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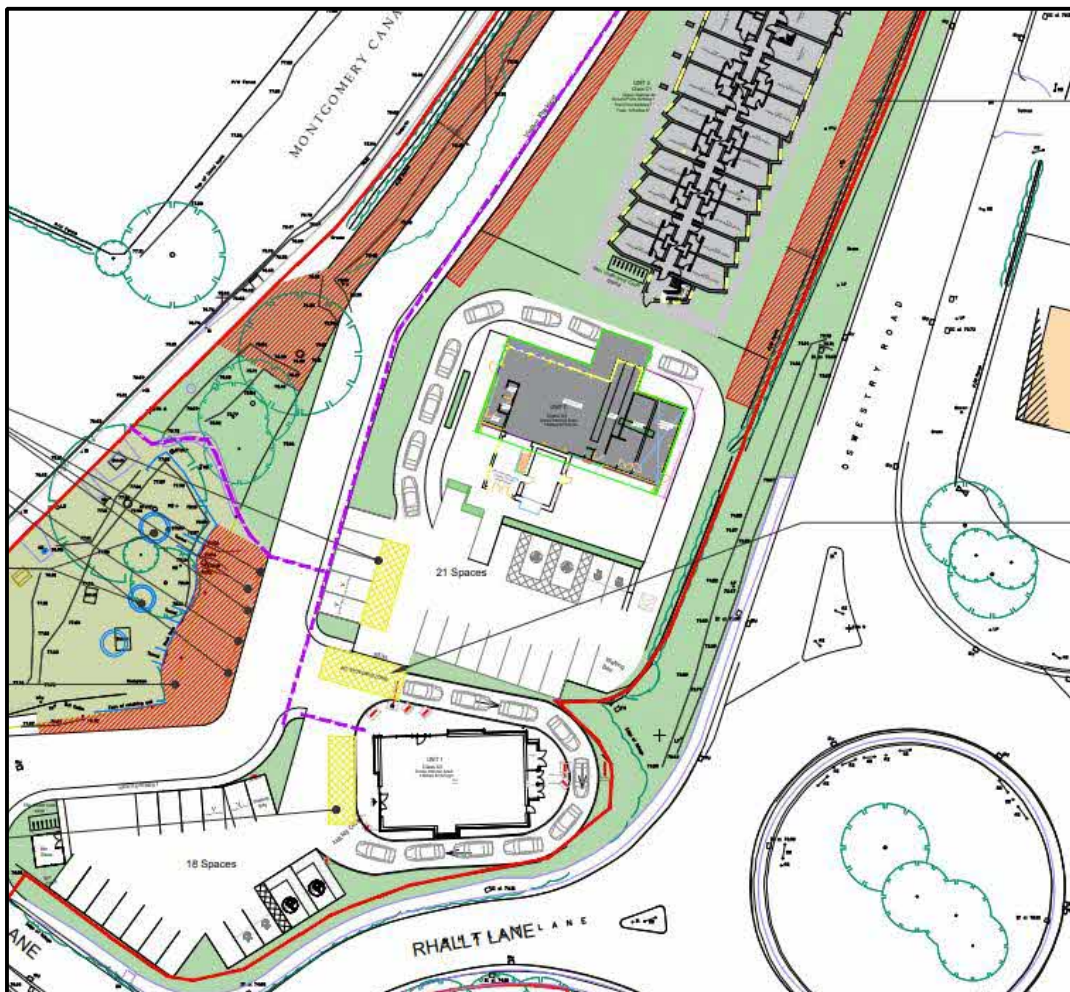
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# LAND TO THE NORTH OF RHALLT LANE, WELSHPOOL

## Site Investigation & Ground Assessment



Prepared for:

KIM Property Investments Ltd

Report Ref: BEK-23048-2 (Rev A)

April 2023



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## Project Quality Assurance Information Sheet

Site	Land to the north of Rhallt Lane, Welshpool
Report Title	Site Investigation & Ground Assessment
Report Status	Final
Report No	BEK-23048-2 (Rev A)
Date	April 2023
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**PROJECT NO:** 23048

**REPORT REF:** BEK-23048-2

**DATE:** April 2023

### REVISION STATUS / HISTORY

Rev	Date	Issue / Comment	Prepared	Checked
A	26 April 2023	TRL/CBR Values Added	MLM	MB

### GENERAL REPORT LIMITATIONS

BEK Enviro Limited (BEK) has prepared this report for the sole use of the client, showing reasonable skill and care, for the intended purposes as stated in the agreement under which this work was completed. The report may not be relied upon by any other party without the express agreement of the client and BEK. No other warranty, expressed or implied, is made as to the professional advice included in this report.

Where any data supplied by the client or from other sources have been used, it has been assumed that the information is correct. No responsibility can be accepted by BEK for inaccuracies in the data supplied by any other party. The conclusions and recommendations in this report are based on the assumption that all relevant information has been supplied by those bodies from whom it was requested.

No part of this report may be copied or duplicated without the express permission of BEK and the party for whom it was prepared. Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the work.

Unless explicitly agreed otherwise, in writing, this report has been prepared under BEK's limited standard Terms and Conditions as included within our proposal to the Client.

The report needs to be considered in the light of the BEK proposal and associated limitations of scope. The report needs to be read in full and isolated sections cannot be used without full reference to other elements of the report and any previous works referenced within the report.

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## 1. INTRODUCTION

### 1.1 Appointment

1.1 BEK Enviro (BEK) has been commissioned by KIM Property Investment Limited to carry out a site investigation for the proposed commercial development at the site located to the north of Rhallt Lane and to the west of Oswestry Road (A483), Welshpool (hereafter known as 'the site') to quantify the potential risks from contamination and ground gas and to provide factual geotechnical information to allow foundation design to be carried out.

### 1.2 Background Information

1.2.1 The site comprises a roughly rectangularly shaped plot of land approximately 1600 m<sup>2</sup> which is occupied by Limekiln Cottage, associated outbuildings (to the north-west of the site) and associated grounds. Landscaped garden areas (generally comprising overgrown grasses) lie in the central/south-western sections of the site. The site is accessed via a farm access track immediately south of the site which links to Rhallt Lane some 40 m south.

1.2.2 The site location and site layout are presented on BEK Drawing No 23048-1 and BEK Drawing No 23048-2, respectively. Copies of these drawing are presented in Appendix F.

### 1.3 Proposed Development

1.3.1 It is proposed to construct a Class A3 unit with a drive through and associated car parking.

1.3.2 The proposed development can be seen on REV-A Associates Drawing entitled 'Moors Farm, Mixed Use Redevelopment' (Drawing Ref: 'SHR17065-REVA-DR-A-002, dated 27<sup>th</sup> November 2020) a copy of which is presented in Appendix F.

1.3.3 The area to which this site investigation and contamination assessment report applies is highlighted in red in Figure 1.



Figure 1: Red Line Site Boundary

#### 1.4 Objective & Scope of Work

1.4.1 The objective of the site investigation is to provide indicative information on the ground conditions to facilitate a quantitative risk assessment for contamination and to provide factual geotechnical information.

1.4.2 The site investigation was undertaken by BEK during March 2023 in accordance with the recommendations detailed in the Preliminary Risk Assessment (PRA) prepared by BEK (Report Ref: BEK-23048-1, dated March 2023) and with consideration to site conditions. The PRA should be read in conjunction with this report.

#### 1.5 Limitations

1.5.1 The conclusions and recommendations presented in this report are the result of our professional interpretation of the information currently available. BEK reserve the right to amend the conclusions and recommendations if further information becomes available.

1.5.2 However, it should be noted that much of the information has been derived from reports written by others and BEK takes no responsibility for the accuracy of that information. Notwithstanding the above, the reports reviewed have all been written by professional environmental consultants with a duty of care to provide relevant and accurate information.

1.5.3 The comments given in this report and the opinions expressed are based on review of reports provided to BEK, ground conditions encountered during site works and on the results of tests made in the field and in the laboratory. However, there may be conditions pertaining to the site that have not been disclosed by the investigations and therefore could not be taken into account.



## 2. PRELIMINARY RISK ASSESSMENT

2.0.1 This section provides an overview of the findings and recommendations presented in the PRA.

### 2.1 Site Location & History

#### Site Location and Layout

2.1.1 The site is located immediately west of the A483 and some 40 m north of Rhallt Lane. The site is approximately 2.4 km north-east of Welshpool and some 10.5 km south of Four Crosses.

2.1.2 The site comprises a roughly rectangularly shaped plot of land approximately 1600 m<sup>2</sup> which is occupied by Limekiln Cottage, associated outbuildings (to the north-west of the site) and associated grounds. The two-storey residential dwelling (Limekiln Cottage) occupies the north-west of the centre of the site and is of part stone, part rendered construction with a slate roof. The cottage is in a generally poor state of repair. Access to the main property was not possible at the time of the site walkover. A wooden shed occupies the north-western corner of the site. An asphalt driveway occupies the northern and eastern peripheries of the site.

2.1.3 Landscaped garden areas (generally comprising overgrown grasses) lie in the central/south-western sections of the site. At the time of the site walkover, old furniture and general waste was noted to be scattered across the site. The site is accessed via a farm access track immediately south of the site which links to Rhallt Lane some 40 m south.

#### Site History

2.1.4 Based on the earliest available historical maps dating from 1887 the site was occupied by the present-day Limekiln Cottage, a small outbuilding present in the north-western corner of the site and a road along the southern periphery of the site. At this time, the remainder of the site was vacant besides sparse trees. On maps dating from 1902, a further three outbuildings were present on the western boundary of the site with a further outbuilding on the north-western corner of the site. From circa 1971 the three outbuildings on the western boundary of the site were no longer present (presumably demolished). At this time, Lime Kiln Cottage remained to the north-west of the centre and the outbuilding remained in the northwest of the site. At some time around 1988 the Limekiln Cottage grounds were connected directly to the A483. Circa 1995 the Limekiln Cottage grounds were no longer connected to the A483. The access road in the north was extended along the eastern and southern peripheries of the site linking to Rhallt Lane to the south-west of the site.

## 2.2 Environmental Setting

### Geology

- 2.2.1 Furthermore, site investigation information has been sought from the British Geological Society (BGS) website. There are six exploratory locations within 250 m of the site. The BGS boreholes indicated the presence of 'brown sandy topsoil' in all six locations to depths varying from 0.3 m (SJ20NW41 & SJ20NW45) to 0.46 m (SJ20NW39). This was underlain by 'Firm brown sandy stony clay' to the base of each borehole. The clay contained pieces of shale to a depth of 2.74 m within SJ20NW41 and cobbles between 2.74 m and 4.27 m within SJ20NW41.
- 2.2.2 According to the Enviro & GeoInsight report there is no made ground overlying the site. In addition, no BGS borehole records from within 250 m of the site encountered made ground. Topsoil varying in depth from 0.3 m to 0.46 m was encountered in the vicinity of the site.
- 2.2.3 The superficial geology overlying the north-eastern, eastern, central and southern peripheries of the site comprises 'Glaciofluvial Fan Deposits' Formation. The superficial strata overlying the western and north-western peripheries of the site comprises low permeability Glacial Till (Boulder Clay). This is likely to be regionally continuous and is likely to be present below the 'Glaciofluvial Fan Deposits' Formation. Boreholes drilled within the vicinity of the site suggest that 'Boulder Clay' is present where 'Glaciofluvial Fan Deposits' are noted as the published geology.
- 2.2.4 The underlying solid geology comprises the Nantglyn Flags Formation in the western section of the site. The Forden Mudstone Formation is present across the east and central parts of the site.

