



PROPOSED COMMERCIAL DEVELOPMENT

LOWER WOODHILL ROAD, BURY, BL8 1AA

RILEY & SON (E) LTD



**PHASE II GEO-ENVIRONMENTAL INVESTIGATION REPORT AND
MINE SHAFT INVESTIGATION**

Our Ref: 26003/GEIR/002

AUGUST 2026



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EXECUTIVE SUMMARY

Site	Lower Woodhill Road, Bury, BL8 1AA.
NGR	SD 379875 411211.
Site History	The site has been the subject of a previous Phase I Desk Study prepared by REFA, (report reference: 26003/GEDS/002 and dated February 2026). A review of the historical information initially shows the site to be a part of an orchard in 1849 with incorporated pathways in the southern extent, small structures in the north and Mideastern zones and a culvert which runs from Woodhill Mill to River Irwell. From 1890, the orchard area is no longer mapped, and from between 1908 and 1910, several tanks are placed within the south western region of the site, later labelled as settling tanks between the years 1927 and 1930. In this time period, the site's northern area welcomed a bowling green, before industrial development between 1955 and 1959, where yard areas compromising tracks, cranes and a bridge connecting Woodhill Road to the west of the site had been introduced. From between 1974 and 1986, site is accessible with a single main access road, and the northern industrial building has been expanded whilst the 'settling tanks' labels have been removed from the survey. The site then remained unchanged after the addition of three (3 No.) south western structures in 2010 until present day.
Investigations	The investigations have extended to: - - Intrusive investigations by Windowless Sample and Rotary Open Hole type boreholes, as well as rotary probed hole to identify the site's potential coal mine shaft. - Chemical and geotechnical analysis of selected soil samples - Assessment of results
Ground Conditions	Made ground was recorded across all exploratory hole positions, reaching a maximum depth of 3.50m bgl. Generally, underlying the made ground was predominantly sand, gravel and clay with anthropogenic materials such as brick, concrete and plastic. Below this, a medium dense to dense sandy GRAVEL exists to a maximum depth of soft. Bedrock was identified from 2.8 to 6.0m bgl, recording variable cyclothematic layers of sandstone, mudstone and coal to a maximum depth of 30.0m bgl.
Groundwater	The intrusive investigations have identified groundwater within each windowless sample position (WS01-WS05) at depths of between 3.00m and 3.10m bgl within the made ground and granular deposits. These are considered to represent perched groundwater. During periods of inclement weather; excavations may accumulate with perched water. If this occurs, then a simple pump system may be used to remove the water within the excavations which comprise of cohesive strata. However, deep excavations into the granular material should be avoided to reduce the risk of water ingress occurring within granular excavations, particularly during periods of inclement weather.
Environmental	The chemical analysis undertaken on the representative samples of made ground, five (5 No.) were extracted from the site during the drilling works, have not identified contamination at a notable level. No elevated metals, PAH compounds, TPH fractions or VOC/sVOC exceedances have been identified. All the samples analysed in the laboratory did not detect any asbestos containing materials (ACMs) either. ACMs are present on the site, however, in the form of lagging in the south west and roof sheeting across the north, however these have been left undisturbed.
Foundations	Ground investigations within vicinity of the proposed extension to the office have proven medium dense to dense SAND deposits underlying made ground within WS04 and WS05. SPT 'N' values ranged from 12-22 at 2.0m bgl, indicating medium dense becoming dense ground conditions at this depth. Based upon this, it is considered that the SAND stratum within this area of the site is capable of offering a safe bearing capacity of 100 kN/m² at 2.0m bgl. Should a higher bearing capacity be required, consideration to a deeper foundation solution may be required. Consideration should also be given into how any new foundations would be tied into the original foundation for the current office block and factory building. Ground conditions encountered within vicinity of the proposed new building have recorded variable strength made ground and superficial deposits across this area. SPT 'N' values recorded within the Made Ground ranged from 21 to 53, indicating firm/medium dense ground conditions depending upon the primary soil fraction. However, SPTs within this material were observed to be affected by coarse gravel and cobbles within the made ground, specifically the 'N' value of 53. Beneath the made ground, SPT 'N' values ranged from 5-24 at 2.0mbgl, 0-30 at 3.0mbgl, 3-50 at 4.0mbgl. Based on the variable strength deposits and low strength alluvial deposits at WS02 and deep made ground at WS01, it is considered that a shallow foundation solution would not be suitable for the proposed new building. It is considered that the new building will require a piled foundation solution, likely socketed into bedrock to provide a suitable foundation solution. Vibro stone columns are unlikely to prove suitable due to the presence of soft alluvial CLAY. Consideration should also be given to the potential location of an old culvert that is situated within this area of the site. Historic mapping (1849) shows this feature but is then lost from further mapping. Whilst this feature is likely to have been removed, it should nevertheless be considered during construction of the new building.

SUDS	Assessment of the ground conditions present within the site in terms of sustainable urban drainage, confirms the presence of significantly thick made ground overlying a high proportion of granular deposits of gravel and sand, interbedded with relatively impermeable cohesive deposits. Due to the site's geology and thick made ground, it is considered that a soakaway system will not be feasible for the proposed development. It will be necessary for surface water to be disposed of utilising a traditional gravity fed drainage system.
Further Works	A geophysical survey could be conducted within the area of the potential mine shaft, however the opinion of a specialist geophysical consultant would be required to assess the overall likelihood of this methodology being successful. Due to the location of the potential mine shaft on the site, it is inaccessible to propose further intrusive borehole or excavations within <1.0m of the given vicinity without a requirement for a multitude of additional safety precautions and altering the surrounding area, for instance, a metal fence stands to the north, the hut containing ACMs towards the south west and an abundance of underground services that run in overlapping directions surrounding the location. If any unusual or suspicious strata or ground conditions are encountered during the subsequent site stripping and preparation works, it may be necessary for these areas to be brought to the attention of the appropriate authorities so that all necessary inspection, sampling and testing may be undertaken to determine whether these materials represent a hazard to human health. It is incumbent upon this site, that contractors advise a responsible authority of any unusual findings within the site which may then be further investigated.

This brief summary should not be assumed to represent a complete account of all the potential geo-environmental issues that may exist at the site. As such it is strongly recommended that the report be read in its entirety.

PHASE II GEO-ENVIRONMENTAL INVESTIGATION WORKS

LOWER WOODHILL ROAD, BURY

1.0 **INTRODUCTION**

1.1 **Instructions**

1.1.1 We are instructed by Riley & Son (E) Ltd, Unit 3 Irwell Works, Lower Woodhill Road, Bury, BL8 1AA, to undertake a programme of intrusive geo-environmental investigations at a parcel of land at Lower Woodhill Road, Bury. The site has been the subject of a previous Phase I Desk Study Report conducted by REFA Consulting Engineers, reference, 26003/GEDS/002 and dated February 2026. Additionally, a Coal Mining Risk Assessment has been undertaken, report reference RS/CP/26003/CMRA, dated March 2026. Reference should be made to the previous desk study and coal mining risk assessment report when considering this report.

1.2 **Object**

1.2.1 The objects of these investigations were as follows:

- To enable sufficient information regarding ground conditions to be obtained from which risks to end users and the environment may be assessed;
- To utilise the information obtained from the investigations to provide recommendations for remediation measures where required;
- To determine the engineering properties of the soils, present within the site to form a basis upon which foundation and general infrastructure recommendations and design may be based;
- To determine the presence, if any, of shallow coal mine workings;
- To undertake rotary probe hole drilling around the position of mine shaft record 379411-001.

1.3 **Scope**

1.3.1 The investigations considered within this report have comprised of the following elements and are based upon the principles and recommendations presented in BS10175:2026 "The Investigation of Potentially Contaminated Sites".

- Review of the previous reports;
- Undertake intrusive ground investigation works utilising windowless sample type boreholes, rotary open boreholes and a rotary probed boreholes;
- Determine the presence of the potential shallow coal mine workings and delineate the potential on-site mine shaft, according to the Mining Remediation Authority;
- Determine the presence, nature and extent of any soil and groundwater contamination at the site;
- Determination of the engineering properties of the soils present within the site to form a basis upon which recommendations for foundations construction may be based;
- Identify the potential requirements for any remedial actions where required.

1.4 **Development Proposals**

1.4.1 At the time of preparation of this report we have been provided with a proposed site layout plan (3690-13-A, dated November 2025) which shows the construction of an extension to the site office, situated off the main industrial warehouse type building.

Additionally, the proposed development comprises the demolition of three smaller structures situate in the southwestern corner of the site and replacing them with one standalone industrial building. The proposed site plan also shows the relocation of site car parking onto existing hardstanding along the main entrance road into the site. It has been confirmed that the relocation of the car parking spaces does not involve any ground works or resurfacing.

- 1.4.2 It is acknowledged within this report that the redevelopment proposals will be subject to planning approval, and it is possible that the proposals shown upon the proposed site layout may be amended as a result of local planning and commercial requirements. If the final development proposals are radically different, then recommendations within this report may need to be reviewed.

1.5 Services

- 1.5.1 Service information has been provided by our client, as well as a Groundsure utility information pack, which indicated that the site had various services including gas, sewers and electricity. Prior to the drilling works, each position was surveyed by a qualified utility surveyor using GPR and cable avoidance tool (CAT) and a hand dug pit was carried out to 1.20m to ensure no unrecorded services were present.
- 1.5.2 It is essential that all services within and adjacent to the site are positively identified and located prior to any development works being undertaken. Where services have been disconnected, confirmation is required from the relevant authority.

2.0 REVIEW OF PREVIOUS STUDIES

2.1 Site Location

- 2.1.1 The site is irregular in shape and is located approximately 0.63km north west of Bury town centre. The site extends to an area of approximately 1.24 hectares, and the centre of the site is situated at National Grid Reference SD 379875, 411211. The location of the site is shown in figure 1 below.

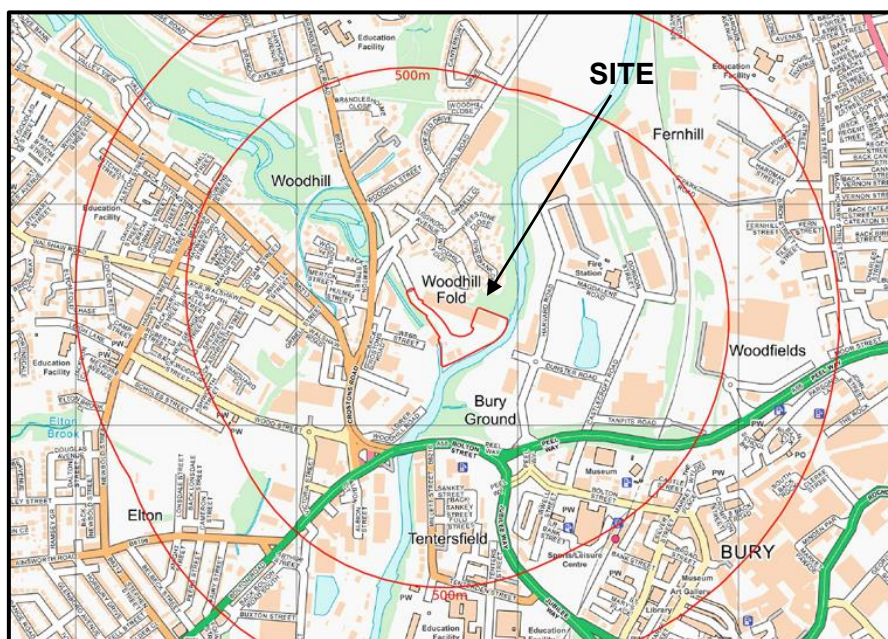


Figure 1: Site Location

2.2 Review of Previous Studies

2.2.1 The site has been the subject of a previous Phase I Desk Study prepared by REFA Consulting Engineers (Phase 1 Geo-environmental Desk Study Report, reference: 26003/GEDS/002, dated February 2026). The study provided an environmental appraisal of the site and include the review of the environmental setting, propriety environmental database, historical plans and geological report.

The report should be read in full however the main findings are presented below:

- The walkover survey, completed on the 16th of January 2026, confirmed that the site comprises of a range of industrial/commercial features overlying hard standing ground. The site is primarily Made Ground with the exception of limited soft vegetation. The access road onto the site is hard surfaced with a fence line along both its east and western boundary. Across the site, industrial type buildings are present, for instance a fabric shop in the south western region which is utilised for the maintenance/repairs of train parts, and an office in the north east. Multiple containers, varying in size, are scattered across the site, as well as the presence of propane tanks and Above-Ground Storage Tanks (ASTs) nestled within the industrial infrastructure. The centre of the site has a weighbridge situated between two concrete ramps.
- Bounding the northern extent of the site is metal fencing and barbed wire, meanwhile the eastern and western extents are bound by their industrial developments. The River Irwell and Woodhill Brook surround the far southern and western boundaries.
- Generally, the site is topographically flat. No significant embankments, cuttings or steep gradients were observed within the site boundary. However, the access road has a slight gradient which rises to the northwest.
- During the site walkover, the presence of asbestos containing materials (ACMs) was observed in the form of both roof sheeting on top of the northern building, and within pipe lagging in an undisturbed outbuilding for the site's main gas inlet. The presence of asbestos is clearly expressed with a visible sign stating 'Warning. Asbestos Containing Material Located in Gas Outlet'. This is considered to be safe in-situ and undisturbed. The site walkover also observed a slight hydrocarbon sheen resting on still water which surrounded a drain in the site's eastern area, yet this drain had a silt guard positioned above it.
- A review of the historical information initially shows the site to be used for agricultural purposes, forming an orchard with southern pathways from 1849 and accompanied by a north west/south east trending culvert in the western region as well as two (2 No.) buildings in the northern and Mideastern areas. The site is no longer seen as forming an orchard from the year 1890, however, the southern area had a small building introduced. Between the years 1908 and 1910 several tanks including settling tanks are present, predominantly within the south western area of the site, before the addition of a northern bowling green and associated structure labelled 'Pavillion'. From between 1955 and 1959, the site has introduced industrial yard zones with associated roads/tracks, two (2 No.) cranes along the access road's eastern edge and a bridge connecting the site to the wider Woodhill Road. Industrial areas spread eastwards between 1974 and 1986, yet a group of settling tanks have been removed from historical mapping. The site was later developed to appear in its present day configuration in 2010, with the incorporation of three (3 No.) south western structures.

Within 250m of the site, earliest mapping shows the surrounding area is predominantly used for agricultural and industrial purposes with a largely undeveloped northern area yet Bury Ground (Print Works) exists south of the River Irwell, relating to an array of structures such as a gasometer, smithy, chimneys and a dye house. Woodhill Mill (cotton) is also situated immediately west of the site. A reservoir is recorded approximately 50m east of the site from between the years 1850 and 1851. From 1890, the dye works has expanded, a chemical works has been added 30m north east and a hat works added 40m east. Later, a refuse tip is displayed within this area of hat and print works (c.45m south east of the site), and a structure 80m south is now classified as 'Cotton Waste Bleach Works'. Between 1955 and 1959 the Woodhill Mill Bleach and Dye Works are now labelled as dis-used, however, a sizable 'Works' building has been established immediately north of the site with associated excavations. An electricity substation has been placed into the surrounding area (15-20m north) between the years 1974 and 1986, and the reservoir is potentially infilled with unknown material. Residential expansion occurred 140m north of the site between 1987 and 1990, plus a tank 10m north of the site, a second electricity substation immediately east and the creation of the northern Woodhill Fold. The surrounding area has remained relatively unchanged after the year 2010, with no significant changes after the majority of industrial buildings. However, reviewing aerial photographs from the year 2000 to present day, two (2 No.) structures adjacent to the south western buildings are present between the dates January 2022 and June 2023, likely relating to hay bale storage.

- 2.2.2 The site has also been the subject of a Coal Mining Risk Assessment, dated March 2026. The study provided a geological coal mining appraisal of the site and include the review of the varying scale geological mapping, Mining Remediation Authority Consultants Coal Mining Report and selected Abandoned Mine Plans.

The report should be read in full however the main findings are from the Consultants Coal Mining report are presented below:

Table 1 - Summary of Mining Remediation Authority Data

Mining Activities	Present At Site	Further Information
Past Underground Coal Mining	Yes	Possible unrecorded workings beneath the site indicated to be likely.
Present Underground Mining	No	No active underground mining is recorded within or beneath the site boundary.
Future Underground Mining	No	No future underground mining activities are planned within the zone of influence.
Mine Entries	Yes	- Two mine shafts (Refs: 379411-001 and 379411-002) are recorded within the site. Treatment details are unknown due to pre-1947 abandonment. - Shaft 379411-002 can be seen to be situated in neighbouring land and has been included in the Consultants report information due to red line boundary inaccuracies and has therefore not considered as a risk to the site.
Coal Mining Geology	Yes	- Arley coal seam outcrop located approximately 7.3 m northeast of the site. Seam classified as workable. No recorded geological faults - Spine roadway recorded as on site by the Mining Remediation Authority Consultants Coal Mining report.
Past/Present/Future Opencast	No	No opencast mining sites recorded within 500 m of the enquiry boundary. No current or proposed opencast activity.

Coal Mining Subsidence	No	No subsidence damage claims recorded within 50 m since 1994. No Stop Notices or preventative works recorded.
Mine Gas and Hazards Relating to Coal	No	No recorded mine gas incidents within 500 m. Presence of shallow workings and shafts presents potential risk of gas migration. Further gas risk assessment recommended.

The main conclusion of the CMRA report is presented below:

- The site is located within an area of probable unrecorded shallow coal workings and is therefore considered to present a **MODERATE TO HIGH coal mining risk**.
- Prior to development, the site should be subject to a programme of intrusive investigation to identify any shallow coal seams or mine workings.
- The investigation should comprise of at least four (4 No.) rotary boreholes drilled to a minimum depth of 30–35 m below ground level, with provision for additional boreholes if required, to assess the risk from shallow worked coal seams
- The investigation should also comprise of rotary drilling to investigate the presence of shaft 379411-001 and its current condition/position in relation to the development.
- Mine gas/ground gas monitoring for a period of 3 months with fortnightly visits to assess risk from mine gas from shallow coal mine workings.
- Written consent from the Mining Remediation Authority must be obtained prior to commencement of intrusive works.
- All drilling works must comply with Mining Remediation Authority, Health and Safety Executive, and British Drilling Association guidance.

2.2.3 REFA's Phase 1 Desk Study and Coal Mining Risk Assessment reports recommended that intrusive investigations were required on a precautionary basis and recommended that the scope of works for the ground investigation should comprise the following elements: -

- Programme of ground investigations to identify the strata sequences and assess engineering properties;
- Programme of ground investigations to identify potential shallow coal mine workings and mine shaft;
- Sampling of the existing strata for chemical and civil engineering laboratory test purposes;
- Reinstatement;
- Preparation of factual and interpretative report.

3.0 PRELIMINARY CONCEPTUAL SITE MODEL

3.1 Risk Assessment Methodology

3.1.1 A review of the previous information has allowed a preliminary conceptual site model to be provided below. The conceptual site model is now shown in Table 1 below. This report adopts the methodology for risk evaluation presented in CIRIA report C552 'Contaminated Land Risk Assessment – A Guide to Good Practice', 2001.

The method is qualitative and involves the classification of the following:

- The magnitude of the potential severity or consequence of the risk occurring;
- The magnitude of the likelihood or probability of the risk occurring.

3.1.2 Once the likelihood of an event occurring and its severity has been classified, a risk category can be assigned using Table 2.

Table 2: Comparison of Consequence against Probability					
Consequence / Risk					
		Severe	Medium	Mild	Minor
Probability	High Likelihood	Very High	High	Moderate	Moderate/Low
	Likely	High	Moderate	Moderate/Low	Low
	Low Likelihood	Moderate	Moderate/Low	Low	Very Low
	Unlikely	Moderate/Low	Low	Very Low	Very Low

3.1.3 In the context of regulatory definition of 'Contaminated Land' (as defined by the EPA 1990), 'very high' and 'high' risks would fall under the classification of 'Contaminated Land'. 'Moderate' risk could also potentially be classified as 'Contaminated Land' but any lower risk rating would not. Thus, the following potential exposure pathways between potential and known contaminant sources based on information provided to date and receptors are tentatively identified in Table 3.

