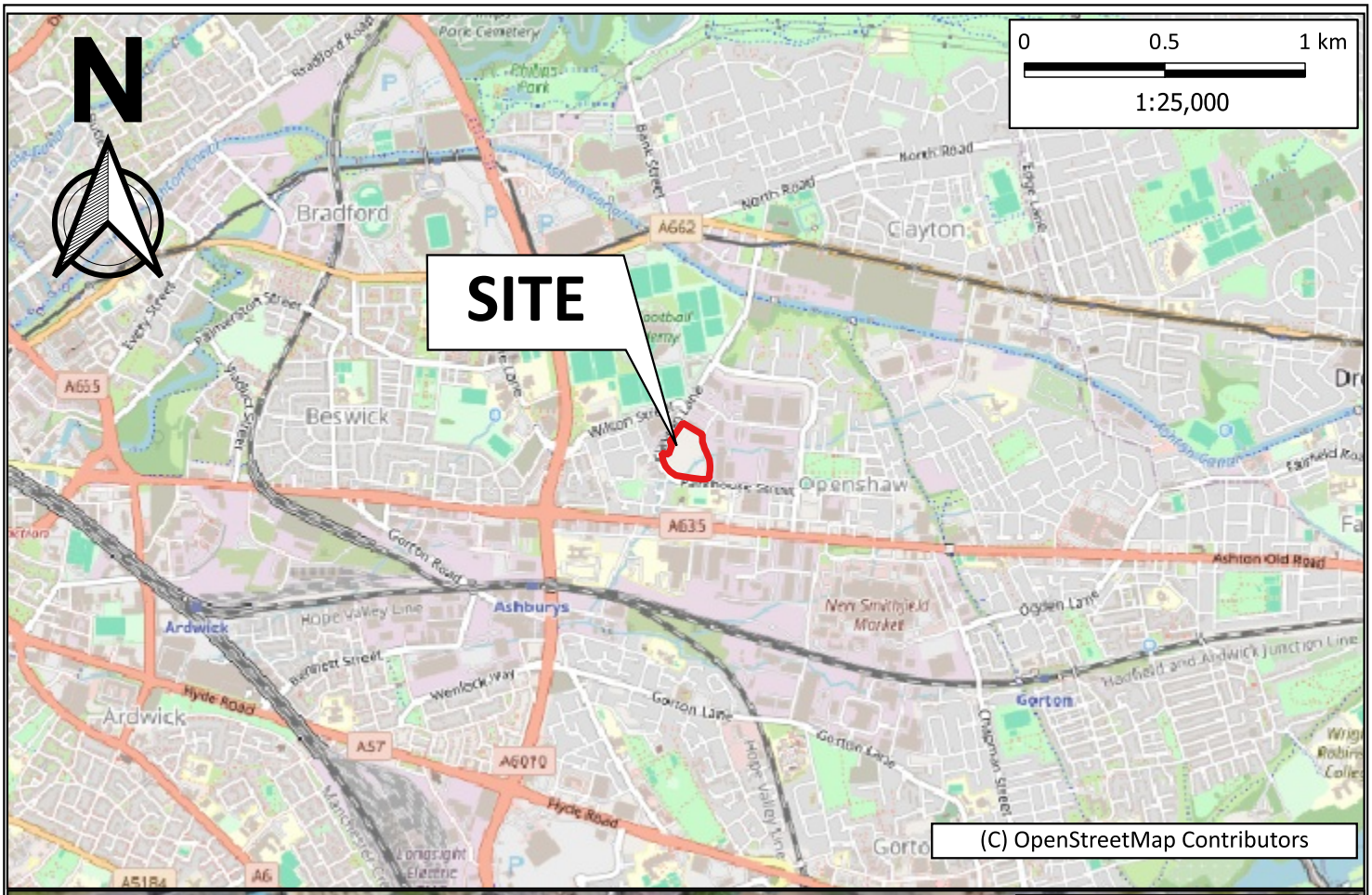
Imported material to be used in gardens will be compared against commercial / industrial assessment criteria (as used in the contamination risk assessment in Section 6).

8.4. Site Completion Report

The following Completion Reports should be provided to satisfy the outstanding contaminated land planning conditions:

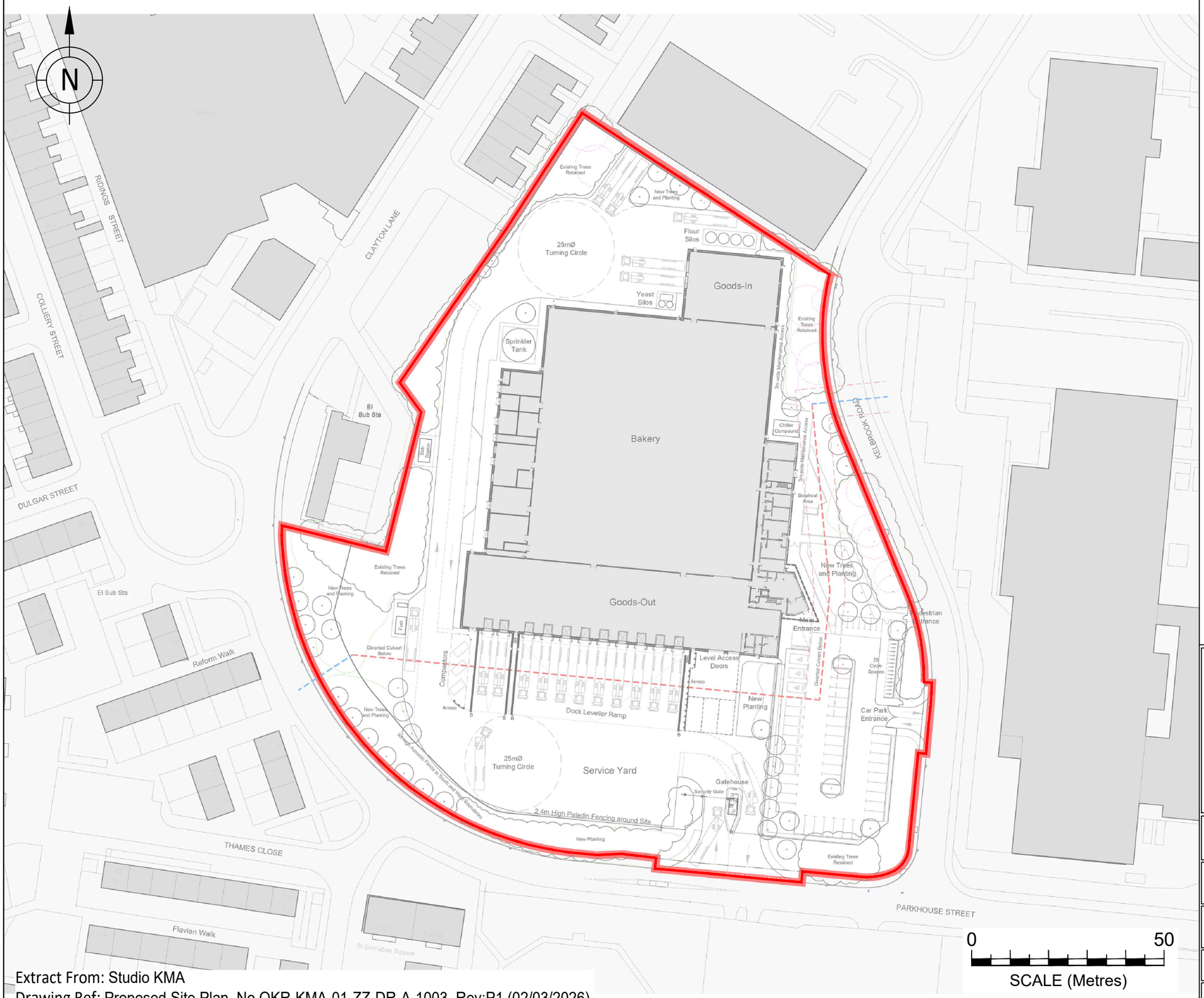
- **Pre-construction Phase Completion Report:** Site level reduction details, source removal (bitumen type material around TP206), offsite disposal information, findings of the watching brief including details of any unexpected contamination and verification testing.
- **Build-phase Construction Completion Report:** Validation testing of any imported subsoil and topsoil, completion of UU potable water supply document and/or discussion with UU and details of installation.

Figures





Client: GH Sheldon Wholesale Bakers Ltd				Title: Site Location & Boundary Plan	LK CONSULT
Site: Kelbrook Road, Openshaw				Scale (see scale bar): 1:25,000 & 1:2,000 @ A4	Figure: 1
Job No.: LKC261139	Drawn By: LGD	Checked By: CB	Drawn: Apr2026		Revision:



Extract From: Studio KMA
Drawing Ref: Proposed Site Plan, No.OKR-KMA-01-ZZ-DR-A-1003, Rev:P1 (02/03/2026)

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

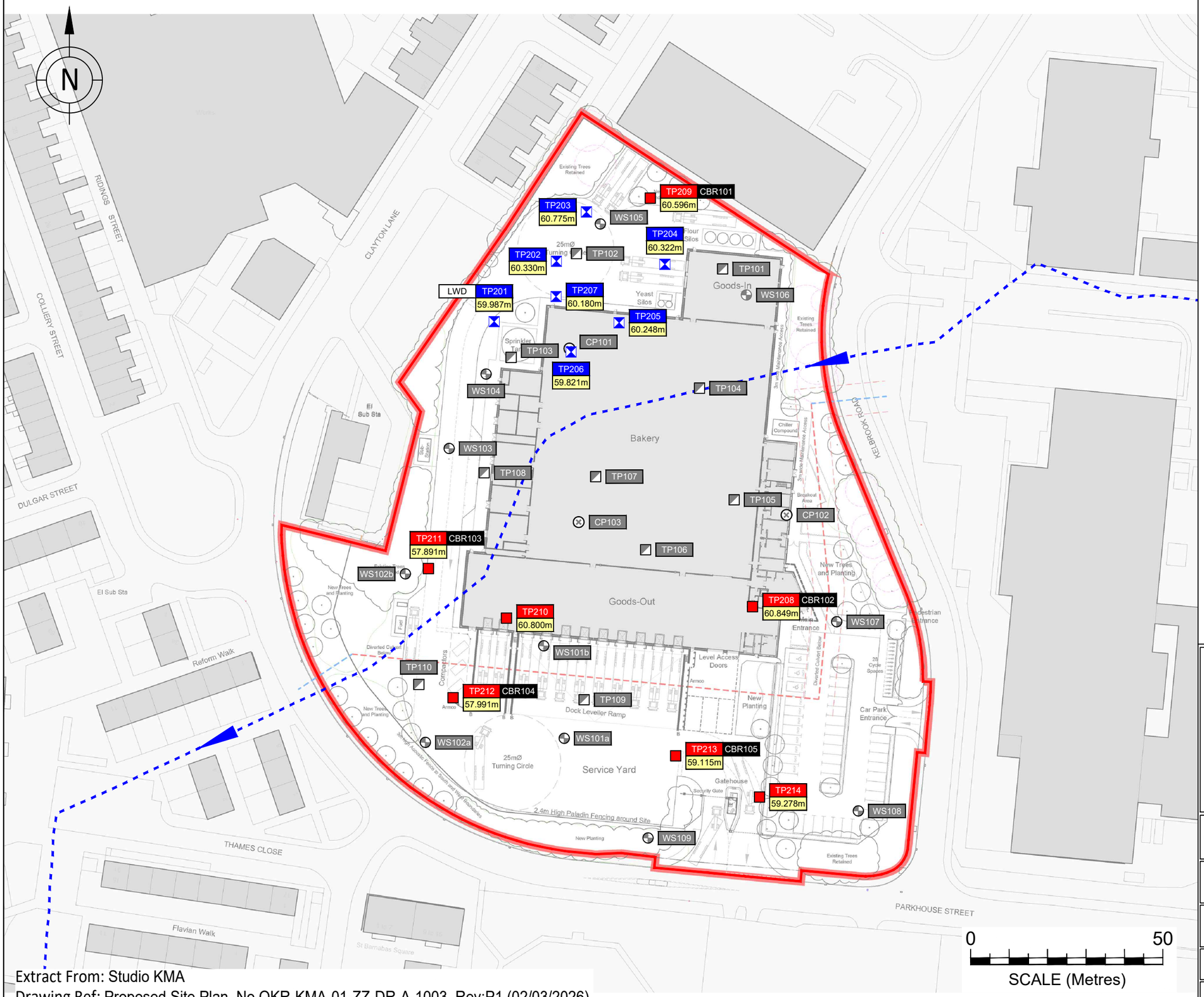
Client: GH Sheldon Wholesale Bakers Ltd

Site: Kelbrook Road, Openshaw

Title: Proposed Development Plan

Job No.:	Scale (See Scale Bar):	Figure:	Revision:
LKC261139	1:1000 @ A3	2	

Drawn By:	Checked By:	Drawn:
AC	LD	Apr 2026



Extract From: Studio KMA
Drawing Ref: Proposed Site Plan, No.OKR-KMA-01-ZZ-DR-A-1003, Rev:P1 (02/03/2026)