### Linear Features

- 2.2.5 According to the Enviro & GeoInsight Report a 'fault, inferred' runs north-east to south-west slightly west of the centre of the site.

### Mining & Ground Stability

- 2.2.6 The site is located within an area which is unlikely to have been affected by Coal Mining.
- 2.2.7 Non-coal mining activities (Vein Mineral) have been carried out on site. However, these are noted to be 'localised small scale underground mining' and the 'potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered'.



2.2.8 In addition to the above, the Enviro & GeoInsight Report provides hazard ratings associated with ground subsidence at the site, as summarised below:

Shrink-Swell Clay:	Very Low
Landslides:	Very Low
Ground Dissolution of Soluble Rocks:	Negligible
Compressible Deposits:	Negligible
Collapsible Deposits:	Very Low
Running Sands:	Very Low

2.2.9 It can be seen from the above that the site is unlikely to be affected by natural ground instability.

#### Hydrogeology

2.2.10 The superficial Glaciofluvial Fan Deposits overlying the north-eastern, eastern, central and southern peripheries of the site are classified by the Environment Agency as a 'Secondary A Aquifer'. The Boulder Clay is classified as a 'Secondary Undifferentiated' aquifer which is 'assigned where it is not possible to attribute either category A or B to a rock type.' These aquifers were formerly referred to as 'unproductive'.

2.2.11 The underlying bedrock is classified as a 'Secondary B Aquifer'.

2.2.12 The site is not located within groundwater source protection zone and there are no groundwater abstractions located within 250 m of the site.

#### Hydrology

2.2.13 There are no surface water features located on site. The Montgomery Canal runs south-west to north of the site some 10 m west of the site and is noted to contain water all year round.

2.2.14 There are no surface water abstractions located on or within 250 m of the site.

2.2.15 There is one licensed discharge to controlled waters located within 250 m of the site. This refers 'Sewage Discharges – Final/Treated Effluent' to Underground Strata' some 161 m south-west of the site. The consent is historical and was issued on 11th July 1977. No revocation date is provided.

2.2.16 Risks from river and coastal flooding have not been identified on site.

Contaminated Land & Landfill Activities

- 2.2.17 There are no current or historic landfill or waste sites sites located within 250 m of the site.
- 2.2.18 There are no waste exemptions located on or within 250 m of the site.
- 2.2.19 A total of 5 no. pollution incidents have taken place within 250 m of the site. These are summarised in Table 1.

Distance/Direction	Incident Date	Pollutant Description	Impact
36 m south-west	11/01/2017	Agricultural Materials & Waste	Water: Minor Air & Land: No Details
36 m south-west	11/01/2017	Not Provided	Water: Minor Air & Land: No Details
146 m South-West	16/07/2001	Oils and Fuel - Diesel	Water: Minor Air & Land: No Impact
215 m South	23/09/2016	Atmospheric Pollutants & Effects - Smoke	Air: Minor Land & Water: No Details
215 m South	23/09/2016	Not Provided	Air: Minor Land & Water: No Details

Table 1: Summary of Pollution Incidents Located Within 250 m of the Site

- 2.2.20 There are no recorded Part A(1), A(2) or IPPC Authorised Activities within 250 m of the site.
- 2.2.21 However, a current Part B permit is held for Timber Manufacture some 178 m south-west of the site. No enforcements have been notified.
- 2.2.22 There are 7 current recorded potentially contaminative land uses within 250 m of the site, the closest of which is a limekiln located on site. This may have impacted upon the site. A further limekiln is present some 20 m west of the south-western corner of the site but is unlikely to have impacted on the site.

Sensitive Land Uses

- 2.2.23 The site is considered to have the potential to affect two ecological systems identified as statutory receptors in the DETR Circular 01/2006. These include a Special Area of Conservation (Otters and Floating water-plantain) and a Site of Special Scientific Interest within Montgomery Canal which is situated some 10 m west of the site. The canal should be considered to represent a potential receptor.

Radon

- 2.2.24 Groundsure reports that estimated between 1% and 3% of properties are affected by radon, therefore no radon protection measures are required in new builds at the site.



### Unexploded Ordnance

- 2.2.25 The regional unexploded bomb risk map from Zetica (2014) indicates that the site is in an area with LOW risk from possible Unexploded Ordnance (UXO) resulting from the Second World War. BEK do not consider any further assessment to be required with respect to UXO.
  
- 2.3 Preliminary Conceptual Model
  - 2.3.1 This section identifies the potential contaminants of concern, sources, pathways and receptors that may be associated with the site based on its known history and current condition and with respect to the redevelopment of the site for residential use. The preliminary conceptual model is summarised in the following table.

Link	Source	Hazard	Transport Mechanism	Pathway	Medium of Exposure	Receptor	Risk Summary*
1	Contaminated soils	Direct contact /ingestion of soil or dust	Direct contact with contaminated soil	Dermal contact/ingestion of soil at surface	Soil	Humans (on-site/off-site), domestic pets	Low
2	Contaminated soils	Particulate inhalation	Wind blown particulates	Inhalation of particulates	Air	Humans (on-site/off-site), domestic pets	Low
3	Contaminated Soils	Inhalation of Ground Gas	Degradation of contaminants generating ground gas through unsaturated zone to soil leading to inhalation	Inhalation of Gases	Air	Humans (on-site/off-site, domestic pets)	Low
4	Contaminated Soils	Inhalation of Vapours	Volatilisation of Organic Compounds and migration to property	Inhalation of Vapours	Air	Humans (on-site/off-site, domestic pets)	Low
5	Contaminated Soils	Damage to structure/services	Direct contact of contaminants with building structures/services	Direct contact	Soil/Water	Flora, Services, concrete	Low
6	Contaminated Soils	Degradation of perched water quality	Dissolution or suspension of contaminants into perched waters and migration to off-site receptors	Dissolution or Suspension	Water	Perched Waters, Montgomery Canal (also an ecological receptor)	Low
7	Contaminated Soils	Pollution of underlying groundwater	Dissolution or suspension of contaminants into groundwaters (Superficial Aquifer within Glaciofluvial Fan Deposits and Bedrock Aquifer)	Dissolution or Suspension	Water	Groundwaters	Low

Table 2: Preliminary Conceptual Model

\*Relative Risk Screening and Prioritisation for further Investigation & or Assessment

High	Higher probability of occurrence and identification of primary sources of contamination with respect to most sensitive receptors.
Medium	Pollutant linkage generally dependent on the presence of other primary pollutant linkages and/or where pollutant linkage generally associated with less sensitive receptors.
Low	Lower probability of occurrence such as based on requirement for significant migration pathway or where pollutant linkage requires the presence of source contaminants at concentration likely to be much higher than other identified pollutant linkages.

### 3. SITE INVESTIGATION

#### 3.1 General

3.1.1 This section provides a summary of the site investigation works undertaken by BEK during March 2023.

3.1.2 The site investigation has been designed to provide indicative information for the ground conditions across the site with respect to the quantitative assessment of the potential risks associated with contamination and to carry out geotechnical testing to support foundation design.

3.1.3 Six exploratory locations were initially set out by the site engineer and the exploratory locations are illustrated on Figure 2 below.

3.1.4 Note, it was not possible to drill Borehole No WS4 due to the presence of a septic tank and services in this location. However, BEK considers a reasonable spatial spread has been achieved across the site.



Figure 2: Borehole Location Plan

#### 3.2 Window Sample Boreholes

3.2.1 Five window sample boreholes were drilled using a window sample borehole rig to a maximum depth of 2.5 m. In-situ testing (SPTs) were carried out in each of the boreholes. One of the boreholes (WS5) was installed with a groundwater monitoring well.

3.2.2 The ground conditions were recorded by an engineer from BEK and samples were recovered for chemical testing. Copies of the borehole records are presented in Appendix A.

3.2.3 The window sample borehole locations are illustrated on Figure 2.

3.3 Dynamic Cone Penetrometer

3.3.1 A total of 6 TRL dynamic cone penetrometer (DCP) locations were progressed across the site to a maximum depth of 1 m below ground level and to provide information on shallow ground properties. The DCP tests were carried out on the sub-base following removal of the concrete cores.

3.3.2 The results of the TRL results are presented in Appendix B and the average CBR results are summarised in Table 3 below.

Location	CBR Value (%)
CBR1	53.36
CBR2	14.40
CBR3	11.28
CBR4	No Data (Services in location)
CBR5	29.53
CBR6	25.55

Table 3: CBR Test Results (Converted from TRL Test Results)

3.4 Laboratory Testing

#### Soil Chemical Testing

3.4.1 Following a review of the ground conditions encountered, BEK selected 5 samples for chemical testing.

3.4.2 Chemical laboratory testing was undertaken by Envirolab, a UKAS accredited laboratory. All testing was undertaken to MCERTS standard (where available). The samples were submitted for the following chemical analysis:

Arsenic (Total), Cadmium (Total), Copper (Total), Lead (Total), Nickel (Total), Zinc (Total), Chromium (Total), Selenium (Total), Mercury (Total), Boron (Soluble), Hexavalent Chromium, Cyanide (Total), pH, 16 EPA Poly-Aromatic Hydrocarbons (PAH), Total Phenols, Total Sulphate, Sulphate 2:1 extract, Soil Organic Matter, Speciated Total Petroleum Hydrocarbons.

Furthermore, all samples were tested for an Asbestos Screen.

3.4.3 Copies of the chemical test results are provided within Appendix C.



### Geotechnical Testing

- 3.4.4 Geotechnical testing was carried out on a bulk sample by the UKAS accredited laboratory of Murray Rix.
- 3.4.5 Three samples were tested for Plasticity Index testing and natural Moisture Content.
- 3.4.6 Copies of the geotechnical test results are presented in Appendix D.
- 3.5 Ground Conditions
- 3.5.1 The site investigation proved the presence of made ground at each location. This is described as 'grass onto soft brown/black slightly silty sandy clay with occasional ash and clinker fragments, rare broken brick and frequent rootlets' to depths varying from 0.2 m (in Borehole No WS1 and WS2) to 0.4 m (in Borehole No WS3, WS4 and WS5). The made ground was noted to have a higher sand content within Borehole No WS5.
- 3.5.2 'Very stiff brown very silty slightly sandy clay' was encountered below the made ground to depths varying from 1.2 m (Borehole No WS2 and WS3) to 1.6 m (Borehole No WS1).
- 3.5.3 'Hard weathered siltstone' was encountered at the base of each borehole to depths of 2.45 m (Borehole Nos WS1, WS2, WS5, WS6) to 2.5 m (Borehole No WS3) at which point the boreholes refused.
- 3.5.4 There was no visual or olfactory evidence of contamination identified within any of the boreholes.
- 3.5.5 Groundwater was not encountered during the site investigation.
- 3.6 Falling Head Test
- 3.6.1 A falling head test was carried out within 1 exploratory location at the site (Borehole No WS6). The results are presented in Appendix E.
- 3.6.2 Water levels were measured in each borehole prior to water being added as quickly as possible. The time taken for the water level to fall to original levels was recorded at intervals. The falling head test results are presented in Appendix E.
- Only minimal reduction in water level was noted in the borehole over 4 hours from 0.31 to 0.39 m bgl.