Table 3: Preliminary Conceptual Site Model						
Potential Source	Potential Receptor	Possible Pathway	Probability	Consequence	Risk	Mitigation / Investigation
Contaminated Soils	Site personnel during construction	Direct contact of soils	Li	Md	Moderate	Ground investigation required. Soil sampling during intrusive investigations for laboratory analysis, targeting the areas of Made Ground and historical industrial use.
		Inhalation or ingestion of soil / dust				
	Future site users	Direct contact of soils	UI	Md	Low	
		Inhalation or ingestion of soil / dust				
	Surface water in the vicinity of the site	Leaching of contaminants through drainage system	Lw	Md	Moderate / Low	
	Ground water in aquifer	Leaching of contaminants to ground water	Lw	Md	Moderate / Low	
	Future site users	Vapour migration from soils	Lw	Md	Moderate / Low	
	Proposed buildings and services	Direct contact with contaminated soils	Li	Md	Moderate	
	Plants in gardens and soft landscaping	Direct contact	UI	Mi	Very Low	

Table 3: Preliminary Conceptual Site Model

Potential Source	Potential Receptor	Possible Pathway	Probability	Consequence	Risk	Mitigation / Investigation
Contaminated ground water	Site personnel during construction	Water entering excavations	Li	Mi	Moderate / Low	Sampling of ground water if olfactory or visual contamination is observed.
	Future site Users	Retained surface water	Lw	Mi	Low	
Toxic and explosive gasses	Proposed buildings and occupiers	Ground gas migration into buildings	Li	Md	Moderate	Various sources of made ground and infilled ground have been identified as part of this desk study. Furthermore, mine gas from potential shallow coal mine workings may affect the site, but this must be concluded following a CMRA and mine gas risk assessment. Programme of ground gas monitoring required due to the sites previous use as an industrial site.
Radon Gases	Proposed buildings and occupiers	Ground gas migration into buildings	Li	Md	Moderate	Groundsure has indicated basic Radon gas protection measures are required for this site.

Key: Sv = Severe, Md = Medium, Mi = Mild, Mr = Minor Hi = High, Li = Likely, Lw = Low Likelihood, Ul = Unlikely

4.0 **SITE WORKS**

4.1 **Intrusive Works**

4.1.1 The ground conditions within the site have been investigated by drilling five (5 No.) windowless sample type boreholes, each supervised by a REFA engineer whilst being drilled to a maximum depth of 5.45m below ground level (bgl), as well as one (1 No.) rotary probed borehole which reached a maximum depth of 11.10m bgl. Three (3 No.) rotary open hole boreholes were further drilled to maximum depths of 30.00m bgl each. The intrusive ground investigation was carried out across the dates 22nd of June and the 6th, 7th, 8th and 13th of July 2026.

4.1.2 The site comprises of largely commercial/industrial land use. The site contains a main, large building in the northern extent which houses the office, paired with three (3 No.) smaller buildings in the south eastern extent. The site contains a mixture of predominantly concrete and asphalt tarmac surfacing. Access to the site was gained via Lower Woodhill Road.

- 4.1.3 During the excavation works representative samples of the soils encountered have been obtained for laboratory analysis and testing. Visual appraisal of the strata present has been undertaken during these investigations.

4.2 Locations

- 4.2.1 The location of the exploratory hole positions were chosen by REFA in conjunction with the desk study information and the proposed development. The locations were chosen in an effort to identify the representative ground conditions and the shallow geology across the site, as well as the presence of any shallow ground workings associated with the possible on-site mine shaft.
- 4.2.2 The locations of each of the boreholes are indicated upon the exploratory hole location plans 26003/03 and 26003/04.

4.3 Records

- 4.3.1 During the investigation details of the stratum types, water entries, ground conditions and levels have been maintained by the supervising engineer. This information has been collated into a series of windowless sample borehole and rotary open hole logs, as well as a probe hole log, which are appended to this report for reference. During these investigations representative samples of the strata encountered have been retained for laboratory testing as required.

4.4 Targeting

- 4.4.1 The exploratory holes were undertaken to identify the strata present over the whole area of the proposed development. It should be acknowledged that ground conditions may vary between individual positions, and vigilance should be maintained during subsequent development works. Where significant variation in ground conditions is identified, then further reference should be made to REFA for guidance.
- 4.4.2 The investigation locations have been spread over the whole area of the site in accordance with the recommendations laid down in BS10175: 2026 "Investigation of Potentially Contaminated Sites". The initial ground investigation strategy is detailed within table 4.

Table 4: Initial Ground Investigation Strategy		
Exploratory Hole No.	Target	Purpose
WS01- WS05	General coverage across the development area.	To determine the general nature of underlying soils and geology including: 1. Nature, distribution and thickness of Made Ground. 2. Nature, degree and extent of potential contamination. 3. Suitability of the ground for the founding of structures. 4. Engineering properties of the ground.
RH01-RH03	General coverage within development area.	To determine the general nature of underlying soils and geology including: 1. Nature of bedrock geology and potential coal mine workings

PH01	The area with closest proximity to the potential coal mining shaft, as per the coordinate received from the Mining Remediation Authority (E 379837.23, N 411199.07).	To determine to the potential presence of a coal mine shaft.
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5.0 GROUND CONDITIONS

5.1 General

5.1.1 A factual record of the conditions encountered during the site investigation is presented in the following section.

5.2 Summary of Ground Conditions

5.2.1 The ground conditions encountered were broadly consistent with those anticipated, i.e. a made ground material overlying alluvium and river terrace deposits prior to reaching the bedrock. The recorded ground conditions are summarised in Table 5.

5.2.2 Final windowless sampled borehole, rotary open hole and the probe hole logs can be found within the appendices attached to this report.

Table 5: Summary of Ground Conditions (WS Boreholes)			
Stratum and Description	Encountered from (m bgl)	Base of strata (m bgl)	Thickness range (m)
Light grey concrete/grey concrete** and/or dark greyish black asphalt tarmac. (MADE GROUND)	0.00	0.06/0.40	0.06/0.40
Various layers of dark brownish grey medium dense* gravelly to very gravelly fine to coarse SAND, dark brownish grey slightly clayey very gravelly fine to coarse SAND, dark greyish black very sandy GRAVEL, brown Made Ground** and/or soft to firm* dark brown to greyish black slightly to gravelly sandy CLAY. (MADE GROUND)	0.00/6.00	1.00/3.50	1.00/3.50
Varying layers of soft* brown slightly gravelly sandy CLAY, brown sandy CLAY**, soft* dark brownish grey slightly gravelly sandy SILT, loose to medium dense* dark brownish grey silty occasionally gravelly fine to coarse SAND, very loose dark brown slightly clayey gravelly fine to coarse SAND and/or loose to dense* brown to dark brown slightly gravelly to gravelly fine to coarse SAND. (ALLUVIUM)	1.0/2.3	2.35/4.0	0.55/3.0
Various layers of medium dense to dense* brown to dark brownish grey sandy GRAVEL, (RIVER TERRACE DEPOSITS)	1.85/3.50	3.1/4.0	-

**Consistency estimated using semi-empirical correlations with SPT N-values, Plasticity Indices and published literature.*

Table 6: Summary of Ground Conditions (Rotary Boreholes)			
Stratum and Description	Encountered from (m bgl)	Base of strata (m bgl)	Thickness range (m)
MADE GROUND (Driller's description)*	0.0	2.8/6.0	2.8/6.0
Brown sandy CLAY (Driller's description)	3.90	6.20	2.30
Grey MUDSTONE/ SANDSTONE (Driller's description)*	2.8/6.0	>30.0m	-
Black COAL (Driller's description)*	5.0/17.0	6.0/17.5	0.5/1.3

**Drillers description used from the logs created whilst undertaking the rotary open hole and probed hole boreholes.*

5.3 Made Ground

- 5.3.1 Made ground deposits have been identified within this investigation within each of the exploratory hole positions (WS01 to WS05, RBH01-03 and PH01), being proven to a maximum depth of 6.00m bgl within RBH02. The type of made ground deposits encountered across the site are varied but generally consistent with SAND, GRAVEL and CLAY deposits. WS01 initially recorded a dark greyish black very gravelly sand fill with a medium cobble content of brick and concrete to 1.65m bgl, underlain by a 150mm thick cohesive stratum of reworked gravelly sandy clay, before medium dense gravelly sand to a depth of 3.50m bgl. WS02 to WS05 encountered layers of sandy gravel and gravelly occasionally clayey sand to depths of between 0.50m and 2.00m bgl. Underlying this, sandy gravelly clay extended to depths of between 1.00m and 1.30m bgl, before gravelly silty sand was recorded to 2.30m bgl within WS03 only. The Made ground deposits are combined with anthropogenic gravel constituents of brick, concrete, tile and plastic fragments. The maximum depth of made ground identified across the site was 6.00m bgl within RBH02. However, this depth was recorded from open hole rotary drilling and therefore is unlikely to capture the true boundary between made ground and natural superficial deposits. The true average depth of made ground has therefore been taken from the windowless sampled boreholes, logged by an experienced geoenvironmental REFA Engineer.
- 5.3.2 Light grey concrete surfaced the south western positions WS02, RBH01 and PH01, to maximum depths of between 0.21m and 0.40m bgl, indicating concrete layers of 210mm-400mm thickness. WS03 to WS05, RBH02 and RBH03 were recorded as having a dark grey to dark greyish black asphalt tarmac surfacing which recorded maximum depths of between 0.06m and 0.09m bgl.
- 5.3.3 A black mesh membrane was recorded underlying the surfacing within WS01 at 0.23m bgl, and within the strata underlying WS03's surfacing at 0.15m bgl.

5.4 Superficial Strata

- 5.4.1 Natural superficial strata were encountered from depths of between 1.00m and 3.50m bgl, extending to depths of between 3.1m bgl to 5.00m bgl within WS boreholes and 3.90m to 6.20m bgl in RBH01
- 5.4.2 Standard penetration tests (SPTs) have been carried out within each of the windowless sample positions.

5.4.3 At 1.20m bgl, WS01 recorded an 'N' value of 53; despite this technically classifying as an SPT refusal, the position consisted of a medium cobble content of brick and concrete which created a temporary but surpass-able obstruction. The remainder of positions (WS02-WS05) found SPT 'N' values at 1.00m bgl of between 2 and 24, indicating very soft clay in the eastern area, medium dense sand in the central area and firm clay in the south. From 2.00m bgl, SPT 'N' values typically increase and range between 5 and 36, excluding WS01 and WS02 where values ranged from between 5 and 14. At 3.00m bgl, 'N' values raised to between 14 and 50 to present the base depth for WS05, excluding WS02 where the value recorded 0 and indicating no blows were necessary to penetrate the very loose sand. WS01 and WS03 reached an 'N' value of 50 at 4.00m bgl, likewise within WS04 but at 3.80m bgl, indicating dense to very dense sand and gravel likely overlying bedrock. WS02 in the west of the site performed the deepest SPT, recording an 'N' value of 11 through the medium dense sand. Moreover, this area is also where the weaker SPT's were generally found, as well as in the far north east within WS05.

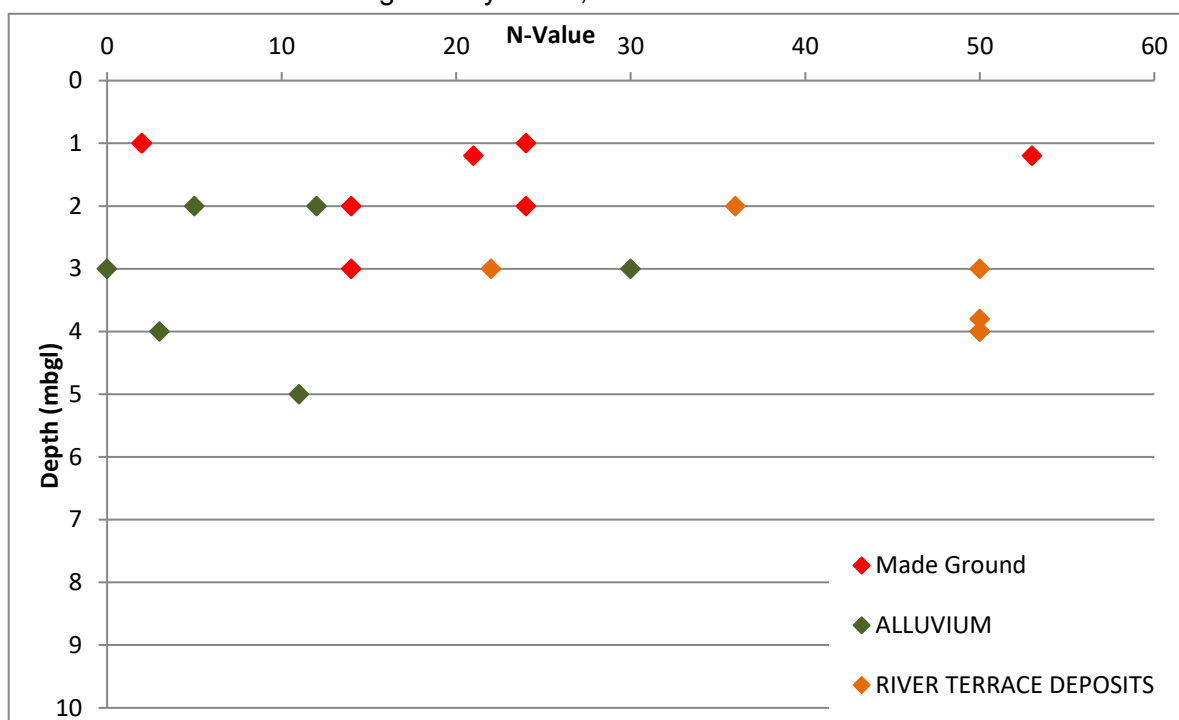


Figure 2 SPT vs Depth

5.5 Bedrock

5.5.1 Bedrock was encountered during the rotary open and probe boreholes within this investigation. These were observed and recorded as grey/brown sandstone and grey mudstone, recorded between 3.00m and 6.00m bgl to depths of between 11.10m and 30.00m bgl.

5.5.2 Coal was encountered within all rotary borehole positions except RBH03. A summary of the coal seams encountered is given in Table 7.

Table 7 – Summary of Coal Seams Encountered					
Position ID	Depth to Rock Head (m)	Depth to Top of Seam (m)/ (Thickness)	Evidence of Workings (Depth) (m)	Remarks	Sufficient Rock Cover above Workings
RBH01	6.2	9.0 (1.3)	N	Intact seam	N/A
		17.0 (0.5)	N	Intact seam	N/A
RBH02	6.0	7.5 (0.7)	N	Intact seam	N/A
		13.0 (0.5)	N	Intact seam	N/A
PH01	3.0	5.0 (1.0)	N	Intact seam	N/A

5.6 Groundwater

5.6.1 The intrusive investigations have identified limited water seepages/ strikes through each of the windowless sample locations. It is anticipated that the groundwater table lies at a significant depth within the underlying bedrock beneath the site as the consistent strike depth coincides with made ground strata or granular stratum above cohesive impermeable layers, and therefore can be classified as perched groundwaters with no hydrogeological continuity with nearby surface waters or deeper aquifers. Groundwater strikes are unable to be recorded during rotary boreholes due to the use of water as a flushing method. Groundwater strikes are summarised in Table 8.

Table 8: Summary of Groundwater Strikes			
Exploratory Hole ID	Depth Encountered (m bgl)	Depth After 20mins (m bgl)	Stratum
WS01	3.00	-	MADE GROUND
WS02	3.00	-	SAND
WS03	3.10	-	SAND
WS04	3.00	-	GRAVEL
WS05	3.00	-	GRAVEL

5.7 Excavations

5.7.1 Natural strata across the site generally comprises of made ground overlying variable granular and cohesive deposits. Whilst drilling WS02, the hydraulic hammer penetrated the granular strata from between depths of 3.00m and 4.30m bgl extremely quickly, with an SPT 'N' value of 0 within the sand and 3 within the underlying silt, suggesting very loose density.

Therefore, despite the windowless sample boreholes remaining stable throughout the drilling process and no records of collapse were noted, it is anticipated that excavations will not remain open without side support for a period of time which would provide a risk of catastrophic collapse. Consequently, all excavations made within the site should be provided with appropriate side support.

- 5.7.2 It is essential that personnel should not be allowed to approach or enter any excavation made upon this site unless appropriate precautions have been adopted. This is particularly important in respect of the necessary site preparation works, drainage and foundation work where personnel may be specifically required to enter excavations. Reference should be made to H.S.E. Publication HSG 150 for further guidance.

5.8 Contamination

- 5.8.1 The intrusive investigations have identified a moderate organic odour within the made ground of exploratory hole WS03 at depths of between 0.85m and 1.30m bgl. As such, the sample of made ground obtained from WS03 has also been subjected to TPH, VOCs and SVOCs analysis. See Section 7 for results of the analysis.
- 5.8.2 The site's western main gas inlet is coated in ACM, as well as roofing sheets across the larger northern building. Moreover, due to the date of historical developments on the site, the intrusive investigation was aimed at targeting representative samples of made ground type material, specifically within the area of the proposed development.

5.9 Sampling

- 5.9.1 Based upon the initial site appraisal in conjunction with the findings of the intrusive investigations a series of representative samples of the strata encountered have been retained for laboratory analyses. These analyses have been intended to determine the potential presence of any contamination which may represent a hazard to site operatives or end users of the site. This part of the work is considered in more detail in sections 6 and 7 of this report.

5.10 Ground Gas Risk Assessment

- 5.10.1 From the Phase I Desk Study undertaken by REFA, report ref. 26003/GEDS/002 and dated February 2026, toxic and explosive gasses were identified as a moderate risk to proposed buildings and occupier receptors. There was a risk of ground gas migration from the Made Ground on the site itself, as well as Made Ground and infilled land 65m east, with expectancies that the ground gas could have migrated into the site boundaries relating to ground workings. Mine gas from potential shallow coal mine workings was further assessed as an associated gas risk within the Phase I Desk Study report.

5.11 SUDS

- 5.11.1 Assessment of the ground conditions present within the site in terms of sustainable urban drainage, confirms the presence of made ground overlying interbedded layers of both granular and cohesive deposits over the site. Although there is a higher proportion of granular deposits compared to impermeable cohesive deposits within the areas encountered, the presence of significantly thick made ground confirms the consideration that a soakaway system will most likely not be feasible for the proposed development. It will be necessary for surface water to be disposed of utilising a traditional gravity fed drainage system.

6.0 CONTAMINATION ANALYSIS & ASSESSMENT CRITERIA

6.1 Sampling

6.1.1 A total of five (5 No.) samples of the made ground encountered during these investigations have been retained for chemical analyses. Generally, these samples relate to the shallow ground conditions located within the site. These samples are considered to be representative of the ground conditions within the site and form a basis for assessment.

6.1.2 All samples obtained from this site were subject to a programme of PAH and TPH analyses. Accordingly, all samples have been placed into a 500ml wide necked brown glass jar. All soil samples have been stored in cool boxes at temperatures of approximately 4° (+ or - 2°C) until delivery to the selected laboratory. All sample containers were marked with the project number, site address, borehole number, depth and date of sampling.

6.2 Range

6.2.1 Made Ground deposits have been identified across the whole site area to maximum depths of between 1.00m and 3.50m bgl. Made ground deposits have been obtained to determine its suitability within the proposed commercial development.

6.2.2 The desk study information has indicated that the majority of the site does not contain naturally occurring elevated concentrations of contaminants within the underlying natural strata. During the intrusive works, the natural stratum comprising Alluvium and River Terrace deposits did not display any visual or olfactory evidence of contamination. Thus, the natural strata spread across the site is considered suitable for retention within the proposed development.

6.3 Laboratory

6.3.1 All samples selected for chemical analyses have been returned to ECT who are an MCERTS and UKAS accredited laboratory facility. Each sample has been subject to a range of chemical analyses to determine the concentrations of a wide range of common contaminants applicable to the former use of this site and the materials present. Details of the analysis programme are shown in table 5 below. Confirmation of the UKAS and MCERTS accreditations for each test is indicated within the results which are appended to this report.

6.4 Development Proposals

6.4.1 We understand that the site is to comprise of a continued industrial commercial development. The existing industrial unit at the north will be extended (to front); a new industrial building will be erected (train boiler repair and maintenance unit), along with car parking. It is essential to ensure that the materials present within the sensitive site areas are suitable for retention within a commercial environment.

6.5 Analysis Range

6.5.1 The preliminary conceptual site model identifies that there is the potential for a pollutant pathway linkage to be present at the site and that further assessment is required. Table 9 below confirms the range of analyses undertaken upon the samples of Made Ground obtained from this site.

Table 9: Chemical Testing Schedule

Analysis	Determinands	No. of Samples
Metals	Arsenic, Cadmium, Chromium total, Copper, Lead, Mercury, Nickel, Selenium, Zinc	5
Organics 1	PAH – USEPA 16 suite, Phenol	5
Organics 2	VOCs, SVOCs	2
Inorganics	Cyanide, Soluble Sulphates, Sulphide, pH, TOC	5
Asbestos	Asbestos Screen	5
Hydrocarbons	TPH (CWG), BTEX, MTBE	5

6.6 Results

6.6.1 Full details of the chemical analyses results are appended to this report for reference and should be read in conjunction with the comments and recommendations regarding risk assessments. Summaries of the test results are presented in conjunction with the current assessment criteria in Section 7 of this report.