KEY

- Site Boundary
- Culvert (1200BR) (United Utilities, Sewer Records 15/03/2021)

Additional SI Locations (LKC 2026)

- Trial Pit (TP)
- Trial Pit - ACM (Asbestos Containing Material) (TP)
- Plate Load Test (CBR)
- Light Weight Deflectometer Test (LWD)
- Elevation (m)

Previous SI Locations (LKC 2021)

- Window Sample Borehole (WS)
- Trial Pit (TP)
- Cable Percussive Borehole (CP)

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

LK CONSULT

Client: GH Sheldon Wholesale Bakers Ltd

Site: Kelbrook Road, Openshaw

Title: Site Investigation Location Plan

Job No.:	Scale (See Scale Bar):	Figure:	Revision:
LKC261139	1:1000 @ A3	3	A

Drawn By:	Checked By:	Drawn:
AC	LD	Apr 2026

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[32]. 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

LK CONSULT

Trial Pit Log

Location Ref: **TP201**

Project: Kelbrook Road, Openshaw	Client: GH Sheldon Wholesale Bakers Ltd	Date: 01/04/2026
Project No. : LKC261139	Contractor: Client Provided	
Equipment: Excavator: 9 Tonne Tracked	Logged By: LGD	Scale: 1:40 / Page Number: Sheet 1 of 1

Depth (m)	Samples / Tests	Depth (m)	Legend	Stratum Description
0.00-1.00	D			MADE GROUND: Dark brown very gravelly silty SAND with frequent whole brick, brick fragments, concrete fragments, oversized material, occasional ash, clinker, timber fragments, ceramic fragments, glass fragments, rare plastic fragments and metal fragments. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded comprising sandstone and anthropogenic material.
0.30	Evd=35.71MPa			
0.60	Evd=11.77MPa			
		1.00		0.90 to 1.00mbgl - 15mm reinforcement bar noted within trial pit.
1.30	SV=76.00kPa			Firm consistency high strength greyish light brown slightly gravelly slightly sandy silty CLAY. Sand is fine to coarse. Gravel is fine to medium, subangular to subrounded comprising mudstone.
		1.50		End of Trial Pit at 1.50m



Pit Dimensions			Pit Stability
Length (m)	Width (m)	Depth (m)	Stable
1.70	0.90	1.50	

Remarks:

Perched water noted at 1.00mbgl.
Lightweight Defelctometer test undertaken at 0.30mbgl and 0.60mbgl.

LK CONSULT

Trial Pit Log

Location Ref: **TP202**

Project: Kelbrook Road, Openshaw	Client: GH Sheldon Wholesale Bakers Ltd	Date: 01/04/2026
Project No. : LKC261139	Contractor: Client Provided	
Equipment: Excavator: 9 Tonne Tracked	Logged By: LGD	Scale: 1:40 / Page Number: Sheet 1 of 1

Depth (m)	Samples / Tests	Depth (m)	Legend	Stratum Description
0.00-0.80	D	0.80		MADE GROUND: Dark brown very gravelly slightly silty SAND with abundant ash, clinker, frequent brick fragments, occasional concrete fragments, rare ceramic fragments and glass fragments. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded comprising sandstone, mudstone and anthropogenic material.
1.20	SV=81.00kPa	1.40		Stiff consistency high strength greyish light brown slightly gravelly slightly sandy silty CLAY. Sand is fine to coarse. Gravel is fine to medium, subangular to subrounded comprising mudstone.
				End of Trial Pit at 1.40m



Pit Dimensions			Pit Stability
Length (m)	Width (m)	Depth (m)	Stable
1.60	0.90	1.40	

Remarks:

Trial pit dry.

LK CONSULT

Trial Pit Log

Location Ref: **TP203**

Project: Kelbrook Road, Openshaw	Client: GH Sheldon Wholesale Bakers Ltd	Date: 01/04/2026
Project No. : LKC261139	Contractor: Client Provided	
Equipment: Excavator: 9 Tonne Tracked	Logged By: LGD	Scale: 1:40 / Page Number: Sheet 1 of 1

Depth (m)	Samples / Tests	Depth (m)	Legend	Stratum Description
0.00-1.00	D			MADE GROUND: Blackish dark brown very gravelly SAND with abundant ash, clinker, occasional brick fragments and rare glass fragments. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded comprising sandstone and anthropogenic material.
		1.00		
1.20	SV=70.00kPa			Firm to stiff consistency medium strength greyish light brown slightly gravelly slightly sandy silty CLAY. Sand is fine to coarse. Gravel is fine to medium, subangular to subrounded comprising mudstone.
		1.40		End of Trial Pit at 1.40m

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0



Pit Dimensions			Pit Stability
Length (m)	Width (m)	Depth (m)	Stable
2.80	0.90	1.40	

Remarks:

Trial pit dry.
Concrete obstruction to south of trial pit, trial pit extended to the north.

Trial Pit Log

LK CONSULT

Location Ref: **TP204**

Project: Kelbrook Road, Openshaw	Client: GH Sheldon Wholesale Bakers Ltd	Date: 01/04/2026
Project No. : LKC261139	Contractor: Client Provided	
Equipment: Excavator: 9 Tonne Tracked	Logged By: LGD	Scale: 1:40 / Page Number: Sheet 1 of 1

Depth (m)	Samples / Tests	Depth (m)	Legend	Stratum Description
0.00-1.00	D			MADE GROUND: Dark brown very gravelly slightly silty SAND with abundant half brick, brick fragments, concrete fragments, occasional ash, clinker, rare metal fragments, plastic fragments, ceramic fragments and glass fragments. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded comprising sandstone and anthropogenic material.
		1.50		End of Trial Pit at 1.50m

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0



Pit Dimensions			Pit Stability
Length (m)	Width (m)	Depth (m)	Stable
2.40	0.90	1.50	

Remarks:

Trial pit dry.

Trial Pit Log

LK CONSULT

Location Ref: **TP205**

Project: Kelbrook Road, Openshaw	Client: GH Sheldon Wholesale Bakers Ltd	Date: 01/04/2026
Project No. : LKC261139	Contractor: Client Provided	
Equipment: Excavator: 9 Tonne Tracked	Logged By: LGD	Scale: 1:40 / Page Number: Sheet 1 of 1

Depth (m)	Samples / Tests	Depth (m)	Legend	Stratum Description
0.00-0.90	D	0.90		MADE GROUND: Dark brown very gravelly slightly silty SAND with frequent half brick, brick fragments, concrete fragments, occasional ash, clinker, metal fragments, rare ceramic fragments, glass fragments and cloth. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded comprising sandstone and anthropogenic material.
				End of Trial Pit at 0.90m

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0



Pit Dimensions			Pit Stability
Length (m)	Width (m)	Depth (m)	Stable
1.90	1.00	0.90	

Remarks:

Trial pit dry.
Trial pit terminated at 0.90mbgl due to concrete obstruction at base of trial pit.

Trial Pit Log

LK CONSULT

Location Ref: **TP206**

Project: Kelbrook Road, Openshaw	Client: GH Sheldon Wholesale Bakers Ltd	Date: 01/04/2026
Project No. : LKC261139	Contractor: Client Provided	
Equipment: Excavator: 9 Tonne Tracked	Logged By: LGD	Scale: 1:40 / Page Number: Sheet 1 of 1

Depth (m)	Samples / Tests	Depth (m)	Legend	Stratum Description
0.00-0.80	D			MADE GROUND: Dark brown very gravelly silty SAND with abundant whole bricks, brick fragments, concrete fragments, occasional ash, clinker, rare glass fragments, timber fragments, cloth, metal fragments and plastic fragments. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded comprising sandstone and anthropogenic material.
1.10 1.10 1.10-1.20	D ES PID=63.0ppm	1.40		1.10 to 1.20mbgl - Viscous hydrocarbon contamination noted south of trial pit. End of Trial Pit at 1.40m



Pit Dimensions			Pit Stability
Length (m)	Width (m)	Depth (m)	Stable
3.40	2.20	1.40	

Remarks:

Trial pit dry.
Perched water noted at 1.20mbgl.
Concrete obstruction noted at 1.10mbgl, trial pit extended north.

Trial Pit Log

LK CONSULT

Location Ref: **TP207**

Project: Kelbrook Road, Openshaw	Client: GH Sheldon Wholesale Bakers Ltd	Date: 01/04/2026
Project No. : LKC261139	Contractor: Client Provided	
Equipment: Excavator: 9 Tonne Tracked	Logged By: LGD	Scale: 1:40 / Page Number: Sheet 1 of 1

Depth (m)	Samples / Tests	Depth (m)	Legend	Stratum Description
0.00-1.00	D			MADE GROUND: Dark brown very gravelly slightly silty SAND with abundant whole brick, half brick, brick fragments, concrete fragments, occasional timber, ash, clinker, metal fragments, rare ceramic fragments, cloth and plastic fragments. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded comprising sandstone and anthropogenic material.
		1.50		End of Trial Pit at 1.50m

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0



Pit Dimensions

Length (m)	Width (m)	Depth (m)
2.40	0.90	1.50

Pit Stability

Stable

Remarks:

Trial pit dry

LK CONSULT

Trial Pit Log

Location Ref: **TP208**

Project: Kelbrook Road, Openshaw	Client: GH Sheldon Wholesale Bakers Ltd	Date: 01/04/2026
Project No. : LKC261139	Contractor: Client Provided	
Equipment: Excavator: 9 Tonne Tracked	Logged By: LGD	Scale: 1:40 / Page Number: Sheet 1 of 1

Depth (m)	Samples / Tests	Depth (m)	Legend	Stratum Description
0.00-1.00 0.00-1.00 0.00-1.00 0.50 1.00-2.00	D ES PID=0.1ppm CBR=1% D			MADE GROUND: Dark brown gravelly silty SAND with frequent whole bricks, brick fragments, ash, clinker, occasional metal fragments, metalliferous slag, glass fragments, ceramic fragments, roots, rootlets, timber fragments and rare plastic fragments. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded comprising sandstone and anthropogenic material.
2.00-2.80 2.00-2.80 2.40	D ES SV=67.00kPa	2.00		Firm to stiff medium strength light brown slightly gravelly slightly sandy silty CLAY. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded comprising mudstone.
		2.80		End of Trial Pit at 2.80m

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0



Pit Dimensions			Pit Stability
Length (m)	Width (m)	Depth (m)	Stable
3.70	1.10	2.80	

Remarks:

Trial pit dry.
Plate Load Test undertaken at 0.50mbgl.

