



**EARTH ENVIRONMENTAL
& GEOTECHNICAL**
A Technics Group Company

Phase 1 GeoEnvironmental Desk Study

Bury New Road

Ramsbottom

On behalf of

Hodson Homes

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BURY NEW ROAD

RAMSBOTTOM

FOR

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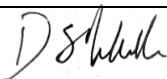
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1.0 INTRODUCTION

1.1 Background

Earth Environmental & Geotechnical Ltd has been commissioned by Hodson Homes (the Client) to undertake a Phase I Environmental Desk Study for a proposed residential development at the land off Bury New Road, Ramsbottom.

1.2 Existing Planning Applications

1.2.1 Planning Application to Bury Council, Ref - 73182, dated May 2026.

A planning application has been submitted for the site to Bury Council (Reference: 73182) for permission in principle for the erection of up to 9no. dwellings.

1.3 Objectives

The purpose of the Desk Study is to collate available geological and environmental data for the site (and its environment) and provide a preliminary geotechnical and geo-environmental appraisal, with a site-specific conceptual model. This enables an initial assessment of geo-environmental risks to be undertaken and, if necessary, provides information for the design of a Phase 2 Ground Investigation.

1.4 Report Scope

The Phase I Environmental Desk Study comprises a review of the following information sources, some of which were provided by the client.

- British Geological Survey online maps.
- Google Earth imagery.
- Environmental Agency (EA) online mapping data.
- Environment Agency online mapping data.
- Historical Ordnance Survey maps.
- The site and surrounding areas' environmental, geological, and mining data are presented in the site-specific GroundSure Reports (Appendix 1).
- Coal Authority Interactive Viewer.
- Zetica UXO Online Interactive Viewer
- Bury Council planning portal.

1.5 Limitations of the Study

The report is written within the agreed scope of work and budget and should not be used in a different context. New information, improved practices or changes in legislation may require a reinterpretation of the report in whole or in part. EEG reserves the right to amend either conclusions or recommendations in light of any further information that may become available. The report is provided solely for the client's use and is confidential to them.

2.0 SITE LOCATION & DESCRIPTION

The site (0.49 hectares) to the southwest of Bury New Road, Ramsbottom is currently undeveloped land occupied by dense, overgrown vegetation.

The approximate National Grid Reference for the centre of the site is SD 79525 16781 (X: 379545, Y: 416756) with the nearest postcode being BL0 0BT.

The site is an elongated, rectangular parcel of land with maximum dimensions of approximately 39m southwest-northeast and 110m northwest-southeast.

The site comprises vacant land covered by dense, mature and developing mixed deciduous trees, as well as various shrubs and other vegetation. No buildings or hardstanding are present on site.

The site is below the level of the adjacent Bury New Road, which runs adjacent to the eastern boundary and has a gradient that generally slopes downwards towards the north. However, part of the southern area was noted to slope upwards towards the south.

There is no dedicated site access point, however the site can be accessed on foot via a break in the neighbouring builders yard fence to the north, or via climbing over the wall along Bury New Road.

A low-lying stone wall runs along the eastern boundary with wooden fencing along the northern boundary. The southern and western boundaries weren't obviously defined. The River Irwell runs just beyond the western boundary and is at a significantly lower level than the site.

The site is situated in a residential area approximately 80m northeast of Acre Bottom cricket ground and approximately 170m southwest of Peel Brow Primary School. Bury New Road borders the site to the east. Willow Bank residential development which occupies the former Paper Mill site on the other side of the river to the west.

The site location is shown in the aerial photograph presented as Figure 1.

Figure 1: Site Location Plan



General site photographs are presented in Figure 2 overleaf.

Figure 2: General Site Photographs

Photograph facing, showing the site slope down from the adjacent road



Photograph facing southeast, showing dense vegetation and slope up to the south



2.1 Proposed Development

It is understood that the client proposes to erect up to 9no. new residential dwellings. As the client is applying for permission in principle, no finalised proposed development plans were available for the site at the time of authoring this report.

An indicative Planning Layout is shown in Figure 3 below.

Figure 3: Indicative Planning Layout



3.0 ENVIRONMENTAL SETTING

The geology of the site is covered by British Geological Survey (BGS) online data and the site specific GroundSure Enviro+Geo Insight report (Appendix 1).

Environmental conditions are covered by the Environment Agency (EA) and British Geological Survey (BGS) online data, and the site-specific GroundSure Enviro+Geo Insight report (Appendix 1).

3.1 Geology

The BGS records indicate that the site is not underlain by any artificial deposits.

The BGS records indicate that superficial deposits of Devensian Till underlie the site and generally comprises of over consolidated clay, silt and sand deposits with or without boulders.

The bedrock geology beneath the site is shown to be of the Marsden Formation, generally comprising *'fine- to very coarse-grained and pebbly feldspathic sandstone, interbedded with grey siltstone and mudstone, and subordinate marine black shales, thin coals and seatearths'*.

There are 4no. records of linear features, within 500m of the site boundary. The closest record refers to an inferred fault, located 106m southwest. The other records refer to additional inferred faults, inferred coal seams and a fossil horizon.

There are 3no. records (1:10,000 scale) of landslips within 500m of the site. The closest record of mass movement deposits is located 320m north of the site.

There are 18no. borehole records identified within 250m of the site. The closest record is located 49m southwest of the site, however the closest available record is located 133m to the southwest of the site. The record details a circa 108m deep borehole that encountered approximately 1m of concrete, overlying 3m of topsoil, which was underlain by approximately 20m of interbedded sand and gravel. Rockhead was encountered at approximately 24m bgl and comprised shale, 'loam stone', 'flag rock' and sandstone. A coal seam of 0.15m thickness was encountered at 75.90m bgl.

The following table shows the highest hazard ratings on site and within 50m, as presented in the Enviro + Geo Insight Report

Table 1: Natural Ground Subsidence Hazards

Hazard	On-Site Risk	Highest Risk within 50m
Shrink/Swell Clays	Very Low	-
Running Sands	Very Low	Low (8m SW)
Compressible Deposits	Negligible	Moderate (8m SW)
Collapseable Deposits	Very Low	Negligible (8m SW)
Landslides	Moderate, Low and Very Low	-
Ground Dissolution of Soluble Rocks	Negligible	-

3.2 Hydrogeology and Hydrology

The Superficial Devensian Till are classified by the Environment Agency (EA) as a Secondary Undifferentiated Aquifer with a mixed flow type and a high to low permeability. The BGS states the following:

Secondary Undifferentiated 'Assigned where it is not possible to attribute either category A or B to a rock type. In general, these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type.'