6.7 Approach

6.7.1 The current UK approach to the consideration of contaminated land is based upon the principles of risk assessment. This in turn is founded upon the use of a source-pathway-receptor principle in order to establish the presence of a potential pollutant linkage. Our approach to the risk assessment is consistent with UK guidance and best practice. As advocated in the EA Policy Statement: Guidelines for Environmental Risk Assessment and Management a tiered approach has been adopted. This tiered approach is central to Part II A of the Environmental Protection Act 1990 and the Town and Country Planning Act 1990.

6.8 Site Classification

6.8.1 The current development proposals for this site confirm that the site is to comprise of a commercial/industrial development. Accordingly, the site usage has been considered on the basis of an end land use of **commercial** as defined by EA Science Report SC050021/SR3 2009 in relation to the most recent soil guideline values.

6.9 Criteria

- 6.9.1 The concentrations of contaminants within the ground have been compared to a range of generic soil guideline values that have been prepared by DEFRA and the Environment Agency. Where published, soil guideline values (SGV) have been utilised as intervention values for the purpose of an initial tier 1 assessment.
- 6.9.2 At the time of the preparation of this report, soil guideline values were available only for a limited number of contaminants and the development of both the CLEA model and additional soil guideline values is on-going. Where published soil guideline values are available, they have been utilised as intervention values for the purposes of an initial tier 1 assessment. A number of SGV's have recently been updated to reflect a modern approach to the protection of human health.
- 6.9.3 In March 2014 the Department for Environment Food & Rural Affairs published SP1010: Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination Policy Companion Document. This document provides a series of Category 4 screening levels based upon differing land uses. Reference has been made to the values presented within this report in relation to the appropriate land usage.

- 6.9.4 Where soil guideline values were not published at the time of preparing this report, generic assessment criteria (GAC) published by Land Quality Management Ltd., in conjunction with the Chartered Institute of Environmental Health have been adopted. The values published in the LQM/CIEH S4UL for "Human Health Risk Assessment" Registration Number S4UL 3265.
- 6.9.5 Reference has also been made to published soil screening values presented by Atkins Ltd., under their Atrisk Subscription Service. The SSVs have been adopted where SGVs or GACs are not available. The remaining contaminants have been considered based upon information that was the best available at the time of the study.

7.0 RESULTS OF ANALYSIS & QUALITATIVE RISK ASSESSMENT

7.1. Model

- 7.1.1 As discussed above, assessment of contaminated land is based upon a simple assessment of pollutant linkages referred to as the source-pathway-receptor model. This assessment considers the current or proposed usage of the site in terms of suitability for use. This implies the use of risk assessment in principle in order to evaluate the potential effects and concerns of contamination on a site-specific basis.
- 7.1.2 Initial assessment of the chemical analyses results has been undertaken to assess the concentrations of determinands in relation to tier 1 assessment criteria. The summary of these test results is detailed below.

7.2 Results Summary

- 7.2.1 The samples were obtained from the Made Ground deposits across the site. Tables 10 - 15 have been prepared as a summary of the laboratory analyses depending upon the class of analyses undertaken. The test results have been compared to the adopted assessment criteria, relating to a proposed **commercial setting**.

7.3 Metals & Inorganics

- 7.3.1 Table 10 indicates the range of contaminants that were analysed and their respective assessment criteria. No elevated contaminants have been identified within the metals and inorganics tested.

Table 10: Summary of Contamination Analysis: Metals & Inorganics					
Determinand	No. of Samples	Range of Values (mg/kg)	Assessment Criteria (mg/kg)	No. of Samples Failing	Locations
Arsenic	5	<10.00-39.00	640 ¹	0	-
Cadmium	5	0.90-2.90	190 ³	0	-
Chromium (total)	5	25.00-69.00	8600 ³	0	-
Copper	5	38.00-720.00	68000 ³	0	-
Lead	5	120.00-190.00	2300 ¹	0	-
Mercury	5	<2.50	1100 ³	0	-
Nickel	5	25.00 – 120.00	980 ³	0	-
Selenium	5	<8.00	9000 ³	0	-
Zinc	5	150.00 – 510.00	730,000 ³	0	-
Total Cyanide	5	<1.00	34.0 ²	0	-
Phenol	5	<1.00	440 ³	0	-
pH	5	7.4 – 9.9	-	0	-
SOM	5	4.47-29.24	-	0	-
TOC %	5	2.60 – 17.00	-	0	-
SO ₄ (2:1)	5	0.012-0.49	0.5 ⁴	0	-
Asbestos	5	ND	Absent	0	-
¹ DEFRA: SP1010: Category 4 Screening Levels ² Atkins Atrisk SSV Commercial ³ LQM and CIEH S4UL's for Human Health Risk Assessment (Registration No. S4UL 3265) Commercial ⁴ BRE Special Digest 1:2005 DS-1 ND – None Detected					

7.3.2 As part of the analysis, all five (5 No.) samples from across the site were submitted for asbestos screening with all consisting of Made Ground material. Asbestos was not detected in any sample.

7.4 Speciated PAH

7.4.1 The soil samples retained from the site investigation have been subject to a programme of analyses which have assessed the concentrations of the individual constituents of the polycyclic aromatic hydrocarbon series. A summary of these results is shown in Table 11. The assessment criteria utilised are based upon the presence of 1.00% soil organic matter within the samples generally. Reference to the tests results does however show more variable soil organic matter content.

Table 11: Summary of Contamination Analysis: Organics: PAH USEPA 16 Suite					
Determinand	No. of Samples	Range of Values (mg/kg)	Assessment Criteria ¹ (mg/kg)	No. of Samples Failing	Locations
Naphthalene	5	<0.20-1.70	190	0	-
Acenaphthylene	5	<0.20	83000	0	-
Acenaphthene	5	<0.20-5.30	84000	0	-
Fluorene	5	<0.20-38	63000	0	-
Phenanthrene	5	0.44-33.00	22000	0	-
Anthracene	5	<0.20-6.60	520000	0	-
Fluoranthene	5	0.67-38.00	23000	0	-
Pyrene	5	0.71-31.00	54000	0	-
Benzo(a)anthracene	5	0.35-13.00	170	0	-
Chrysene	5	0.32-11.00	350	0	-
Benzo(a)pyrene	5	0.45-11.00	14	0	-
Indeno(123-cd)pyrene	5	0.33-6.80	500	0	-
Dibenzo(ah)anthracene	5	<0.20-1.50	3.5	0	-
Benzo(ghi)perylene	5	0.34-5.90	3900	0	-
Benzo(b)fluoranthene	5	0.40-11.00	44	0	-
Benzo(k)fluoranthene	5	<0.20-5.50	1200	0	-
¹ LQM & CIEH S4UL's for human health risk assessment (Registration No. S4UL 3265) – Commercial (1.0% SOM)					

7.5 TPH (CWG)

7.5.1 The five (5 No.) samples were also selected for a programme of TPH (CWG) analysis. The results indicate that none of the selected samples have elevated levels and Table 12 displays this.

Table 12: Summary of Contamination Analysis: Organics: TPH (CWG) Suite					
Determinand	No. of Samples	Range of Values mg/kg	Assessment* Criteria mg/kg	No. of Samples Failing	Locations
Aliphatic EC> 5 - 6	5	<0.06	3200	0	-
Aliphatic EC> 6 - 8	5	<0.06-0.31	7800	0	-
Aliphatic EC> 8 - 10	5	<0.06-2.60	2000	0	-
Aliphatic EC> 10 - 12	5	1.60-150.00	9700	0	-
Aliphatic EC> 12 - 16	5	4.60-420.00	59000	0	-
Aliphatic EC> 16 - 35	5	3.50-5600.00	1600000	0	-
Aliphatic EC> 35 - 44	5	<5.00-890.00	1600000	0	-
Aromatic EC> 5 - 7	5	<0.01-0.03	26000	0	-
Aromatic EC> 7 - 8	5	<0.01-0.05	56000	0	-
Aromatic EC> 8 - 10	5	<0.06-1.80	3500	0	-
Aromatic EC> 10 - 12	5	<1.00-13.00	16000	0	-
Aromatic EC> 12 - 16	5	2.80-120.00	36000	0	-
Aromatic EC> 16 - 21	5	14.00-720.00	28000	0	-
Aromatic EC> 21 - 35	5	15.00-4200.00	28000	0	-
Aromatic EC> 35 - 44	5	<5.00-1000.00	28000	0	-
*Criteria values based upon LQM & CIEH S4UL's for human health risk assessment (Registration No. S4UL 3265) – Commercial (1.0% SOM)					

7.6 BTEX

7.6.1 The hydrocarbon analysis was extended to the BTEX range, and all concentrations are below the assessment criteria levels, and therefore no remediation is required in terms of BTEX factions.

Table 13: Summary of Contamination Analysis: Organics: BTEX Suite					
Determinand	No. of Samples	Range of Values (mg/kg)	Assessment Criteria (mg/kg)	No. of Samples Failing	Locations
Benzene	5	<0.01-0.03	27.0	0	-
Toluene	5	<0.01-0.05	56000	0	-
EthylBenzene	5	<0.01-0.03	5700	0	-
M/PXylenes	5	<0.02-0.17	5900	0	-
O - Xylene	5	<0.01-0.13	6600	0	-
Methyl tert-Butyl Ether	5	<0.01	3340 ¹	0	-
Criteria values based upon LQM & CIEH S4UL's for human health risk assessment (Registration No. S4UL 3265) – Commercial (1.0% SOM)					

7.7 Volatile Organic Compounds

7.7.1 As part of the chemical analysis made ground samples have been analysed for the presence of volatile organic compounds. Due to the amount of VOC determinants tested for, only those that have been detected above laboratory detection limits have been included into Table 14. Full VOC testing results can be found in the appendices.

Table 14: Summary of Contamination Analysis: Organics: VOC Suite

Determinand	No. of Samples	Range of Values (mg/kg)	Assessment Criteria (mg/kg)	No. of Samples Above the Limit of Detection (LOD)	Locations
Dichloromethane	2	0.17 - 0.19	NGA	1	WS03-0.9m
Isopropylbenzene	2	<0.01-0.12	NGA	1	WS03-0.9m
1,3,5-Trimethylbenzene	2	<0.01-0.11	NGA	1	WS03-0.9m
1,2,4-Trimethylbenzene	2	<0.01-0.34	NGA	1	WS03-0.9m
sec-Butylbenzene	2	<0.01 - 0.03	NGA	1	WS03-0.9m
4-Isopropyltoluene	2	<0.01 - 0.03	NGA	1	WS03-0.9m
n-Butylbenzene	2	<0.01 - 0.04	NGA	1	WS03-0.9m

¹ CL:AIRE EIC/AGS for Human health risk assessment – Commercial (1.0% SOM)
² LQM & CIEH S4UL's for human health risk assessment (Registration No. S4UL 3265) –Commercial (1.0% SOM)
 NGA: No guideline available

7.8 Semi Volatile Organic Compounds

7.8.1 As part of the chemical analysis made ground samples have been analysed for the presence of semi-volatile organic compounds. Due to the amount of sVOC determinants tested for, only those that have been detected above laboratory detection limits have been included into Table 15. Full sVOC testing results can be found in the appendices.

Table 15: Summary of Contamination Analysis: Organics: sVOC Suite

Determinand	No. of Samples	Range of Values (mg/kg)	Assessment Criteria (mg/kg)	No. of Samples Above the Limit of Detection (LOD)	Locations
2-Methylnaphthalene	2	<2.0 - 2.2	NGA	1	WS03-0.9m

¹ CL:AIRE EIC/AGS for Human health risk assessment – Commercial (1.0% SOM)
² LQM & CIEH S4UL's for human health risk assessment (Registration No. S4UL 3265) –Commercial (1.0% SOM)
 NGA: No guideline available

7.9 Sulphates

7.9.1 Within the programme of laboratory testing each sample has also been analysed to determine the concentration of water-soluble sulphates within the ground. Reference to the laboratory results presented by ECT confirms that soluble sulphates are present at concentrations between 12 and 490 mg/l. Reference to BRE Special Publication 1: 2005 "Concrete in Aggressive Ground" confirms that at <500 mg/l, the ACEC class for this site is assessed to be AC-1s on the basis that static water is present with a pH > 6.5. Reference to table D1 of BRE publication confirms that the ground contact concrete and mortar should be designed to DC-1 for an intended working life of at least 100 years.

8.0 GAS MONITORING

8.1 General

8.1.1 The desk study information identified the possibility of ground gas migration from various sources surrounding the site. Consequently, there is a requirement for a programme of ground gas monitoring. As part of the programme of investigation, positions WS01, WS02 and WS04 were installed with gas monitoring wells.

8.2 Installation

- 8.2.1 To identify the presence of ground gas within positions, standpipes have been installed comprising a response zone at depths of between 0.30m and 3.50m bgl.
- 8.2.2 The installations have included for the insertion of high-density polyethylene 50mm diameter plain and slotted standpipes. The annulus space around the standpipes has been filled with non-calcareous pea gravel in the range of 2mm – 5mm. Above and below each response zone a minimum of 0.30m bentonite clay seal has been installed, and each position has been finished with a gas tap and flush lockable steel cover. Full details of the installations are appended to this report for reference.

8.3 Dates

- 8.3.1 The gas monitoring points were installed on the 22nd of June 2026. A programme of ground gas monitoring commenced on the 6th of July 2026. The programme of gas monitoring comprises of a monitoring visit every two (2 No.) weeks, completing a total of six visits. To date, four (4 No.) monitoring rounds have been completed. The programme is projected to end on the 14th September 2026, upon the sixth and final visit. Results retrieved post this report will be provided as an Addendum Note at the earliest possibility.

8.4 Procedure

- 8.4.1 The installation of the gas wells and gas monitoring procedures have been based upon the recommendations laid down in BS8485, BS8576, CIRIA C665 and NHBC publication No. NF94.
- 8.4.2 In accordance with the documentation, it is intended that the period of monitoring will be up to three months with at least six monitoring visits being undertaken during that period. This assessment is based upon Tables 5.5a and 5.5b of CIRIA C665 and Figure 6 within BS8576:2013.

8.5 Range

- 8.5.1 The installed gas wells are intended to be monitored for flammable gas calibrated to methane, carbon dioxide, oxygen and gas flow using a portable infrared gas analyser. The analyser is an GFM 436 gas monitor and has been calibrated with an annual period. Full details of the analysis programme and assessments are presented within the appendix of this report.

8.6 Monitoring

- 8.6.1 The gas monitoring recommendations require that gas monitoring rounds should encompass various climatic conditions partially in relations to atmospheric pressures. Ideally at least one round should be undertaken at an atmospheric pressure of less than 1000mB. Readings at falling pressures and after heavy rain are also considered to be desirable.

8.7 Results

Table 16: Summary of Gas Monitoring Results								
Location	No of Monitoring Occasions	Methane % v/v	Carbon Dioxide % v/v	Oxygen %	Flow l/hr	W.L. Depth (m bgl)	Base of Installation (m bgl)	Atmospheric Pressure (mB)
WS01	4	0.0	0.0	20.2 - 20.8	0.0	Dry	2.72-2.74	999-1016
WS02	4	0.0	0.0	20.5 - 20.9	0.0	Dry	1.99	998-1017
WS04	4	0.0	0.0	20.4 - 21.1	0.0	Dry-1.23	1.23-1.25	998-1017

8.7.1 Where water levels are shown to have completely flooded the installed response zone, this data has been omitted from the Gas Characteristic Situation calculation. A flooded response zone means that any gas in the well is trapped gas that is simply in equilibrium with dissolved gas in the groundwater and will therefore not be representative of the unsaturated zone.

8.7.2 Maximum concentrations of methane (CH₄) and carbon dioxide (CO₂) recorded during the monitoring period were 0.0% and 0.0% v/v respectively.

8.7.3 Monitoring has not recorded any flow values. In the absence of any flow values, a minimum value of 0.01 l/hr has been utilised for the calculation of a gas screening value (GSV).

8.7.4 Based on a flow rate of 0.01 l/hr and the highest recorded methane concentration of 0.0%, a gas screening value of 0.01 l/hr is calculated, as follows:

$$*(0.0/100) \times 0.01 = \underline{\underline{0.01 \text{ l/hr}}}$$

8.7.5 Based on a flow rate of 0.01 l/hr and the highest recorded carbon dioxide concentration of 0.0%, a gas screening value of 0.01 l/hr is calculated, as follows:

$$*(0.0/100) \times 0.01 = \underline{\underline{0.01 \text{ l/hr}}}$$

8.7.6 Based upon the interim ground gas monitoring results and the GSV, the site would come under a Gas Characteristic Situation 1 (CS1) according to CIRIA C665 Table 8.5, with no gas protection measures required.

8.7.7 The ground gas risk assessment should be updated following the full programme of ground gas monitoring.

9.0 DISCUSSIONS

9.1 General

9.1.1 The site has been the subject of a previous Phase I Desk Study prepared by REFA, (report reference: 26003/GEDS/002 and dated February 2026). A review of the historical information initially shows the site in 1849 to be used as part of an orchard with a culvert and two (2 No.) small structures, before the orchard was removed from mapping in 1850. Industrial elements such as tanks were added to the site between 1908 and 1910, before further industrial developments between 1955 and 1959. From 1974, these developments expanded in the northern region, and from 2010, the three present-day south western structures were built on the site.

- 9.1.2 The investigation has identified relatively uniform ground conditions comprising of made ground overlying primarily granular deposits with interbedded cohesive deposits of variable strengths. Across the site, the surfacing was a mixture of concrete and asphalt tarmac. The made ground-type material frequently consisted of gravelly clayey SAND, sandy GRAVEL and gravelly sandy CLAY with gravel constituents of brick, concrete, plastic fragments, quartzite, sandstone and mudstone. Natural strata were recorded as containing various layers of medium dense to dense sandy GRAVEL, soft slightly gravelly sandy CLAY, soft slightly gravelly sandy SILT and very loose to medium dense silty gravelly clayey SAND. Bedrock was encountered during this phase of investigation works throughout the rotary open hole boreholes, recorded as grey MUDSTONE and grey SANDSTONE with COAL present.
- 9.1.3 Four (4 No.) of the windowless sample boreholes (WS01, WS03, WS04 and WS05) terminated at shallower depths than the original scope of works due to SPT refusals. The base of these boreholes refused on very dense sandy GRAVEL within WS01, WS04 and WS05 and very dense slightly silty very gravelly SAND within WS03.
- 9.1.4 The results of the chemical analyses undertaken upon representative samples of strata obtained from the site have been assessed in Section 7 above and subject to further discussion below.

9.2 Shallow Coal Mine Workings

- 9.2.1 Following review of all information to date presented within the Coal Mining Risk Assessment and the intrusive coal mining investigation, it is considered that shallow underground workings associated with the Arley Mine seam are not present beneath the site development area.
- 9.2.2 No voids or backfilled workings were encountered, therefore no installations were utilised as part of the backfill of the boreholes, as gas monitoring is not required.
- 9.2.3 Throughout drilling, no levels of mine gas (CO₂, CH₄, CO and H₂S) were recorded.

9.3 Mine Shaft Investigations

- 9.3.1 One (1 No.) rotary probe hole was undertaken 700mm south of the grid reference coordinate provided to REFA by the Mining Remediation Authority for on-site shaft 379411-001. Every effort was made to locate the mine shaft utilising rotary drilling techniques, however due to the various buried unrecorded services and proximity to above ground site features, only one borehole was considered safe to progress.
- 9.3.2 This borehole was considered close enough to the MRA grid reference that if the shaft was there, then drilling would prove its location. Ground conditions encountered within PH01 consisted of made ground to 3.0m bgl. Mudstone was encountered at 3.0mbgl, with intact coal at 5.0mbgl. This coal seam extended to 6.0m bgl, with alternating cyclothematic layers of sandstone and mudstone to a final depth of 11.1m.
- 9.3.3 Geological map evidence gives brief shaft depth information, indicating the shaft to have extended to 7.7m to the Arley mine coal seam.
- 9.3.4 Based upon the above information, it is considered that the mine shaft is not situated precisely at that coordinate.

9.4 Contamination

- 9.4.1 The chemical analysis undertaken on the representative samples of made ground have identified no areas of contamination through assessing exceedances against screening values for a commercial scenario. Consequently, it is considered that the material present on site is considered suitable for retention within the commercial environment.

9.5 Ground Gas

- 9.5.1 Based upon the interim ground gas monitoring results and the GSV, the site would come under a Gas Characteristic Situation 1 (CS1) according to CIRIA C665 Table 8.5, with no gas protection measures required.