LK CONSULT

Trial Pit Log

Location Ref: **TP209**

Project: Kelbrook Road, Openshaw	Client: GH Sheldon Wholesale Bakers Ltd	Date: 02/04/2026
Project No. : LKC261139	Contractor: Client Provided	
Equipment: Excavator: 9 Tonne Tracked	Logged By: LGD	Scale: 1:40 / Page Number: Sheet 1 of 1

Depth (m)	Samples / Tests	Depth (m)	Legend	Stratum Description
0.00-0.50 0.00-0.50 0.00-0.50 0.50 0.60-1.00 0.60-1.00 1.00-1.60 1.00	D ES PID=0.1ppm CBR=2% D ES D SV=83.00kPa	0.60 1.60		MADE GROUND: Dark brown very gravelly slightly silty SAND with abundant whole brick, half brick, brick fragments, occasional ash, clinker, concrete fragments, ceramic fragments, metal fragments, rare glass fragments and plastic fragments. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded comprising sandstone and anthropogenic material. Stiff to very stiff consistency high strength greyish light brown slightly gravelly slightly sandy silty CLAY. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded comprising sandstone and mudstone. 1.40 to 1.60mbgl - Clay becomes very stiff. End of Trial Pit at 1.60m

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0



Pit Dimensions			Pit Stability
Length (m)	Width (m)	Depth (m)	Stable
5.00	3.80	1.60	

Remarks:

Trial pit dry.
Plate Load Test undertaken at 0.50mbgl.
Unable to undertake HSV from 1.40mbgl due to friability of clay.
Remnant brick footing noted at 0.10mbgl on the south-east side of trial pit.

Trial Pit Log

LK CONSULT

Location Ref: **TP210**

Project: Kelbrook Road, Openshaw	Client: GH Sheldon Wholesale Bakers Ltd	Date: 02/04/2026
Project No. : LKC261139	Contractor: Client Provided	
Equipment: Excavator: 9 Tonne Tracked	Logged By: LGD	Scale: 1:40 / Page Number: Sheet 1 of 1

Depth (m)	Samples / Tests	Depth (m)	Legend	Stratum Description
0.00-0.40 0.00-0.40 0.00-0.40 0.40-0.85 0.40-0.85 0.40-0.85	D ES PID=0.1ppm D ES PID=0.0ppm	0.40 0.85		MADE GROUND: Dark brown very gravelly slightly silty SAND with abundant whole brick, half brick, brick fragments, frequent ash, clinker, occasional ceramic fragments, rare glass fragments and metal fragments. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded comprising sandstone and anthropogenic material. MADE GROUND: Light brown gravelly silty SAND with occasional brick fragments, rare ash and clinker. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded comprising sandstone and anthropogenic material. End of Trial Pit at 0.85m

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0



Pit Dimensions			Pit Stability
Length (m)	Width (m)	Depth (m)	Stable
3.80	2.80	0.85	

Remarks:

Trial pit dry.
Trial pit terminated at 0.85mbgl due to concrete obstruction at base of pit.

Trial Pit Log

LK CONSULT

Location Ref: **TP211**

Project: Kelbrook Road, Openshaw	Client: GH Sheldon Wholesale Bakers Ltd	Date: 02/04/2026
Project No. : LKC261139	Contractor: Client Provided	
Equipment: Excavator: 9 Tonne Tracked	Logged By: LGD	Scale: 1:40 / Page Number: Sheet 1 of 1

Depth (m)	Samples / Tests	Depth (m)	Legend	Stratum Description
0.00-0.60 0.00-0.60 0.00-0.60	D ES PID=0.0ppm			MADE GROUND: Dark brown very gravelly silty SAND with frequent whole bricks, half brick, brick fragments, concrete fragments, occasional ceramic fragments, glass fragments, rare metal fragments and plastic fragments. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded comprising sandstone and anthropogenic material.
0.60-1.30	D			
		1.30		End of Trial Pit at 1.30m

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0



Pit Dimensions			Pit Stability
Length (m)	Width (m)	Depth (m)	Stable
4.70	2.50	1.30	

Remarks:

Trial pit dry.
Trial pit terminated at 1.30mbgl due to concrete obstruction at base of trial pit.
Plate Load Test undertaken at 0.50mbgl.

LK CONSULT

Trial Pit Log

Location Ref: **TP212**

Project: Kelbrook Road, Openshaw	Client: GH Sheldon Wholesale Bakers Ltd	Date: 02/04/2026
Project No. : LKC261139	Contractor: Client Provided	
Equipment: Excavator: 9 Tonne Tracked	Logged By: LGD	Scale: 1:40 / Page Number: Sheet 1 of 1

Depth (m)	Samples / Tests	Depth (m)	Legend	Stratum Description
0.00-0.50 0.00-0.50 0.00-0.50 0.50-1.40 0.50	D ES PID=0.1ppm D CBR=10%			MADE GROUND: Dark brown very gravelly silty SAND with abundant whole brick, half brick, brick fragments, occasional concrete fragments, ash, clinker, ceramic fragment, glass fragments, rare plastic fragments, slate fragments and metal fragments. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded comprising sandstone and anthropogenic material.
1.40-2.40 1.40-2.40	D ES	1.40		Greyish light brown gravelly silty SAND. Sand is fine to coarse. Gravel is fine to coarse, subangular to rounded comprising sandstone.
		2.40		End of Trial Pit at 2.40m

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0



Pit Dimensions			Pit Stability
Length (m)	Width (m)	Depth (m)	Stable
5.50	3.70	2.40	

Remarks:

Trial pit dry.
Plate Load Test undertaken at 0.50mbgl.

LK CONSULT

Trial Pit Log

Location Ref: **TP213**

Project: Kelbrook Road, Openshaw	Client: GH Sheldon Wholesale Bakers Ltd	Date: 02/04/2026
Project No. : LKC261139	Contractor: Client Provided	
Equipment: Excavator: 9 Tonne Tracked	Logged By: LGD	Scale: 1:40 / Page Number: Sheet 1 of 1

Depth (m)	Samples / Tests	Depth (m)	Legend	Stratum Description
0.00-0.50 0.00-0.50 0.00-0.50 0.50-1.10 0.50	D ES PID=0.0ppm D CBR=3%			MADE GROUND: Dark brown very gravelly silty SAND with abundant whole brick, half brick, brick fragments, frequent ash, clinker, occasional concrete fragments, ceramic fragments, rare metal fragments and plastic fragments. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded comprising sandstone and anthropogenic material.
1.10-1.50 1.10-1.50 1.10-1.50 1.50-2.10 1.50-2.10 1.50-2.10	D ES PID=0.0ppm D ES ES	1.10 1.50		MADE GROUND: Firm consistency light brown gravelly slightly sandy silty CLAY with occasional ash, clinker, brick fragments and ceramic fragments. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded comprising sandstone and anthropogenic material.
				Stiff consistency greyish light brown slightly gravelly slightly sandy silty CLAY. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded comprising mudstone and sandstone.
		2.10		End of Trial Pit at 2.10m



Pit Dimensions			Pit Stability
Length (m)	Width (m)	Depth (m)	Stable
3.70	1.70	2.10	

Remarks:

Trial pit dry.
Hand shear vane not undertaken at 1.50-2.10mbgl due to friable nature of clay.
Plate Load Test undertaken at 0.50mbgl.

LK CONSULT

Trial Pit Log

Location Ref: **TP214**

Project: Kelbrook Road, Openshaw	Client: GH Sheldon Wholesale Bakers Ltd	Date: 02/04/2026
Project No. : LKC261139	Contractor: Client Provided	
Equipment: Excavator: 9 Tonne Tracked	Logged By: LGD	Scale: 1:40 / Page Number: Sheet 1 of 1

Depth (m)	Samples / Tests	Depth (m)	Legend	Stratum Description
0.00-1.00 0.00-1.00 0.00-1.00 0.50 1.00-1.80	D ES PID=0.0ppm CBR=2% D			MADE GROUND: Dark brown very gravelly slightly silty SAND with abundant whole brick, half brick, brick fragments, frequent ash, clinker, ceramic fragments, occasional concrete fragments, rare glass fragments and metal fragments. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded comprising sandstone and anthropogenic material.
1.80-2.10 1.80-2.10 2.00	D ES SV=68.00kPa	1.80 2.10		Firm consistency medium strength greyish brown slightly gravelly slightly sandy silty CLAY. Sand is fine to coarse. Gravel is fine to medium, subangular to subrounded comprising sandstone and mudstone. 1.80 to 2.10mbgl - Pockets of organic material noted within the clay. End of Trial Pit at 2.10m



Pit Dimensions			Pit Stability
Length (m)	Width (m)	Depth (m)	Stable
2.70	2.20	2.10	

Remarks:

Trial pit dry.

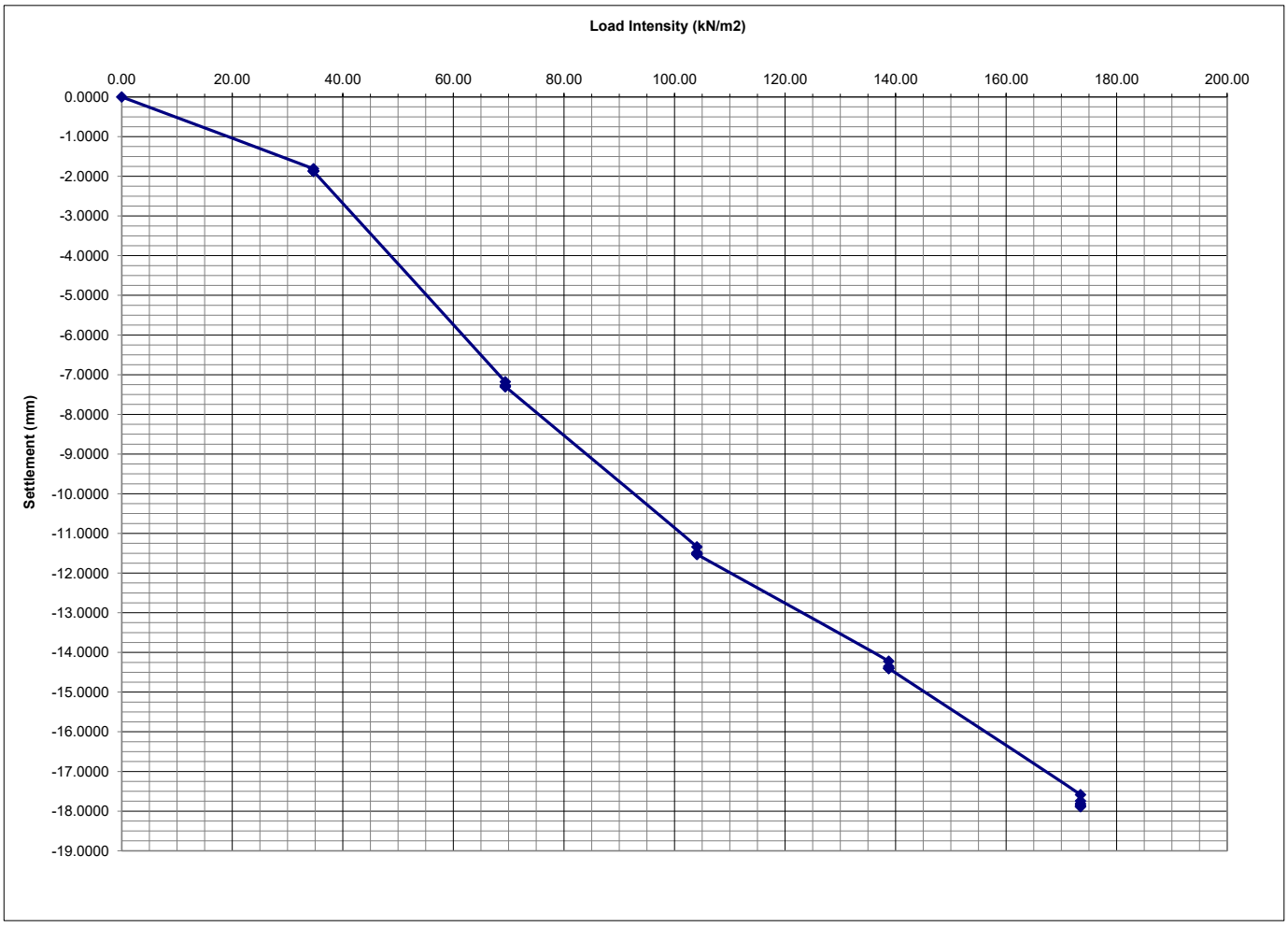
Appendix C – CBR Results

LK GROUP

Vertical Deformation Test-Equivalent CBR Value

In Accordance with BS1377: Part 9:1990

Site Name:	**Kelbrook Road, Openshaw**	**Test Date:**	02/04/2026
Site Ref:	LKC261139	**Type of Kentledge:**	9T Excavator
Test No.:	CBR101	**Test Depth (m bgl):**	0.50
Plate Diameter (mm)	600	**Easting:**	387694
Maximum Applied Pressure (kN/m2):	173.48	**Northing:**	397730
Maximum Deformation (mm):	-17.89	**Weather:**	Bright and Sunny
Strata Description:	Made Ground		