The Pennine Middle Coal Measures Formation is classified by the Environment Agency (EA) as a Secondary 'A' Aquifer with a fracture flow type and a moderate to low permeability. The BGS states the following:

Secondary A 'Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.'

The groundwater vulnerability of the site has been classified as low in the superficial aquifer and bedrock aquifers. The soil leaching potential of the site is classified as low. The BGS states:

'High'-Areas are able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low-permeability superficial deposits.'

'Medium'-Intermediate between high and low vulnerability.

'Low'-Areas that provide the greatest protection from pollution. They are likely to be characterised by low leaching soils and/or the presence of superficial deposits characterised by low permeability.

The site is not located within an area vulnerable to soluble rock.

There are 21no. groundwater abstraction license records within 2km of the site. The closest record is located 225m southwest and refers to a historical license issued in 1966 for general use relating to Secondary Category from the Groundwater Northwest Region. The closest active licence is noted to be located 1191m northwest of the site.

There are 37no. surface water abstraction license records within 2km of the site. The closest record is located 167m west and refers to an active license issued in 1994 for supply to a Leat for throughflow from the river Irwell at Bridge Street.

There are 3no. potable water abstraction license record within 2km of the site. The closest record is located 1972m southwest and refers to an active license issued in 1990 for commercial, industrial and public services.

The site is not located within a Source Protection Zone.

The site is not located within 500m of a Source Protection Zone within a confined aquifer.

There are 18no. water network entries, within 250m of the site. The closest record refers to the river Irwell located 30m southwest of the site.

There are 6no. surface water features identified within 250m of the site.

There is 1no. record of a Water Framework Directive (WFD) surface water body located 31m southwest of the site. The record refers to the river Irwell (Rossendale STW to Roch), which is within the Irwell Management catchment and the Croal Irwell operational catchment. The EA assigned a moderate ecological rating in 2022. No chemical rating was available.

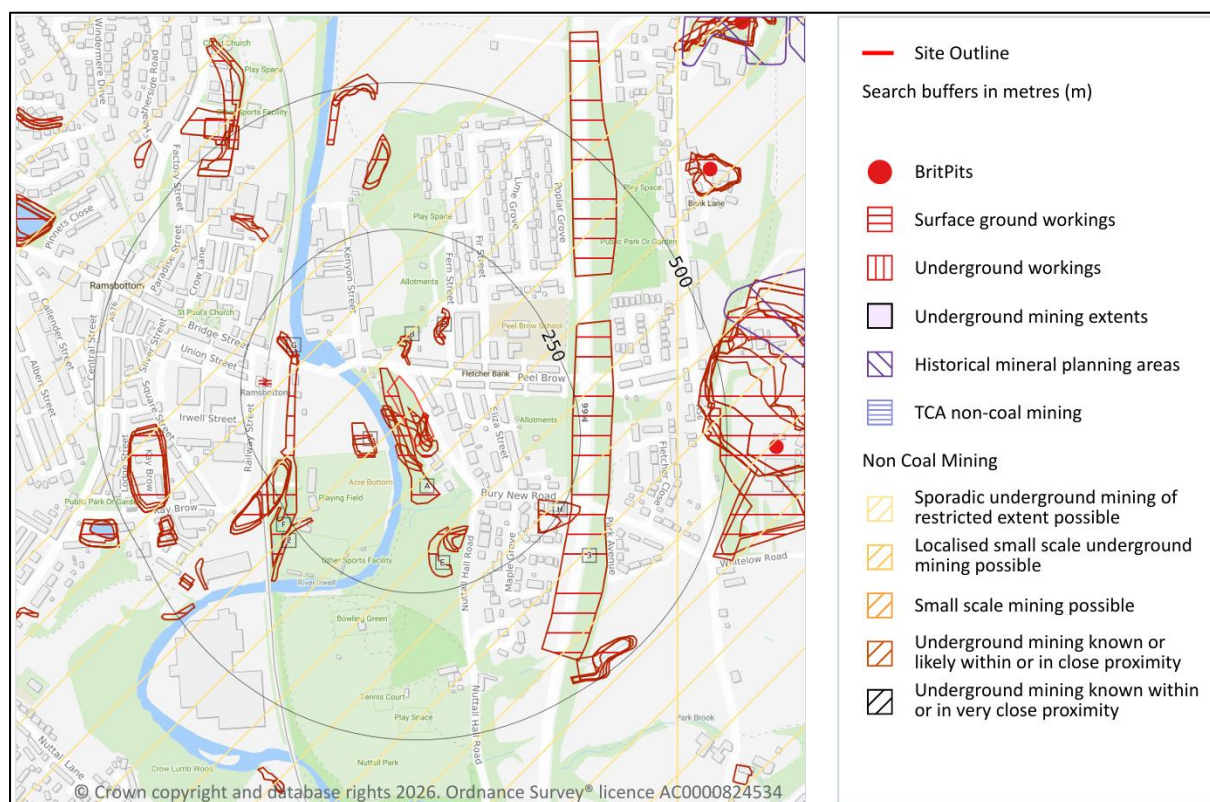
There is 1 record of a Water Framework Directive (WFD) groundwater body located on-site. The record refers to the Northern Manchester Carboniferous Aquifers, which had a poor chemical rating in 2019.

3.3 Surface Ground Workings

The BGS states that there are no records of British Pits within 500m of the site.

There are 35no. records of historical surface ground working features, identified within 250m of the site boundary, including 5no. onsite records pertaining to a refuse heap and unspecified ground working. The records within 100m of the site boundary include more refuse heaps, unspecified ground workings and filter beds. Beyond 100m of the site boundary, records include ponds, reservoirs and cuttings.

Figure 4: Mining & Ground Workings Plan



3.4 Mining and Other Underground Workings

There are 7no. records for historical underground working features identified within 1km of the site. All records refer to a tunnel feature located 888m south of the site mapped 1891 - 1980.

The site is located within an area affected by underground coal mining; however the site is not within a Coal Authority Development High Risk Area.

There are no records of historical mineral planning areas within 500m of the site.

There are 2no. records of a non-coal mining area located within 1km of the site, including 1no. on site record which refers to a vein mineral. The offsite record also refers to a vein mineral located 415m east of the site.

There are no records of non-coal mining, research mining, BGS mine plans, brine areas, gypsum extraction, tin mining, or clay mining on the site.

There are no records of natural cavities within 500m of the site.

There are no records for mining cavities identified within 1km of the site.

3.5 Radon Potential

The site is located in a Radon Affected Area, where less than 1% of properties are above the Action Level. Therefore, radon protection measures are not required in any new structures.