9.6 Revised Conceptual Site Model

- 9.6.1 As a result of these intrusive ground investigations and subsequent programme of chemical analyses, it has been possible to revise the preliminary conceptual site model presented in Section 3, with the revised conceptual site model shown in table 7. This report adopts the methodology for risk evaluation presented in CIRIA report C552 'Contaminated Land Risk Assessment – A Guide to Good Practice', 2001. The method is qualitative and involves the classification of the following:
- 9.6.2 In the context of regulatory definition of 'Contaminated Land' (as defined by the EPA 1990), 'very high' and 'high' risks would fall under the classification of 'Contaminated Land'. 'Moderate' risk could also potentially be classified as 'Contaminated Land' but any lower risk rating would not. Thus, the following potential exposure pathways between potential and known contaminant sources based on information provided to date and receptors are tentatively identified in table 17.

Table 17: Revised Conceptual Site Model						
Potential Source	Potential Receptor	Possible Pathway	Probability	Consequence	Risk	Mitigation
Contaminated Soils	Site personnel during construction	Direct contact of soils Inhalation or ingestion of soil / dust	Lw	M	Low	The intrusive ground investigation retained five (5 No.) samples of made ground for laboratory testing which proved no exceedances of PAHs, TPH, VOCs or SVOCs. No asbestos was detected within the samples.
	Future site users	Direct contact of soils Inhalation or ingestion of soil / dust	UI	Md	Low	
	Surface water in the vicinity of the site	Leaching of contaminants through drainage system	UI	Md	Very Low	
	Ground water in aquifer	Leaching of contaminants to ground water	UI	Mi	Very Low	
	Future site users	Vapour migration from soils	UI	Mi	Very Low	
	Proposed buildings and services	Direct contact with contaminated soils	UI	Mi	Low	
	Plants in gardens and soft landscaping	Direct contact	UI	Mr	Very Low	

Table 17: Revised Conceptual Site Model						
Potential Source	Potential Receptor	Possible Pathway	Probability	Consequence	Risk	Mitigation
Contaminated groundwater	Site personnel during construction	Water entering excavations	UI	Mr	Low	Perched groundwater was observed within granular deposits of each windowless sample borehole at a relatively uniform depth, at the base of the made ground.
	Future site Users	Retained surface water	UI	Mi	Very Low	Should olfactory or visual contamination be recorded during the monitoring programme, groundwater sampling should be obtained for laboratory analysis.
Toxic and explosive gasses	Proposed buildings and occupiers	Ground gas migration into buildings	UI	Mi	Low	The Desk Study identified multiple sources of potential ground gasses, for instance within the made ground-type materials, tanks and potential shallow coal mine workings. The three (3 No.) gas monitoring visits to date have indicated that CH⁴ and CO² is not present within the monitoring wells, and the maximum gas flow rate recorded was 0.00l/hr.
Radon gas	Proposed buildings and occupiers	Ground gas migration into buildings	Li	Md	Moderate	Groundsure has indicated basic Radon gas protection measures are required for this site.
Key: Sv = Severe, Md = Medium, Mi = Mild, Mr = Minor Hi = High, Li = Likely, Lw = Low Likelihood, UI = Unlikely						

9.7 Foundation Recommendations - Office Block

- 9.7.1 Ground investigations within vicinity of the proposed extension to the office have proven medium dense to dense SAND deposits underlying made ground within WS04 and WS05. SPT 'N' values ranged from 12-22 at 2.0m bgl, indicating medium dense becoming dense ground conditions at this depth.

Based upon this, it is considered that the SAND stratum within this area of the site is capable of offering a safe bearing capacity of 100 kN/m² at 2.0m bgl. Should a higher bearing capacity be required, consideration to a deeper foundation solution may be required.

- 9.7.2 Consideration should also be given into how any new foundations would be tied into the original foundation for the current office block and factory building.

9.8 Foundation Recommendations - New Building

- 9.8.1 Ground conditions encountered within vicinity of the proposed new building have recorded variable strength made ground and superficial deposits across this area. SPT 'N' values recorded within the Made Ground ranged from 21 to 53, indicating firm/medium dense ground conditions depending upon the primary soil fraction. However, SPTs within this material were observed to be affected by coarse gravel and cobbles within the made ground, specifically the 'N' value of 53. Beneath the made ground, SPT 'N' values ranged from 5-24 at 2.0mbgl, 0-30 at 3.0mbgl, 3-50 at 4.0mbgl.
- 9.8.2 Based on the variable strength deposits and low strength alluvial deposits at WS02 and deep made ground at WS01, it is considered that a shallow foundation solution would not be suitable for the proposed new building.
- 9.8.3 It is considered that the new building will require a piled foundation solution, likely socketed into bedrock to provide a suitable foundation solution.
- 9.8.4 Vibro stone columns are unlikely to prove suitable due to the presence of soft alluvial CLAY.
- 9.8.5 Consideration should also be given to the potential location of an old culvert that is situated within this area of the site. Historic mapping (1849) shows this feature but is then lost from further mapping. Whilst this feature is likely to have been removed, it should nevertheless be considered during construction of the new building.

9.9 SUDS

- 9.9.1 Assessment of the ground conditions present across the site in terms of sustainable urban drainage, confirms the presence of made ground overlying interbedded granular and relatively impermeable cohesive deposits in the forms of sand, gravels and clay. Combined with the site's natural geological nature, significant thickness of made ground is present. Therefore, it is considered that a soakaway system will not be feasible for the proposed development. It will be necessary for surface water to be disposed of utilising a traditional gravity fed drainage system.

10.0 CONCLUSIONS & RECOMMENDATIONS

10.1 Mine Shaft

- 10.1.1 Investigations were highly limited by the presence of on-site services and above ground features during the investigation into the potential on-site mine shaft. PH01 was undertaken 700mm south of the grid reference position given by the MRA, however this borehole did not indicate the presence of the mine shaft.
- 10.1.2 Further investigations may be required to locate the position of the mine shaft.

10.1.3 Further investigation options are likely to be limited due to the presence of significant services in the vicinity of the co-ordinate including sewage drains and gas mains.

10.1.4 Any further excavations within the area to seek to locate a potential shaft would be difficult and would likely require the re-direction of the gas main and sewer drains to attempt an excavation to rockhead.

10.2 Further Works

10.2.1 A geophysical survey could be conducted within the area of the potential mine shaft, however the opinion of a specialist geophysical consultant would be required to assess the overall likelihood of this methodology being successful. Due to the location of the potential mine shaft on the site, it is inaccessible to propose further intrusive borehole or excavations within <1.0m of the given vicinity without a requirement for a multitude of additional safety precautions and altering the surrounding area, for instance, a metal fence stands to the north, the hut containing ACMs towards the south west and an abundance of underground services that run in overlapping directions surrounding the location.

10.2.2 If any unusual or suspicious strata or ground conditions are encountered during the subsequent site stripping and preparation works, it may be necessary for these areas to be brought to the attention of the appropriate authorities so that all necessary inspection, sampling and testing may be undertaken to determine whether these materials represent a hazard to human health. It is incumbent upon this site, that contractors advise a responsible authority of any unusual findings within the site which may then be further investigated.

11.0 NOTES

11.1 All reports are for advisory purposes only and all design decisions are the ultimate responsibility of others.

11.2 Unless stated otherwise the investigation has been undertaken in general accordance with the recommendations given in BS 5930: 2015+A1:2020 "A Code of Practice for site Investigations" and the laboratory testing has been carried out in accordance with BS 1377-2: 2022 "Methods of Test for Civil Engineering Purposes".

11.3 Soil and rock descriptions are generally based on the scales of strength and relative density within BS 5930 although it should be noted that in certain circumstances descriptions are based on site records or a qualitative assessment without the benefit of in-situ or laboratory test results.

11.4 The assessment of ground conditions given in this report is based on the results of the fieldwork and laboratory testing carried out and there may be other conditions at the site not encountered by these works, which have not been taken into account.

11.5 The scope of the investigation and information provided may not necessarily reflect all the geotechnical and environmental aspects related to the site, and the omission of certain items does not mean that the site is unaffected by such problems.

- 11.6 It should be noted that groundwater levels can vary and may at times be significantly different to those recorded during the investigation and attention is drawn to BS 5930 which indicates that measurements may be necessary over an extended period of time to investigate changes in groundwater pressures due to seasonal, tidal and other causes.
- 11.7 Any recommendations on construction methods within this report are for initial guidance only and all design proposals remain the responsibility of the appropriate contractor/consultant.
- 11.8 Further assessment, investigation, construction activities or time may reveal conditions that were not found during the period of investigation and, therefore, could not have been taken into account in the preparation of the report and where such information might impact upon the stated opinion R. E. Fry & Associates Ltd request the opportunity to review such information and modify the report if necessary.
- 11.9 Where information has been obtained from sources other than the direct findings of the investigation, R. E. Fry & Associates Ltd cannot and does not guarantee the authenticity or reliability of this information.
- 11.10 Where opinions expressed in this report are based on current available guidelines and legislation, no liability can be accepted by R. E. Fry & Associates Ltd for the effects of any future changes to such guidelines and legislation.
- 11.11 This report has been prepared on the instructions and to the requirements of the named client and any unauthorised party using this information for any purpose does so at his own risk and any duty of care to that party is excluded.

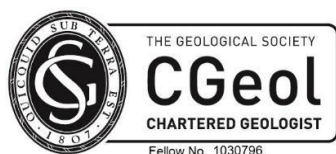
Signed for and on behalf of
REFA Geotechnical, Civil & Structural Engineers



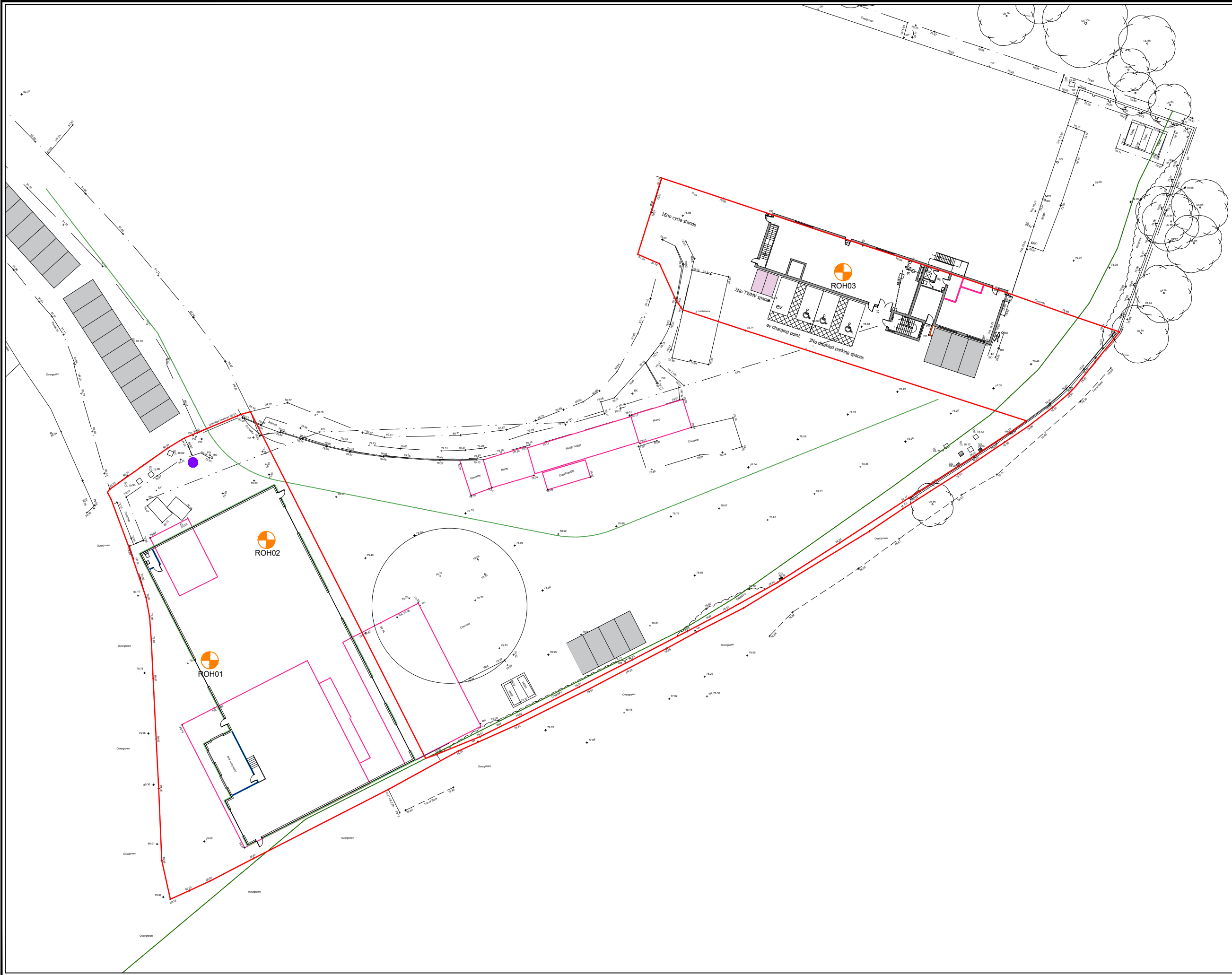
Chloe Cocker B.Sc. (Hons)



Chris Pilkington BSc (Hons). Cgeol FGS
Principal Geoenvironmental Engineer



APPENDIX A



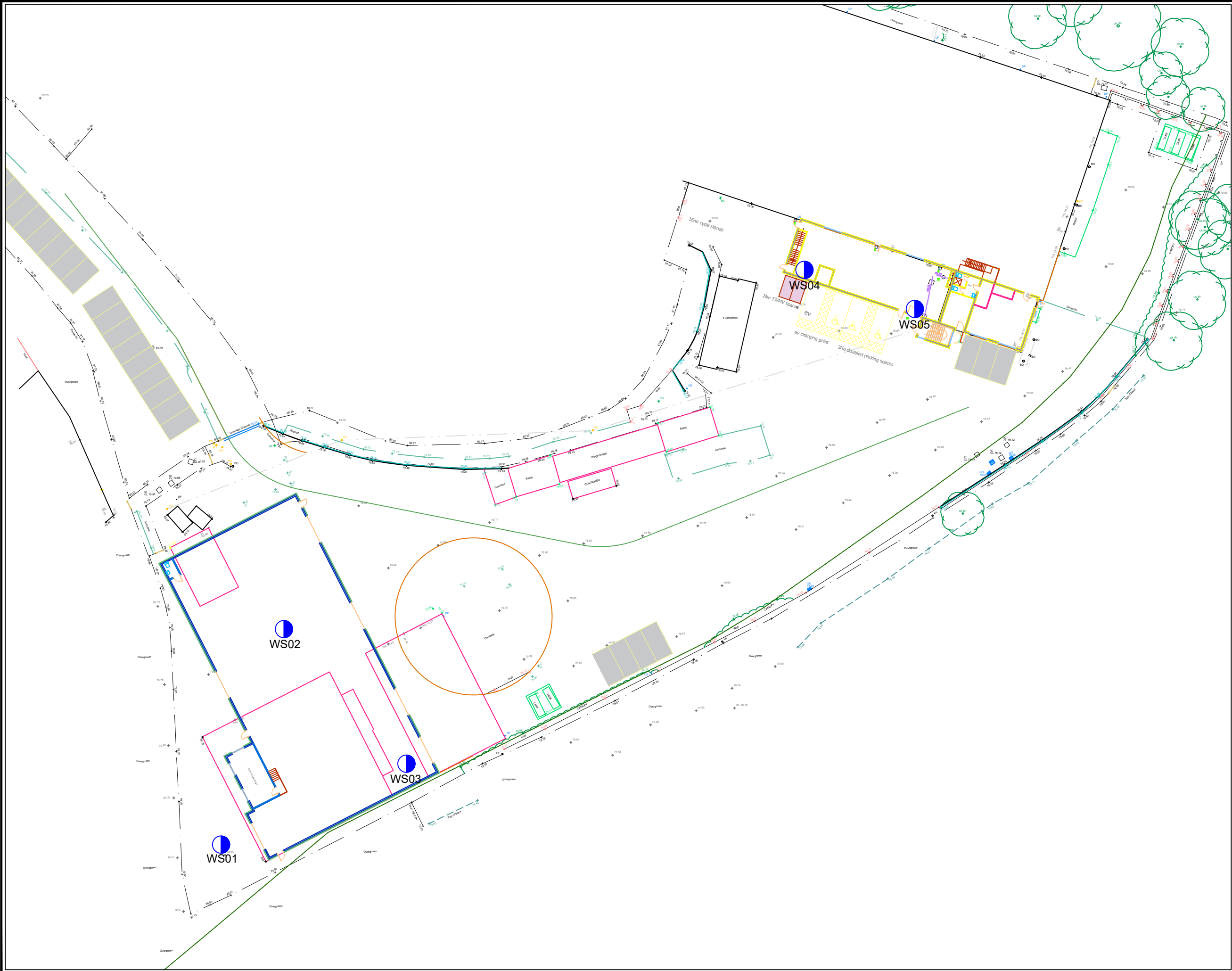
KEY

	Mine Shaft
	Rotary Open Hole Borehole

INFO

Rev.	Description	By	Date	
Revision History				
 Geotechnical, Civil & Structural Engineers 45 - 46 Bridgeman Terrace, Wigan, WNL1 1TT T : 01942 826 020 E : info@refa.co.uk www.refa.co.uk				
Client				
Riley and Son (E) Ltd				
Lower Woodhill Road, Bury				
Drawing				
Coal Mine Investigation Location Plan				
Sheet Size	Scale at Sheet Size	Date	Drawn By	Checked By
A3	nts	03/06/2026	AB	
Project Number		Drawing Number		Current Revision
26003		26003/03		*

APPENDIX B



KEY

	Windowless Sampling Boreholes

INFO

Rev.	Description	By	Date

Revision History



Geotechnical, Civil & Structural Engineers
45 - 46 Bridgeman Terrace, Wigan, WN1 1TT
T : 01942 826 020 E : info@refa.co.uk
www.refa.co.uk

Client

Riley and Son (E) Ltd

Lower Woodhill Road, Bury

Drawing

Exploratory Hole Location Plan

Sheet Size	Scale at Sheet Size	Date	Drawn By	Checked By
A3	nts	03/06/2026	AB	
Project Number		Drawing Number		Current Revision
26003		26003/04		*

APPENDIX C

		ROTARY BOREHOLE RECORD						Borehole Number PH01												
Project Name: Lower Woodhill Road				Client: Riley & Sons (E) Ltd				Date: 13/07/2026												
Location: Bury				Logged by: Drillers				Co-ords: E379837.83 N411198.51												
Project No. : 26003				Crew Name: ACE Drilling Services				Drilling Equipment: Beretta GT54-6												
Log Status FINAL		Hole Type RO		Level 80.01m AoD		Approved By CP		Scale 1:50		Page Number Sheet 1 of 2										
Well	Water Strikes	Type / FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description										
			TCR	SCR	RQD															
							0.40	79.61		MADE GROUND: Grey concrete (Drillers Description).	1									
										Brown MADE GROUND (Drillers Description).										
																			2	
																				3
																				4
																				5
											6									
												Grey MUDSTONE (Drillers Description).								
											7									
											8									
											9									
												Grey SANDSTONE (Drillers Description).								
											10									
Remarks: Hand dug pit dug to 1.20m bgl. Exploratory hole terminated at 11.10m bgl due to reaching the desired depth.			Drilling Flush Details						Chiselling											
			Top	Base	Type	Rtn Min %	Rtn Max %	Remarks	Depth Top	Depth Base	Duration	Remarks								
			1.20	11.10	Water	90	90													
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ROTARY BOREHOLE RECORD

Borehole Number
PH01

Project Name: Lower Woodhill Road			Client: Riley & Sons (E) Ltd			Date: 13/07/2026		
Location: Bury			Logged by: Drillers			Co-ords: E379837.83 N411198.51		
Project No. : 26003			Crew Name: ACE Drilling Services			Drilling Equipment: Beretta GT54-6		
Log Status FINAL		Hole Type RO		Level 80.01m AoD		Approved By CP		Scale 1:50
								Page Number Sheet 2 of 2

Well	Water Strikes	Type / FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description	
			TCR	SCR	RQD						
							11.10	68.91		Grey SANDSTONE (Drillers Description).	11
										End of Borehole at 11.10m	12
											13
											14
											15
											16
											17
											18
											19
											20

Remarks: Hand dug pit dug to 1.20m bgl. Exploratory hole terminated at 11.10m bgl due to reaching the desired depth.	Drilling Flush Details						Chiselling			
	Top	Base	Type	Rtn Min %	Rtn Max %	Remarks	Depth Top	Depth Base	Duration	Remarks
	1.20	11.10	Water	90	90					