3.6.3 The results indicate that infiltration in the location of Borehole WS6 may not be possible as the ground conditions appear to be relatively impermeable indicating infiltration is unlikely to be a viable means of disposing surface water at the proposed development site. However, it is recommended that infiltration testing to BRE365 (2016) should be undertaken to confirm infiltration rates for detailed drainage design.

### 3.7 In-Situ Testing

3.7.1 Standard Penetration Tests (SPTs) were carried out every 1 m in natural strata during drilling. The results are summarised in Table 4 below and presented on the borehole logs (Appendix A).

Depth (m)	WS1	WS2	WS3	WS5	WS6
1.0 – 1.45	23	23	20	21	20
2.0 – 2.45	>50	>50	36	>50	>50

Table 4: Summary of SPT 'N' Values





## 4. QUANTITATIVE RISK ASSESSMENT

### 4.1 Potentially Significant Pollutant Linkages

4.1.1 Potentially significant pollutant linkages have been identified within the preliminary conceptual model developed by BEK. These risks include:

- (i) Human Health - risks associated with contamination in site soils: risk via ingestion (soil and/or water), inhalation (dust, gas or vapour) or direct contact.
- (ii) Controlled waters - risks associated with contamination from site soils leading to lateral migration within perched waters to off-site receptors (including the Canal 10 m west which is also considered an ecological receptor) and vertical migration of contaminants to the underlying groundwater present within the superficial Secondary A Aquifer and the underlying bedrock Secondary B Aquifer
- (iii) Services and property - risks associated contamination affecting service pipes, flora and concrete.

### 4.2 Risk Assessment: Human Health Risks from Exposure to Contaminated Soil

4.2.1 The risks to human health have been assessed by inspection of shallow soils for the presence of elevated contaminants based on the expected contaminant findings detailed in the conceptual model and completion of a quantitative risk assessment.

4.2.2 The soil contamination concentrations have initially been compared to a range of generic assessment criteria. These include the use of the Land Quality Management and Chartered Institute of Environmental Health assessment criteria (S4ULs), Category 4 Screening Levels (C4SLs) and the Contaminated Land: Applications in Real Environments assessment criteria (CL:AIRE).

4.2.3 These assessment criteria have been derived using the CLEA model and fully justified input parameters. The proposed land use is commercial with the possibility for limited landscaped areas. The derivation of the assessment criteria assumes an end use of Public Open Space (Park) as landscaped areas are present on site and this is the most conservative land use. The initial assessment assumes a soil organic matter (SOM) of 1% for all soils which is considered the most conservative approach.

4.2.4 The following table summarises the chemical test results for the samples tested and lists the relevant assessment criteria and the samples with a concentration in excess of the assessment criteria.

4.2.5 Note that only determinands with a concentration above the laboratory limit of detection are presented in the table below:

Determinands	Range of Concentrations (mg/kg)	Assessment Criteria (mg/kg)	Samples Fail
Arsenic	8.0 -21	170 <sup>1</sup>	---
Boron (water soluble)	<1.0 - 1.5	46000 <sup>1</sup>	---
Cadmium	1.2 - 1.8	532 <sup>1</sup>	---
Copper	43 - 46	44000 <sup>1</sup>	---
Chromium	26 - 27	33000 <sup>1</sup>	---
Lead	128 - 198	1400 <sup>2</sup>	---
Mercury	0.8 - 2.49	240 <sup>1</sup>	---
Nickel	30 - 39	3400 <sup>1</sup>	---
Zinc	206 - 343	170000 <sup>1</sup>	---
Acenaphthene	<0.01 - 0.03	29000 <sup>1</sup>	---
Acenaphthylene	<0.01 - 0.03	29000 <sup>1</sup>	---
Anthracene	<0.02 - 0.1	150000 <sup>1</sup>	---
Benzo(a)anthracene	0.06 - 0.89	49 <sup>1</sup>	---
Benzo(a)pyrene	0.05 - 1.2	11 <sup>1</sup>	---
Benzo(b)fluoranthene	0.08 - 1.32	13 <sup>1</sup>	---
Benzo(ghi)perylene	<0.05 - 0.76	1400 <sup>1</sup>	---
Benzo(k)fluoranthene	<0.07 - 0.44	370 <sup>1</sup>	---
Chrysene	0.09 - 1.01	93 <sup>1</sup>	---
Dibenzo(ah)anthracene	<0.04 - 0.14	1.1 <sup>1</sup>	---
Fluoranthene	0.13 - 1.42	6300 <sup>1</sup>	---
Fluorene	<0.01 - 0.03	20000 <sup>1</sup>	---
Indeno(123-cd)pyrene	<0.03 - 0.84	150 <sup>1</sup>	---
Naphthalene	<0.03 - 0.04	1200 <sup>1</sup>	---
Phenanthrene	0.13 - 0.42	6200 <sup>1</sup>	---
Pyrene	0.1 - 1.42	15000 <sup>1</sup>	---
Aliphatic Hydrocarbons >C8-C10	<1 - 1	14000 <sup>1</sup>	---
Aliphatic Hydrocarbons >C10-C12	<1 - 1	21000 <sup>1</sup>	---
Aliphatic Hydrocarbons >C12-C16	<1 - 3	25000 <sup>1</sup>	---
Aliphatic Hydrocarbons >C16-C21	<1 - 4.0	450000 <sup>1</sup>	---
Aliphatic Hydrocarbons >C21-C35	5.0 - 42	450000 <sup>1</sup>	---
Aromatic Hydrocarbons >C8-C10	<1 - 1	7200 <sup>1</sup>	---
Aromatic Hydrocarbons >C10-C12	<1 - 3	9200 <sup>1</sup>	---
Aromatic Hydrocarbons >C12-C16	2.0 - 12	10000 <sup>1</sup>	---
Aromatic Hydrocarbons >C16-C21	4.0 - 29	7600 <sup>1</sup>	---
Aromatic Hydrocarbons >C21-C35	10 - 116	7800 <sup>1</sup>	---
Asbestos ID	No Asbestos Identified 5 samples		

Table 5: Summary of Contamination Assessment

1 CIEH/LQM Derived Assessment Criteria (S4ULs based on 1 % SOM)

2 Category 4 Screening Levels

N.A.D No Asbestos Detected

4.2.6 It can be seen from the table that there are no elevated concentrations above the assessment criteria.

4.2.7 Furthermore, none of the samples tested positive for the presence of asbestos.



- 4.3 Risk Assessment: Human Health Risks from Exposure to Ground Gas
- 4.3.1 Potential risks associated with ground gas were identified in the PRA. The potential source of gas was made ground on site or organic rich natural strata.
- 4.3.2 However, ground conditions encountered on the site do not represent a potentially significant source of ground gas and associated risks are not considered further.
- 4.4 Risk Assessment: Controlled Waters
- 4.4.1 Potential risks to controlled waters have been identified in the PRA.
- 4.4.2 However, based on ground conditions encountered and the fact that no elevated concentrations of contaminants of concern were identified and perched water was absent, the potential risks to controlled waters are considered to be very low/negligible and not considered further.
- 4.5 Risk Assessment: Buildings
- 4.5.1 Risks to buildings include the assessment of the aggressive nature of the shallow ground with respect to concrete, the risks to the degradation of water pipes and flora due to contamination.
- Risk to Concrete
- 4.5.2 To assess the potential risks to concrete, BEK has compared the previous site investigation data to assessment criteria presented in the BRE Special Digest 1: Concrete in Aggressive Ground.
- 4.5.3 The sulphate concentrations (water soluble 2:1) in the shallow ground range were all <0.01 g/l. The results are below the BRE 2:1 water/soil extract concentration of 0.5 g/l for Class DS-1 concrete.
- 4.5.4 With consideration to the range of pH values (7.77 to 8.24) and the water soluble sulphate concentrations, the concrete classification suitable for the site would be DS-1 AC-1.
- Risks to Services
- 4.5.5 Potable water supply pipes can be at risk from degradation if the shallow ground consists of specific organic contamination. Guidance published by UKWIR includes a methodology for the site investigation and risk assessment to determine pipe specification.

- 4.5.6 For brownfield sites, site investigation may be required along the intended route of the water pipeline and samples recovered from specific depths and tested for specific contaminants of concern.
- 4.5.7 On the basis of the ground conditions encountered, risks to water supply pipelines are considered to be low to medium, however it is recommended that consultation is undertaken with the water service supplier to confirm this.

Risks to Flora

- 4.5.8 Copper, nickel and zinc are toxic to plants. The effects of copper, nickel and zinc are often regarded as additive.
- 4.5.9 The assessment criteria used for copper, nickel and zinc, are ‘pseudo total concentrations’ are derived from BS3882:2007 as follows:

Phytotoxic Contaminant	pH Range		
	<6.0	6.0 to 7.0	>7.0
Zinc (nitric acid extractable)	<200	<200	<300
Copper (nitric acid extractable)	<100	<135	<200
Nickel (nitric acid extractable)	<60	<75	<110

Table 6: Limits for Phytotoxic Contaminants (Units mg/kg)

- 4.5.10 By comparing the chemical test results (Appendix C) to the concentrations in the above table, it can be seen that there are localized elevations of zinc (343 mg/kg vs 300 mg/kg) within Borehole No WS3 (0.2 m). A further elevated concentration of zinc (327 mg/kg vs 300 mg/kg) was encountered within Borehole No WS6 (0.1 m). However, given the low level exceedences and the fact that the site is generally overlain with well grassed garden areas, these are not considered to be significant.

4.6 Risk Assessment: Conclusions

- 4.6.1 The site investigation encountered ‘grass onto soft brown/black slightly silty sandy clay with occasional ash and clinker fragments, rare broken brick and frequent rootlets’ to depths varying from 0.2 m (Borehole No WS1 and WS2) to 0.4 m (Borehole No WS3, WS4 and WS5). The made ground was noted to have a higher sand content within Borehole No WS5.
- 4.6.2 ‘Very stiff brown very silty slightly sandy clay’ was encountered below the made ground to depths varying from 1.2 m (Borehole No WS2 and WS3) to 1.6 m (Borehole No WS1). ‘Hard weathered siltstone’ was encountered at the base of each borehole to depths of 2.45 m (Borehole Nos WS1, WS2, WS5, WS6) to 2.5 m (Borehole No WS3) at which point the boreholes refused.



- 4.6.3 Representative samples recovered from site investigation have been tested for a wide range of contaminants of concern outlined within the PRA and based on observations made during the site investigation.
- 4.6.4 The chemical test results have been compared to relevant generic assessment criteria to identify potential contaminants of concern.
- 4.6.5 Based on the contamination assessment herein and with respect to the redevelopment of the site to a drive thru restaurant with associated car parking, no contaminants of concern have been identified with respect to human health, controlled waters or the environment.
- 4.6.6 Potential risks to the service pipes are considered to be low but advice should be sought from the water supply provider.
- 4.6.7 Risks to concrete are considered to be low and concrete classification of DS-1 AC-1 will be suitable.
- 4.6.8 There are no potentially significant risks to groundwater and no potentially significant risks from ground gas.