Equivalent CBR Value of 1%

Corrected Subgrade Reaction (k_{762}): 16400 kN/m²/m

Comments

1.25mm settlement was reached at a load intensity of 25kN/m2, resulting in a CBR value of 1.23%

Site Engineer:	Date:
CD	02/04/2026

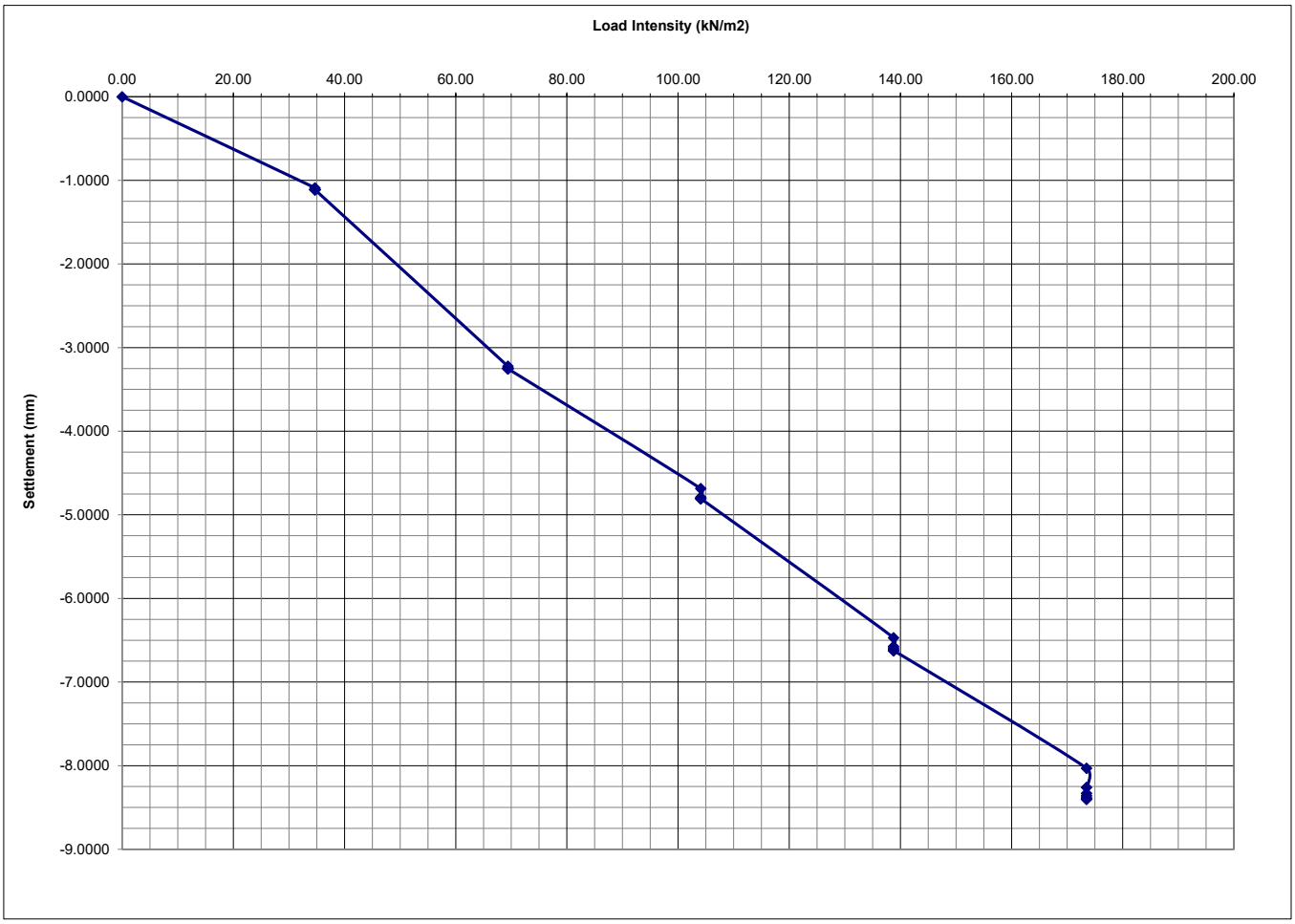
Approved By:	Date:
Colin Wardle	07/04/2026

LK GROUP

Vertical Deformation Test-Equivalent CBR Value

In Accordance with BS1377: Part 9:1990

Site Name:	**Kelbrook Road, Openshaw**	**Test Date:**	02/04/2026
Site Ref:	LKC261139	**Type of Kentledge:**	9T Excavator
Test No.:	CBR102	**Test Depth (m bgl):**	0.50
Plate Diameter (mm)	600	**Easting:**	387694
Maximum Applied Pressure (kN/m2):	173.48	**Northing:**	397730
Maximum Deformation (mm):	-8.40	**Weather:**	Bright and Sunny
Strata Description:	Made Ground		



Equivalent CBR Value of 2%

Corrected Subgrade Reaction (k_{762}): **24600** kN/m²/m

Comments

1.25mm settlement was reached at a load intensity of 37.5kN/m2, resulting in a CBR value of 2.48%

Site Engineer:	Date:
CD	02/04/2026

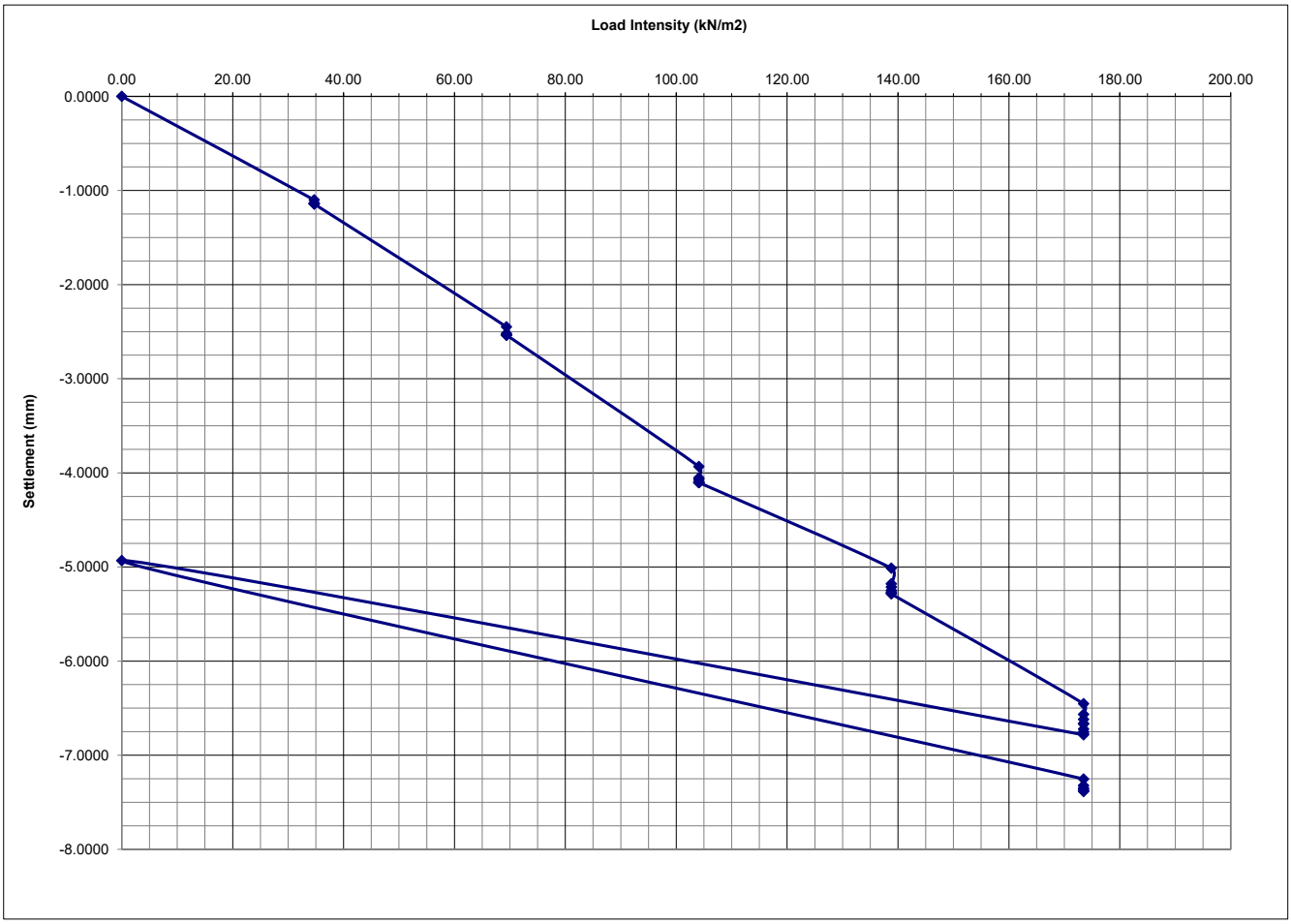
Approved By:	Date:
Colin Wardle	07/04/2026

LK GROUP

Vertical Deformation Test-Equivalent CBR Value

In Accordance with BS1377: Part 9:1990

Site Name:	**Kelbrook Road, Openshaw**	**Test Date:**	02/04/2026
Site Ref:	LKC261139	**Type of Kentledge:**	9T Excavator
Test No.:	CBR103	**Test Depth (m bgl):**	0.50
Plate Diameter (mm)	600	**Easting:**	387694
Maximum Applied Pressure (kN/m2):	173.48	**Northing:**	397730
Maximum Deformation (mm):	-7.38	**Weather:**	Bright and Sunny
Strata Description:	Made Ground		



Equivalent CBR Value of 2%

Corrected Subgrade Reaction (k_{762}): **24600** kN/m²/m

Comments

1.25mm settlement was reached at a load intensity of 37.5kN/m2, resulting in a CBR value of 2.48%