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Company Number: 02436911



ROTARY BOREHOLE RECORD

Borehole Number
RH01

Project Name: Lower Woodhill Road			Client: Riley & Sons (E) Ltd			Date: 07/07/2026		
Location: Bury			Logged by: Drillers			Co-ords: E379836.13 N411169.13		
Project No. : 26003			Crew Name: ACE Drilling Services			Drilling Equipment: Beretta GT54-6		
Log Status FINAL		Hole Type RO		Level 79.76m AoD		Approved By CP		Scale 1:50
								Page Number Sheet 1 of 3

Well	Water Strikes	Type / FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description	
			TCR	SCR	RQD						
							0.30	79.46		MADE GROUND: Grey concrete (Drillers Description).	
										Brown MADE GROUND (Drillers Description).	1
											2
											3
							3.90	75.86		Brown sandy CLAY (Drillers Description).	4
											5
											6
							6.20	73.56		Grey MUDSTONE (Drillers Description).	7
											8
											9
							9.00	70.76		Black COAL (Drillers Description).	10

Remarks: Hand dug pit dug to 1.20m bgl. Exploratory hole terminated at 30.00m bgl due to reaching the desired depth.	Drilling Flush Details						Chiselling			
	Top	Base	Type	Rtn Min %	Rtn Max %	Remarks	Depth Top	Depth Base	Duration	Remarks
	1.20	30.00	Water	80	90					

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Company Number: 02436911



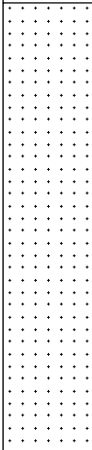
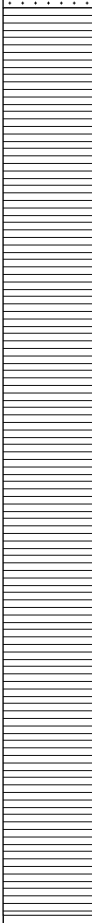
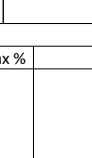
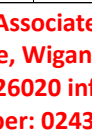
ROTARY BOREHOLE RECORD

Borehole Number
RH01

Project Name: Lower Woodhill Road			Client: Riley & Sons (E) Ltd			Date: 07/07/2026		
Location: Bury			Logged by: Drillers			Co-ords: E379836.13 N411169.13		
Project No. : 26003			Crew Name: ACE Drilling Services			Drilling Equipment: Beretta GT54-6		
Log Status FINAL		Hole Type RO		Level 79.76m AoD		Approved By CP		Scale 1:50
								Page Number Sheet 2 of 3

Well	Water Strikes	Type / FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description	
			TCR	SCR	RQD						
							10.30	69.46		Black COAL (Drillers Description).	
										Grey MUDSTONE (Drillers Description).	
											11
							11.50	68.26		Grey SANDSTONE (Drillers Description).	
											12
							17.00	62.76		Black COAL (Drillers Description).	
							17.50	62.26		Grey MUDSTONE (Drillers Description).	
											18
											20

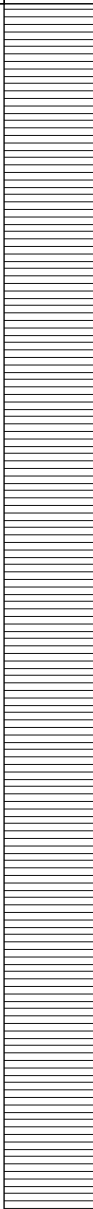
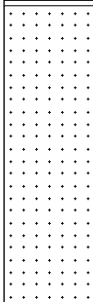
Remarks: Hand dug pit dug to 1.20m bgl. Exploratory hole terminated at 30.00m bgl due to reaching the desired depth.	Drilling Flush Details					Remarks	Chiselling			
	Top 1.20	Base 30.00	Type Water	Rtn Min % 80	Rtn Max % 90		Depth Top	Depth Base	Duration	Remarks

		ROTARY BOREHOLE RECORD						Borehole Number RH01															
Project Name: Lower Woodhill Road				Client: Riley & Sons (E) Ltd				Date: 07/07/2026															
Location: Bury				Logged by: Drillers				Co-ords: E379836.13 N411169.13															
Project No. : 26003				Crew Name: ACE Drilling Services				Drilling Equipment: Beretta GT54-6															
Log Status FINAL		Hole Type RO		Level 79.76m AoD		Approved By CP		Scale 1:50		Page Number Sheet 3 of 3													
Well	Water Strikes	Type / FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description													
			TCR	SCR	RQD																		
							21.00	58.76		Grey MUDSTONE (Drillers Description).	21												
																			24.00	55.76		Grey SANDSTONE (Drillers Description).	22
										Grey MUDSTONE (Drillers Description).	23												
										End of Borehole at 30.00m	24												
											25												
											26												
											27												
											28												
											29												
											30												
Remarks: Hand dug pit dug to 1.20m bgl. Exploratory hole terminated at 30.00m bgl due to reaching the desired depth.			Drilling Flush Details				Chiselling																
			Top	Base	Type	Rtn Min %	Rtn Max %	Remarks	Depth Top	Depth Base	Duration	Remarks											
			1.20	30.00	Water	80	90																
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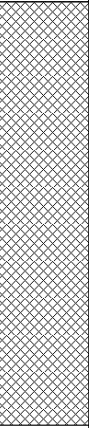
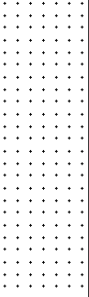
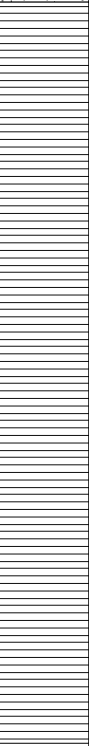
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Location: Bury			Logged by: Drillers			Co-ords: E379846.48 N411189.22						
Project No. : 26003			Crew Name: ACE Drilling Services			Drilling Equipment: Beretta GT54-6						
Log Status FINAL		Hole Type RO		Level 79.79m AoD		Approved By CP		Scale 1:50		Page Number Sheet 1 of 3		
Well	Water Strikes	Type / FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description		
			TCR	SCR	RQD							
										Brown MADE GROUND (Drillers Description).		
											1	
											2	
											3	
											4	
											5	
							6.00	73.79		Grey MUDSTONE (Drillers Description).	6	
											7	
							7.50	72.29		Black COAL (Drillers Description).	8	
							8.20	71.59		Grey SEAT EARTH (Drillers Description).		
							9.00	70.79		Grey MUDSTONE (Drillers Description).	9	
							10.00	69.79			10	
Remarks: Hand dug pit dug to 1.20m bgl. Exploratory hole terminated at 30.00m bgl due to reaching the desired depth.			Drilling Flush Details					Chiselling				
			Top	Base	Type	Rtn Min %	Rtn Max %	Remarks	Depth Top	Depth Base	Duration	Remarks
			1.20	30.00	Water	70	70					
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		ROTARY BOREHOLE RECORD						Borehole Number RH02				
Project Name: Lower Woodhill Road				Client: Riley & Sons (E) Ltd				Date: 06/07/2026				
Location: Bury				Logged by: Drillers				Co-ords: E379846.48 N411189.22				
Project No. : 26003				Crew Name: ACE Drilling Services				Drilling Equipment: Beretta GT54-6				
Log Status FINAL		Hole Type RO		Level 79.79m AoD		Approved By CP		Scale 1:50		Page Number Sheet 2 of 3		
Well	Water Strikes	Type / FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description		
			TCR	SCR	RQD							
										Grey SANDSTONE (Drillers Description).		
											11	
										At 12.00m bgl: Becoming brown colour.	12	
							13.00	66.79		Black COAL (Drillers Description).	13	
							13.50	66.29		Grey MUDSTONE (Drillers Description).		
											14	
											15	
											16	
											17	
											18	
											19	
											20	
Remarks: Hand dug pit dug to 1.20m bgl. Exploratory hole terminated at 30.00m bgl due to reaching the desired depth.			Drilling Flush Details						Chiselling			
			Top	Base	Type	Rtn Min %	Rtn Max %	Remarks	Depth Top	Depth Base	Duration	Remarks
			1.20	30.00	Water	70	70					
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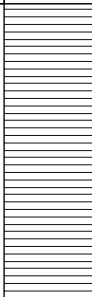
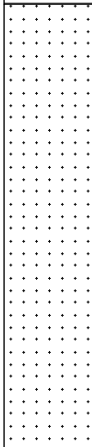
Project Name: Lower Woodhill Road		Client: Riley & Sons (E) Ltd		Date: 06/07/2026	
Location: Bury		Logged by: Drillers		Co-ords: E379846.48 N411189.22	
Project No. : 26003		Crew Name: ACE Drilling Services		Drilling Equipment: Beretta GT54-6	
Log Status FINAL	Hole Type RO	Level 79.79m AoD	Approved By CP	Scale 1:50	Page Number Sheet 3 of 3

Well	Water Strikes	Type / FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description									
			TCR	SCR	RQD														
							28.00	51.79		Grey MUDSTONE (Drillers Description).	21								
											22								
											23								
											24								
											25								
											26								
											27								
											28								
										Grey SANDSTONE (Drillers Description).	29								
											30								
									End of Borehole at 30.00m										30

Remarks: Hand dug pit dug to 1.20m bgl. Exploratory hole terminated at 30.00m bgl due to reaching the desired depth.	Drilling Flush Details						Chiselling			
	Top	Base	Type	Rtn Min %	Rtn Max %	Remarks	Depth Top	Depth Base	Duration	Remarks
	1.20	30.00	Water	70	70					

		ROTARY BOREHOLE RECORD						Borehole Number RH03												
Project Name: Lower Woodhill Road				Client: Riley & Sons (E) Ltd				Date: 08/07/2026												
Location: Bury				Logged by: Drillers				Co-ords: E379923.92 N411218.67												
Project No. : 26003				Crew Name: ACE Drilling Services				Drilling Equipment: Beretta GT54-6												
Log Status FINAL		Hole Type RO		Level 78.90m AoD		Approved By CP		Scale 1:50		Page Number Sheet 1 of 3										
Well	Water Strikes	Type / Fl	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description										
			TCR	SCR	RQD															
							2.80	76.10		Brown MADE GROUND (Drillers Description).	1									
											Brown SANDSTONE (Drillers Description).	3								
											Brown SAND (Drillers Description).	5								
												Grey MUDSTONE (Drillers Description).	6							
													7							
														8						
														9						
														10						
									Remarks: Hand dug pit dug to 1.20m bgl. Exploratory hole terminated at 30.00m bgl due to reaching the desired depth.			Drilling Flush Details					Chiselling			
												Top	Base	Type	Rtn Min %	Rtn Max %	Remarks	Depth Top	Depth Base	Duration
1.20	30.00	Water	50	90																
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Project Name: Lower Woodhill Road		Client: Riley & Sons (E) Ltd		Date: 08/07/2026	
Location: Bury		Logged by: Drillers		Co-ords: E379923.92 N411218.67	
Project No. : 26003		Crew Name: ACE Drilling Services		Drilling Equipment: Beretta GT54-6	
Log Status FINAL	Hole Type RO	Level 78.90m AoD	Approved By CP	Scale 1:50	Page Number Sheet 2 of 3

Well	Water Strikes	Type / FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description																
			TCR	SCR	RQD																					
							12.00	66.90		Grey MUDSTONE (Drillers Description).	11															
											Grey SANDSTONE (Drillers Description).	12														
														13												
																14										
																		15								
																				16						
																						17				
																								18		
																										19

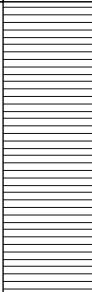
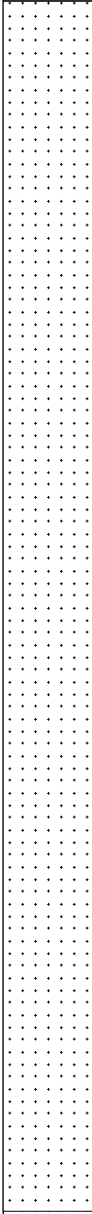
Remarks: Hand dug pit dug to 1.20m bgl. Exploratory hole terminated at 30.00m bgl due to reaching the desired depth.	Drilling Flush Details						Chiselling			
	Top	Base	Type	Rtn Min %	Rtn Max %	Remarks	Depth Top	Depth Base	Duration	Remarks
	1.20	30.00	Water	50	90					



ROTARY BOREHOLE RECORD

Borehole Number
RH03

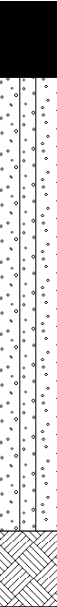
Project Name: Lower Woodhill Road			Client: Riley & Sons (E) Ltd			Date: 08/07/2026		
Location: Bury			Logged by: Drillers			Co-ords: E379923.92 N411218.67		
Project No. : 26003			Crew Name: ACE Drilling Services			Drilling Equipment: Beretta GT54-6		
Log Status FINAL		Hole Type RO		Level 78.90m AoD		Approved By CP		Scale 1:50
								Page Number Sheet 3 of 3

Well	Water Strikes	Type / FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description	
			TCR	SCR	RQD						
							22.00	56.90		Grey MUDSTONE (Drillers Description).	21
										Grey SANDSTONE with bands of mudstone (Drillers Description).	22
											23
											24
											25
											26
											27
											28
											29
							30.00	48.90		End of Borehole at 30.00m	30

Remarks: Hand dug pit dug to 1.20m bgl. Exploratory hole terminated at 30.00m bgl due to reaching the desired depth.	Drilling Flush Details					Remarks	Chiselling			
	Top	Base	Type	Rtn Min %	Rtn Max %		Depth Top	Depth Base	Duration	Remarks
	1.20	30.00	Water	50	90					

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		WINDOWLESS SAMPLER RECORD					Borehole Number WS01		
Project Name: Lower Woodhill Road			Client: Riley & Sons (E) Ltd			Date: 22/06/2026			
Location: Bury			Logged by: CC			Co-ords: E373836.36 N411149.48			
Project No. : 26003			Crew Name: SI Ground Investigations			Drilling Equipment: Archway Dart			
Log Status FINAL		Hole Type WS		Level 79.76m AoD		Approved By CP		Scale 1:50	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	ES				MADE GROUND: Dark greyish black very gravelly fine to coarse sand with a medium cobble content. Gravel is angular to subangular fine to coarse of brick and concrete. Cobbles are angular of brick and concrete. <i>At 0.23m bgl: Black mesh MEMBRANE.</i> <i>Between 0.30m and 0.40m bgl: Light grey colour.</i> <i>At 0.90m bgl: Becoming slightly clayey.</i>	1	
		0.60	ES						
		1.20	D	53					
		1.20	SPT		1.65	78.11			
		2.00	D	14		1.80	77.96	MADE GROUND: Soft dark greyish black slightly gravelly sandy clay. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of brick, concrete and sandstone. MADE GROUND: Medium dense dark greyish black mottled orange gravelly fine to coarse sand. Gravel is angular to subangular fine to coarse of brick, concrete and sandstone.	2
		2.00	SPT						
		3.00	D	14				Dark brownish grey sandy fine to coarse angular to subangular GRAVEL of quartzite, sandstone and siltstone. Sand is fine to coarse.	3
		3.00	SPT		3.50	76.26			
		4.00	D	50				End of Borehole at 4.00m	4
		4.00	SPT		4.00	75.76			
								5	
								6	
								7	
								8	
								9	
								10	

Remarks:
 *Field description.
 Groundwater encountered at 3.00m bgl. Exploratory hole terminated at 4.00m bgl due to SPT refusal.

Key:
 ES - Environmental Sample
 D - Small Disturbed Sample
 B - Bulk Disturbed Sample
 PID - Photo-ionisation Detector Reading

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		WINDOWLESS SAMPLER RECORD				Borehole Number WS02	
Project Name: Lower Woodhill Road			Client: Riley & Sons (E) Ltd			Date: 22/06/2026	
Location: Bury			Logged by: CC			Co-ords: E379844.03 N411176.98	
Project No. : 26003			Crew Name: SI Ground Investigations			Drilling Equipment: Archway Dart	
Log Status FINAL		Hole Type WS		Level 79.68m AoD		Approved By CP Scale 1:50 Page Number Sheet 1 of 1	

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.21	79.47	MADE GROUND: Light grey concrete.		
		0.50	ES				MADE GROUND: Medium dense dark brownish grey very gravelly fine to coarse sand. Gravel is angular to subangular fine to coarse of brick and concrete. At 0.40 bgl: White plastic fragments.	1	
		1.00	D	21					
		1.00	SPT						
		1.50	ES				At 1.45m bgl: Becoming brownish grey colour.		
							Between 1.78m and 1.86m bgl: Slightly clayey.		
		2.00	D	5	2.00	77.68	Soft brown slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is angular to subangular fine and medium of coal.	2	
		2.00	SPT				At 2.50m bgl: Becoming firmer and light grey colour.		
		3.00	D	0	3.00	76.68	Very loose dark brown slightly clayey gravelly fine to coarse SAND. Gravel is angular to subangular fine to medium of coal and quartzite.	3	
		3.00	SPT						
					3.70	75.98	Soft dark brownish grey slightly gravelly sandy SILT. Sand is fine to coarse.	4	
		4.00	D	3					
		4.00	SPT		4.30	75.39	Loose to medium dense dark brown gravelly fine to coarse SAND. Gravel is angular to subangular fine to coarse of quartzite and siltstone.		
		5.00	D	11	5.00	74.68		5	
		5.00	SPT				End of Borehole at 5.00m		
								6	
								7	
								8	
								9	
								10	

Remarks:
 *Field description.
 Groundwater encountered at 3.00m bgl. Exploratory hole terminated at 5.00m bgl due to reaching the desired depth.

Key:
 ES - Environmental Sample
 D - Small Disturbed Sample
 B - Bulk Disturbed Sample
 PID - Photo-ionisation Detector Reading

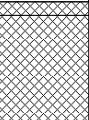
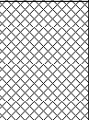
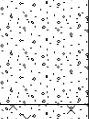
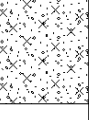
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		WINDOWLESS SAMPLER RECORD					Borehole Number WS03		
Project Name: Lower Woodhill Road			Client: Riley & Sons (E) Ltd			Date: 22/06/2026			
Location: Bury			Logged by: CC			Co-ords: E379861.75 N411159.60			
Project No. : 26003			Crew Name: SI Ground Investigations			Drilling Equipment: Archway Dart			
Log Status FINAL		Hole Type WS		Level 79.38m AoD		Approved By CP		Scale 1:50	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	ES		0.09	79.28		MADE GROUND: Dark greyish black asphalt tarmac.	
		0.90	ES		0.85	78.53		MADE GROUND: Dark grey very sandy angular to subangular fine to coarse gravel of brick and concrete. Sand is fine to coarse.	
		1.00	D	24				At 0.15m bgl: Black mesh MEMBRANE.	
		1.00	SPT		1.30	78.08		MADE GROUND: Soft to firm dark brown sandy gravelly clay with a moderate organic odour. Gravel is angular to subangular fine to coarse of brick and concrete.	1
		2.00	D	24				MADE GROUND: Medium dense dark brown sandy gravelly silty fine to coarse sand. Gravel is angular to subangular fine to coarse of brick and siltstone. Between 1.50m and 1.60m bgl: White and blue porcelain fragments.	2
		2.00	SPT		2.30	77.08		Dense brown gravelly fine to coarse SAND. Gravel is angular to subangular fine to coarse of siltstone and quartzite.	
		3.00	D	30				Dense to very dense dark brown slightly silty very gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse of siltstone, quartzite and coal.	3
		3.00	SPT		3.00	76.38			
		4.00	D	50				End of Borehole at 4.00m	4
		4.00	SPT		4.00	75.38			
								5	
								6	
								7	
								8	
								9	
								10	

Remarks:
 *Field description.
 Groundwater encountered at 3.10m bgl. Exploratory hole terminated at 4.00m bgl due to SPT refusal.