3.6 Soil Chemistry

BGS Estimated Background Soil Chemistry for background concentrations of six potentially harmful elements are provided as follows

- | | |
|-------------------------|--------------|
| • Arsenic: | 15 mg/kg. |
| • Bioaccessible Arsenic | No data |
| • Lead: | 100 mg/kg. |
| • Bioaccessible lead: | 60 mg/kg. |
| • Cadmium: | 1.8 mg/kg. |
| • Chromium: | 60-90 mg/kg. |
| • Nickel: | 15-30 mg/kg. |

These values are not considered to be elevated with respect to guideline values for residential/commercial end-uses.

3.7 Landfill & Waste Management Activity

There are no records for the current Environment Agency landfill records within 500m of the site, see Figure 5.

There are no records of BGS/DoE non-operational landfill sites within 500m of the site.

There are 6no. records of historical landfill sites from the Local Authority and Historical Mapping records within 500m of the site, including 2no. onsite records. The onsite records refer to a refuse tip recorded on site in 1962. The offsite records refer to other refuse tips, the closest located 148m south of the site in 1962.

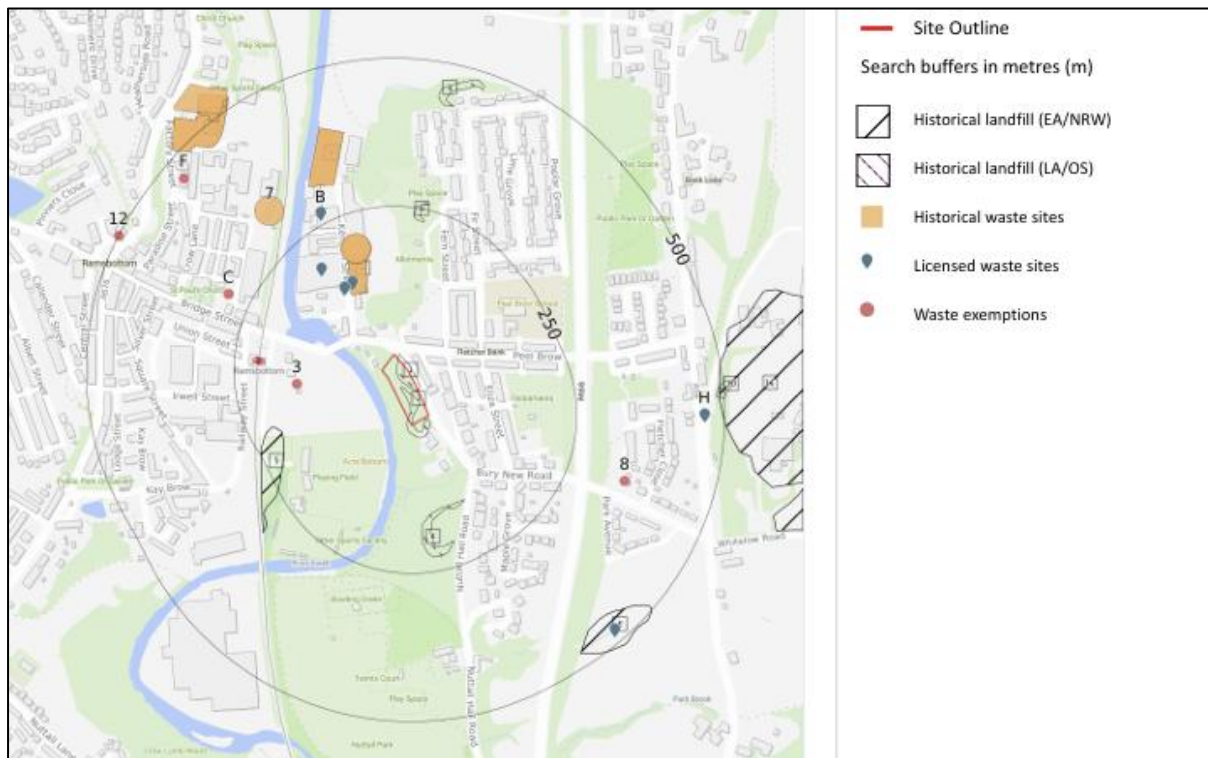
There are 3no. records of historic Environment Agency landfill sites within 500m of the site. The closest record refers to Mill Lodge, located 198m southwest of the site recorded in 1977. The site recorded a waste license for inert, industrial waste.

There are 12no. records of historical waste sites within 500m of the site. The closest record refers to a scrap yard located 115m northwest of the site, dated 1994.

There are 12no. records of the current Environment Agency licensed waste sites within 500m of the site. The closest record refers to a special waste transfer station licence located 139m northwest of the site at Irwell Street Metal Co. Ltd. The licence was originally issued in 1994 and was modified in 2002.

There are 15no. records of a waste treatment, transfer, or disposal site, within 500m of the site. The closest record refers to a using waste exemption for use of waste in construction located 146m west of the site.

Figure 5: Waste & Landfill Plan



3.8 Industrial Land Use Information

There are 116no. records of potentially contaminative historical land uses identified within 500m of the site. There are 3no. onsite records dating from 1927 to 1968, referring to unspecified ground workings and refuse heaps. Records within 100m of the site boundary include further refuse heaps, unspecified ground workings, a paper mill, unspecified mills, filter beds and railway sidings. Further afield, records include cotton mills, old engines, railway buildings, bleaching works, soap works and unspecified works.

There are 14no. records of historical tanks identified within 500m of the site. The closest 2no. records refers to an unspecified tank dated 1978 and 1992 - 1994, located 60m - 61m southwest of the site.

There are 18no. records of historical energy features, identified within 500m of the site. All records refer to electricity substations, the closest located 50m northeast, dated 1978 - 1989.

There are no records of historical petrol stations within 500m of the site.

There are 4no. records of historical garage and motor vehicle repair sites identified within 500m of the site. The closest 3no. records refer to a garage dated in 1964 - 1994 located 241m west of the site.

There are no historical military land use records within 500m of the site.

There are 12no. records of recent industrial land uses within 250m of the site. The closest record refers to an electricity substation located 59m northeast of the site. Other records include a recycling centre, vehicle repairs, unspecified works and a railway.

There are no records of current or recent tanks within 250m of the site.

There is 1no. record for current petrol or fuel sites within 500m of the site. The record refers to an unspecified petrol station located 250m west of the site. It is noted that this petrol station is closed.

3.9 Current and Historical Railway Information

There are 24no. historical railway and tunnel features identified within 250m of the site. All records refer to railway sidings, with the closest 5no. records mapped between 1891 - 1964, located 75m west of the site.

There are no historical railway lines identified within 250m of the site.

There are 15no. current active railway line records identified within 250m of the site. The closest record refers to the East Lancashire Railway located 206m west of the site.

There are no underground railway lines or tunnels identified within 250m of the site.

The site is not within 500m of the route of the High Speed 2 rail project.