## 5. GEOTECHNICAL ASSESSMENT

- 5.1 The proposed mixed development consists of the construction of two new retail units of single storey height and a two storey hotel building. Should the development use change from this profile, re-assessment may be required to consider the likely geotechnical considerations imposed by the alternative development.
- 5.2 Site investigation has confirmed that the site is overlain with made ground, varying in depth from 0.2m to 0.4m. The made ground generally comprises grass, topsoil and rootlets, with clinker and ash. Underlying the made ground at all locations is stiff clay and underlying the clay is weathered siltstone. The siltstone was encountered at depths of between 1.2 m and 1.6 m below the surface.
- 5.3 Groundwater was not encountered at any of the borehole locations.
- 5.4 Standard Penetration Tests (SPT) were conducted in the window sample boreholes, starting at a depth of 1.0m and repeated at 1m levels from 2 m onwards. The SPT results are summarised in Table 7 below.

SPT Readings (N)	Depth of Test	
	1.0 – 1.45m	2.0 – 2.45m
WS1	23	>50
WS2	22	>50
WS3	20	36
WS5	21	>50
WS6	20	>50

Table 7: Window Sample SPT Results

- 5.5 Clay samples were taken from borehole WS1, WS3 and WS6 at varying depths. Atterberg testing was undertaken in the laboratory conditions to determine the plasticity index of the clay. The results are presented in Appendix D. The modified plasticity index for the sample was calculated in accordance with NHBC guidance and summarised in Table 8 below.

Sample	Location	Depth (m)	Plasticity Index (P.I.)	Retained 425 Sieve	Passing 425 Sieve	Modified P.I. (%)
1	WS1	1.0-1.5m	23	8.0%	92.0%	21.2
2	WS3	1.0-1.5m	26	13.0%	87.0%	22.6
3	WS6	0.5-1.0m	29	6.0%	94.0%	27.3
		Average	26		Average:	23.7

Table 8: Plasticity Results



- 5.6 The plasticity result indicates that the soil can be categorised to be of medium volume change potential, requiring a medium foundation formation depth of 0.90 m below existing or proposed ground level, whichever is the lower, in areas where clay soils are present. Adjustments to formation depths, to comply with LABC requirements and NHBC Ch.4.2 guidance, may be required where trees are within influence of new structures.

#### Assessment and Conclusions

- 5.7 The underlying clay soils have been encountered at depths of between 0.2 m and 0.4 m below existing ground level. Weathered bedrock has been encountered at between 1.2 m and 1.6 m underlying the natural clay strata. The geotechnical data obtained from the borehole SPT readings taken, indicate that bearing capacities on the clays are of a minimum capacity of 200 kN/m<sup>2</sup>.
- 5.8 The restaurant building is likely be formed from lightweight roofing supported on a steel frame, with lightweight cladding and masonry walling elements. This is likely to generate localised point loads of up to 200 kN and foundation line loadings of between 20 and 30 kN/m, which indicates that pad foundations and strip footings would be suitable to the underlying clay strata. Should soft clays be encountered at formation depth, it is recommended that the formation of footings extended down to clays of suitable strength is encountered, with the over-dig backfilled with lean mix concrete.
- 5.9 All formations must be checked on site to confirm that the design bearing capacity is extent before foundations are installed. Should areas of poor ground be encountered, the excavations may require extending until suitable strata is found, and the design engineer's instruction must be sought.
- 5.10 As stiff clays have been encountered within 600 mm of the surface, ground bearing slabs are considered to be suitable for the proposed building.
- 5.11 Local trees may have a bearing on the proposed building foundations and ground floor slab, which will need to be appraised by the foundation designer. Formation levels must be designed to comply with LABC requirements and NHBC Ch.4.2 guidance.
- 5.12 All foundation designs must be reviewed and designed by a suitably qualified design engineer. The above advice is based upon the ground condition information obtained during the survey. The design engineer must satisfy themselves that the information meets with their design requirements.



## 6. RECOMMENDATIONS

6.1 This report provides an assessment of the ground conditions based on the assessment of available site investigation information and quantifies the potential risks associated with contamination and provides a geotechnical assessment with respect to foundation design.

### Contamination Assessment

6.2 Based on the results of the contamination risk assessment undertaken at the land located off Chandler Way and with consideration to the environmental setting and the proposed redevelopment of the site for commercial use (possibly containing limited landscaped areas), no risks to human health have been identified.

6.3 Notwithstanding, BEK recommends the following:

- (i) All ground workers adopts suitable PPE when working on the site and consider the requirements of site specific risk assessments and working method statements.
- (ii) All groundworkers should remain vigilant during ground excavations for the presence (or suspected presence) of contamination. Should suspected contamination be identified then work should cease and specialist advice sought.
- (iii) Any material removed from the site should be disposed of in accordance with appropriate in accordance with appropriate legislation and regulations, including the Duty of Care Regulations.
- (vi) Consideration should be given to the requirements of the water supply provider. They are likely to require the UKWIR risk assessment to be completed to determine the specification for the water pipes. BEK recommends that the water supply provider is contacted and enquiries made.

### Infiltration Rate

6.4 Indicative infiltration rates from the falling head tests suggests infiltration in the location of Borehole WS1 and Borehole No WS4 may not be possible as the ground conditions appear to be relatively impermeable indicating infiltration is unlikely to be a viable means of disposing surface water at the proposed development site.

### Geotechnical Assessment

6.5 The underlying clay soils have been encountered at depths of between 0.2 m and 0.4 m below existing ground level. Weathered bedrock has been encountered at between 1.2 m and 1.6 m underlying the natural clay strata. The geotechnical data obtained from the borehole SPT readings taken, indicate that bearing capacities on the clays are of a minimum capacity of 200 kN/m<sup>2</sup>.





- 6.6 The restaurant building is likely to be formed from lightweight roofing supported on a steel frame, with lightweight cladding and masonry walling elements. This is likely to generate localised point loads of up to 200 kN and foundation line loadings of between 20 and 30 kN/m, which indicates that pad foundations and strip footings would be suitable to the underlying clay strata. Should soft clays be encountered at formation depth, it is recommended that the formation of footings extended down to clays of suitable strength is encountered, with the over-dig backfilled with lean mix concrete.
- 6.7 All formations must be checked on site to confirm that the design bearing capacity is extent before foundations are installed. Should areas of poor ground be encountered, the excavations may require extending until suitable strata is found, and the design engineer's instruction must be sought.
- 6.8 As stiff clays have been encountered within 600 mm of the surface, ground bearing slabs are considered to be suitable for the proposed building.
- 6.9 Local trees may have a bearing on the proposed building foundations and ground floor slab, which will need to be appraised by the foundation designer. Formation levels must be designed to comply with LABC requirements and NHBC Ch.4.2 guidance.
- 6.10 All foundation designs must be reviewed and designed by a suitably qualified design engineer. The above advice is based upon the ground condition information obtained during the survey. The design engineer must satisfy themselves that the information meets with their design requirements.

#### Waste Soil Management

- 6.11 Careful management of soils during the excavation works will ensure optimum utilisation of soil resources. Excavated soils which require off-site disposal are anticipated to be classified in accordance with the following document: Guidance on the Disposal of "Contaminated Soils" Version 3 (April 2001); produced by the Environment Agency.
- 6.12 In all cases where excess soils require off-site disposal, the materials need to be managed under the appropriate legislation and consideration given to any remedial techniques that could be used to improve the soil.
- 6.13 If waste soils are to be re-used on site then a suitable permit exemption should be put in place (if appropriate) or a Material Management Plan (MMP) should be prepared as part of compliance with the CL:AIRE Definition of Waste:Code of Practice.

## APPENDIX A

Exploratory Logs



**GEO-ENVIRONMENTAL CONSULTANTS**

GEO-ENVIRONMENTAL CONSULTING ENGINEERS

<b>PROJECT NUMBER</b> 23048 <b>PROJECT NAME</b> Welshpool <b>CLIENT</b> KIM Property Investment Limited	<b>DATE</b> 29th March 2023 <b>DRILLING METHOD</b> Window Sample Borehole <b>BOREHOLE NO</b> WS1 <b>SHEET</b> 1/6
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<b>COMPLETION</b>	<b>CASING</b> uPVC	<b>SCREEN</b> uPVC Factory Slotted
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**COMMENTS** Borehole dry

DEPTH (m)	DIAMETER (m)	Samples/ Test	FIELD RECORDS	Well Instal.	DEPTH (m)	Material Description	DEPTH (m)
0.2	0.15	D=0.15 m			0.2	Grass onto brown / black slightly silty sandy clays with occasional ash and clinker fragments, rare broken brick, rare fine to coarse gravel and frequent rootlets	0.2
0.4					0.4	Very stiff brown very silty slightly sandy clay	0.4
0.6					0.6		0.6
0.8					0.8		0.8
1.0	1.0 - 1.45	SPT (C) N= 23	3,3/5,5,5,8		1.0		1.0
1.2	1.0-1.5	B=1.0-1.5 m			1.2		1.2
1.4					1.4		1.4
1.6					1.6	Hard brown weathered siltstone	1.6
1.8					1.8		1.8
2.0	2.0	D= 2.0 m			2.0		2.0
2.2	2.0 - 2.45	50 for no movement	4,8/10,14,50/30 refusal		2.2		2.2
2.4					2.4		2.4
2.6					2.6	Termination Depth at: 2.45 m	2.6
2.8					2.8		2.8



**GEO-ENVIRONMENTAL CONSULTANTS**

GEO-ENVIRONMENTAL CONSULTING ENGINEERS

<b>PROJECT NUMBER</b> 23048 <b>PROJECT NAME</b> Welshpool <b>CLIENT</b> KIM Property Investment Limited	<b>DATE</b> 29th March 2023 <b>DRILLING METHOD</b> Window Sample Borehole <b>BOREHOLE NO</b> WS2 <b>SHEET</b> 2/6
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<b>COMPLETION</b>	<b>CASING</b> uPVC	<b>SCREEN</b> uPVC Factory Slotted
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**COMMENTS** Borehole dry. 1 Liner.

DEPTH (m)	DEPTH (m)	Samples/ Test	FIELD RECORDS	WATER	Well Instal.	DEPTH (m)	MATERIAL DESCRIPTION	DEPTH (m)
	0.10	D=0.10 m					Grass onto brown slightly silty sandy clay with rare ash and clinker, rare broken brick, rare fine to coarse gravels and rare rootlets	0.2
0.2							Very stiff brown very silty slightly sandy clay	0.4
0.4								0.6
0.6	0.6	D= 0.6 m						0.8
0.8								1.0
1.0	1.0 - 1.45	SPT (C) N= 23	4,4/5,5,6,6					1.2
1.2							Hard brown weathered siltstone	1.4
1.4								1.6
1.6								1.8
1.8								2.0
2.0	2.0 - 2.45	50 for no movement	4,4/8,14,50/50 refusal					2.2
2.2								2.4
2.4							Termination Depth at: 2.45 m	2.6
2.6								2.8
2.8								



**GEO-ENVIRONMENTAL CONSULTANTS**

GEO-ENVIRONMENTAL CONSULTING ENGINEERS

<b>PROJECT NUMBER</b> 23048 <b>PROJECT NAME</b> Welshpool <b>CLIENT</b> KIM Property Investment Limited	<b>DATE</b> 29th March 2023 <b>DRILLING METHOD</b> Window Sample Borehole <b>BOREHOLE NO</b> WS3 <b>SHEET</b> 3/6
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<b>COMPLETION</b>	<b>CASING</b> uPVC	<b>SCREEN</b> uPVC Factory Slotted
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**COMMENTS** Borehole dry. 1 Liner. Refusal on barrel at 2.50 m.