Key:
 ES - Environmental Sample
 D - Small Disturbed Sample
 B - Bulk Disturbed Sample
 PID - Photo-ionisation Detector Reading

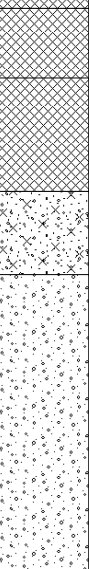
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Company Number: 02436911

		WINDOWLESS SAMPLER RECORD				Borehole Number WS04	
Project Name: Lower Woodhill Road			Client: Riley & Sons (E) Ltd			Date: 22/06/2026	
Location: Bury			Logged by: CC			Co-ords: E379918.67 N411219.55	
Project No. : 26003			Crew Name: SI Ground Investigations			Drilling Equipment: Archway Dart	
Log Status FINAL		Hole Type WS		Level 78.92m AoD		Approved By CP Scale 1:50 Page Number Sheet 1 of 1	

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	ES		0.09	78.83		MADE GROUND: Dark grey asphalt tarmac.	
		0.70	ES		0.55	78.37		MADE GROUND: Dark brownish grey slightly clayey very gravelly fine to coarse sand. Gravel is angular to subangular fine to coarse of brick, concrete and quartzite.	
		1.00	D	2				MADE GROUND: Soft sandy gravelly clay. Gravel is angular to subangular fine and medium of brick, clinker and quartzite.	1
		1.00	SPT		1.30	77.62		Between 0.68m and 0.80m bgl: Band of angular to subangular fine to coarse GRAVEL of concrete, clinker and quartzite.	
		2.00	D	36	1.85	77.07		At 0.80m bgl: Becoming silty.	
		2.00	SPT					Medium dense dark brown slightly gravelly silty fine to coarse SAND. Gravel is angular to subangular fine to coarse of coal and mudstone.	2
		3.00	D	22			Medium dense to dense brown very sandy angular to subangular fine to coarse GRAVEL of siltstone, mudstone and quartzite. Sand is fine to coarse.	3	
		3.00	SPT						
		3.80	SPT	50	3.80	75.12		End of Borehole at 3.80m	4
									5
									6
									7
									8
									9
									10

Remarks:
 *Field description.
 Groundwater encountered at 3.00m bgl. Exploratory hole terminated at 3.80m bgl due to SPT refusal.

Key:
 ES - Environmental Sample
 D - Small Disturbed Sample
 B - Bulk Disturbed Sample
 PID - Photo-ionisation Detector Reading

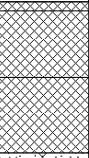
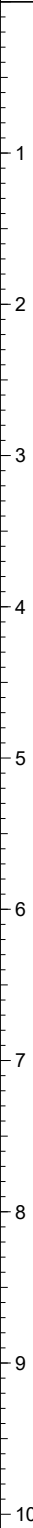
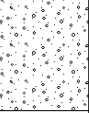
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Company Number: 02436911

		WINDOWLESS SAMPLER RECORD					Borehole Number WS05		
Project Name: Lower Woodhill Road			Client: Riley & Sons (E) Ltd			Date: 22/06/2026			
Location: Bury			Logged by: CC			Co-ords: E379930.56 N411217.21			
Project No. : 26003			Crew Name: SI Ground Investigations			Drilling Equipment: Archway Dart			
Log Status FINAL		Hole Type WS		Level 78.87m AoD		Approved By CP		Scale 1:50	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
		0.20	ES		0.06	78.81		MADE GROUND: Dark grey asphalt tarmac.		
		0.60	ES		0.50	78.37		MADE GROUND: Dark greyish black sandy angular to subangular fine to coarse gravel of brick, concrete and tarmac fragments. Sand is fine to coarse.		
		1.00	D	2	1.00	77.87		MADE GROUND: Soft to firm dark brown very gravelly sandy clay. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of brick, mudstone and sandstone.		
		1.00	SPT					Loose to medium dense dark brownish grey silty fine to coarse SAND. <i>At 1.45m bgl: Becoming brown colour.</i>		
		2.00	D	12	2.35	76.52				Medium dense to dense brown very sandy angular to subrounded fine to coarse GRAVEL of siltstone, mudstone and quartzite. Sand is fine to coarse.
		2.00	SPT							
		3.00	D	50	3.10	75.77	End of Borehole at 3.10m			
		3.00	SPT							

Remarks:
 *Field description.
 Groundwater encountered at 3.00m bgl. Exploratory hole terminated at 3.10m bgl due to SPT refusal.

Key:
 ES - Environmental Sample
 D - Small Disturbed Sample
 B - Bulk Disturbed Sample
 PID - Photo-ionisation Detector Reading

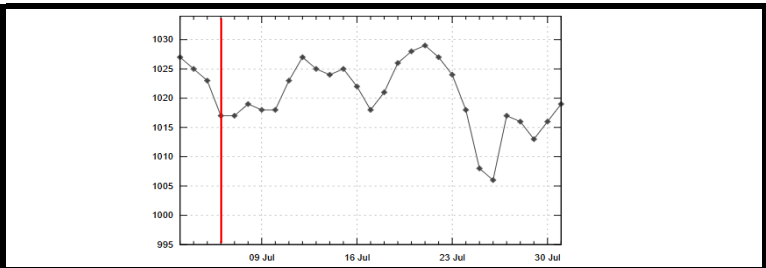
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APPENDIX D



Ground Gas Monitoring Record

Site Name:	Lower Woodhill Road, Bury	
Project No:	26003	
Date:	6th July 2026	
Visit No:	1	
Atmospheric Pressure	Start	1006mB
	End	1006mB
	Trend	Steady

[illegible]

Notes: Monitoring should be for not less than 3 Minutes. However, if high concentrations of gases initially recorded, monitoring should be for up to 10 mins. * LEL = Explosive Limit = 5%v/v ND - Not Detected

Notes: Monitoring should be for not less than 3 Minutes. However, if high concentrations of gases initially recorded, monitoring should be for up to 10 mins. * LEL = Explosive Limit = 5%v/v ND - Not Detected

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Relevant Information At Times Of Monitoring	
Monitored By:	CC
Weather:	Warm and slightly cloudy.
Equipment Used:	GFM436

Monitored By:	CC
Weather:	Warm and slightly cloudy.
Equipment Used:	GFM436

Monitored By:	CC
Weather:	Warm and slightly cloudy.
Equipment Used:	GFM436

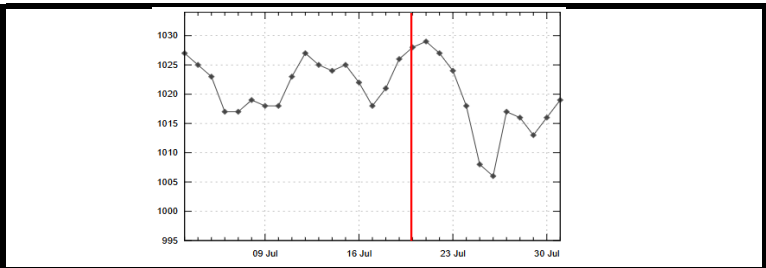
Monitored By:	CC
Weather:	Warm and slightly cloudy.
Equipment Used:	GFM436

Visible Signs Of Vegetation Stress:	-
Boreholes Sampled For Lab Analysis:	-
Other comments / Observations:	E.O.H. = End of Hole. WS01, WS02 and WS04 was absent of groundwater.



Ground Gas Monitoring Record

Site Name:	Lower Woodhill Road, Bury	
Project No:	26003	
Date:	20th July 2026	
Visit No:	2	
Atmospheric Pressure	Start	1017mB
	End	1017mB
	Trend	Steady

[illegible]

Notes: Monitoring should be for not less than 3 Minutes. However, if high concentrations of gases initially recorded, monitoring should be for up to 10 mins. * LEL = Explosive Limit = 5%v/v ND - Not Detected

Notes: Monitoring should be for not less than 3 Minutes. However, if high concentrations of gases initially recorded, monitoring should be for up to 10 mins. * LEL = Explosive Limit = 5%v/v ND - Not Detected

Notes: Monitoring should be for not less than 3 Minutes. However, if high concentrations of gases initially recorded, monitoring should be for up to 10 mins. * LEL = Explosive Limit = 5%v/v ND - Not Detected

Notes: Monitoring should be for not less than 3 Minutes. However, if high concentrations of gases initially recorded, monitoring should be for up to 10 mins. * LEL = Explosive Limit = 5%v/v ND - Not Detected

Relevant Information At Times Of Monitoring	
Monitored By:	CC
Weather:	Very warm and slightly humid.
Equipment Used:	GFM436

Monitored By:	CC
Weather:	Very warm and slightly humid.
Equipment Used:	GFM436

Monitored By:	CC
Weather:	Very warm and slightly humid.
Equipment Used:	GFM436

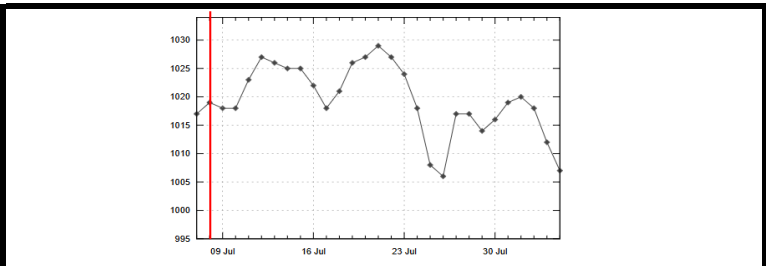
Monitored By:	CC
Weather:	Very warm and slightly humid.
Equipment Used:	GFM436

Visible Signs Of Vegetation Stress:	-
Boreholes Sampled For Lab Analysis:	-
Other comments / Observations:	E.O.H. = End of Hole. WS01 and WS02 was absent of groundwater.



Ground Gas Monitoring Record

Site Name:	Lower Woodhill Road, Bury	
Project No:	26003	
Date:	3rd August 2026	
Visit No:	3	
Atmospheric Pressure	Start	1017mB
	End	1017mB
	Trend	Steady

[illegible]

Notes: Monitoring should be for not less than 3 Minutes. However, if high concentrations of gases initially recorded, monitoring should be for up to 10 mins. * LEL = Explosive Limit = 5%v/v ND - Not Detected

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Relevant Information At Times Of Monitoring	
1. The presence of any signs or symptoms of a disease or condition.	2. The results of any tests or examinations performed.
3. The patient's response to treatment.	4. The patient's overall health and well-being.
5. The patient's adherence to the treatment plan.	6. The patient's understanding of the disease and condition.
7. The patient's ability to perform daily activities.	8. The patient's social and emotional well-being.
9. The patient's financial situation.	10. The patient's access to healthcare services.
11. The patient's knowledge of the disease and condition.	12. The patient's ability to make decisions about their care.
13. The patient's ability to communicate with healthcare providers.	14. The patient's ability to understand and follow instructions.
15. The patient's ability to manage their condition.	16. The patient's ability to seek help when needed.
17. The patient's ability to cope with stress.	18. The patient's ability to maintain a healthy lifestyle.
19. The patient's ability to take medication as prescribed.	20. The patient's ability to attend medical appointments.
21. The patient's ability to understand and follow the treatment plan.	22. The patient's ability to communicate with family and friends.
23. The patient's ability to understand and follow the doctor's advice.	24. The patient's ability to understand and follow the nurse's advice.
25. The patient's ability to understand and follow the pharmacist's advice.	26. The patient's ability to understand and follow the dietitian's advice.
27. The patient's ability to understand and follow the physical therapist's advice.	28. The patient's ability to understand and follow the occupational therapist's advice.
29. The patient's ability to understand and follow the social worker's advice.	30. The patient's ability to understand and follow the psychologist's advice.
31. The patient's ability to understand and follow the psychiatrist's advice.	32. The patient's ability to understand and follow the geriatrician's advice.
33. The patient's ability to understand and follow the pediatrician's advice.	34. The patient's ability to understand and follow the obstetrician's advice.
35. The patient's ability to understand and follow the gynecologist's advice.	36. The patient's ability to understand and follow the urologist's advice.
37. The patient's ability to understand and follow the endocrinologist's advice.	38. The patient's ability to understand and follow the neurologist's advice.
39. The patient's ability to understand and follow the cardiologist's advice.	40. The patient's ability to understand and follow the pulmonologist's advice.
41. The patient's ability to understand and follow the nephrologist's advice.	42. The patient's ability to understand and follow the hematologist's advice.
43. The patient's ability to understand and follow the oncologist's advice.	44. The patient's ability to understand and follow the infectious disease specialist's advice.
45. The patient's ability to understand and follow the allergist's advice.	46. The patient's ability to understand and follow the immunologist's advice.
47. The patient's ability to understand and follow the dermatologist's advice.	48. The patient's ability to understand and follow the ophthalmologist's advice.
49. The patient's ability to understand and follow the otolaryngologist's advice.	50. The patient's ability to understand and follow the orthopedic surgeon's advice.
51. The patient's ability to understand and follow the plastic surgeon's advice.	52. The patient's ability to understand and follow the general surgeon's advice.
53. The patient's ability to understand and follow the family physician's advice.	54. The patient's ability to understand and follow the internist's advice.
55. The patient's ability to understand and follow the pediatrician's advice.	56. The patient's ability to understand and follow the obstetrician's advice.
57. The patient's ability to understand and follow the gynecologist's advice.	58. The patient's ability to understand and follow the urologist's advice.
59. The patient's ability to understand and follow the endocrinologist's advice.	60. The patient's ability to understand and follow the neurologist's advice.
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95. The patient's ability to understand and follow the plastic surgeon's advice.	96. The patient's ability to understand and follow the general surgeon's advice.
97. The patient's ability to understand and follow the family physician's advice.	98. The patient's ability to understand and follow the internist's advice.
99. The patient's ability to understand and follow the pediatrician's advice.	100. The patient's ability to understand and follow the obstetrician's advice.

Monitored By:	CC
Weather:	Mildly warm and only slightly windy.
Equipment Used:	GFM436

Visible Signs Of Vegetation Stress:	-
Boreholes Sampled For Lab Analysis:	-
Other comments / Observations:	E.O.H. = End of Hole. WS01 and WS02 was absent of groundwater.

APPENDIX E

Analytical Test Report **E26/08656/REF/26-27811**

Clients Project Reference Irwell Works, Bury 26003

Clients Order Number P326003.33

Sample(s) Analysed 5

Sample(s) received / instructed 25/06/2026 / 25/06/2026

Sample(s) Tested 25/06/2026 to 06/07/2026

Report issued 07/07/2026

Report issue number 1

Tested on Behalf of

Robert E Fry

45 Bridgeman Terrace,

Wigan,

WN1 1TT

Signed



James Gane
Analytical Services Manager

Notes:

General

This report shall not be reproduced except in full

Please refer to Methodologies page for details pertaining to the analytical methods undertaken.

Samples were supplied by customer, results apply to the samples as received.

Samples will be retained for 14 days after issue of this report with the exception of the asbestos test portion which is held for 6 months unless otherwise requested.

Where specification limits are included these are for guidance only. Where a measured value has been highlighted this is not implying acceptance or failure and certainty of measurement values have not been taken into account.

Uncertainty of measurement values are available on request.

Moisture Content was determined in accordance with CTS method statement MS - CL - Sample Prep, oven dried at <30°C.

Moisture Content is reported as a percentage of the dry mass of soil, this calculation is in accordance with BS1377, Part 2, 1990, Clause 3.2

Stone Content was determined in accordance with CTS method statement MS - CL - Sample Prep and refers to the percentage of stones retained on a 10mm BS test sieve.

MCERTS Accreditation only covers the SAND, CLAY and LOAM matrices

Please note: Where further analysis is required, samples identified as containing asbestos are screened and tested on an as received basis. No correction is made for moisture content and other than the asbestos test(s) these results are not covered by our accreditation.

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

Deviating Samples

On receipt samples are compared against our sample holding and handling protocols, where any deviations have been noted these are reported on our deviating sample page (if present)

Accreditation Key

U = UKAS Accreditation, M = MCERTS Accreditation, N = Unaccredited, SC = Subcontracted

E26/08656/REF/26-27811

Irwell Works, Bury 26003

Analytical Test Results - ENV Analysis Solids

Lab Reference					817160	817161	817162
Client Sample ID					ES1	ES1	ES1
Client Sample Location					WS01	WS02	WS03
Client Sample Type					ES	ES	ES
Client Sample Number					-	-	-
Depth - Top (m)					0.2	0.5	0.9
Depth - Bottom (m)					0.2	0.5	0.9
Date of Sampling					22/04/2026	22/04/2026	22/04/2026
Time of Sampling					-	-	-
Sample Matrix					Sand	Sand	Clay
Determinant	Code	Units	LOD	Accreditation			
Arsenic	ICPMETS	mg/kg	10	M	20	11	< 10
Boron (Water Soluble)	WSBORONS	mg/kg	2.5	N	< 2.5	< 2.5	< 2.5
Cadmium	ICPMETS	mg/kg	0.2	M	1.8	0.9	1.0
Chromium (Total)	ICPMETS	mg/kg	1	U	69	29	32
Copper	ICPMETS	mg/kg	2	M	340	100	38
Lead	ICPMETS	mg/kg	1.5	M	190	120	120
Mercury	ICPMETS	mg/kg	2.5	U	< 2.5	< 2.5	< 2.5
Nickel	ICPMETS	mg/kg	1	M	120	25	79
Selenium	ICPMETS	mg/kg	8	N	< 8.0	< 8.0	< 8.0
Zinc	ICPMETS	mg/kg	2	M	510	150	150
Total Phenols	SKALARPHS	mg/kg	1	M	< 1.0	< 1.0	< 1.0
Cyanide (Total)	SKALARCNS	mg/kg	1	M	< 1.0	< 1.0	< 1.0
Chromium (Hexavalent)	SKALARHCS	mg/kg	1	N	< 1.0	< 1.0	< 1.0
Acid Soluble Sulphate	ASSO4S	%	0.01	N	0.28	0.25	0.03
pH	PHS	pH units	1	M	9.9	8.7	7.8
Water Soluble Sulphate (as SO4)	ANIONSS	mg/L	10	N	490	160	12
TOC	TOCS	%	0.5	M	5.8	2.6	6.6
Asbestos	ASB	p/a	-	U	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Acenaphthene	PAHASRDS	mg/kg	0.02	M	0.44	< 0.20	0.37
Acenaphthylene	PAHASRDS	mg/kg	0.02	U	< 0.20	< 0.20	< 0.20
Anthracene	PAHASRDS	mg/kg	0.02	U	0.94	< 0.20	0.50
Benzo[a]anthracene	PAHASRDS	mg/kg	0.02	M	2.2	0.35	1.9
Benzo[a]pyrene	PAHASRDS	mg/kg	0.02	M	3.3	0.45	1.6
Benzo[b]fluoranthene	PAHASRDS	mg/kg	0.02	M	3.0	0.40	1.5
Benzo[ghi]perylene	PAHASRDS	mg/kg	0.02	M	2.1	0.34	1.0
Benzo[k]fluoranthene	PAHASRDS	mg/kg	0.02	M	1.3	< 0.20	0.69
Chrysene	PAHASRDS	mg/kg	0.02	M	2.0	0.32	2.4
Dibenzo[a,h]anthracene	PAHASRDS	mg/kg	0.02	M	0.51	< 0.20	0.31
Fluoranthene	PAHASRDS	mg/kg	0.02	M	4.3	0.67	2.9
Fluorene	PAHASRDS	mg/kg	0.02	M	0.30	< 0.20	0.96
Indeno[1,2,3-cd]pyrene	PAHASRDS	mg/kg	0.02	M	2.2	0.33	0.94
Naphthalene	PAHASRDS	mg/kg	0.02	M	0.45	< 0.20	0.85
Phenanthrene	PAHASRDS	mg/kg	0.02	M	2.6	0.44	5.0
Pyrene	PAHASRDS	mg/kg	0.02	M	4.6	0.71	3.7
Total PAH (Sum of USEPA 16)	PAHASRDS	mg/kg	0.32	U	30	5.6	25