The site is not within 500m of the route of the Crossrail 1 rail project.

3.10 Environmental Permits, Incidents, and Registers

The Groundsure Report includes records of environmental permits, incidents, and registers within 500m of the site, which are summarised in Table 2.

Table 2: Environmental Permits, Incidents, and Registers within 500m of the Site

Permit/Incident/Register	Number	Closest Record
Sites Determined As Contaminated Land	0	-
Control Of Major Accident Hazards (COMAH)	0	-
Regulated Explosive Sites	0	-
Hazardous Substance Storage/ Usage	0	-
Historical Licensed Industrial Activities (IPC)	2	206m west
Licensed Industrial Activities (Part A(1))	6	110m west
Licensed Pollutant Release (Part A(2)/B)	2	249m west
Radioactive Substance Authorisations	0	-
Licensed Discharges To Controlled Waters	5	167m west
Pollutant Release To Surface Waters (Red List)	0	-
Pollutant Release To Public Sewer	0	-
List 1 Dangerous Substances	1	106m west
List 2 Dangerous Substances	1	106m west
Pollution Incidents (EA/ NRW)	5	66m northwest
Pollution Inventory Substances	0	-
Pollution Inventory Waste Transfers	0	-
Pollution Inventory Radioactive Waste	0	-

There are 2no. records of Historical Licensed Industrial Activities (IPC) located within 500m of the site. The records refer to licenses issues to Mondi Packaging Holcombe Ltd in 1997 and superseded in 1998, located 206m west of the site.

There are 6no. records of Licensed industrial activities (Part A (1)) located within 500m of the site. The 3no. closest records refer to Mondi Packaging Holcombe Ltd for paper processing license issued in 2002, located 110m to 206m west of the site.

There are 2no. records of Licensed pollutant release (Part A(2)/B) located within 500m of the site. The closest record refers to a Petrol Vapour Recovery permit located 249m west of the site.

There are 5no. records of License Discharges to controlled waters located within 500m of the site. The closest record refers to sewage discharge to the River Irwell, located 167m west of the site.

There is 1no. record of List 1 Dangerous Substances within 500m of the site. The record refers to Danisco Paper, Holcombe Mill, located 106m west of the site.

There is 1no. record of List 2 Dangerous Substances within 500m of the site. The record refers to Danisco Paper, Holcombe Mill, located 106m west of the site.

There are 5no. records for Substantiated Pollution Incidents within 500m of the site. The closest record, 66m northwest, refers to an incident in 2019 which had a significant impact on the water, and no impact on land or air quality.

3.11 Environmentally Sensitive Sites

There are 2no. records for a Site of Specific Scientific Interest (SSSI) located within 2km. The closest record refers to the Lower Red Lees Pasture SSSI, located 1203m northwest of the site.

There is no record of Conserved wetland sites (Ramsar Sites) within 2km of the site.

There are no records of Special Areas of Conservation (SAC) within 2km of the site.

There are no records of Local Natural Reserves within 2km of the site.

There are 19no. records of a Designated Ancient Woodland within 2km of the site. The closest record refers to Gollinrod Wood, located 331m southeast of the site.

The site is not part of a Green Belt. However, 3no. Green Belt records of are recorded within 2000m of the site, all referring to the Merseyside and Manchester Greenbelt, located 265m south of the site.

The site is within a Nitrate Vulnerable Zone.

The site is located within an SSI impact Risk Zones.

3.12 Ecology

An ecological assessment of the site falls outside the brief of this report. Where considered necessary, advice should be sought from an ecological specialist in this respect.

The land on the site is classified as Grade 4 poor-quality agricultural land.

There is 1no. record of Tree Felling Licences within 250m of the site, located 233m east of the site.

There are 7no. records of Priority Habitat Inventory located within 250m of the site, one of which is located on site. The onsite record refers to Deciduous Woodland.

There are no other records for agricultural or habitat designation on the site.

3.13 Archaeology

An archaeological assessment falls outside the scope of this report. Where considered necessary, advice should be sought from an archaeological specialist in this respect.

There is 1no. record of Conservation Areas located within 250m of the site. The record refers to the Ramsbottom conservation area located 1m northeast of the site.

There are no records of world heritage sites, areas of outstanding natural beauty, listed buildings, national parks, scheduled monuments, or registered parks and gardens within 250m of the site.

3.14 Potential Flood Risks

Detailed assessment of flood risks is outside the scope of this report. The site does not lie within an Environment Agency Zone 2 and Zone 3 floodplain, However Flood Zones 2 and 3 are recorded 9m northwest and 10m west, respectively, of the site.

There are 4no. records of risk of flooding from rivers and sea (RoFRaS) within 50m of the site. The risk on site is recorded as N/A however, the risk within 50m of the site is high.

There are 13no. records of a historical flood events within 250m of the site. The closest record refers to the Ramsbottom area located 10m northwest of the site.

There are 3no. records of flood defences within 250m of the site. The closest is located 81m northwest of the site. All defences are noted to have been updated in November 2022.

There are no flood storage areas within 250m of the site.

The highest risk of surface water flooding occurring on-site is negligible. The highest risk within 50m of the site for a 1 in 30-year return event is greater than 1.0m.

The highest risk of groundwater flooding occurring on-site is low.

3.15 Unexploded Ordnance

The online Zetica UXO map shows the site within a low-risk zone.



4.0 SITE HISTORY

The historical development of the site has been determined by reference to historical plans and Google Earth imagery. Information in the historical mapping study has been limited to the site or to areas within 100m of it to focus on the most directly relevant information. Beyond this radius, only information deemed appropriate will be referenced. Each map or photograph is a snapshot of the site and its environment as of the survey date. Any changes that occur at other times may not have been recorded on the maps and could represent an unidentified hazard to the site.

Only selected maps with a clear view of the site and surrounding area have been used; the information reported might not represent all pertinent information that could be obtained. The interpretation of the maps and/or other data commented on in this report is subjective.

The earliest available historical mapping covering the site dates back to 1891. The site history is summarised in Tables 3 and 4, below, followed by selected extracts from maps and aerial photographs in Figures 6 to 9.