Site Engineer:	Date:
CD	02/04/2026

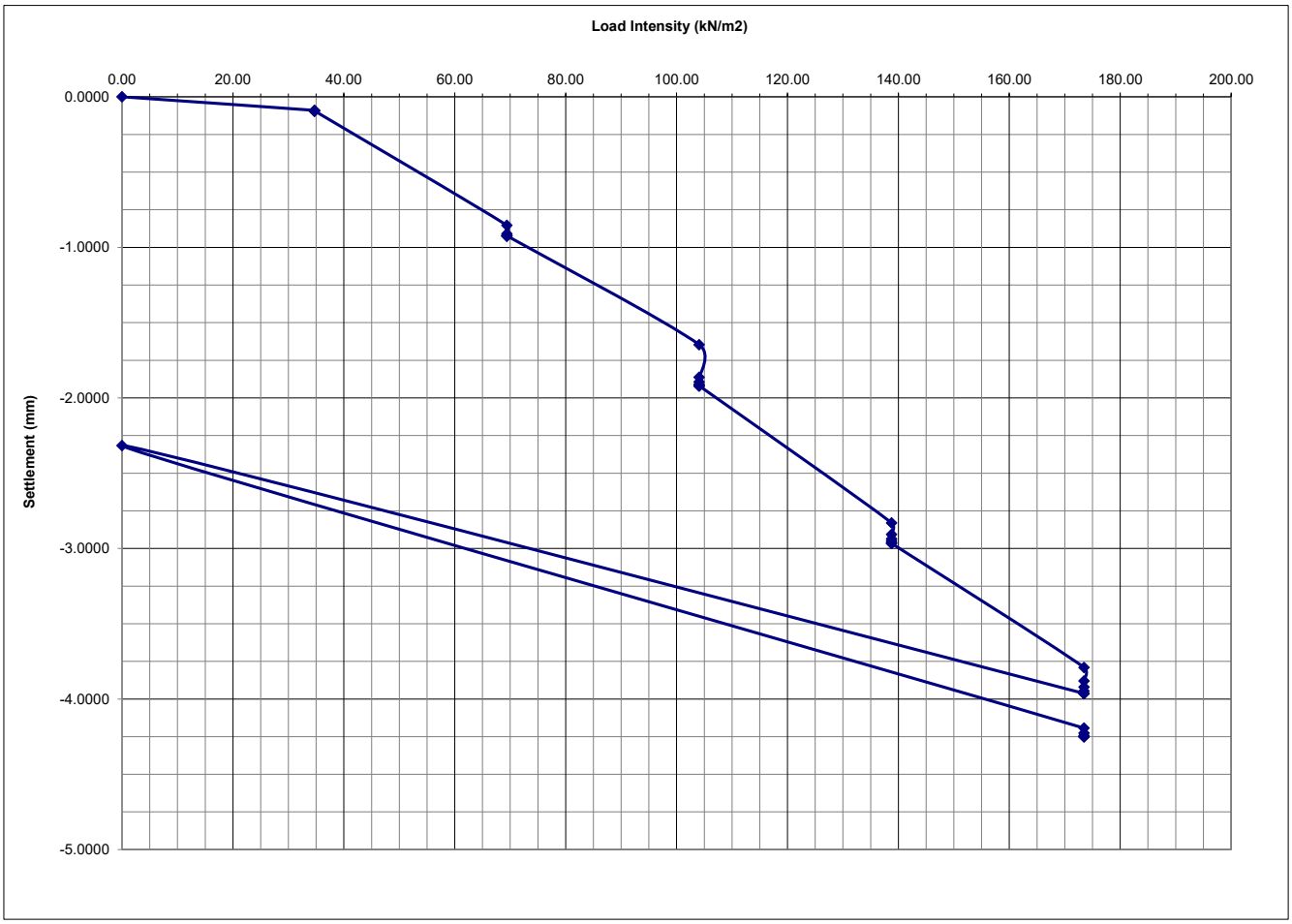
Approved By:	Date:
Colin Wardle	07/04/2026

LK GROUP

Vertical Deformation Test-Equivalent CBR Value

In Accordance with BS1377: Part 9:1990

Site Name:	**Kelbrook Road, Openshaw**	**Test Date:**	02/04/2026
Site Ref:	LKC261139	**Type of Kentledge:**	9T Excavator
Test No.:	CBR104	**Test Depth (m bgl):**	0.50
Plate Diameter (mm)	600	**Easting:**	387694
Maximum Applied Pressure (kN/m2):	173.48	**Northing:**	397730
Maximum Deformation (mm):	-4.25	**Weather:**	Bright and Sunny
Strata Description:	Made Ground		



Equivalent CBR Value of 10.2%

Corrected Subgrade Reaction (k_{762}): **55760** kN/m^2/m

Comments

1.25mm settlement was reached at a load intensity of 85kN/m2, resulting in a CBR value of 10.25%

Site Engineer:	Date:
CD	02/04/2026

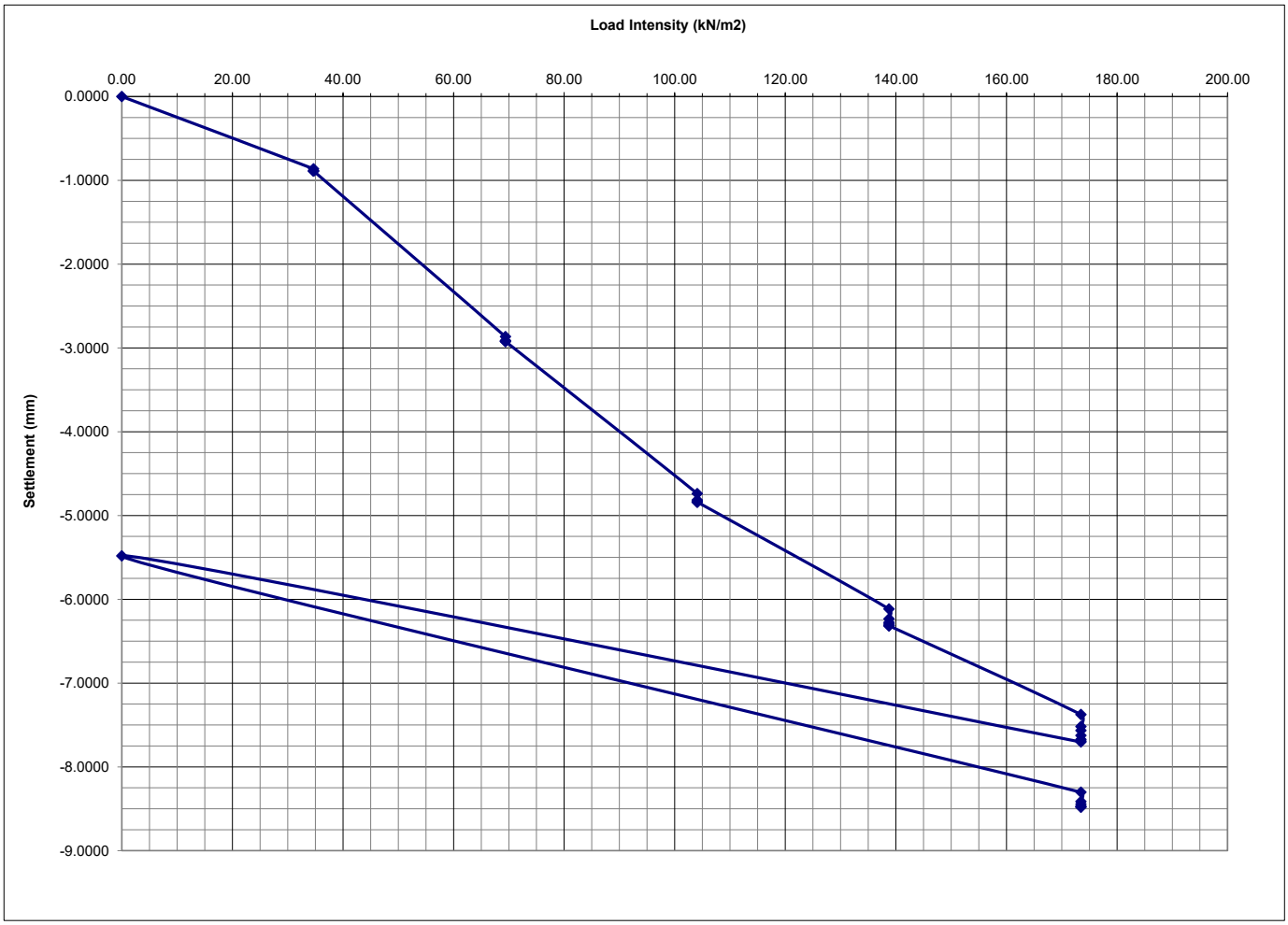
Approved By:	Date:
Colin Wardle	07/04/2026

LK GROUP

Vertical Deformation Test-Equivalent CBR Value

In Accordance with BS1377: Part 9:1990

Site Name:	**Kelbrook Road, Openshaw**	**Test Date:**	02/04/2026
Site Ref:	LKC261139	**Type of Kentledge:**	9T Excavator
Test No.:	CBR105	**Test Depth (m bgl):**	0.50
Plate Diameter (mm)	600	**Easting:**	387694
Maximum Applied Pressure (kN/m2):	173.48	**Northing:**	397730
Maximum Deformation (mm):	-8.48	**Weather:**	Bright and Sunny
Strata Description:	Made Ground		



Equivalent CBR Value of 3%

Corrected Subgrade Reaction (k_{762}): 27552 kN/m²/m

Comments

1.25mm settlement was reached at a load intensity of 42kN/m2, resulting in a CBR value of 3.02%

Site Engineer:	Date:
CD	02/04/2026

Approved By:	Date:
Colin Wardle	07/04/2026

Appendix D – Certificates of Analysis (Soil)

Certificate of Analysis

Certificate Number	26-08247	*Issued:*	23-Apr-26

Client LK Consult Limited
Unit 29
Eton Business Park
Eton Hill Road
Radcliffe
Manchester
M26 2ZS

Our Reference 26-08247

Client Reference ~ LKC261139

Order No ~ PO-C002766

Contract Title ~ Kellbrook Road Openshaw

Description 13 Soil samples.

Date Received 08-Apr-26

Date Started 08-Apr-26

Date Completed 23-Apr-26

Test Procedures Identified by prefix DETSn (details on request).

Notes 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.

Approved By

Reyhan Irfan
Operations Manager

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Summary of Chemical Analysis
Soil Samples