E26/08656/REF/26-27811

Irwell Works, Bury 26003

Analytical Test Results - ENV Analysis Solids

Lab Reference					817163	817164
Client Sample ID					ES1	ES1
Client Sample Location					WS04	WS05
Client Sample Type					ES	ES
Client Sample Number					-	-
Depth - Top (m)					0.7	0.6
Depth - Bottom (m)					0.7	0.6
Date of Sampling					22/04/2026	22/04/2026
Time of Sampling					-	-
Sample Matrix					Sand	Clay
Determinant	Code	Units	LOD	Accreditation		
Arsenic	ICPMETS	mg/kg	10	M	33	39
Boron (Water Soluble)	WSBORONS	mg/kg	2.5	N	< 2.5	< 2.5
Cadmium	ICPMETS	mg/kg	0.2	M	2.9	2.1
Chromium (Total)	ICPMETS	mg/kg	1	U	34	25
Copper	ICPMETS	mg/kg	2	M	720	330
Lead	ICPMETS	mg/kg	1.5	M	160	140
Mercury	ICPMETS	mg/kg	2.5	U	< 2.5	< 2.5
Nickel	ICPMETS	mg/kg	1	M	96	53
Selenium	ICPMETS	mg/kg	8	N	< 8.0	< 8.0
Zinc	ICPMETS	mg/kg	2	M	490	180
Total Phenols	SKALARPHS	mg/kg	1	M	< 1.0	< 1.0
Cyanide (Total)	SKALARCNS	mg/kg	1	M	< 1.0	< 1.0
Chromium (Hexavalent)	SKALARHCS	mg/kg	1	N	< 1.0	< 1.0
Acid Soluble Sulphate	ASSO4S	%	0.01	N	0.16	0.05
pH	PHS	pH units	1	M	7.5	7.4
Water Soluble Sulphate (as SO4)	ANIONSS	mg/L	10	N	220	46
TOC	TOCS	%	0.5	M	17	6.5
Asbestos	ASB	p/a	-	U	No Asbestos Detected	No Asbestos Detected
Acenaphthene	PAHASRDS	mg/kg	0.02	M	< 0.20	5.3
Acenaphthylene	PAHASRDS	mg/kg	0.02	U	< 0.20	< 0.20
Anthracene	PAHASRDS	mg/kg	0.02	U	0.23	6.6
Benzo[a]anthracene	PAHASRDS	mg/kg	0.02	M	0.60	13
Benzo[a]pyrene	PAHASRDS	mg/kg	0.02	M	0.51	11
Benzo[b]fluoranthene	PAHASRDS	mg/kg	0.02	M	0.52	11
Benzo[ghi]perylene	PAHASRDS	mg/kg	0.02	M	0.38	5.9
Benzo[k]fluoranthene	PAHASRDS	mg/kg	0.02	M	< 0.20	5.5
Chrysene	PAHASRDS	mg/kg	0.02	M	0.53	11
Dibenzo[a,h]anthracene	PAHASRDS	mg/kg	0.02	M	< 0.20	1.5
Fluoranthene	PAHASRDS	mg/kg	0.02	M	1.5	38
Fluorene	PAHASRDS	mg/kg	0.02	M	< 0.20	3.6
Indeno[1,2,3-cd]pyrene	PAHASRDS	mg/kg	0.02	M	0.33	6.8
Naphthalene	PAHASRDS	mg/kg	0.02	M	< 0.20	1.7
Phenanthrene	PAHASRDS	mg/kg	0.02	M	1.4	33
Pyrene	PAHASRDS	mg/kg	0.02	M	1.2	31
Total PAH (Sum of USEPA 16)	PAHASRDS	mg/kg	0.32	U	8.5	190

Date of issue: 08.06.2026

Issued by: J.Gane

Issue No: 1

Rev No: 2

E26/08656/REF/26-27811

Irwell Works, Bury 26003

Analytical Test Results - EPHVPHS

Lab Reference					817160	817161	817162
Client Sample ID					ES1	ES1	ES1
Client Sample Location					WS01	WS02	WS03
Client Sample Type					ES	ES	ES
Client Sample Number					-	-	-
Depth - Top (m)					0.2	0.5	0.9
Depth - Bottom (m)					0.2	0.5	0.9
Date of Sampling					22/04/2026	22/04/2026	22/04/2026
Time of Sampling					-	-	-
Sample Matrix					Sand	Sand	Clay
Determinant	Code	Units	LOD	Accreditation			
Benzene	VPHS	mg/kg	0.01	M	0.03	< 0.01	< 0.01
Toluene	VPHS	mg/kg	0.01	M	0.05	< 0.01	0.01
Ethylbenzene	VPHS	mg/kg	0.01	M	< 0.01	< 0.01	0.03
m&p Xylene	VPHS	mg/kg	0.02	M	0.03	< 0.02	0.17
o-Xylene	VPHS	mg/kg	0.01	M	< 0.01	< 0.01	0.13
Methyl tert-butyl ether (MTBE)	VPHS	mg/kg	0.01	M	< 0.01	< 0.01	< 0.01
Aliphatic >C5 to C6 [5]	VPHS	mg/kg	0.06	M	< 0.06	< 0.06	< 0.06
Aliphatic >C6 to C8 [5]	VPHS	mg/kg	0.06	M	< 0.06	< 0.06	0.31
Aliphatic >C8 to C10 [5]	VPHS	mg/kg	0.06	M	< 0.06	< 0.06	2.6
Aliphatic >C10-C12 [13]	GCXGCS	mg/kg	1	M	< 10.0	1.6	150
Aliphatic >C12-C16 [13]	GCXGCS	mg/kg	1	M	23	6.2	420
Aliphatic >C16-C21 [13]	GCXGCS	mg/kg	1	M	65	21	1400
Aliphatic >C21-C35 [13]	GCXGCS	mg/kg	2	M	360	55	5600
Aliphatic >C35-C44 [13]	GCXGCS	mg/kg	5	N	100	7.9	890
Aromatic >C5 to C7 [6]	VPHS	mg/kg	0.01	M	0.03	< 0.01	< 0.01
Aromatic >C7 to C8 [6]	VPHS	mg/kg	0.01	M	0.05	< 0.01	0.01
Aromatic >C8 to C10 [6]	VPHS	mg/kg	0.06	M	0.12	< 0.06	1.8
Aromatic >C10-C12 [14]	GCXGCS	mg/kg	1	M	< 10.0	< 1.0	13
Aromatic >C12-C16 [14]	GCXGCS	mg/kg	1	M	< 10.0	2.5	120
Aromatic >C16-C21 [14]	GCXGCS	mg/kg	1	M	72	16	720
Aromatic >C21-C35 [14]	GCXGCS	mg/kg	2	M	1000	100	4200
Aromatic >C35-C44 [14]	GCXGCS	mg/kg	5	N	370	33	1000
Total >C5-C35 (Ali/Aro) [10]	CWGS	mg/kg	10	M	1500	200	13000
Total >C5-C40 (Ali/Aro) [10]	CWGS	mg/kg	10	M	1900	240	14000

E26/08656/REF/26-27811

Irwell Works, Bury 26003

Analytical Test Results - EPHVPHS

Lab Reference					817163	817164
Client Sample ID					ES1	ES1
Client Sample Location					WS04	WS05
Client Sample Type					ES	ES
Client Sample Number					-	-
Depth - Top (m)					0.7	0.6
Depth - Bottom (m)					0.7	0.6
Date of Sampling					22/04/2026	22/04/2026
Time of Sampling					-	-
Sample Matrix					Sand	Clay
Determinant	Code	Units	LOD	Accreditation		
Benzene	VPHS	mg/kg	0.01	M	< 0.01	0.03
Toluene	VPHS	mg/kg	0.01	M	0.02	0.01
Ethylbenzene	VPHS	mg/kg	0.01	M	< 0.01	< 0.01
m&p Xylene	VPHS	mg/kg	0.02	M	0.03	< 0.02
o-Xylene	VPHS	mg/kg	0.01	M	< 0.01	< 0.01
Methyl tert-butyl ether (MTBE)	VPHS	mg/kg	0.01	M	< 0.01	< 0.01
Aliphatic >C5 to C6 [5]	VPHS	mg/kg	0.06	M	< 0.06	< 0.06
Aliphatic >C6 to C8 [5]	VPHS	mg/kg	0.06	M	0.07	< 0.06
Aliphatic >C8 to C10 [5]	VPHS	mg/kg	0.06	M	< 0.06	< 0.06
Aliphatic >C10-C12 [13]	GCXGCS	mg/kg	1	M	2.8	2.6
Aliphatic >C12-C16 [13]	GCXGCS	mg/kg	1	M	4.6	5.4
Aliphatic >C16-C21 [13]	GCXGCS	mg/kg	1	M	3.5	7.1
Aliphatic >C21-C35 [13]	GCXGCS	mg/kg	2	M	6.1	13
Aliphatic >C35-C44 [13]	GCXGCS	mg/kg	5	N	< 5.0	< 5.0
Aromatic >C5 to C7 [6]	VPHS	mg/kg	0.01	M	< 0.01	0.03
Aromatic >C7 to C8 [6]	VPHS	mg/kg	0.01	M	0.02	0.01
Aromatic >C8 to C10 [6]	VPHS	mg/kg	0.06	M	0.11	0.13
Aromatic >C10-C12 [14]	GCXGCS	mg/kg	1	M	< 1.0	< 1.0
Aromatic >C12-C16 [14]	GCXGCS	mg/kg	1	M	2.8	16
Aromatic >C16-C21 [14]	GCXGCS	mg/kg	1	M	14	150
Aromatic >C21-C35 [14]	GCXGCS	mg/kg	2	M	15	120
Aromatic >C35-C44 [14]	GCXGCS	mg/kg	5	N	< 5.0	< 5.0
Total >C5-C35 (Ali/Aro) [10]	CWGS	mg/kg	10	M	49	310
Total >C5-C40 (Ali/Aro) [10]	CWGS	mg/kg	10	M	49	320

E26/08656/REF/26-27811

Irwell Works, Bury 26003

Analytical Test Results - VOCS

Lab Reference					817160	817162
Client Sample ID					ES1	ES1
Client Sample Location					WS01	WS03
Client Sample Type					ES	ES
Client Sample Number					-	-
Depth - Top (m)					0.2	0.9
Depth - Bottom (m)					0.2	0.9
Date of Sampling					22/04/2026	22/04/2026
Time of Sampling					-	-
Sample Matrix					Sand	Clay
Determinant	Code	Units	LOD	Accreditation		
Benzene	VOCS	mg/kg	0.01	M	< 0.01	< 0.01
Toluene	VOCS	mg/kg	0.01	M	< 0.01	< 0.01
Ethylbenzene	VOCS	mg/kg	0.01	M	< 0.01	0.08
m&p Xylene	VOCS	mg/kg	0.02	M	< 0.02	0.22
o-Xylene	VOCS	mg/kg	0.01	M	< 0.01	0.15
Dichlorodifluoromethane	VOCS	mg/kg	0.05	U	< 0.05	< 0.05
Chloromethane	VOCS	mg/kg	0.02	U	< 0.02	< 0.02
Vinyl Chloride	VOCS	mg/kg	0.02	M	< 0.02	< 0.02
Bromomethane	VOCS	mg/kg	0.05	N	< 0.05	< 0.05
Chloroethane	VOCS	mg/kg	0.01	M	< 0.01	< 0.01
Trichlorofluoromethane	VOCS	mg/kg	0.01	M	< 0.01	< 0.01
1,1-Dichloroethene	VOCS	mg/kg	0.01	M	< 0.01	< 0.01
Dichloromethane	VOCS	mg/kg	0.1	N	0.19	0.17
Methyl tert-butyl ether (MTBE)	VOCS	mg/kg	0.01	M	< 0.01	< 0.01
trans-1,2,-Dichloroethene	VOCS	mg/kg	0.01	M	< 0.01	< 0.01
1,1-Dichloroethane	VOCS	mg/kg	0.01	M	< 0.01	< 0.01
2,2-Dichloropropane	VOCS	mg/kg	0.01	M	< 0.01	< 0.01
cis-1,2,-Dichloroethene	VOCS	mg/kg	0.01	M	< 0.01	< 0.01
Bromochloromethane	VOCS	mg/kg	0.05	M	< 0.05	< 0.05
Trichloromethane (Chloroform)	VOCS	mg/kg	0.01	M	< 0.01	< 0.01
1,1,1-Trichloroethane	VOCS	mg/kg	0.01	M	< 0.01	< 0.01
1,1-Dichloropropene	VOCS	mg/kg	0.01	M	< 0.01	< 0.01
Tetrachloromethane(Carbon Tetrachloride)	VOCS	mg/kg	0.01	M	< 0.01	< 0.01
1,2-Dichloroethane	VOCS	mg/kg	0.02	M	< 0.02	< 0.02
Trichloroethene	VOCS	mg/kg	0.01	M	< 0.01	< 0.01
1,2-Dichloropropane	VOCS	mg/kg	0.01	M	< 0.01	< 0.01
Dibromomethane	VOCS	mg/kg	0.02	M	< 0.02	< 0.02
Bromodichloromethane	VOCS	mg/kg	0.01	M	< 0.01	< 0.01
cis-1,2-Dichloropropene	VOCS	mg/kg	0.01	M	< 0.01	< 0.01
trans-1,3-Dichloropropene	VOCS	mg/kg	0.01	M	< 0.01	< 0.01
1,1,2-Trichloroethane	VOCS	mg/kg	0.01	M	< 0.01	< 0.01
1,3-Dichloropropane	VOCS	mg/kg	0.01	M	< 0.01	< 0.01
Tetrachloroethene	VOCS	mg/kg	0.01	M	< 0.01	< 0.01
Chlorodibromomethane	VOCS	mg/kg	0.01	M	< 0.01	< 0.01
1,2-Dibromoethane	VOCS	mg/kg	0.01	M	< 0.01	< 0.01

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Rev No: 2

E26/08656/REF/26-27811

Irwell Works, Bury 26003

Analytical Test Results - VOCS

Lab Reference					817160	817162
Client Sample ID					ES1	ES1
Client Sample Location					WS01	WS03
Client Sample Type					ES	ES
Client Sample Number					-	-
Depth - Top (m)					0.2	0.9
Depth - Bottom (m)					0.2	0.9
Date of Sampling					22/04/2026	22/04/2026
Time of Sampling					-	-
Sample Matrix					Sand	Clay
Determinant	Code	Units	LOD	Accreditation		
Chlorobenzene	VOCS	mg/kg	0.01	M	< 0.01	< 0.01
1,1,1,2-tetrachloroethane	VOCS	mg/kg	0.01	M	< 0.01	< 0.01
Ethenylbenzene (Styrene)	VOCS	mg/kg	0.01	U	< 0.01	< 0.01
Isopropylbenzene	VOCS	mg/kg	0.01	M	< 0.01	0.12
Tri bromomethane (Bromoform)	VOCS	mg/kg	0.05	M	< 0.05	< 0.05
1,1,2,2-Tetrachloroethane	VOCS	mg/kg	0.01	M	< 0.01	< 0.01
1,2,3-Trichloropropane	VOCS	mg/kg	0.02	M	< 0.02	< 0.02
n-Propylbenzene	VOCS	mg/kg	0.01	M	< 0.01	< 0.01
Bromobenzene	VOCS	mg/kg	0.01	M	< 0.01	< 0.01
1,3,5-Trimethylbenzene	VOCS	mg/kg	0.01	U	< 0.01	0.11
2-Chlorotoluene	VOCS	mg/kg	0.01	M	< 0.01	< 0.01
4-Chlorotoluene	VOCS	mg/kg	0.01	M	< 0.01	< 0.01
tert-Butylbenzene	VOCS	mg/kg	0.01	U	< 0.01	< 0.01
1,2,4-Trimethylbenzene	VOCS	mg/kg	0.01	U	< 0.01	0.34
sec-Butylbenzene	VOCS	mg/kg	0.01	U	< 0.01	0.03
4-Isopropyltoluene (p-Cymene)	VOCS	mg/kg	0.01	U	< 0.01	0.03
1,3-Dichlorobenzene	VOCS	mg/kg	0.01	N	< 0.01	< 0.01
1,4-Dichlorobenzene	VOCS	mg/kg	0.01	N	< 0.01	< 0.01
n-Butylbenzene	VOCS	mg/kg	0.01	U	< 0.01	0.04
1,2-Dichlorobenzene	VOCS	mg/kg	0.01	M	< 0.01	< 0.01
1,2-Dibromo-3-chloropropane	VOCS	mg/kg	0.05	N	< 0.05	< 0.05
1,2,4-Trichlorobenzene	VOCS	mg/kg	0.05	N	< 0.05	< 0.05
Hexachlorobutadiene	VOCS	mg/kg	0.05	N	< 0.05	< 0.05
Naphthalene	VOCS	mg/kg	0.05	N	0.13	0.38
1,2,3-Trichlorobenzene	VOCS	mg/kg	0.05	N	< 0.05	< 0.05

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Irwell Works, Bury 26003

Analytical Test Results - SVOCS

Lab Reference					817160	817162
Client Sample ID					ES1	ES1
Client Sample Location					WS01	WS03
Client Sample Type					ES	ES
Client Sample Number					-	-
Depth - Top (m)					0.2	0.9
Depth - Bottom (m)					0.2	0.9
Date of Sampling					22/04/2026	22/04/2026
Time of Sampling					-	-
Sample Matrix					Sand	Clay
Determinant	Code	Units	LOD	Accreditation		
1,2,4-Trichlorobenzene	SVOCS	mg/kg	0.2	N	< 2.0	< 2.0
1,2-Dichlorobenzene	SVOCS	mg/kg	0.1	N	< 1.0	< 1.0
1,3-Dichlorobenzene	SVOCS	mg/kg	0.1	N	< 1.0	< 1.0
1,4-Dichlorobenzene	SVOCS	mg/kg	0.2	N	< 2.0	< 2.0
1-Chloronaphthalene	SVOCS	mg/kg	0.1	N	< 1.0	< 1.0
2,3,4,6-Tetrachlorophenol	SVOCS	mg/kg	0.6	N	< 6.0	< 6.0
2,4,5-Trichlorophenol	SVOCS	mg/kg	0.2	N	< 2.0	< 2.0
2,4,6-Trichlorophenol	SVOCS	mg/kg	0.3	N	< 3.0	< 3.0
2,4-Dichlorophenol	SVOCS	mg/kg	0.2	N	< 2.0	< 2.0
2,4-Dimethylphenol	SVOCS	mg/kg	0.2	N	< 2.0	< 2.0
2,4-Dinitrophenol	SVOCS	mg/kg	2	N	< 20.0	< 20.0
2,6-Dichlorophenol	SVOCS	mg/kg	0.3	N	< 3.0	< 3.0
2,6-Dinitrotoluene	SVOCS	mg/kg	0.6	N	< 6.0	< 6.0
2-Chlorophenol	SVOCS	mg/kg	0.2	N	< 2.0	< 2.0
2-Methylnaphthalene	SVOCS	mg/kg	0.2	N	< 2.0	2.2
2-Methylphenol	SVOCS	mg/kg	0.2	N	< 2.0	< 2.0
2-Nitroaniline	SVOCS	mg/kg	0.4	N	< 4.0	< 4.0
2-Nitrophenol	SVOCS	mg/kg	0.6	N	< 6.0	< 6.0
3,3-Dichlorobenzidine	SVOCS	mg/kg	0.3	N	< 3.0	< 3.0
3/4-Methylphenol	SVOCS	mg/kg	0.2	N	< 2.0	< 2.0
3-Nitroaniline	SVOCS	mg/kg	0.6	N	< 6.0	< 6.0
4-Chlorophenyl phenyl ether	SVOCS	mg/kg	0.2	N	< 2.0	< 2.0
4,6-Dinitro-2-methylphenol	SVOCS	mg/kg	1	N	< 10.0	< 10.0
4-Bromophenyl phenyl ether	SVOCS	mg/kg	0.2	N	< 2.0	< 2.0
4-Chloro-3-methylphenol	SVOCS	mg/kg	0.2	N	< 2.0	< 2.0
4-Chloroaniline	SVOCS	mg/kg	0.2	N	< 2.0	< 2.0
4-Nitroaniline	SVOCS	mg/kg	0.3	N	< 3.0	< 3.0
4-Nitrophenol	SVOCS	mg/kg	0.6	N	< 6.0	< 6.0
Acenaphthene	SVOCS	mg/kg	0.1	N	< 1.0	< 1.0
Acenaphthylene	SVOCS	mg/kg	0.1	N	< 1.0	< 1.0
Aniline	SVOCS	mg/kg	0.2	N	< 2.0	< 2.0
Anthracene	SVOCS	mg/kg	0.1	N	< 1.0	< 1.0
Azobenzene	SVOCS	mg/kg	0.2	N	< 2.0	< 2.0
Benz[a]anthracene	SVOCS	mg/kg	0.1	N	2.0	< 1.0
Benzidine	SVOCS	mg/kg	1	N	< 10.0	< 10.0