DEPTH (m)	DEPTH (m)	Samples/ Test	FIELD RECORDS	WATER	Well Instal.	DEPTH (m)	MATERIAL DESCRIPTION	DEPTH (m)
0.2	0.2	D=0.2 m				0.2	Grass onto brown / black slightly silty sandy clays with occasional ash and clinker fragments, rare broken brick, rare fine to coarse gravel and rare rootlets	0.2
0.4						0.4	Very stiff brown very clayey silt/ silty clay	0.4
0.6						0.6		0.6
0.8						0.8		0.8
1.0	1.0 - 1.45 1.0 - 1.5	SPT (C) N= 20 B = 1.0 - 1.5 m	3,3/4,5,5,6			1.0		1.0
1.2						1.2	Hard brown weathered siltstone	1.2
1.4						1.4		1.4
1.6						1.6		1.6
1.8						1.8		1.8
2.0	2.0	D= 2.0 m				2.0		2.0
2.2	2.0 - 2.45	SPT (C) N= 36	4,5/7,7,8,14			2.2		2.2
2.4						2.4		2.4
2.6						2.6	Termination Depth at: 2.5 m	2.6
2.8						2.8		2.8



**GEO-ENVIRONMENTAL CONSULTANTS**

GEO-ENVIRONMENTAL CONSULTING ENGINEERS

<b>PROJECT NUMBER</b> 23048 <b>PROJECT NAME</b> Welshpool <b>CLIENT</b> KIM Property Investment Limited	<b>DATE</b> 29th March 2023 <b>DRILLING METHOD</b> Window Sample Borehole <b>BOREHOLE NO</b> WS5 <b>SHEET</b> 5/6
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<b>COMPLETION</b>	<b>CASING</b> uPVC	<b>SCREEN</b> uPVC Factory Slotted
<b>COMMENTS</b> Borehole dry. 1 Liner.		

DEPTH (m)	DEPTH (m)	Samples/ Test	FIELD RECORDS	WATER	Well Instal.	DEPTH (m)	MATERIAL DESCRIPTION	DEPTH (m)
0.2	0.15	D=0.15 m				0.2	Grass onto brown slightly clayey silty sand with frequent rootlets and occasional broken brick	0.2
0.4						0.4	Very stiff golden / brown very silty slightly sandy clay with frequent gravels and rare coal fragments	0.4
0.6						0.6		0.6
0.8						0.8		0.8
1.0	1.0	D = 1.0 m				1.0		1.0
1.2	1.0 - 1.45	SPT (C) N= 21	3,4/4,5,5,7			1.2		1.2
1.4						1.4		1.4
1.6						1.6	Hard brown weathered siltstone	1.6
1.8						1.8		1.8
2.0	2.0	D= 2.0 m				2.0		2.0
2.2	2.0 - 2.45	50 for no movement	4,6/8,14,50/30 refusal			2.2		2.2
2.4						2.4		2.4
2.6						2.6	Termination Depth at: 2.45 m	2.6
2.8						2.8		2.8



**GEO-ENVIRONMENTAL CONSULTANTS**

GEO-ENVIRONMENTAL CONSULTING ENGINEERS

<b>PROJECT NUMBER</b> 23048 <b>PROJECT NAME</b> Welshpool <b>CLIENT</b> KIM Property Investment Limited	<b>DATE</b> 29th March 2023 <b>DRILLING METHOD</b> Window Sample Borehole <b>BOREHOLE NO</b> WS6 <b>SHEET</b> 6/6
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<b>COMPLETION</b>	<b>CASING</b> uPVC	<b>SCREEN</b> uPVC Factory Slotted
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**COMMENTS** Borehole dry. 1 Liner. 0.50 m pipe and 1m slotted.

DEPTH (m)	DEPTH (m)	Samples/ Test	FIELD RECORDS	WATER	Well Instal.	DEPTH (m)	MATERIAL DESCRIPTION	DEPTH (m)	
	0.1	D=0.1 m					Grass onto brown / black slightly silty sandy clays with occasional ash and clinker fragments, rare broken brick, rare fine to coarse gravel and rare rootlets and rare pottery	0.2	
0.2							Very stiff brown silty sandy clay	0.4	
0.4									
0.6	0.5 - 1.0	D = 0.5 - 1.0 m							0.6
0.8									0.8
1.0	1.0 - 1.45	SPT (C) N= 20	3,3/4,5,5,6						1
1.2								1.2	
1.4								1.4	
1.6							Hard brown weathered siltstone	1.6	
1.8								1.8	
2.0	2.0	D= 2.0 m						2	
2.2	2.0 - 2.45	50 for no movement	4,8/12,18,50/30 refusal					2.2	
2.4								2.4	
2.6							Termination Depth at: 2.45 m	2.6	
2.8								2.8	

## APPENDIX B

TRL Probe Results and CBR Conversion















## APPENDIX C

Chemical Test Results

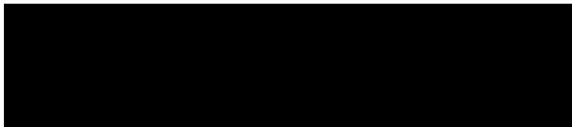
## FINAL ANALYTICAL TEST REPORT

**Envirolab Job Number:** 23/03176  
**Issue Number:** 1  
**Date:** 12 April, 2023

**Client:** BEK Enviro Ltd  
Suite One  
No 3 Mitton Road Business Park  
Mitton Road  
Whalley  
Lancashire  
BB7 9YE

**Project Manager:** Mick Buckley  
**Project Name:** Rhallt Lane, Welshpool  
**Project Ref:** Not specified  
**Order No:** 7762-23048-J  
**Date Samples Received:** 31/03/23  
**Date Instructions Received:** 03/04/23  
**Date Analysis Completed:** 12/04/23

**Approved by:**



Danielle Brierley  
Deputy Client Services Supervisor



Envirolab Job Number: 23/03176

Client Project Name: Rhallt Lane, Welshpool

Client Project Ref: Not specified

Lab Sample ID	23/03176/1	23/03176/2	23/03176/3	23/03176/4	23/03176/5			Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS1	WS2	WS3	WS5	WS6					
Depth to Top	0.15	0.1	0.2	0.15	0.1					
Depth To Bottom										
Date Sampled	29-Mar-23	29-Mar-23	29-Mar-23	29-Mar-23	29-Mar-23					
Sample Type	Soil	Soil	Soil	Soil	Soil					
Sample Matrix Code	4AE	4AE	4AE	4AE	4AE					
% Stones >10mm <sub>A</sub>	<0.1	<0.1	7.1	1.8	3.4					
Asbestos in soil <sub>D</sub> <sup>#</sup>	NAD	NAD	NAD	NAD	NAD					A-T-045
Asbestos Matrix (visual) <sub>D</sub>	-	-	-	-	-					A-T-045
Asbestos Matrix (microscope) <sub>D</sub>	-	-	-	-	-					A-T-045
Asbestos ACM - Suitable for Water Absorption Test? <sub>D</sub>	N/A	N/A	N/A	N/A	N/A					A-T-045
pH <sub>D</sub> <sup>M#</sup>	8.17	8.24	7.86	7.88	7.77			pH	0.01	A-T-031s
Sulphate (water sol 2:1) <sub>D</sub> <sup>M#</sup>	<0.01	<0.01	<0.01	<0.01	<0.01			g/l	0.01	A-T-026s
Sulphate (acid soluble) <sub>D</sub> <sup>M#</sup>	1300	1200	740	1300	740			mg/kg	200	A-T-026s
Cyanide (total) <sub>A</sub> <sup>M#</sup>	<1	<1	<1	<1	<1			mg/kg	1	A-T-042sTCN
Phenols - Total by HPLC <sub>A</sub>	<0.2	<0.2	<0.2	<0.2	<0.2			mg/kg	0.2	A-T-050s
Organic Matter <sub>D</sub> <sup>M#</sup>	7.8	8.0	8.5	15.9	9.6			% w/w	0.1	A-T-032s
Arsenic <sub>D</sub> <sup>M#</sup>	9	9	8	21	9			mg/kg	1	A-T-024s
Boron (water soluble) <sub>D</sub> <sup>M#</sup>	<1.0	<1.0	<1.0	1.5	<1.0			mg/kg	1	A-T-027s
Cadmium <sub>D</sub> <sup>M#</sup>	1.3	1.2	1.6	1.8	1.7			mg/kg	0.5	A-T-024s
Copper <sub>D</sub> <sup>M#</sup>	44	43	45	44	46			mg/kg	1	A-T-024s
Chromium <sub>D</sub> <sup>M#</sup>	26	27	26	27	26			mg/kg	1	A-T-024s
Chromium (hexavalent) <sub>D</sub>	<1	<1	<1	<1	<1			mg/kg	1	A-T-040s
Lead <sub>D</sub> <sup>M#</sup>	198	128	163	167	174			mg/kg	1	A-T-024s
Mercury <sub>D</sub>	1.73	2.49	1.29	0.80	1.43			mg/kg	0.17	A-T-024s
Nickel <sub>D</sub> <sup>M#</sup>	33	34	37	30	39			mg/kg	1	A-T-024s
Selenium <sub>D</sub> <sup>M#</sup>	<1	<1	<1	<1	<1			mg/kg	1	A-T-024s
Zinc <sub>D</sub> <sup>M#</sup>	257	206	343	267	327			mg/kg	5	A-T-024s