Table 3: Summary of Site History

Date	Scale	On-Site History	Surrounding Land Use History
1891	1:10,560 1:2,500	The site is a plot of undeveloped land.	The earliest mapping from 1891 shows the surrounding area to be developed. Residential houses are located to the north and east off Bury New Road, with a chapel present on the end of the residential row. The River Irwell is located approximately 30m west of the site, running approximately north to south. Whereas industrial land uses dominate the area to the west of the site. A Paper Mill and Cotton Mills are located approximately 90m west and 110m northwest respectively. An Old Engine is recorded approximately 120m south of the site. A Railway Station is located approximately 200m west, as well as multiple Railway Foundries approximately 250m west. Unspecified works are recorded 280m northwest as well as a Bleaching Works and a Reservoir approximately 300m southwest. A Cricket and Football Ground is recorded approximately 100m southwest of the site.
1908	1:10,560	There is no significant change compared to the previous map.	There is no significant change compared to the previous map.
1910	1:2,500	There is no significant change compared to the previous map.	Filter beds are recorded approximately 70m west of the site, associated with the paper mill. A Tennis court is recorded approximately 170m southwest of the site. A Football Ground is recorded approximately 200m east of the site.
1927-1928	1:10,560	There is no significant change compared to the previous map.	There is no significant change compared to the previous map.
1929	1:2,500	Elevation changes are now recorded on site, and although not labelled, the elevation changes appear to be due to refuse heaps.	There is no significant change compared to the previous map.

Date	Scale	On-Site History	Surrounding Land Use History
		A platform is recorded on the eastern boundary of the site with a single glass hose present.	
1938	1:2,500	The elevation changes now appear to be more uniform, creating a plateau across the majority of the site. The platform on the eastern boundary appears to have been extended, however the glass house is no longer recorded.	There is no significant change compared to the previous map
1948-1949	1:10,560	There is no significant change compared to the previous map.	There is no significant change compared to the previous map.
1955	1:10,560	There is no significant change compared to the previous map.	There is no significant change compared to the previous map
1963-1964	1:2,500	Two refuse tips are recorded on the site in the central and southern site sections.	A Builders Yard is recorded approximately 50m northwest of the site. An embankment is recorded approximately 10m west of the site. A residential development has occurred to land approximately 220m northeast of the site.
1967-1968	1:10,560	There is no significant change compared to the previous map.	There is no significant change compared to the previous map.
1978	1:2,500	The refuse tips are no longer recorded on site. The site is a vacant plot of land.	An electricity substation is recorded approximately 75m north of the site. Tanks are recorded approximately 95m west of the site. Depots are recorded approximately 100m northwest of the site.
1980	1:10,000	There is no significant change compared to the previous map.	There is no significant change compared to the previous map.
1989-1992	1:1,250	There is no significant change compared to the previous map.	Peel Brow County Primary School is recorded approximately 200m northeast of the site.
2001	1:10,000	There is no significant change compared to the previous map.	There is no significant change compared to the previous map.
2003	1:1,250	There is no significant change compared to the previous map.	There is no significant change compared to the previous map.
2010	1:10,000	There is no significant change compared to the previous map.	The paper mill previously present on the western side of the River Irwell has been demolished.
2015	1:10,000	There is no significant change compared to the previous map.	There is no significant change compared to the previous map.
2025	1:10,000	There is no significant change compared to the previous map.	There is no significant change compared to the previous map.

Table 4: Summary of Site History from Aerial Photographs

Date	On-Site History	Surrounding Land Use History
2000	The site is an undeveloped plot of land with approximately 95% vegetation/tree cover.	The River Irwell is located just west of the site. Both industrial and commercial buildings are located the west of the site, with predominantly residential dwellings to the east. Dense trees cover is located to the south of the site.
2005	There is no significant change compared to the previous photograph.	There is no significant change compared to the previous photograph.
2013	There is no significant change compared to the previous photograph.	The large Paper Mill to the west of the site has been demolished

Date	On-Site History	Surrounding Land Use History
2017	There is no significant change compared to the previous photograph.	There is no significant change compared to the previous photograph.
2022	There is no significant change compared to the previous photograph.	There is no significant change compared to the previous photograph.
2026	There is no significant change compared to the previous photograph.	The Paper Mill site is being redeveloped to a new housing estate.

The earliest map from 1891 shows the site as an undeveloped parcel of land. This remained the case until 1938 when elevations change, attributed to refuse heaps. The refuse heaps were later labelled onsite in 1963 situated in the central and southern site sections. By 1978 these are no longer recorded, and the site returns to a vacant parcel of land. As no elevation changes are marked, it is not certain that these heaps were removed. Google Earth aerial imagery reveals that the site has been occupied by dense vegetation and tree cover from the earliest aerial imagery in 2000 and has remained unchanged until present day.

The surrounding area of the site has been developed since the earliest historical mapping in 1891, with the River Irwell present 30m west of the site. The land use to the east of the site was occupied by residential dwellings, whereas heavy industrial activity has occurred on the land to the west. Various mills, a railway station, foundries, multiple different works, and an old engine are recorded within 250m of the site boundary. These remained active throughout the 20th, with little change occurring to the surrounding area. By the 21st Century further residential developments have occurred, with the paper mill to the east of the site being demolished in 2026 and replaced by housing.