E26/08656/REF/26-27811

Irwell Works, Bury 26003

Analytical Test Results - SVOCS

Lab Reference					817160	817162
Client Sample ID					ES1	ES1
Client Sample Location					WS01	WS03
Client Sample Type					ES	ES
Client Sample Number					-	-
Depth - Top (m)					0.2	0.9
Depth - Bottom (m)					0.2	0.9
Date of Sampling					22/04/2026	22/04/2026
Time of Sampling					-	-
Sample Matrix					Sand	Clay
Determinant	Code	Units	LOD	Accreditation		
Benzo[ghi]perylene	SVOCS	mg/kg	0.1	N	1.7	< 1.0
Benzo[a]pyrene	SVOCS	mg/kg	0.2	N	4.1	< 2.0
Benzo[b]fluoranthene	SVOCS	mg/kg	0.1	N	3.6	1.2
Benzo[k]fluoranthene	SVOCS	mg/kg	0.1	N	1.3	< 1.0
Benzyl Alcohol	SVOCS	mg/kg	0.3	N	< 3.0	< 3.0
Benzyl butyl phthalate	SVOCS	mg/kg	0.2	N	< 2.0	< 2.0
Bis(2-chloroethoxy)methane	SVOCS	mg/kg	0.1	N	< 2.0	< 2.0
Bis(2-chloroethyl)ether	SVOCS	mg/kg	0.2	N	< 2.0	< 2.0
Bis(2-chloroisopropyl)ether	SVOCS	mg/kg	0.2	N	< 2.0	< 2.0
Bis(2-ethylhexyl) phthalate	SVOCS	mg/kg	0.2	N	< 2.0	< 2.0
Chrysene	SVOCS	mg/kg	0.1	N	1.6	1.3
Dibenzo[ah]anthracene	SVOCS	mg/kg	0.2	N	< 2.0	< 2.0
Dibenzofuran	SVOCS	mg/kg	0.1	N	< 1.0	< 1.0
Dibutyl phthalate	SVOCS	mg/kg	0.1	N	< 1.0	< 1.0
Diethyl Phthalate	SVOCS	mg/kg	0.2	N	< 2.0	< 2.0
Dimethyl phthalate	SVOCS	mg/kg	0.2	N	< 2.0	< 2.0
Di-n-octyl phthalate	SVOCS	mg/kg	0.2	N	< 2.0	< 2.0
Diphenylamine	SVOCS	mg/kg	0.1	N	< 1.0	< 1.0
Fluoranthene	SVOCS	mg/kg	0.1	N	4.2	1.7
Fluorene	SVOCS	mg/kg	0.1	N	< 1.0	< 1.0
Hexachlorobenzene	SVOCS	mg/kg	0.3	N	< 3.0	< 3.0
Hexachlorobutadiene	SVOCS	mg/kg	0.3	N	< 3.0	< 3.0
Hexachlorocyclopentadiene	SVOCS	mg/kg	1	N	< 10.0	< 10.0
Hexachloroethane,	SVOCS	mg/kg	0.2	N	< 2.0	< 2.0
Indeno[1,2,3-cd]pyrene	SVOCS	mg/kg	0.2	N	2.3	< 2.0
Isophorone	SVOCS	mg/kg	0.2	N	< 2.0	< 2.0
Methyl methanesulfonate	SVOCS	mg/kg	0.3	N	< 3.0	< 3.0
Naphthalene	SVOCS	mg/kg	0.1	N	< 1.0	< 1.0
Nitrobenzene	SVOCS	mg/kg	0.3	N	< 3.0	< 3.0
N-Nitrosodimethylamine	SVOCS	mg/kg	0.2	N	< 2.0	< 2.0
Pentachlorophenol	SVOCS	mg/kg	1	N	< 10.0	< 10.0
Phenanthrene	SVOCS	mg/kg	0.1	N	2.8	3.1
Phenol	SVOCS	mg/kg	0.1	N	< 1.0	< 1.0
Pyrene	SVOCS	mg/kg	0.1	N	3.7	1.9

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Sample Descriptions

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Description	Moisture Content (%)	Stone Content (%)	Passing 2mm test sieve (%)
817160	ES1	WS01	SOIL	-	Made Ground- dark brown clayey gravelly silty sand with occasional brick fragments hydrocarbons	7.8	21	47
817161	ES1	WS02	SOIL	-	Made Ground- brown clayey gravelly silty sand with frequent brick fragments concrete	14	28	100
817162	ES1	WS03	SOIL	-	Made Ground- dark brown sandy gravelly silty clay with occasional brick fragments hydrocarbon odour	U/S	U/S	U/S
817163	ES1	WS04	SOIL	-	Made Ground- dark brown gravelly silty sand with frequent slag hydrocarbons	13	< 0.1	100
817164	ES1	WS05	SOIL	-	Dark brown slightly gravelly slightly sandy silty clay with rare hydrocarbons	15	18	100

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Irwell Works, Bury 26003

Sample Comments

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Comments
817160	ES1	WS01	SOIL	-	VPH/BTEX - Sample taken from container with headspace. VOC - Sample taken from container with headspace. SVOC - 1/10 dark colour extract
817161	ES1	WS02	SOIL	-	VPH/BTEX - Sample taken from container with headspace. PAHAR - 1/10 dilution.
817162	ES1	WS03	SOIL	-	VPH/BTEX - Sample taken from container with headspace. PAHAR - 1/10 dilution. VOC - Sample taken from container with headspace. SVOC - 1/10 dark colour extract
817163	ES1	WS04	SOIL	-	VPH/BTEX - Sample taken from container with headspace.
817164	ES1	WS05	SOIL	-	VPH/BTEX - Sample taken from container with headspace.

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Irwell Works, Bury 26003

Analysis Methodologies - Please refer to sample comments page (if present) for any changes to methods Methods

Site addresses where testing is performed: Leicester - 7-11 Harding Street, Leicester, LE1 4DH

Poole - Unit D11, Admiralty Park, Station Road, Holton Heath, Poole, BH16 6HX & Unit 14B, Blackhill Road West, Holton Heath Trading Park, Poole, Dorset, BH16 6LE

Test Code	Test Name / Reference	Sample condition for analysis	Sample Preparation	Test Site	Test Details
ANIONSS	MS - CL - Anions by Aquakem (2:1Extract)	Oven dried	Passing 2mm test sieve	Leicester	Determination of Anions (inc Sulphate, chloride etc.) in soils by Aquakem. Analysis is based on a 2:1 water to soil extraction ratio
ASB	MS - AS - Asbestos	-	-	Leicester	Fibre identification is in accordance with in house documented methods which are based on the procedure documented in the HSE Document HSG 248 "Asbestos: The analysts guide for sampling, analysis and clearance procedures"
ASSO4S	MS - CL - Acid Soluble Sulphate	Oven Dried	Passing 2mm test sieve	Leicester	Determination of total sulphate in soils by acid extraction followed by ICP analysis
CWGS	Calculation from VPH-S and EPH-S	As received	Passing 10mm test sieve	Leicester	Determination of TPH CWG (Volatile Petroleum Hydrocarbons and Extractable Petroleum Hydrocarbons) in soils via Headspace-GC-MS and GC-GC-FID respectively
GXCXCS	MS - CL - TPH & EPH by GCXGC	As received	Passing 10mm test sieve	Leicester	Determination of TPH and EPH in soils via GCxGC-FID
ICPMETS	MS - CL - ICP Metals	Air dried	Passing 10mm test sieve	Leicester	Determination of metals in soils via ICP
PAHASRDS	MS - CL - PAH (As Received)	As received	Passing 10mm test sieve	Leicester	Determination of Polyaromatic hydrocarbons in soil via GC-MS
PHS	MS - CL - pH in Soils	As received	Passing 10mm test sieve	Leicester	Determination of pH in soils using a pH probe (using a 1:3 soil to water extraction)
SAMPLEPREP	MS - CL - Sample Preparation	-	-	Leicester	Preparation of samples (including determination of moisture content) to allow for subsequent analysis
SKALARCNS	MS - CL - Cyanide by Skalar	As received	Passing 10mm test sieve	Leicester	Determination of cyanide (total / free / complex) in soil using a Skalar segmented flow analyser
SKALARHCS	MS - CL - Hexavalent Chromium by Skalar	As received	Passing 10mm test sieve	Leicester	Determination of hexavalent chromium in soil using Skalar segmented flow analyser
SKALARPHS	MS - CL - Phenols by Skalar	As received	Passing 10mm test sieve	Leicester	Determination of total phenols in soil using Skalar segmented flow analyser
SVOCS	MS - CL - Semi VOC	As received	Passing 10mm test sieve	Leicester	Determination of Semi volatile organic compounds in soil via GC-MS
TOCS	MS - CL - TOC Eltra	Air Dried	Passing 10mm test sieve	Leicester	Determination of Total Organic Carbon in soils
VOCS	MS - CL - VOC and MBTEX	As received	Passing 10mm test sieve	Leicester	Determination of VOCs (inc BTEX) in soils via Headspace-GC-MS
VPHS	MS - CL - VPH	As received	Passing 10mm test sieve	Leicester	Determination of VPH in soils via Headspace-GC-MS

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Irwell Works, Bury 26003

Analysis Methodologies - Please refer to sample comments page (if present) for any changes to methods Methods

Site addresses where testing is performed: Leicester - 7-11 Harding Street, Leicester, LE1 4DH
 Poole - Unit D11, Admiralty Park, Station Road, Holton Heath, Poole, BH16 6HX & Unit 14B, Blackhill Road West, Holton Heath Trading Park, Poole, Dorset, BH16 6LE

Test Code	Test Name / Reference	Sample condition for analysis	Sample Preparation	Test Site	Test Details
WSBORONS	MS - CL - WS Boron	Air dried	Passing 10mm test sieve	Leicester	Determination of Water soluble Boron in soils via ICP

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Irwell Works, Bury 26003

Sample Deviations

Deviations are listed below against each sample and associated test method, where deviation(s) are noted it means data may not be representative of the sample at the time of sampling and it is possible that results provided may be compromised.

Observations on receipt

A - No date of sampling provided

W - No time of sampling provided

C - Received in inappropriate container

H - Contains headspace

T - Temperature on receipt exceeds storage temperature

R - Sample(s) received outside standard identified timescales for testing to commence/complete, any result formally classed as deviating will be marked with an X against the applicable test (i.e. RX)

Observations whilst in laboratory

X - Exceeds sampling to extraction or analysis timescales

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Test	Deviations
817160	ES1	WS01			MS - CL - ICP Metals	RX
817160	ES1	WS01			MS - CL - Phenols by Skalar	RX
817160	ES1	WS01			MS - CL - Cyanide by Skalar	RX
817160	ES1	WS01			MS - CL - Hexavalent Chromium by Skalar	RX
817160	ES1	WS01			MS - CL - pH in Soils	RX
817160	ES1	WS01			MS - CL - Anions by Aquakem (2:1Extract)	RX
817160	ES1	WS01			MS - CL - TOC Eltra	RX
817160	ES1	WS01			MS - CL - PAH (As Received)	RX
817160	ES1	WS01			MS - CL - VPH	RX
817160	ES1	WS01			MS - CL - TPH & EPH by GCXGC	RX
817160	ES1	WS01			MS - CL - VOC and MBTEX	RX
817160	ES1	WS01			MS - CL - Semi VOC	RX
817161	ES1	WS02			MS - CL - ICP Metals	RX
817161	ES1	WS02			MS - CL - Phenols by Skalar	RX
817161	ES1	WS02			MS - CL - Cyanide by Skalar	RX
817161	ES1	WS02			MS - CL - Hexavalent Chromium by Skalar	RX
817161	ES1	WS02			MS - CL - pH in Soils	RX
817161	ES1	WS02			MS - CL - Anions by Aquakem (2:1Extract)	RX
817161	ES1	WS02			MS - CL - TOC Eltra	RX
817161	ES1	WS02			MS - CL - PAH (As Received)	RX
817161	ES1	WS02			MS - CL - VPH	RX
817161	ES1	WS02			MS - CL - TPH & EPH by GCXGC	RX
817162	ES1	WS03			MS - CL - ICP Metals	RX
817162	ES1	WS03			MS - CL - Phenols by Skalar	RX
817162	ES1	WS03			MS - CL - Cyanide by Skalar	RX

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Irwell Works, Bury 26003

Sample Deviations

Deviations are listed below against each sample and associated test method, where deviation(s) are noted it means data may not be representative of the sample at the time of sampling and it is possible that results provided may be compromised.

Observations on receipt

A - No date of sampling provided

W - No time of sampling provided

C - Received in inappropriate container

H - Contains headspace

T - Temperature on receipt exceeds storage temperature

R - Sample(s) received outside standard identified timescales for testing to commence/complete, any result formally classed as deviating will be marked with an X against the applicable test (i.e. RX)

Observations whilst in laboratory

X - Exceeds sampling to extraction or analysis timescales

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Test	Deviations
817162	ES1	WS03			MS - CL - Hexavalent Chromium by Skalar	RX
817162	ES1	WS03			MS - CL - pH in Soils	RX
817162	ES1	WS03			MS - CL - Anions by Aquakem (2:1Extract)	RX
817162	ES1	WS03			MS - CL - TOC Eltra	RX
817162	ES1	WS03			MS - CL - PAH (As Received)	RX
817162	ES1	WS03			MS - CL - VPH	RX
817162	ES1	WS03			MS - CL - TPH & EPH by GCXGC	RX
817162	ES1	WS03			MS - CL - VOC and MBTEX	RX
817162	ES1	WS03			MS - CL - Semi VOC	RX
817163	ES1	WS04			MS - CL - ICP Metals	RX
817163	ES1	WS04			MS - CL - Phenols by Skalar	RX
817163	ES1	WS04			MS - CL - Cyanide by Skalar	RX
817163	ES1	WS04			MS - CL - Hexavalent Chromium by Skalar	RX
817163	ES1	WS04			MS - CL - pH in Soils	RX
817163	ES1	WS04			MS - CL - Anions by Aquakem (2:1Extract)	RX
817163	ES1	WS04			MS - CL - TOC Eltra	RX
817163	ES1	WS04			MS - CL - PAH (As Received)	RX
817163	ES1	WS04			MS - CL - VPH	RX
817163	ES1	WS04			MS - CL - TPH & EPH by GCXGC	RX
817164	ES1	WS05			MS - CL - ICP Metals	RX
817164	ES1	WS05			MS - CL - Phenols by Skalar	RX
817164	ES1	WS05			MS - CL - Cyanide by Skalar	RX
817164	ES1	WS05			MS - CL - Hexavalent Chromium by Skalar	RX
817164	ES1	WS05			MS - CL - pH in Soils	RX
817164	ES1	WS05			MS - CL - Anions by Aquakem (2:1Extract)	RX

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Irwell Works, Bury 26003

Sample Deviations

Deviations are listed below against each sample and associated test method, where deviation(s) are noted it means data may not be representative of the sample at the time of sampling and it is possible that results provided may be compromised.

Observations on receipt

A - No date of sampling provided

W - No time of sampling provided

C - Received in inappropriate container

H - Contains headspace

T - Temperature on receipt exceeds storage temperature

R - Sample(s) received outside standard identified timescales for testing to commence/complete, any result formally classed as deviating will be marked with an X against the applicable test (i.e. RX)

Observations whilst in laboratory

X - Exceeds sampling to extraction or analysis timescales

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Test	Deviations
817164	ES1	WS05			MS - CL - TOC Eltra	RX
817164	ES1	WS05			MS - CL - PAH (As Received)	RX
817164	ES1	WS05			MS - CL - VPH	RX
817164	ES1	WS05			MS - CL - TPH & EPH by GCXGC	RX

E26/08656/REF/26-27811

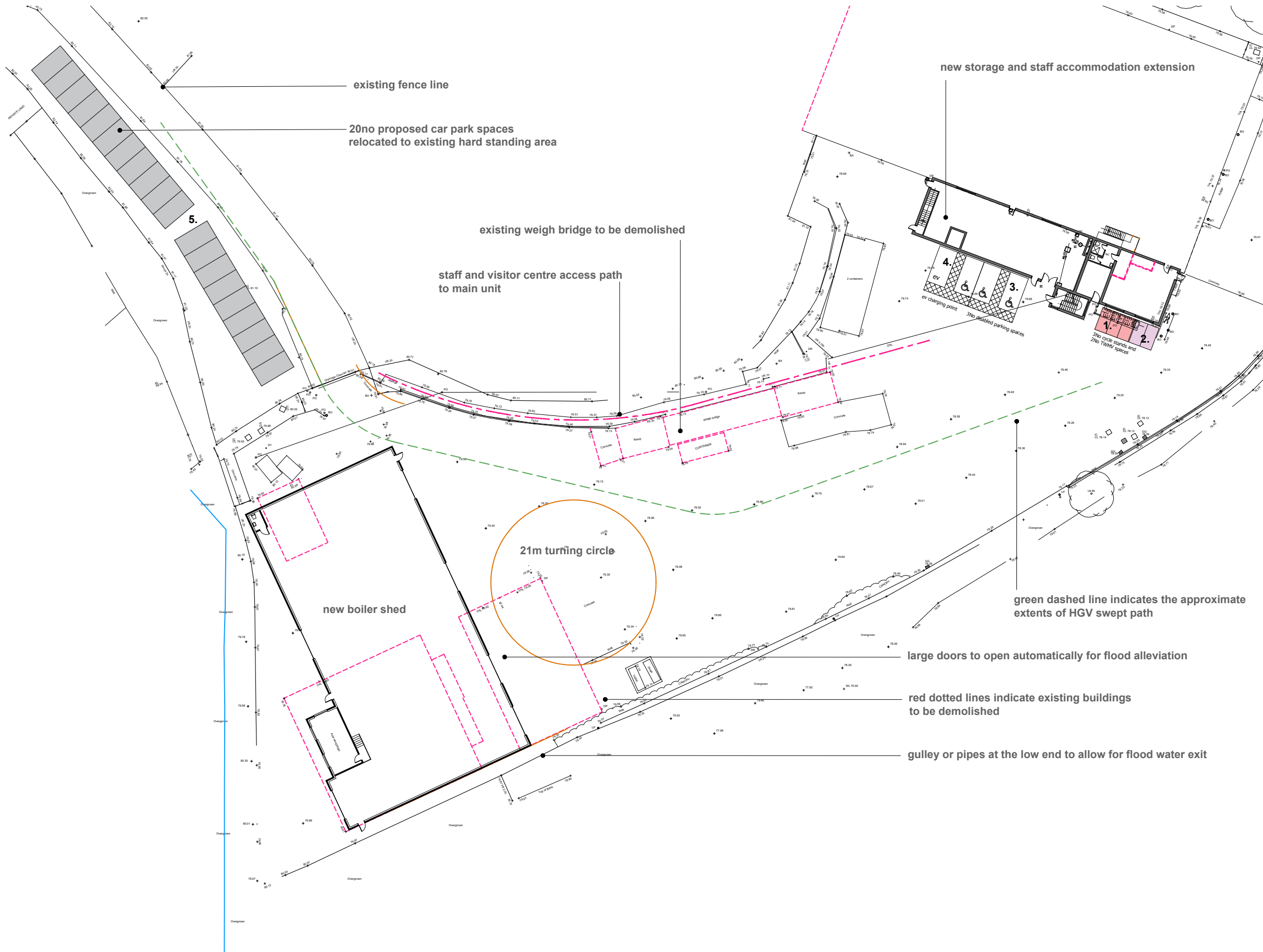
Irwell Works, Bury 26003

HWOL TPH Acronym Index

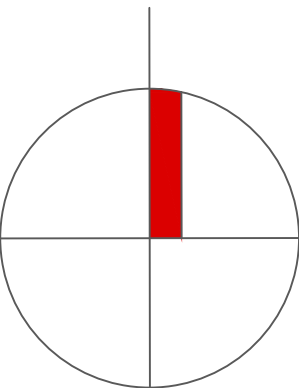
Acronym	Description
HS	Headspace Analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
Total	Aliphatics and Aromatics
AL	Aliphatics Only
AR	Aromatics Only
2D	GC-GC - Double Coil Gas Chromatography
#1	EH_Total but with humics mathematically subtracted
#2	EH_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (except for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry

Key of Codes	
[1]	EH_1D_TOTAL
[2]	EH_CU_1D_TOTAL
[3]	EH_CU+HS_1D_TOTAL
[4]	EH_1D+HS_MS_TOTAL
[5]	HS_MS_1D_AL
[6]	HS_MS_1D_AR
[7]	HS_MS_1D_TOTAL
[8]	EH_CU_1D_AL
[9]	EH_CU_1D_AR
[10]	EH_2D+HS_1D_TOTAL
[11]	EH_CU_2D+HS_1D_TOTAL
[12]	EH_2D_TOTAL
[13]	EH_2D_AL
[14]	EH_2D_AR
[15]	EH_CU_2D_TOTAL
[16]	EH_CU_2D_AL
[17]	EH_CU_2D_AR

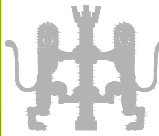
APPENDIX F



note: layout subject to on-site services investigations to allow for viability.



- Key**
- 1. 3No cycle stands
 - 2. 2No TWMV stands
 - 3. 3No disabled parking spaces
 - 4. 1No ev charge point
 - 5. 20No staff/visitor car park spaces

Riley and Son Headquarters Irwell Works Woodhill Road Bury	Site Plan as Proposed	contract no	drawing no	revision	Blue Pit Mill Queensway Castleton Rochdale OL11 2PG +44 (0)1706 631347 info@cjpartnership.com www.cjpartnership.com	CJ PARTNERSHIP ENVIRONMENTAL ARCHITECTS 
	work to figured dimensions	3690	13	A		
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			September 2025	1:500		