Our Ref 26-08247
Client Ref ~ LKC261139
Contract Title ~ Kellbrook Road Openshaw

	Lab No	2667458	2667459	2667460	2667461	2667462	2667463
	Sample ID ~	TP204	TP205	TP206	TP206	TP207	TP208
	Depth ~	0.00-1.00	0.00-0.90	0.00-0.80	1.10	0.00-1.00	0.00-1.00
	Other ID ~						
	Sample Type ~	D	D	ES	D	ES	ES
	Sampling Date ~	01/04/2026	01/04/2026	01/04/2026	01/04/2026	01/04/2026	01/04/2026
	Sampling Time ~	n/s	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**						
Asbestos Quantification (Gravimetric)	DETSC 1102	0.001	%	0.004	0.009	0.001		0.021	
Preparation									
Moisture Content	DETSC 1004	0.1	%				19		15
Metals									
Arsenic	DETSC 2301#	0.2	mg/kg				40		26
Boron, Water Soluble (2.5:1)	DETSC 2311#	0.2	mg/kg				0.7		
Cadmium	DETSC 2301#	0.1	mg/kg				3.0		0.4
Chromium	DETSC 2301#	0.15	mg/kg				130		220
Chromium, Hexavalent	DETSC 2204*	1	mg/kg				< 1.0		< 1.0
Copper	DETSC 2301#	0.2	mg/kg				100		100
Lead	DETSC 2301#	0.3	mg/kg				180		150
Mercury	DETSC 2325#	0.05	mg/kg				0.16		0.12
Nickel	DETSC 2301#	1	mg/kg				55		75
Selenium	DETSC 2301#	0.5	mg/kg				3.9		3.9
Vanadium	DETSC 2301#	0.8	mg/kg				210		350
Zinc	DETSC 2301#	1	mg/kg				270		86
Inorganics									
pH	DETSC 2008#		pH				8.8		9.3
Cyanide, Total	DETSC 2130#	0.1	mg/kg				0.1		
Cyanide, Free	DETSC 2130#	0.1	mg/kg				< 0.1		
Organic matter	DETSC 2002#	0.1	%				3.6		3.5
Sulphate Aqueous Extract as SO4 (2:1)	DETSC 2076#	10	mg/l				140		32
Petroleum Hydrocarbons									
Aliphatic C5-C6: HS_1D_AL	DETSC 3321*	0.01	mg/kg				< 0.10		
Aliphatic C6-C8: HS_1D_AL	DETSC 3321*	0.01	mg/kg				84		
Aliphatic C8-C10: HS_1D_AL	DETSC 3321*	0.01	mg/kg				250		
Aliphatic C10-C12: EH_CU_1D_AL	DETSC 3072#	1.5	mg/kg				11000		
Aliphatic C12-C16: EH_CU_1D_AL	DETSC 3072#	1.2	mg/kg				27000		
Aliphatic C16-C21: EH_CU_1D_AL	DETSC 3072#	1.5	mg/kg				72000		
Aliphatic C21-C35: EH_CU_1D_AL	DETSC 3072#	3.4	mg/kg				360000		
Aliphatic C35-C40: EH_CU_1D_AL	DETSC 3072*	3.4	mg/kg				25000		
Aliphatic C10-C44: EH_CU_1D_AL	DETSC 3072*	10	mg/kg				510000		
Aliphatic C5-C40: EH_CU+HS_1D_AL	DETSC 3072*	10	mg/kg				490000		
Aliphatic C5-C44: EH_CU+HS_1D_AL	DETSC 3072*	10	mg/kg				510000		
Aromatic C5-C7: HS_1D_AR	DETSC 3321*	0.01	mg/kg				< 0.10		
Aromatic C7-C8: HS_1D_AR	DETSC 3321*	0.01	mg/kg				1.2		
Aromatic C8-C10: HS_1D_AR	DETSC 3321*	0.01	mg/kg				< 0.10		
Aromatic C10-C12: EH_CU_1D_AR	DETSC 3072#	0.9	mg/kg				9800		
Aromatic C12-C16: EH_CU_1D_AR	DETSC 3072#	0.5	mg/kg				51000		
Aromatic C16-C21: EH_CU_1D_AR	DETSC 3072#	0.6	mg/kg				160000		
Aromatic C21-C35: EH_CU_1D_AR	DETSC 3072#	1.4	mg/kg				690000		
Aromatic C35-C40: EH_CU_1D_AR	DETSC 3072*	1.4	mg/kg				75000		

Summary of Chemical Analysis
Soil Samples

Our Ref 26-08247
Client Ref ~ LKC261139
Contract Title ~ Kellbrook Road Openshaw

	Lab No	2667458	2667459	2667460	2667461	2667462	2667463
	Sample ID ~	TP204	TP205	TP206	TP206	TP207	TP208
	Depth ~	0.00-1.00	0.00-0.90	0.00-0.80	1.10	0.00-1.00	0.00-1.00
	Other ID ~						
	Sample Type ~	D	D	ES	D	ES	ES
	Sampling Date ~	01/04/2026	01/04/2026	01/04/2026	01/04/2026	01/04/2026	01/04/2026
	Sampling Time ~	n/s	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**				
Aromatic C10-C44: EH_CU_1D_AR	DETSC 3072*	10	mg/kg				870000		
Aromatic C5-C40: EH_CU+HS_1D_AR	DETSC 3072*	10	mg/kg				980000		
Aromatic C5-C44: EH_CU+HS_1D_AR	DETSC 3072*	10	mg/kg				870000		
TPH Ali/Aro C5-C40: EH_CU+HS_1D_Total	DETSC 3072*	10	mg/kg			> 1000000			
TPH Ali/Aro C5-C44: EH_CU+HS_1D_Total	DETSC 3072*	10	mg/kg			> 1000000			
Ali/Aro C10-C44: EH_CU_1D_Total	DETSC 3072*	10	mg/kg			> 1000000			
Benzene	DETSC 3321#	0.01	mg/kg				< 0.10		
Ethylbenzene	DETSC 3321#	0.01	mg/kg				< 0.10		
Toluene	DETSC 3321#	0.01	mg/kg				1.2		
Xylene	DETSC 3321#	0.01	mg/kg				3.3		
m+p Xylene	DETSC 3321#	0.01	mg/kg				1.4		
o Xylene	DETSC 3321#	0.01	mg/kg				1.9		
MTBE	DETSC 3321	0.01	mg/kg				0.33		
PAHs									
Naphthalene	DETSC 3303#	0.03	mg/kg				19		< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg				< 0.30		< 0.03
Acenaphthene	DETSC 3303#	0.03	mg/kg				4.1		< 0.03
Fluorene	DETSC 3303	0.03	mg/kg				6.2		< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg				23		0.15
Anthracene	DETSC 3303	0.03	mg/kg				2.9		0.04
Fluoranthene	DETSC 3303#	0.03	mg/kg				1.5		0.20
Pyrene	DETSC 3303#	0.03	mg/kg				4.4		0.18
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg				2.6		0.10
Chrysene	DETSC 3303	0.03	mg/kg				5.2		0.08
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg				2.2		0.12
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg				< 0.30		0.04
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg				< 0.30		0.07
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg				< 0.30		< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg				< 0.30		< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg				0.94		0.03
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg				72		0.98
Phenols									
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg				< 0.3		

Summary of Chemical Analysis
Soil Samples

Our Ref 26-08247
Client Ref ~ LKC261139
Contract Title ~ Kellbrook Road Openshaw

			Lab No	2667464	2667465	2667466	2667467
			Sample ID ~	TP209	TP210	TP213	TP214
			Depth ~	0.00-0.50	0.00-0.40	0.00-0.50	0.00-1.00
			Other ID ~				
			Sample Type ~	ES	ES	ES	ES
			Sampling Date ~	01/04/2026	01/04/2026	01/04/2026	01/04/2026
			Sampling Time ~	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**				
Asbestos Quantification (Gravimetric)	DETSC 1102	0.001	%	0.007	0.035		
Preparation							
Moisture Content	DETSC 1004	0.1	%	21	17	17	25
Metals							
Arsenic	DETSC 2301#	0.2	mg/kg	80	17	62	41
Boron, Water Soluble (2.5:1)	DETSC 2311#	0.2	mg/kg				
Cadmium	DETSC 2301#	0.1	mg/kg	9.0	0.7	0.4	0.4
Chromium	DETSC 2301#	0.15	mg/kg	27	120	16	20
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	120	170	160	150
Lead	DETSC 2301#	0.3	mg/kg	340	220	220	150
Mercury	DETSC 2325#	0.05	mg/kg	0.26	0.09	1.0	0.49
Nickel	DETSC 2301#	1	mg/kg	41	89	35	30
Selenium	DETSC 2301#	0.5	mg/kg	1.2	2.4	< 0.5	0.8
Vanadium	DETSC 2301#	0.8	mg/kg	59	120	53	42
Zinc	DETSC 2301#	1	mg/kg	710	150	150	120
Inorganics							
pH	DETSC 2008#		pH	7.6	9.1	7.3	7.4
Cyanide, Total	DETSC 2130#	0.1	mg/kg				
Cyanide, Free	DETSC 2130#	0.1	mg/kg				
Organic matter	DETSC 2002#	0.1	%	3.5	3.4	4.0	4.3
Sulphate Aqueous Extract as SO4 (2:1)	DETSC 2076#	10	mg/l	360	24	34	890
Petroleum Hydrocarbons							
Aliphatic C5-C6: HS_1D_AL	DETSC 3321*	0.01	mg/kg				
Aliphatic C6-C8: HS_1D_AL	DETSC 3321*	0.01	mg/kg				
Aliphatic C8-C10: HS_1D_AL	DETSC 3321*	0.01	mg/kg				
Aliphatic C10-C12: EH_CU_1D_AL	DETSC 3072#	1.5	mg/kg				
Aliphatic C12-C16: EH_CU_1D_AL	DETSC 3072#	1.2	mg/kg				
Aliphatic C16-C21: EH_CU_1D_AL	DETSC 3072#	1.5	mg/kg				
Aliphatic C21-C35: EH_CU_1D_AL	DETSC 3072#	3.4	mg/kg				
Aliphatic C35-C40: EH_CU_1D_AL	DETSC 3072*	3.4	mg/kg				
Aliphatic C10-C44: EH_CU_1D_AL	DETSC 3072*	10	mg/kg				
Aliphatic C5-C40: EH_CU+HS_1D_AL	DETSC 3072*	10	mg/kg				
Aliphatic C5-C44: EH_CU+HS_1D_AL	DETSC 3072*	10	mg/kg				
Aromatic C5-C7: HS_1D_AR	DETSC 3321*	0.01	mg/kg				
Aromatic C7-C8: HS_1D_AR	DETSC 3321*	0.01	mg/kg				
Aromatic C8-C10: HS_1D_AR	DETSC 3321*	0.01	mg/kg				
Aromatic C10-C12: EH_CU_1D_AR	DETSC 3072#	0.9	mg/kg				
Aromatic C12-C16: EH_CU_1D_AR	DETSC 3072#	0.5	mg/kg				
Aromatic C16-C21: EH_CU_1D_AR	DETSC 3072#	0.6	mg/kg				
Aromatic C21-C35: EH_CU_1D_AR	DETSC 3072#	1.4	mg/kg				
Aromatic C35-C40: EH_CU_1D_AR	DETSC 3072*	1.4	mg/kg				

Summary of Chemical Analysis
Soil Samples

Our Ref 26-08247
Client Ref ~ LKC261139
Contract Title ~ Kellbrook Road Openshaw

	Lab No	2667464	2667465	2667466	2667467
	Sample ID ~	TP209	TP210	TP213	TP214
	Depth ~	0.00-0.50	0.00-0.40	0.00-0.50	0.00-1.00
	Other ID ~				
	Sample Type ~	ES	ES	ES	ES
	Sampling Date ~	01/04/2026	01/04/2026	01/04/2026	01/04/2026
	Sampling Time ~	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**		
Aromatic C10-C44: EH_CU_1D_AR	DETSC 3072*	10	mg/kg				
Aromatic C5-C40: EH_CU+HS_1D_AR	DETSC 3072*	10	mg/kg				
Aromatic C5-C44: EH_CU+HS_1D_AR	DETSC 3072*	10	mg/kg				
TPH Ali/Aro C5-C40: EH_CU+HS_1D_Total	DETSC 3072*	10	mg/kg				
TPH Ali/Aro C5-C44: EH_CU+HS_1D_Total	DETSC 3072*	10	mg/kg				
Ali/Aro C10-C44: EH_CU_1D_Total	DETSC 3072*	10	mg/kg				
Benzene	DETSC 3321#	0.01	mg/kg				
Ethylbenzene	DETSC 3321#	0.01	mg/kg				
Toluene	DETSC 3321#	0.01	mg/kg				
Xylene	DETSC 3321#	0.01	mg/kg				
m+p Xylene	DETSC 3321#	0.01	mg/kg				
o Xylene	DETSC 3321#	0.01	mg/kg				
MTBE	DETSC 3321	0.01	mg/kg				
PAHs							
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	0.04	0.32
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03	0.03	< 0.03	< 0.03
Acenaphthene	DETSC 3303#	0.03	mg/kg	0.05	0.04	0.12	2.2
Fluorene	DETSC 3303	0.03	mg/kg	0.04	0.04	0.07	1.9
Phenanthrene	DETSC 3303#	0.03	mg/kg	0.59	0.44	0.69	8.1
Anthracene	DETSC 3303	0.03	mg/kg	0.08	0.11	0.11	1.5
Fluoranthene	DETSC 3303#	0.03	mg/kg	0.94	0.77	0.98	11
Pyrene	DETSC 3303#	0.03	mg/kg	0.90	0.72	1.0	9.8
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	0.37	0.39	0.42	3.8
Chrysene	DETSC 3303	0.03	mg/kg	0.36	0.32	0.41	3.5
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	0.41	0.41	0.39	3.2
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	0.13	0.15	0.13	1.1
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	0.32	0.33	0.31	2.5
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	0.11	0.12	0.10	0.69
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	0.03	0.04	0.03	0.23
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	0.14	0.15	0.13	0.93
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	4.4	4.0	4.9	50
Phenols							
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg				