Envirolab Job Number: 23/03176

Client Project Name: Rhallt Lane, Welshpool

Client Project Ref: Not specified

Lab Sample ID	23/03176/1	23/03176/2	23/03176/3	23/03176/4	23/03176/5			Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS1	WS2	WS3	WS5	WS6					
Depth to Top	0.15	0.1	0.2	0.15	0.1					
Depth To Bottom										
Date Sampled	29-Mar-23	29-Mar-23	29-Mar-23	29-Mar-23	29-Mar-23					
Sample Type	Soil	Soil	Soil	Soil	Soil					
Sample Matrix Code	4AE	4AE	4AE	4AE	4AE					
<b>PAH-16MS</b>										
Acenaphthene <sub>A</sub> <sup>M#</sup>	<0.01	0.03	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-019s
Acenaphthylene <sub>A</sub> <sup>M#</sup>	<0.01	0.03	<0.01	<0.01	0.01			mg/kg	0.01	A-T-019s
Anthracene <sub>A</sub> <sup>M#</sup>	0.03	0.10	<0.02	<0.02	0.03			mg/kg	0.02	A-T-019s
Benzo(a)anthracene <sub>A</sub> <sup>M#</sup>	0.14	0.89	0.11	0.06	0.11			mg/kg	0.04	A-T-019s
Benzo(a)pyrene <sub>A</sub> <sup>M#</sup>	0.14	1.20	0.13	0.05	0.13			mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene <sub>A</sub> <sup>M#</sup>	0.18	1.32	0.18	0.08	0.16			mg/kg	0.05	A-T-019s
Benzo(ghi)perylene <sub>A</sub> <sup>M#</sup>	0.08	0.76	0.07	<0.05	0.08			mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene <sub>A</sub> <sup>M#</sup>	<0.07	0.44	0.08	<0.07	<0.07			mg/kg	0.07	A-T-019s
Chrysene <sub>A</sub> <sup>M#</sup>	0.19	1.01	0.14	0.09	0.16			mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene <sub>A</sub> <sup>M#</sup>	<0.04	0.14	<0.04	<0.04	<0.04			mg/kg	0.04	A-T-019s
Fluoranthene <sub>A</sub> <sup>M#</sup>	0.27	1.42	0.21	0.13	0.24			mg/kg	0.08	A-T-019s
Fluorene <sub>A</sub> <sup>M#</sup>	<0.01	0.03	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene <sub>A</sub> <sup>M#</sup>	0.09	0.84	0.10	<0.03	0.09			mg/kg	0.03	A-T-019s
Naphthalene <sub>A</sub> <sup>M#</sup>	<0.03	0.04	<0.03	<0.03	<0.03			mg/kg	0.03	A-T-019s
Phenanthrene <sub>A</sub> <sup>M#</sup>	0.17	0.42	0.17	0.13	0.16			mg/kg	0.03	A-T-019s
Pyrene <sub>A</sub> <sup>M#</sup>	0.23	1.42	0.17	0.10	0.19			mg/kg	0.07	A-T-019s
Total PAH-16MS <sub>A</sub> <sup>M#</sup>	1.52	10.1	1.36	0.64	1.36			mg/kg	0.01	A-T-019s

Envirolab Job Number: 23/03176

Client Project Name: Rhallt Lane, Welshpool

Client Project Ref: Not specified

Lab Sample ID	23/03176/1	23/03176/2	23/03176/3	23/03176/4	23/03176/5			Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS1	WS2	WS3	WS5	WS6					
Depth to Top	0.15	0.1	0.2	0.15	0.1					
Depth To Bottom										
Date Sampled	29-Mar-23	29-Mar-23	29-Mar-23	29-Mar-23	29-Mar-23					
Sample Type	Soil	Soil	Soil	Soil	Soil					
Sample Matrix Code	4AE	4AE	4AE	4AE	4AE					
TPH CWG with Clean Up										
Ali >C5-C6 <sub>A</sub> <sup>#</sup>	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
Ali >C6-C8 <sub>A</sub> <sup>#</sup>	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
Ali >C8-C10 <sub>A</sub>	<1	1	<1	<1	<1			mg/kg	1	A-T-055s
Ali >C10-C12 <sub>A</sub> <sup>M#</sup>	<1	1	<1	<1	<1			mg/kg	1	A-T-055s
Ali >C12-C16 <sub>A</sub> <sup>M#</sup>	1	3	<1	<1	<1			mg/kg	1	A-T-055s
Ali >C16-C21 <sub>A</sub> <sup>M#</sup>	1	4	<1	<1	<1			mg/kg	1	A-T-055s
Ali >C21-C35 <sub>A</sub> <sup>M#</sup>	9	42	6	5	8			mg/kg	1	A-T-055s
Total Aliphatics <sub>A</sub>	12	51	6	5	8			mg/kg	1	Calc-As Recd
Aro >C5-C7 <sub>A</sub> <sup>#</sup>	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
Aro >C7-C8 <sub>A</sub> <sup>#</sup>	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
Aro >C8-C10 <sub>A</sub>	<1	1	<1	<1	<1			mg/kg	1	A-T-055s
Aro >C10-C12 <sub>A</sub>	1	3	<1	1	<1			mg/kg	1	A-T-055s
Aro >C12-C16 <sub>A</sub>	6	12	2	5	4			mg/kg	1	A-T-055s
Aro >C16-C21 <sub>A</sub> <sup>M#</sup>	10	29	4	14	8			mg/kg	1	A-T-055s
Aro >C21-C35 <sub>A</sub> <sup>M#</sup>	27	116	10	23	20			mg/kg	1	A-T-055s
Total Aromatics <sub>A</sub>	45	161	15	44	32			mg/kg	1	Calc-As Recd
TPH (Ali & Aro >C5-C35) <sub>A</sub>	57	211	21	49	39			mg/kg	1	Calc-As Recd
BTEX - Benzene <sub>A</sub> <sup>#</sup>	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
BTEX - Toluene <sub>A</sub> <sup>#</sup>	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene <sub>A</sub> <sup>#</sup>	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
BTEX - m & p Xylene <sub>A</sub> <sup>#</sup>	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
BTEX - o Xylene <sub>A</sub> <sup>#</sup>	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
MTBE <sub>A</sub> <sup>#</sup>	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s

## **REPORT NOTES**

### **General**

This report shall not be reproduced, except in full, without written approval from Envirolab.

The results reported herein relate only to the material supplied to the laboratory.

The residue of any samples contained within this report, and any received with the same delivery, will be disposed of six weeks after initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of six months after the initial Asbestos testing is completed.

Analytical results reflect the quality of the sample at the time of analysis only.

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

If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

### **Soil chemical analysis:**

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

### **TPH analysis of water by method A-T-007:**

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

### **Electrical Conductivity of water by Method A-T-037:**

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

### **Asbestos:**

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

### **Predominant Matrix Codes:**

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample, 9 = INCINERATOR ASH.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

### **Secondary Matrix Codes:**

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

### **Key:**

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Subscript "A" indicates analysis has dependant options against results. Testing dependant on results appear in the comments area of your sample receipt.

EPH CWG results have humics mathematically subtracted through instrument calculation

TPH results "with Cleanup" indicates results cleaned up with Silica during extraction

### **EPH CWG GCxGC ID from TPH CWG**

Where we have identified humic substances in any ID's from TPH CWG with Clean Up please note that the concentration of these humic substances is not included in the quantified results and are included in the ID for information.

Please contact us if you need any further information.

## Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR  
Tel. 0161 368 4921 email. ask@envlab.co.uk

<b>Client:</b>	BEK Enviro Ltd, Suite One , No 3 Mitton Road Business Park , Mitton Road , Whalley , Lancashire , BB7 9YE	<b>Project No:</b>	23/03176
<b>Project:</b>	Rhallt Lane, Welshpool	<b>Date Received:</b>	03/04/2023 (am)
<b>Clients Project No:</b>		<b>Cool Box Temperatures (°C):</b>	4.3

NO DEVIATIONS IDENTIFIED with respect to sampling dates or containers received.

Note: If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3 (for water samples  $5 \pm 3^{\circ}\text{C}$ ), ISO 18400-105:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

## Envirolab Analysis Dates

Lab Sample ID	23/03176/1	23/03176/2	23/03176/3	23/03176/4	23/03176/5
Client Sample No					
Client Sample ID/Depth	WS1 0.15m	WS2 0.1m	WS3 0.2m	WS5 0.15m	WS6 0.1m
Date Sampled	29/03/23	29/03/23	29/03/23	29/03/23	29/03/23
A-T-019s	10/04/2023	10/04/2023	10/04/2023	10/04/2023	10/04/2023
A-T-022s	11/04/2023	11/04/2023	11/04/2023	11/04/2023	11/04/2023
A-T-024s	07/04/2023	07/04/2023	07/04/2023	07/04/2023	07/04/2023
A-T-026s	07/04/2023	07/04/2023	07/04/2023	07/04/2023	07/04/2023
A-T-027s	11/04/2023	11/04/2023	11/04/2023	11/04/2023	11/04/2023
A-T-028s	12/04/2023	12/04/2023	12/04/2023	12/04/2023	12/04/2023
A-T-031s	07/04/2023	07/04/2023	07/04/2023	07/04/2023	07/04/2023
A-T-032s	11/04/2023	11/04/2023	12/04/2023	12/04/2023	12/04/2023
A-T-040s	07/04/2023	07/04/2023	07/04/2023	07/04/2023	07/04/2023
A-T-042sTCN	06/04/2023	06/04/2023	06/04/2023	06/04/2023	06/04/2023
A-T-044	11/04/2023	11/04/2023	11/04/2023	11/04/2023	11/04/2023
A-T-045	04/04/2023	04/04/2023	04/04/2023	04/04/2023	04/04/2023
A-T-050s	06/04/2023	06/04/2023	06/04/2023	06/04/2023	06/04/2023
A-T-055s	06/04/2023	06/04/2023	06/04/2023	06/04/2023	06/04/2023
Calc-As Recd	11/04/2023	11/04/2023	11/04/2023	11/04/2023	11/04/2023

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

**End of Report**

## APPENDIX D

### Geotechnical Test Results

## TEST REPORT

**Client** BEK Enviro Ltd

**Address** Suite One  
No. 3 Mitton Road Business Park  
Mitton Road  
Whalley  
Lancashire  
BB7 9YE

**Contract** Rhallt Lane,  
Welshpool

**Job Number** MRN 4627/21  
**Date of Issue** 20 April 2023  
**Page** 1 of 4

### Approved Signatories

S J Hutchings, O P Davies

### Notes

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



Andrew House, Hadfield Street, Dukinfield, Cheshire SK16 4QX Tel: 0161 475 0870  
Email: [enquiries@murrayrix.com](mailto:enquiries@murrayrix.com) Website: [www.murrayrix.com](http://www.murrayrix.com)