Figure 6 OS Map Extract 1891

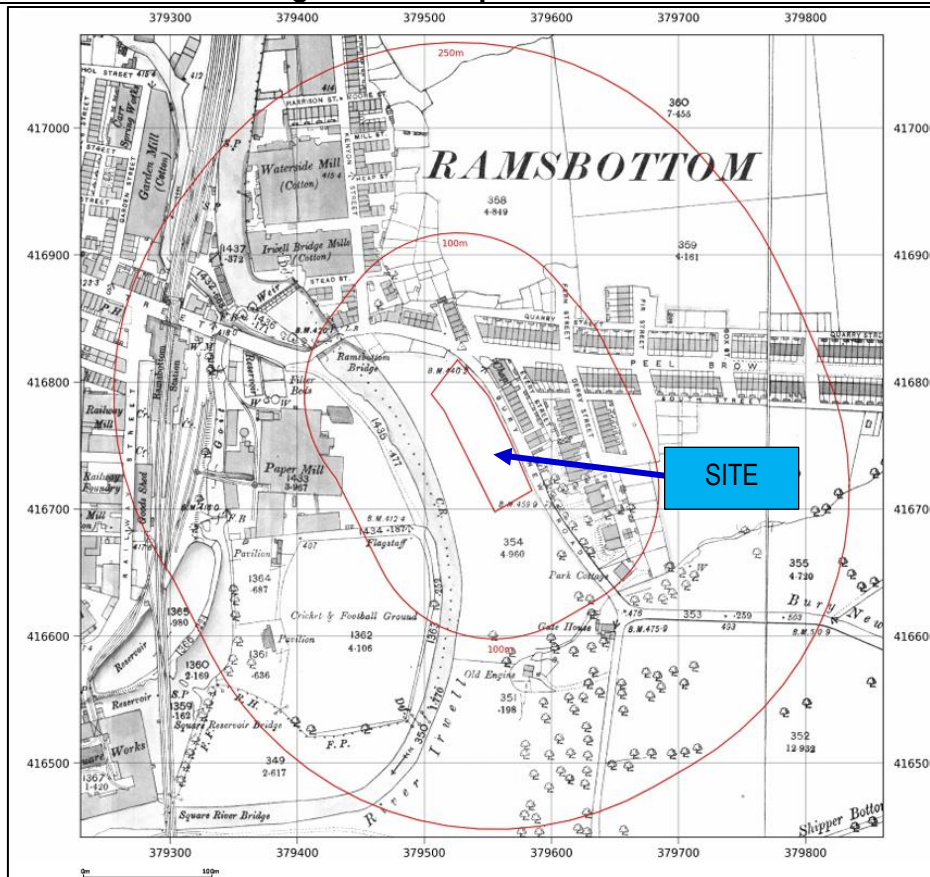


Figure 7 OS Map Extract 1963 - 1964

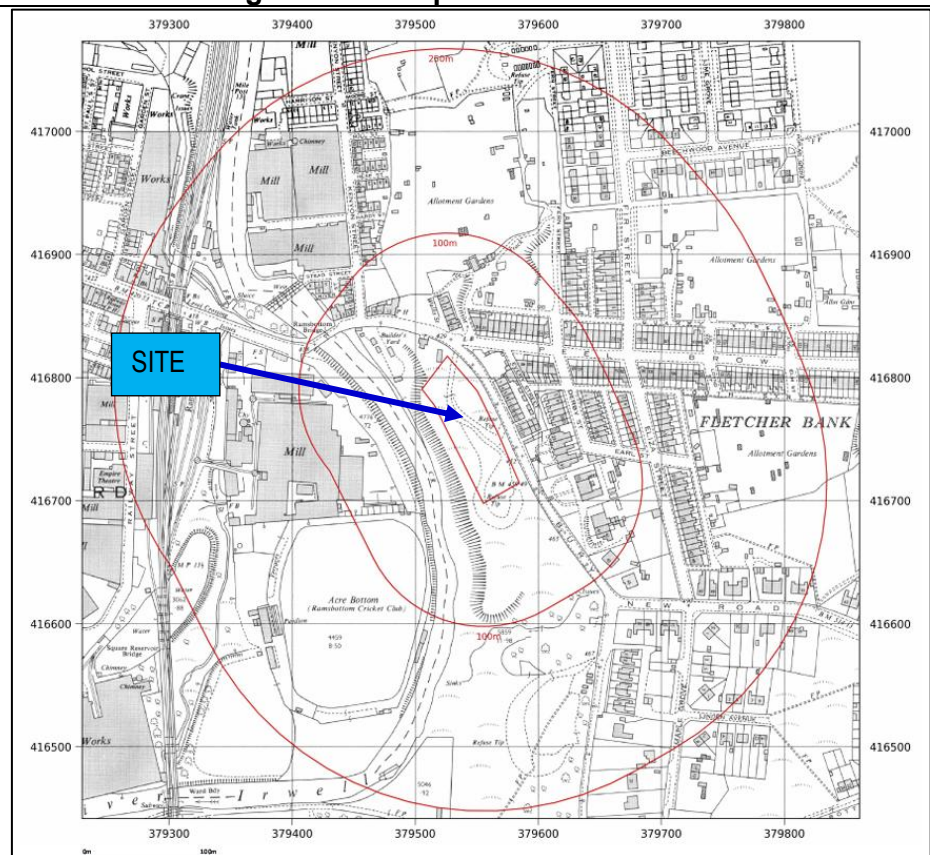


Figure 8 OS Map Extract 2003

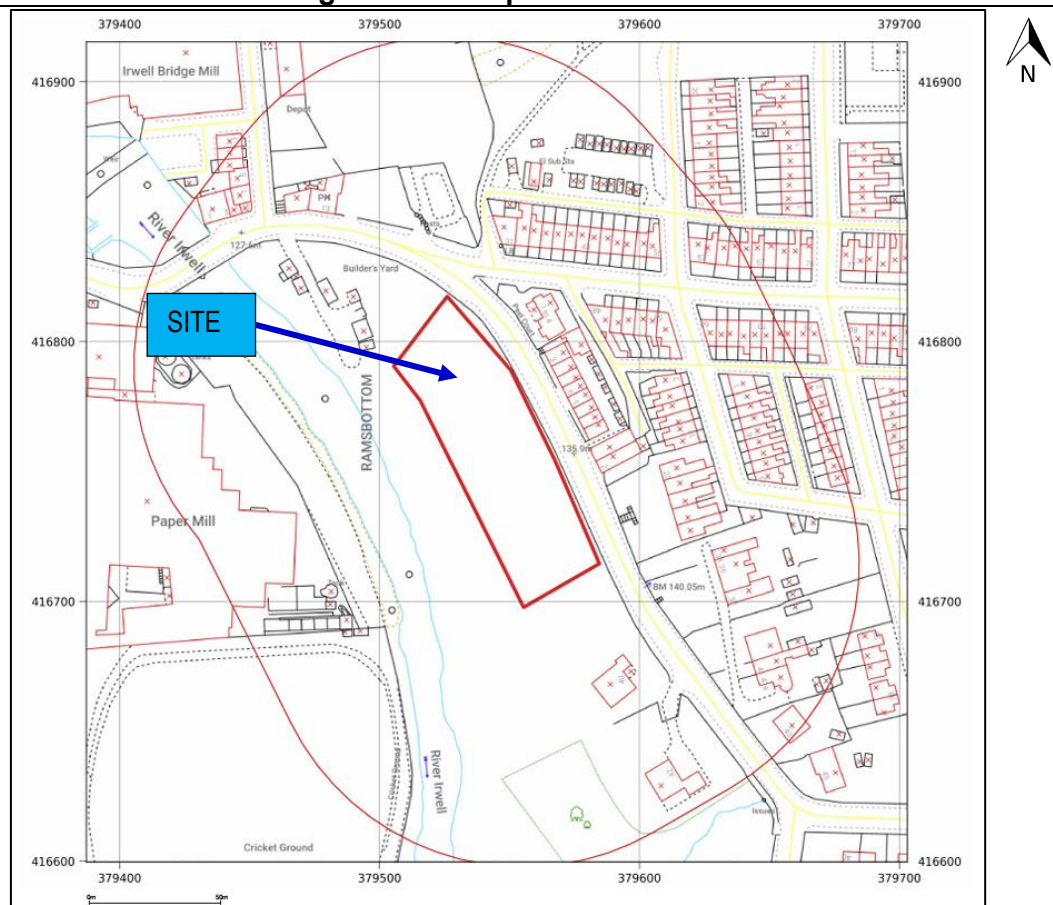
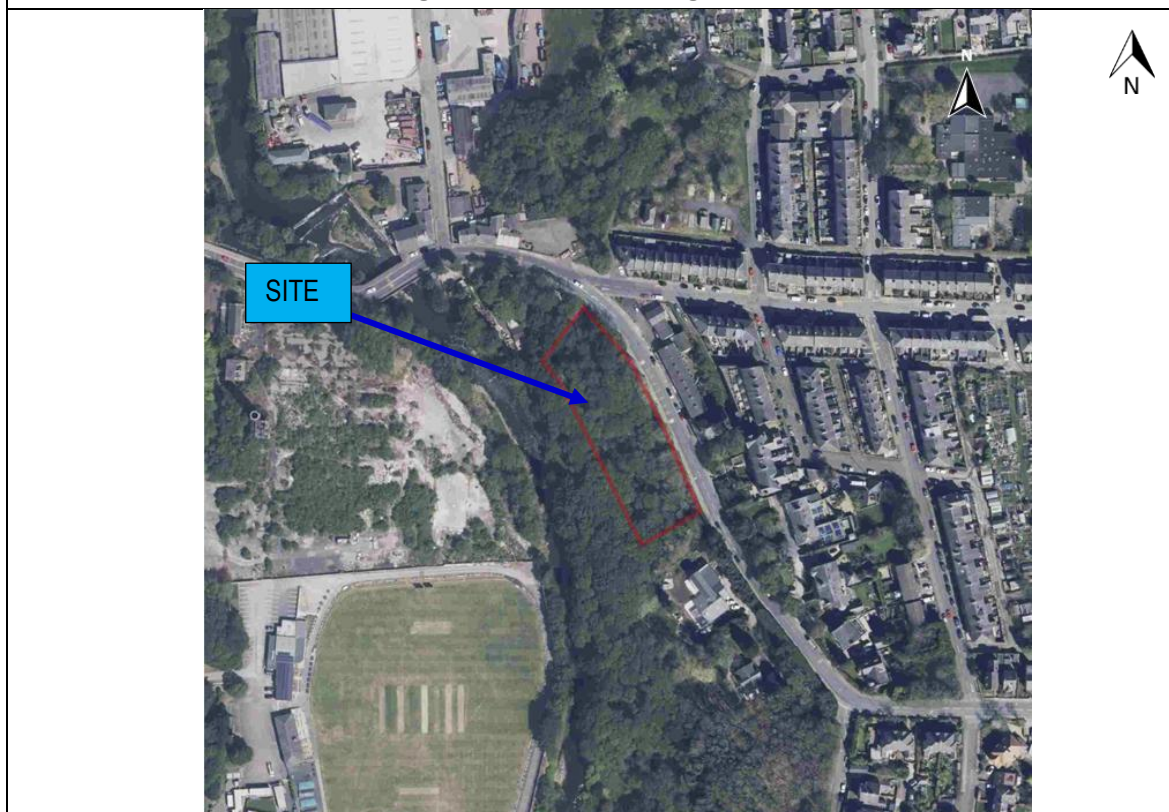