Summary of Asbestos Analysis
Soil Samples

Our Ref 26-08247
Client Ref ~ LKC261139
Contract Title ~ Kellbrook Road Openshaw

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2667455	TP201 0.00-1.00	SOIL	NAD	none	Ben Barsby
2667456	TP202 0.00-0.80	SOIL	NAD	none	Ben Barsby
2667457	TP203 0.00-1.00	SOIL	NAD	none	Ben Barsby
2667458	TP204 0.00-1.00	SOIL	Chrysotile Amosite	Chrysotile and Amosite present as fibre bundles	Ben Barsby
2667459	TP205 0.00-0.90	SOIL	Amosite Chrysotile	Chrysotile and Amosite present as fibre bundles	Ben Barsby
2667460	TP206 0.00-0.80	SOIL	Chrysotile	Chrysotile present as fibre bundles	Ben Barsby
2667461	TP206 1.10	SOIL	NAD	none	Ben Barsby
2667462	TP207 0.00-1.00	SOIL	Chrysotile Amosite	Amosite present as fibre bundles and Chrysotile present in microscopic insulation debris	Ben Barsby
2667463	TP208 0.00-1.00	SOIL	NAD	none	Ben Barsby
2667464	TP209 0.00-0.50	SOIL	Chrysotile Amosite	Chrysotile and Amosite present as fibre bundles	Ben Barsby
2667465	TP210 0.00-0.40	SOIL	Chrysotile Amosite	Chrysotile and Amosite present in microscopic insulation debris	Ben Barsby
2667466	TP213 0.00-0.50	SOIL	NAD	none	Ben Barsby
2667467	TP214 0.00-1.00	SOIL	NAD	none	Ben Barsby

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * -not included in laboratory scope of accreditation.

Summary of Asbestos Quantification Analysis
Soil Samples

Our Ref 26-08247
Client Ref ~ LKC261139
Contract Title ~ Kellbrook Road Openshaw

	Lab No	2667458	2667459	2667460
	Sample ID ~	TP204	TP205	TP206
	Depth ~	0.00-1.00	0.00-0.90	0.00-0.80
	Other ID ~			
	Sample Type ~	D	D	ES
	Sampling Date ~	01/04/2026	01/04/2026	01/04/2026
	Sampling Time ~			

Test	Method	LOQ	Units			
Total Mass% Asbestos (a+b+c)	DETSC 1102	< 0.001	Mass %	**0.004**	**0.009**	**0.001**
Gravimetric Quantification (a)	DETSC 1102	< 0.001	Mass %	na	na	na
Detailed Gravimetric Quantification (b)	DETSC 1102	< 0.001	Mass %	0.004	0.009	0.001
Quantification by PCOM (c)	DETSC 1102	< 0.001	Mass %	na	na	na
Potentially Respirable Fibres (d)	DETSC 1102	< 0.001	Fibres/g	na	na	na
Breakdown of Gravimetric Analysis (a)						
Mass of Sample			g	1003.83	1129.00	1257.58
ACMs present*			type			
Mass of ACM in sample			g			
% ACM by mass			%			
% asbestos in ACM			%			
% asbestos in sample			%			
Breakdown of Detailed Gravimetric Analysis (b)						
% Amphibole bundles in sample			Mass %	0.003	0.007	na
% Chrysotile bundles in sample			Mass %	0.001	0.002	0.001
Breakdown of PCOM Analysis (c)						
% Amphibole fibres in sample			Mass %	na	na	na
% Chrysotile fibres in sample			Mass %	na	na	na
Breakdown of Potentially Respirable Fibre Analysis (d)						
Amphibole fibres			Fibres/g	na	na	na
Chrysotile fibres			Fibres/g	na	na	na

* Denotes test or material description outside of UKAS accreditation.
% asbestos in Asbestos Containing Materials (ACMs) is determined by
by reference to HSG 264.
Recommended sample size for quantification is approximately 1kg
# denotes deviating sample
The results are based on dry weight.

Summary of Asbestos Quantification Analysis

Soil Samples

Our Ref 26-08247
Client Ref ~ LKC261139
Contract Title ~ Kellbrook Road Openshaw

			Lab No	2667462	2667464	2667465
			Sample ID ~	TP207	TP209	TP210
			Depth ~	0.00-1.00	0.00-0.50	0.00-0.40
			Other ID ~			
			Sample Type ~	ES	ES	ES
			Sampling Date ~	01/04/2026	01/04/2026	01/04/2026
			Sampling Time ~			
Test	**Method**	**LOQ**	**Units**			
Total Mass% Asbestos (a+b+c)	DETSC 1102	< 0.001	Mass %	**0.021**	**0.007**	**0.035**
Gravimetric Quantification (a)	DETSC 1102	< 0.001	Mass %	0.020	na	0.035
Detailed Gravimetric Quantification (b)	DETSC 1102	< 0.001	Mass %	<0.001	0.007	na
Quantification by PCOM (c)	DETSC 1102	< 0.001	Mass %	na	na	na
Potentially Respirable Fibres (d)	DETSC 1102	< 0.001	Fibres/g	na	na	na
Breakdown of Gravimetric Analysis (a)						
Mass of Sample			g	1161.45	766.23	710.53
ACMs present*			type	Insulation		Insualtion
Mass of ACM in sample			g	0.2745		0.2934
% ACM by mass			%	0.024		0.041
% asbestos in ACM			%	85		85
% asbestos in sample			%	0.020		0.035
Breakdown of Detailed Gravimetric Analysis (b)						
% Amphibole bundles in sample			Mass %	<0.001	0.002	na
% Chrysotile bundles in sample			Mass %	na	0.005	na
Breakdown of PCOM Analysis (c)						
% Amphibole fibres in sample			Mass %	na	na	na
% Chrysotile fibres in sample			Mass %	na	na	na
Breakdown of Potentially Respirable Fibre Analysis (d)						
Amphibole fibres			Fibres/g	na	na	na
Chrysotile fibres			Fibres/g	na	na	na

* Denotes test or material description outside of UKAS accreditation.
% asbestos in Asbestos Containing Materials (ACMs) is determined by
by reference to HSG 264.
Recommended sample size for quantification is approximately 1kg
# denotes deviating sample
The results are based on dry weight.

Information in Support of the Analytical Results

Our Ref 26-08247
Client Ref ~ LKC261139
Contract ~ Kellbrook Road Openshaw

Containers Received & Deviating Samples

Lab No	Sample ID ~	Date Sampled ~	Containers Received	Holding time exceeded for tests	Incorrect container for tests
2667455	TP201 0.00-1.00 SOIL	01/04/26	PT 1L		
2667456	TP202 0.00-0.80 SOIL	01/04/26	PT 1L		
2667457	TP203 0.00-1.00 SOIL	01/04/26	PT 1L		
2667458	TP204 0.00-1.00 SOIL	01/04/26	PT 1L		
2667459	TP205 0.00-0.90 SOIL	01/04/26	PT 1L		
2667460	TP206 0.00-0.80 SOIL	01/04/26	PT 1L		
2667461	TP206 1.10 SOIL	01/04/26	GJ 250ml, GJ 60ml, PT 1L		
2667462	TP207 0.00-1.00 SOIL	01/04/26	PT 1L		
2667463	TP208 0.00-1.00 SOIL	01/04/26	GJ 250ml, GJ 60ml, PT 1L		
2667464	TP209 0.00-0.50 SOIL	01/04/26	GJ 250ml, GJ 60ml, PT 1L		
2667465	TP210 0.00-0.40 SOIL	01/04/26	GJ 250ml, GJ 60ml, PT 1L		
2667466	TP213 0.00-0.50 SOIL	01/04/26	GJ 250ml, GJ 60ml, PT 1L		
2667467	TP214 0.00-1.00 SOIL	01/04/26	GJ 250ml, GJ 60ml, PT 1L		

Key: P-Plastic T-Tub G-Glass J-Jar

Normec DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 250µm sieve
Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.
The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-
Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Information in Support of the Analytical Results

List of HWOL Acronyms and Operators

Acronym	Description
HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total

Det	Acronym
Aliphatic C5-C6	HS_1D_AL
Aliphatic C6-C8	HS_1D_AL
Aliphatic C8-C10	HS_1D_AL
Aliphatic C10-C12	EH_CU_1D_AL
Aliphatic C12-C16	EH_CU_1D_AL
Aliphatic C16-C21	EH_CU_1D_AL
Aliphatic C21-C35	EH_CU_1D_AL
Aliphatic C35-C40	EH_CU_1D_AL
Aliphatic C10-C44	EH_CU_1D_AL
Aliphatic C5-C40	EH_CU+HS_1D_AL
Aliphatic C5-C44	EH_CU+HS_1D_AL
Aromatic C5-C7	HS_1D_AR
Aromatic C7-C8	HS_1D_AR
Aromatic C8-C10	HS_1D_AR
Aromatic C10-C12	EH_CU_1D_AR
Aromatic C12-C16	EH_CU_1D_AR
Aromatic C16-C21	EH_CU_1D_AR
Aromatic C21-C35	EH_CU_1D_AR
Aromatic C35-C40	EH_CU_1D_AR
Aromatic C10-C44	EH_CU_1D_AR
Aromatic C5-C40	EH_CU+HS_1D_AR
Aromatic C5-C44	EH_CU+HS_1D_AR
TPH Ali/Aro C5-C40	EH_CU+HS_1D_Total
TPH Ali/Aro C5-C44	EH_CU+HS_1D_Total
Ali/Aro C10-C44	EH_CU_1D_Total

Key:

~ Sample details are provided by the client and can affect the validity of the results
***** -not accredited.
# -MCERTS (accreditation only applies if report carries the MCERTS logo).
$ -subcontracted.
n/s -not supplied.
I/S -insufficient sample.
U/S -unsuitable sample.
t/f -to follow.
nd -not detected.