Also at: London: 020 8523 1999

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# MURRAY RIX

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



## TEST CERTIFICATE

LIQUID LIMIT BS EN ISO 17892-12:2018+A1:2021 Clause 5.3 (30° FALL CONE) 1 POINT METHOD

PLASTIC LIMIT BS EN ISO 17892-12:2018+A1:2021 Clause 5.5

WATER CONTENT METHOD BS EN ISO 17892-1:2014

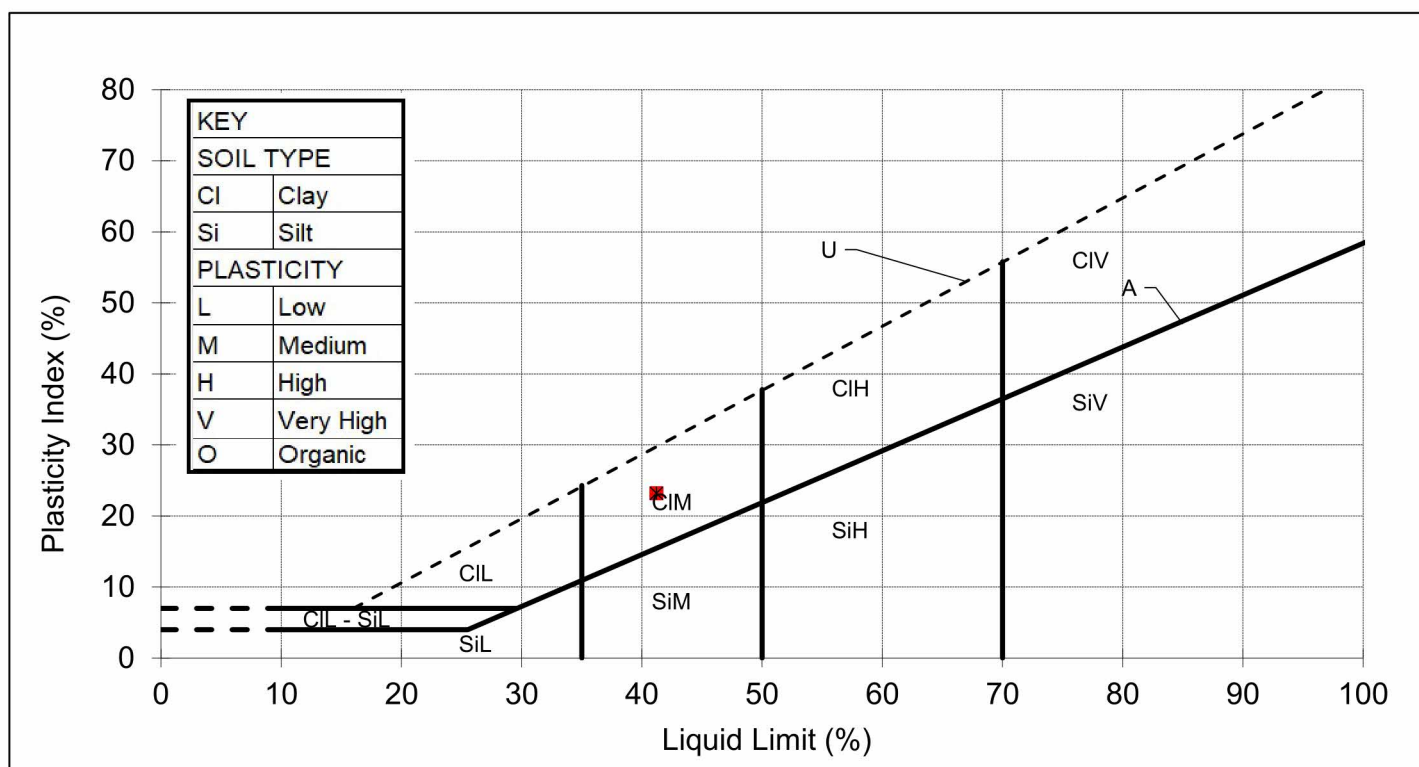
CLIENT	BEK Enviro Ltd
SITE	Rhallt, Welshpool
JOB NUMBER	MRN 4627/21

SAMPLE LABEL	WS1 (1.0-1.5m)	DATE SAMPLED	29-Mar-23
SAMPLE No.	123156	DATE RECEIVED	04-Apr-23
DATE TESTED	06-Apr-23	SAMPLED BY	Client

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

Test Readings mm (average)	Moisture Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	21.8	0.976	
Determination 2 (avg)	21.4		

Natural Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
22.5	41	18	23	92



REMARKS

SIGNED



NAME

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

DATE

20-Apr-23

# MURRAY RIX

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



## TEST CERTIFICATE

LIQUID LIMIT BS EN ISO 17892-12:2018+A1:2021 Clause 5.3 (30° FALL CONE) 1 POINT METHOD  
PLASTIC LIMIT BS EN ISO 17892-12:2018+A1:2021 Clause 5.5  
WATER CONTENT METHOD BS EN ISO 17892-1:2014

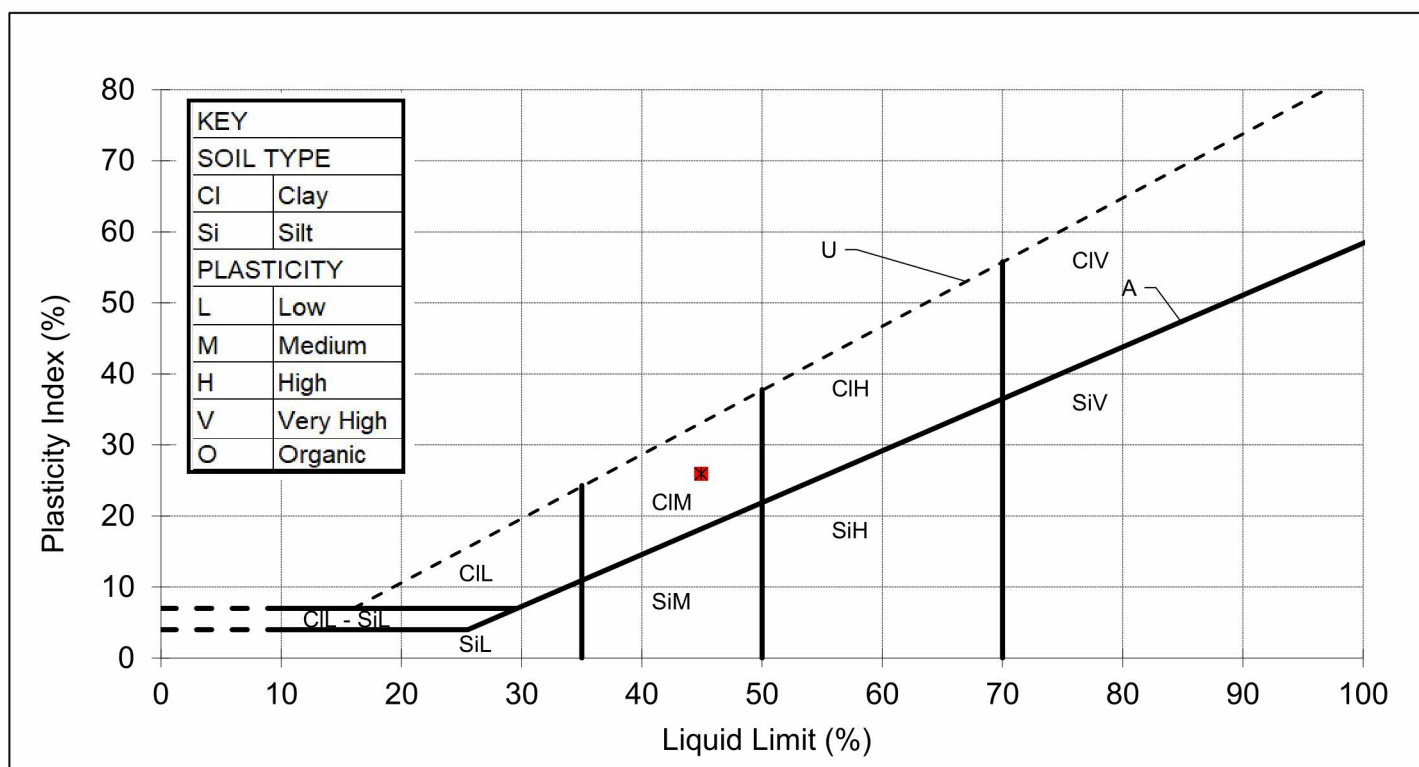
CLIENT	BEK Enviro Ltd
SITE	Rhallt, Welshpool
JOB NUMBER	MRN 4627/21

SAMPLE LABEL	WS3 (1.0-1.5m)	DATE SAMPLED	29-Mar-23
SAMPLE No.	123157	DATE RECEIVED	04-Apr-23
DATE TESTED	06-Apr-23	SAMPLED BY	Client

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

Test Readings mm (average)	Moisture Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	19.5	1.012	
Determination 2 (avg)	19.3		

Natural Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
29.3	45	19	26	87



REMARKS

SIGNED



NAME

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

DATE

20-Apr-23

# MURRAY RIX

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



## TEST CERTIFICATE

LIQUID LIMIT BS EN ISO 17892-12:2018+A1:2021 Clause 5.3 (30° FALL CONE) 1 POINT METHOD  
PLASTIC LIMIT BS EN ISO 17892-12:2018+A1:2021 Clause 5.5  
WATER CONTENT METHOD BS EN ISO 17892-1:2014

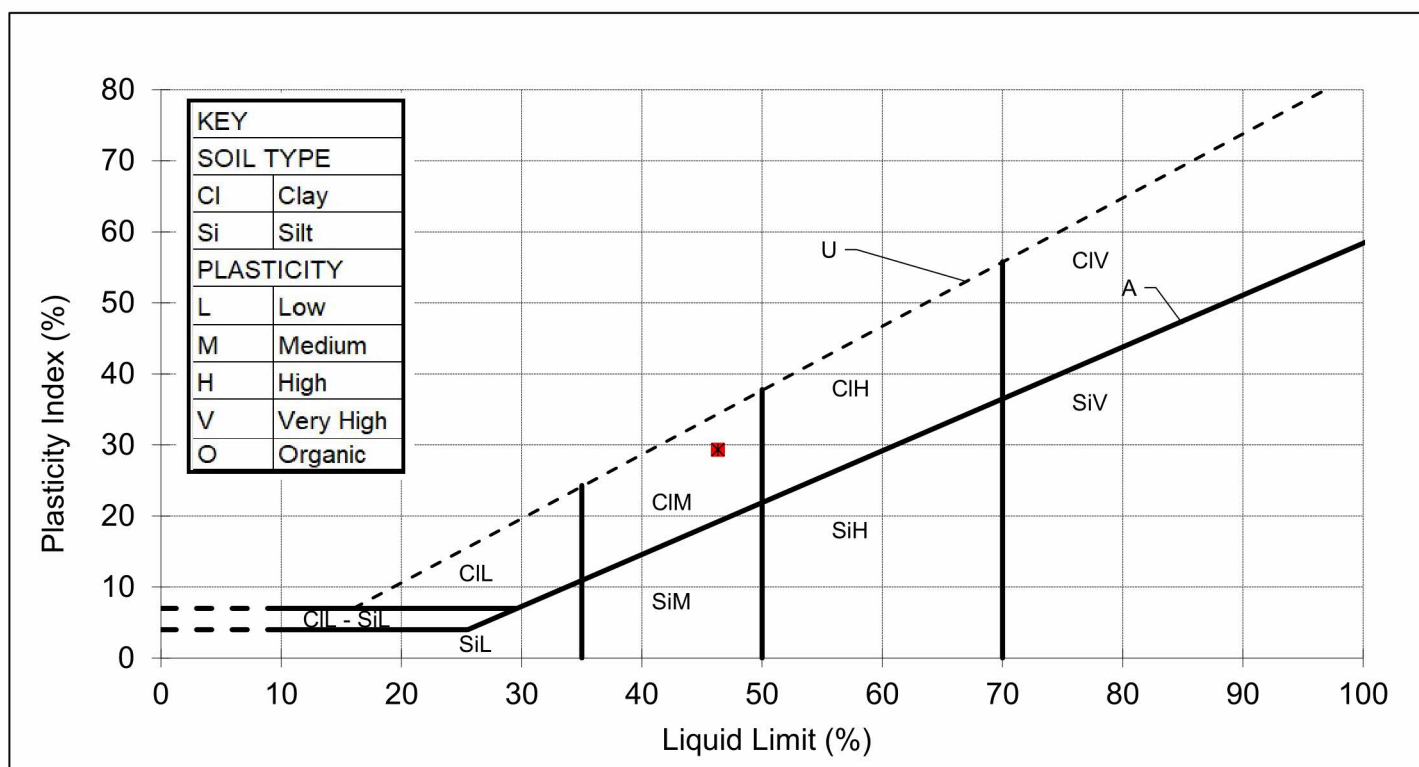
CLIENT	BEK Enviro Ltd
SITE	Rhallt, Welshpool
JOB NUMBER	MRN 4627/21