Figure 9 Aerial Photograph 2023



5.0 SITE WALKOVER SURVEY

A walkover survey was completed on 3rd July 2026. The photographs and notes from this survey are appended to this report as Appendix 2 and Appendix 3, respectively.

The site comprises an area of developed woodland, with the entire site area occupied by dense, mature and developing mixed deciduous trees, as well as various shrubs and other vegetation.

The surface topography of the site is uneven and slightly undulating, however generally slopes upwards to the southeast of the site. There is an estimated 7m elevation difference between the northeast and southeast corners of the site.

At the time of the walkover survey, the ground surface was generally dry and stable, however due to the dense foliage across the site, as well as multiple fallen trees, the site is difficult to traverse on foot, with no viable vehicular access.

There is currently no dedicated site access point, however the site can be accessed on foot via a break in the neighbouring builders yard fence to the north, or via climbing over the wall along Bury New Road.

The site is demarcated by a dry stone wall to the east, bordering Bury New Road, with a wooden fence along the northern boundary. The southern and western boundaries are undefined, and open to the remainder of the woodland area. Further south, the woodland area is bound by a wooden fence. Further east, the woodland terminates at a steep slope, at the bottom of which is the River Irwell.

The site is generally situated in a residential area, with the previously vacant plot of land to the west of the River Irwell currently being developed into a residential housing estate.

Figure 10: Site Features Plan



6.0 PRELIMINARY CONTAMINATION RISK ASSESSMENT

6.1 Introduction

The following paragraphs outline a Preliminary Risk Assessment (PRA) for the site based on the above desk study information as defined by the Land Contamination Risk Management Environment Agency, July 2023.

Table 7 provides a Preliminary Conceptual Model (PCM) which considers the source-pathway-receptor linkages present alongside the likelihood, severity, and risk level as defined within Tables 5 and 6. The assessment of probability, a modified risk table, and certain consequence definitions are based on CIRIA C552 and Land Contamination Risk Management Environment Agency, July 2023.

Table 6 considers whether a pollution linkage is potentially present and provides a preliminary qualitative assessment of risk based on the information currently available. Where a possible linkage is identified, this does not necessarily imply a significant risk; rather, it indicates that further information, through appropriate site investigation, is required to substantiate the conceptual model.

The PCM/PRA is based on a future residential end use.

Table 5: Consequence, Probability and Risk

Probability	Consequence,	Risk
High Likelihood- There is a pollution linkage, and an event either appears very likely in the short term and almost inevitable over the long term, or there is evidence at the receptor of harm or pollution	Very High – acute risk to human health, likely to result in significant harm. Risk of severe or irreversible effects on ground/surface water quality. Catastrophic damage to buildings/property.	Very High – there is a high likelihood that the source-pathway-receptor scenarios may harm human health or the environment, and remedial action is likely required.
Likely – there is a pollution linkage, and all the elements are present, which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term.	High – Severe or irreversible effect on human health. Temporary severe or irreversible effect on ground/surface water quality. Reduction of water quality rendering groundwater or surface water unfit to drink and/or a substantial adverse impact on groundwater-dependent environmental receptors.	High – the source-pathway-receptor scenarios are likely to affect human health or the environment, potentially requiring remediation and/or control measures to mitigate risks.
Low likelihood– there is a pollutant linkage, and circumstances are possible for an event to occur. However, it is by no means specific that such an event would occur over a more extended period; it is less likely in the short term.	Moderate – Long-term or short-term moderate effect on human health. Moderate impact on ground/surface water quality, reversible with time. Reduced reliability of a supply at a groundwater or surface water abstraction source	Moderate – the source-pathway-receptor scenarios may affect human health or the environment; however, it is relatively unlikely that such consequences would be severe, or, if any harm were to occur, it is more likely to be mild.
Unlikely – there is a pollution linkage, but circumstances are such that it is doubtful that an event would occur even in the very long term.	Low – Non-permanent health effects to human health (easily prevented by means such as personal protective clothing, etc.) Slight impact on ground/surface water quality, reversible with time. Marginal reduced reliability of a supply at a groundwater or surface water abstraction source.	Low – it is possible that harm could arise at the source; however, likely, this would at worst be mild.
		Very Low – it is unlikely that source-pathway-receptor scenarios will affect human health or the environment.