End of Report Ver 26.03.15

Appendix E – Generic Assessment Criteria Values

Generic Assessment Criteria Values

	Contaminant	SOM	Res +	Res -	Allot.	Comm.	^{POS}resi	^{POS}park	Source
Metals	Inorganic Arsenic	N/A	37	40	49	640	79	168	DEFRA C4SL
	Beryllium	N/A	1.7	1.7	35	12	2.2	63	LQM S4UL
	Boron	N/A	290	11,000	45	240,000	21,000	46,000	LQM S4UL
	Cadmium	N/A	26	149	4.9	410	220	880	DEFRA C4SL
	Chromium (III)	N/A	910	910	18,000	8,600	1,500	33,000	LQM S4UL
	Chromium (VI)	N/A	21.0	21.0	170.0	49	23.0	250	DEFRA C4SL
	Copper	N/A	2,400	7,100	520	68,000	12,000	44,000	LQM S4UL
	Lead	N/A	200	310	80	2,330	630	1,300	DEFRA C4SL
	Elemental Mercury	N/A	1.2	1.2	21	58 (25.8) ^{vap}	16	30 (25.8) ^{vap}	LQM S4UL
	Inorganic Mercury	N/A	40	56	19	1,100	120	240	LQM S4UL
	Methylmercury	N/A	11	15	6.0	320	40	68	LQM S4UL
	Nickel	N/A	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	1600 f	11000 f	800 f	C4SL
		2.5%	36	36	130	3700 f	15000 f	1200 f	C4SL
		6%	85	85	200	8400 f	17000 f	1900 f	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.	^{POS}resi	^{POS}park	Source
BTEX Compounds	Benzene	1%	0.087	0.38	0.017	27	72	90	LQM S4UL
		2.5%	0.17	0.70	0.034	47	72	100	LQM S4UL
		6%	0.37	1.4	0.075	90	73	110	LQM S4UL
		6%	0.87	3.3	0.180	98	140	230	C4SL
	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 Hydrocarbons	**Aliphatic**								
	EC 5-6	1%	42	42	730	3,200 (304) [sol]	570,000(304)[sol]	95,000 (304) [sol]	LQM S4UL
	EC>6-8	1%	100	100	2,300	7,800 (144) [sol]	600,000	150,000 (144) [sol]	LQM S4UL
	EC>8-10	1%	27	27	320	2,000 (78) [sol]	13,000	14,000 (78) [vap]	LQM S4UL
	EC>10-12	1%	130 (48) [vap]	130 (48) [vap]	2,200	9,700 (48) [sol]	13,000	21,000 (48) [vap]	LQM S4UL
	EC>12-16	1%	1,100 (24) [sol]	1,100 (24) [sol]	11,000	59,000 (24) [sol]	13,000	25,000 (24) [sol]	LQM S4UL
	EC>16-35	1%	65,000 (8.48)	65,000 (8.48) [f,sol]	260,000 [f]	160,000 [f]	250,000 [f]	450,000 [f]	LQM S4UL
	EC>35-44	1%	65,000 (8.48)	65,000 (8.48) [f,sol]	260,000 [f]	160,000 [f]	250,000 [f]	450,000 [f]	LQM S4UL
	Aliphatic								
	EC 5-6	2.5%	78	78	1,700	5,900 (558) [sol]	590,000	130,000 (558) [sol]	LQM S4UL
	EC>6-8	2.5%	230	230	5,600	17,000 (322) [sol]	610,000	220,000 (322) [sol]	LQM S4UL
	EC>8-10	2.5%	65	65	770	4,800 (190) [vap]	13,000	18,000 (190) [vap]	LQM S4UL
	EC>10-12	2.5%	330 (118) [vap]	330 (118) [vap]	4,400	23,000 (118) [vap]	13,000	23,000 (118) [vap]	LQM S4UL
	EC>12-16	2.5%	2,400 (59) [sol]	2,400 (59) [sol]	13,000	82,000 (59) [sol]	13,000	25,000 (59) [sol]	LQM S4UL
	EC>16-35	2.5%	92,000 (21)	92,000 (21) [f,sol]	270,000 [f]	1,700,000 [f]	250,000 [f]	480,000 [f]	LQM S4UL
	EC>35-44	2.5%	92,000 (21)	92,000 (21) [f,sol]	270,000 [f]	1,700,000 [f]	250,000 [f]	480,000 [f]	LQM S4UL
	Aliphatic								
	EC 5-6	6%	160	160	3,900	12,000 (1,150) [sol]	600,000	180,000 (1,150)	LQM S4UL
	EC>6-8	6%	530	530	13,000	40,000 (736) [sol]	620,000	320,000 (736) [sol]	LQM S4UL
	EC>8-10	6%	150	150	1,700	11,000 (451) [vap]	13,000	21,000 (451) [vap]	LQM S4UL
	EC>10-12	6%	760 (283) [vap]	760 (283) [vap]	7,300	47,000 (283) [vap]	13,000	24,000 (283) [vap]	LQM S4UL
	EC>12-16	6%	4,300 (142) [sol]	4,400 (142) [sol]	13,000	90,000 (142) [sol]	13,000	26,000 (142) [sol]	LQM S4UL
	EC>16-35	6%	110,000 [f]	110,000 [f]	270,000 [f]	1,800,000 [f]	250,000 [f]	490,000 [f]	LQM S4UL
	EC>35-44	6%	110,000 [f]	110,000 [f]	270,000 [f]	1,800,000 [f]	250,000 [f]	490,000 [f]	LQM S4UL
	Aromatic								
	EC5-7(benzene as 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]	370 [f]	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%	930 [f]	1,900 [f]	260 [f]	28,000 [f]	3,800 [f]	7,800 [f]	LQM S4UL
	EC>21-35	6%	1,700 [f]	1,900 [f]	1,600 [f]	28,000 [f]	3,800 [f]	7,900 [f]	LQM S4UL
	EC>35-44	6%	1,700 [f]	1,900 [f]	1,600 [f]	28,000 [f]	3,800 [f]	7,900 [f]	LQM S4UL
	Aliphatic +Aromatic >EC44	1%	1,600 [f]	1,900 [f]	1,200 [f]	28,000 [f]	3,800 [f]	7,800 [f]	LQM S4UL
		2.5%	1,800 [f]	1,900 [f]	2,100 [f]	28,000 [f]	3,800 [f]	7,800 [f]	LQM S4UL
		6%	1,900 [f]	1,900 [f]	3,000 [f]	28,000 [f]	3,800 [f]	7,900 [f]	LQM S4UL

Generic Assessment Criteria Values

	Contaminant	SOM	Res +	Res -	Allot.	Comm.	^{POS}resi	^{POS}park	Source
Chloalkanes and Alkenes & Explosives	1,2 Dichloroethane (DCA)	1%	0.11	0.16	0.05	12.0	300	300	DEFRA C4SL
		2.5%	0.18	0.24	0.10	17.0	310	330	DEFRA C4SL
		6%	0.31	0.41	0.19	29.0	310	330	DEFRA C4SL
	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.	^{POS}resi	^{POS}park	Source
Chlorophenol	Chlorophenols (4 congeners)	1%	0.87 [g]	94	0.13 [g]	3,500	620	1,100	LQM S4UL
		2.5%	2.0	150	0.30	4,000	620	1,100	LQM S4UL
		6%	4.5	210	0.70	4,300	620	1,100	LQM S4UL
	Pentachlorophenol	1%	0.22	27 (16.4) [vap]	3.0E-02	400	60	110	LQM S4UL
		2.5%	0.52	29	8.0E-02	400	60	120	LQM S4UL
		6%	1.2	31	0.19	400	60	120	LQM S4UL
Others	Carbon Disulphide	1%	0.14	0.14	4.8	11	11,000	1,300	LQM S4UL
		2.5%	0.29	0.29	10	22	11,000	1,900	LQM S4UL
		6%	0.62	0.62	23	47	11,000	2,700	LQM S4UL
	Hexachlorobutadiene	1%	0.29	0.32	0.25	31	25	48	LQM S4UL
		2.5%	0.7	0.78	0.61	66	25	50	LQM S4UL
		6%	1.6	1.8	1.4	120	25	51	LQM S4UL
	Phenol	1%	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 (potentially use if free product identified, although highly conservative)
f=naphthalene is based on comparison of inhalation exposure with TDI(inhal) for localised effect
f = oral, dermal and inhalation exposures compared to oral HCV
dir = S4ULs based on threshold protective of direct skin contact with phenol)brackets long term exposure for illustration purposes)
g = derived based on 2,3,4-tetrachlorophenol

Appendix F – JIWG Output Sheets

JIWG

Joint Industry Working Group

Asbestos in Soil and Construction & Demolition Materials

Decision Support Tool for Receptor Risk Ranking

Stage 1

Hazard Identification		Score
Select ACM type (run model for each type to generate 'Worst Case' output)	Loose fibrous asbestos debris	3
Extent of degradation of ACMs	Disaggregated (dominated by loose fibrous material; extreme degradation in ACM and/or free asbestos fibres/fibre bundles)	4
Friability and degree of bonding by matrix (ACM matrix, not ground materials)	Friable ACM or ACM with fibres not linked in any matrix (free dispersed fibres/fibre bundles)	4
Distribution of Visible Asbestos Across Affected Area	No visible ACMs/fibre bundles	0
Asbestos fibre type	Mainly amphibole and chrysotile mixtures, including trace crocidolite	2
Sub-total		13
Hazard ranking		Medium

No warranty, expressed or implied, or reliance, is provided in relation to the use of this tool.
It is contingent on users to satisfy themselves that the output from the tool is relevant and appropriate to the assessment being made.

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Stage 2

Emission Factors		Score
Amount of asbestos fibre in selected ACM/fibre type as % of host material	Moderate quantities - 0.05 to <0.1 %wt/wt	3
Respirable fibre index for ACM - RIVM report 711701034 (2003)	Medium	3
Activity type and effect on deterioration of ACMs	Minimal disturbance, no deterioration expected	1
Best description of primary host material matrix	Coarse to Fine Sand	2
Sub-total		9
Exposure ranking		Low

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Stage 3

Pathway and Receptor Sensitivity		Score	
Receptor category	Commercial/industrial	No score required	
Age of Receptor	Young adult (>16 and <24)	2	
Duration of exposure/site occupancy	< 1 hour in any single day (e.g. frequent but short exposure event)	1	
Receptor ranking		3	Low
Combined hazard, exposure and receptor ranking			Low
Pathway: Distance of Receptor from Source	In or within 10m of area of disturbance	4	
Pathway: Depth to impacted material	Material buried at shallow depth, potential to be disturbed by excavation	C	
Pathway ranking		4C	Low
Overall ranking			Very Low

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Project Reference	LKC261139

Site Name	Kelbrook Road, Openshaw
Client	GH Sheldon Wholesale Bakers Ltd

Run by	C Baranek
Date	29-Apr-26
Reviewed by	P Quimby

Characterisation of scenario being evaluated	Commercial land use, minimal soft landscaping

Interpretation of scenario ranking by DST	Very low risk - shallow cover system should be sufficient

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Version 2, February 2017

JIWG

Joint Industry Working Group

Asbestos in Soil and Construction & Demolition Materials

Project Reference	LKC261139
Site Name	Kelbrook Road
Client	GH Sheldon Wholesale Bakers Ltd
Run by	CB
Date	29-Apr-26
Scenario details	Groundworks

Decision Support Tool for CAR2012 Work Categories

Stage 1

Hazard Factors

		Score
Select ACM type (run model for each type to generate 'Worst Case' output)	Loose fibrous asbestos debris	3
Extent of degradation of ACMs at outset of work	Disaggregated (dominated by loose fibrous material; extreme degradation in ACM and/or free asbestos fibres/fibre bundles)	4
Friability and degree of bonding by matrix (ACM matrix, not ground materials)	Friable ACM or ACM with fibres not linked in any matrix (free dispersed fibres/fibre bundles)	4
Distribution of Visible Asbestos Across Affected Area	No visible ACMs/fibre bundles	0
Amount of asbestos fibre in selected ACM/fibre type as % of host material	Large quantities - >0.1 %wt/wt	4
Sub-total		**15**

Note: the asbestos licensing regime is unaffected by the type of asbestos fibre present in ACMs

Hazard ranking **Medium**

No warranty, expressed or implied, or reliance, is provided in relation to the use of this tool.
It is contingent on users to satisfy themselves that the output from the tool is relevant and appropriate to the assessment being made.

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Stage 2

Exposure Factors		Score
Anticipated airborne fibre concentration - Control Limit or SALI?	<0.01 fibres/ml	1
Anticipated duration of exposure to asbestos	> 2 hours in a 7 day period and Up to 10 hours in a day (e.g. full time occupational exposure)	4
Activity type and effect on deterioration of ACMs during work	Not low intensity, significant deterioration expected	4
Best description of primary host material matrix (soil/made ground)	Coarse to Fine Sand	2
Respirable fibre index for ACM - RIVM report 711701034 (2003)	Medium	3
Sub-total		14
Exposure ranking		Medium
Combined hazard and exposure ranking	29	Medium

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Stage 3

Risk Assessment Outputs

Probable Licensing Status	Notifiable Non-Licensed Work
RPE*	EN140 with P3 filter half mask
Dust Suppression**	Localised mechanical dust suppression
Hygiene/Decontamination***	Localised and enhanced personal decontamination facilities

*Where RPE has to be worn continuously for long periods (e.g. more than 1-hour), then powered RPE may be necessary.
**Reduction in control measures possible if natural mitigation factors are present (e.g. raining, wet ground)
***Guide only; suitability of selected personal hygiene measures may be reviewed on a site/contamination-specific basis

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Appendix G – References

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