SAMPLE LABEL	WS6 (0.5-1.0m)	DATE SAMPLED	29-Mar-23
SAMPLE No.	123158	DATE RECEIVED	04-Apr-23
DATE TESTED	06-Apr-23	SAMPLED BY	Client

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

Test Readings mm (average)	Moisture Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	18.4	1.029	
Determination 2 (avg)	18.4		

Natural Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
22.6	46	17	29	94



REMARKS

SIGNED



NAME

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

DATE

20-Apr-23

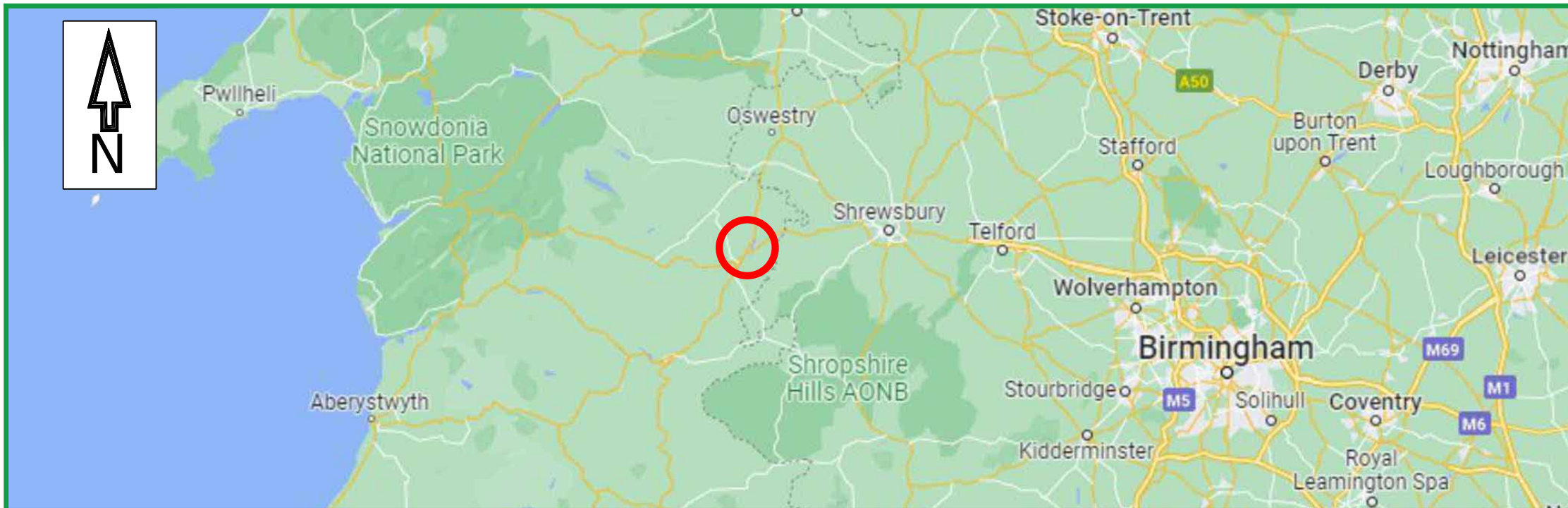
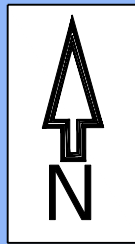
## APPENDIX E

Falling Head Test Results




## APPENDIX F

Drawings



## LEGEND

 SITE LOCATION

REV	DESCRIPTION	DATE	BY



GEO-ENVIRONMENTAL CONSULTING ENGINEERS

Suite One, No 3 Mitton Road Business Park, Mitton Road,  
Whalley, Lancashire BB7 9YE  
Tel: 01254 377622 Mob: 07906753583  
Email: mbuckley@bekenviro.co.uk  
Web: www.bekenviro.co.uk

CLIENT.

KIM PROPERTY INVESTMENT LTD

JOB TITLE.

LAND TO NORTH OF RHALLT  
LANE, WELSHPOOL

DRAWING TITLE.


SITE LOCATION PLAN

SCALE © A3. NTS	DRAWN BY. D.E.	APPROVED BY. M.B.	DATE. 29/03/23
--------------------	-------------------	----------------------	-------------------

DRAWING No. 23048-1	REV. -
------------------------	-----------



## LEGEND

 SITE FOOTPRINT

REV	DESCRIPTION	DATE	BY



GEO-ENVIRONMENTAL CONSULTING ENGINEERS

Suite One, No 3 Mitton Road Business Park, Mitton Road,  
Whalley, Lancashire BB7 9YE  
Tel: 01254 377622 Mob: 07906753583  
Email: mbuckley@bekenviro.co.uk  
Web: www.bekenviro.co.uk

CLIENT.

KIM PROPERTY INVESTMENT LTD

JOB TITLE.

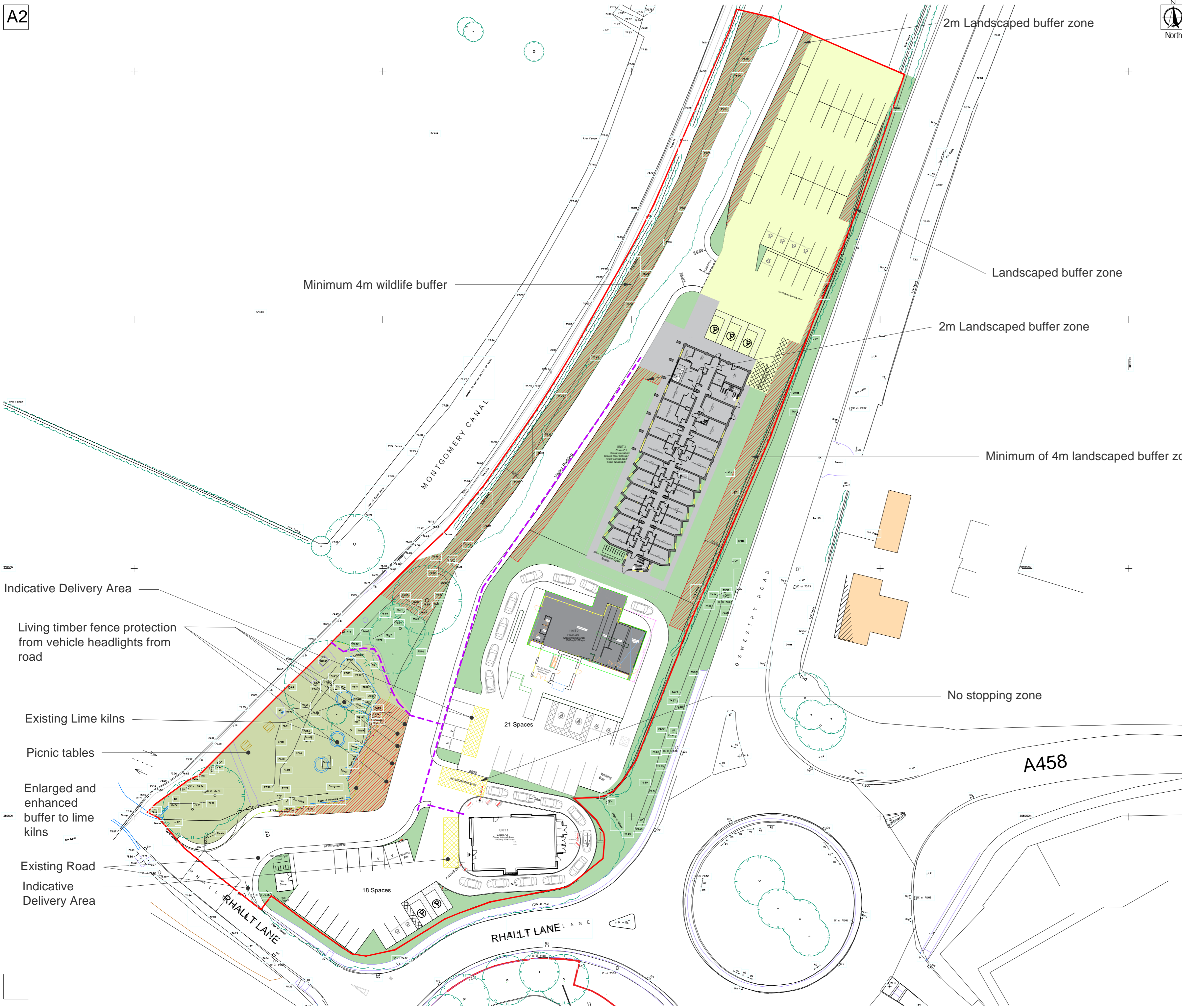
LAND TO NORTH OF RHALLT  
LANE, WELSHPOOL

DRAWING TITLE.

SITE LAYOUT

SCALE © A3. NTS	DRAWN BY. D.E.	APPROVED BY. M.B.	DATE. 29/03/23
DRAWING No. 23048-2	REV.		-





1. DO NOT SCALE FROM THIS DRAWING. USE FIGURED DIMENSIONS ONLY.
  2. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS STATED OTHERWISE.
  3. THE CONTRACTOR IS TO CHECK DRAWINGS AND TO VERIFY ALL DIMENSIONS ON SITE BEFORE COMMENCING ANY WORK OR MAKING ANY SHOP DRAWINGS. ANY DISCREPANCIES ARE TO BE NOTIFIED TO REV-A ASSOCIATES IMMEDIATELY.
  4. THIS DRAWING IS THE PROPERTY OF REV-A ASSOCIATES. COPYRIGHT IS RESERVED BY THEM AND THE DRAWING IS ISSUED ON THE CONDITION THAT IT IS NOT COPIED, REPRODUCED, RETAINED OR DISCLOSED TO ANY UNAUTHORISED PERSON, EITHER WHOLLY OR IN PART, WITHOUT THE CONSENT IN WRITING OF REV-A ASSOCIATES.
  5. ALL WORK IS TO BE CARRIED OUT IN ACCORDANCE WITH THE CURRENT BUILDING REGULATIONS AND ALL ASSOCIATED BRITISH STANDARDS.
- For landscaping details please refer to landscape plan

— Site Boundary  
 Site Area - 1.028 Ha / 10,0283m<sup>2</sup>  
--- Pedestrian routes

Rev	Date	By	Checked
P02.9	20/07/2022	AC	AA
Updates to layout			
P02.8	24/06/2022	AC	AA
Updates to layout			
P02.7	13/04/2022	AC	AA
Updates to layout			
P02.5	13/04/2022	AC	AA
Changes to ev parking			
P02.4	22/02/2022	AC	AA
Changes to access road			
P02.3	17/02/2022	AC	AA
Changes to access road			
P02.2	12/10/2021	AC	AA
Changes to ev parking and landscape buffer for hotel			
P02.1	12/10/2021	AC	AA
Changes to visitor parking and landscape buffer for hotel			

**REV-A ASSOCIATES**

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Client  
**Stephen James Property Ltd**

Project Title  
**Moors Farm, Mixed Use Redevelopment**

Date	Drawn By:	Checked By:
27/11/2020	AC	AA
Suitability	Scale	Revision
S0	1:500	P02.9

Drawing Name  
**Proposed Site Plan**

Drawing Number  
**SHR17065-REVA-DR-A-002**