Table 6: Estimation of Level of Risk by Comparison of Consequence and Probability

		Consequence			
		High	Moderate	Low	Very low
Probability	High Likelihood	Very High	High risk	Moderate risk	Moderate to low risk
	Likely	High risk	Moderate risk	Moderate to low risk	Low risk
	Low Likelihood	Moderate risk	Moderate to low risk	Low risk	Very low risk
	Unlikely	Moderate to low risk	Low risk	Very low risk	Very low risk

Potential Sources

The following are considered to be potential sources of contamination at the site.

- 2no. refuse tips recorded on site between 1963 - 1978. Made ground and uncontrolled landfill waste materials are likely in the shallow subsurface. This is also a source of ground gas.

It is noted that under normal circumstances, the builders yard to the north and the historical paper mill to the west, would be potential sources of contamination. However, due to the significant elevation differences, the river providing a pathway barrier (in the case of the paper mill) as well as the papermill undergoing redevelopment into housing, these are not considered to be viable potential sources and have therefore not been discussed in the following table. I

Potential Pathways

The following pathways have been considered for the construction and operational stages of the proposed redevelopment

- Dermal contact, ingestion, and inhalation pathways of potentially contaminated soils.
- Downward vertical migration of leachate to shallow groundwater.
- Vertical or lateral migration of ground gas.

Potential Receptors

The following receptors have been considered for the construction and operational stages of the proposed redevelopment.

- Adjacent land users;
- Future land users;
- Groundwater and surface water
- Construction workers during site development works;

Table 7: Preliminary Conceptual Site Model

Source	Pathway	Receptor	Pollutant Linkage	Probability	Consequence	Risk	Comment
Historical onsite Refuse Tips Landfill Material (Heavy Metals, PAH, TPH, BTEX, PCB's)	Dermal contact, ingestion, and inhalation of soil dust	Adjacent land users	Considered Active	Low Likelihood	Moderate	Moderate to Low	The site is surrounded by residential properties. Two historical refuse tips are recorded onsite in the central and southern site sections. As historic landfill sites were uncontrolled and rarely capped, the material in the shallow subsurface at these locations may contain multiple associated contaminants. Usual dust control measures should be implemented as part of good site working practices during construction to reduce dust generation.
		Future land users	Considered Active	Likely	High	High	It is likely that soils on site could be contaminated due to the two historical refuse tips recorded in the central and southern site sections. Given the proposed future residential development, there is a contamination pathway to end users via direct exposure to soils. Further intrusive investigation would be required in order to confirm this risk.
		Construction Workers	Considered Active	Low Likelihood	Moderate	Moderate to Low	Construction workers may be exposed to potentially limited contaminated made ground materials during construction works; however, exposure duration will be short-term only. Appropriate health and safety measures should be adopted (in line with CDM and other relevant health and safety guidance), as well as the implementation of dust control measures, in order to reduce this risk.
	Downward vertical migration of leachate to shallow groundwater	Groundwater within the Underlying Aquifer	Considered Active	Unlikely	Moderate	Low	Although a Secondary A aquifer exists beneath the site, impermeable glacial till will likely act as a barrier to vertical migration of any leachable contaminants. The groundwater vulnerability on the site is also recorded as low, and the closest active groundwater abstraction licence is located 1191m northwest of the site.

Source	Pathway	Receptor	Pollutant Linkage	Probability	Consequence	Risk	Comment
	Lateral migration in surface waters	Nearby Surface water features	Considered Active	Likely	Moderate	Moderate	The River Irwell, a sensitive surface water receptor, is located 30m west of the site. It is likely that contaminated soils exist onsite due to the historical refuse heaps. Because of the area's topography, leachable contaminants could feasibly migrate into the river due to the fall in elevation.
	Vertical or lateral migration of ground gas	Adjacent/ Future Land Users Construction Workers	Considered Active	Likely	High	High	Sources of ground gas exist on site due to the recorded historical refuse tips. Given the proposed future residential development, there is a direct pathway to end users. Construction workers may be exposed to ground gas / depleted oxygen conditions in excavations; however, the duration will be short-term, which could potentially reduce this risk.
Radon Gas	Vertical or lateral migration of ground gas	Future land users	Considered Inactive	-	-	Very Low	The site is located within an area where less than 1% of properties are above the action limit. Therefore radon protection measures are not required within any new structures.
Asbestos Containing Material (ACM)	Ingestion and inhalation of ACM	Future Land Users	Considered Active	Likely	Moderate	Moderate	Given the refuse tips recorded on site, ACM may have been tipped on site and buried in the shallow subsurface. Given the proposed future residential development, there is a direct pathway to end users.
		Adjacent land users Construction Workers	Considered Active	Low Likelihood	Moderate	Moderate to Low	Disturbance of soil during the construction phase may allow fibres to become airborne; asbestos may be within the soil due to the recorded historical refuse tips on site. Disturbance of soil during the construction phase may allow fibres to become airborne, therefore an intrusive investigation would be required in order to determine whether asbestos fibres in soils are present.

7.0 GEOTECHNICAL HAZARDS ASSOCIATED WITH THE DEVELOPMENT

In addition to the environmental hazards, there are also geotechnical hazards associated with the stability of the ground, including load-bearing capacity, slope stability, and effects of ground mining activities. Local Authorities follow the NPPF (2021), which requires that a site be suitable for its new use, taking into account ground conditions and land instability, including from natural hazards and from former activities such as mining. A summary of geotechnical hazards and considerations is provided in Tables 8 and 9, respectively.

Table 8: Summary of Geotechnical Hazards

Geohazards:	
Swelling Clay	Very Low
Running Sand	Very Low
Highly Compressible Ground	Negligible
Collapsible Soils	Very Low
Landslip	Moderate - Very low
Ground Dissolution	Negligible
Mining & Quarrying	The site does not lie within a Coal Authority Development High Risk Area. There are no other records of historical mining or quarrying on or near to the site.

Table 9: Summary of Geotechnical Considerations

Geotechnical Design Considerations	
Site Clearance	Significant site clearance will be required due to the dense vegetation on site, prior to development.
Trees	There are multiple mature trees and dense vegetation across the entire site.
Existing Buildings/Obstructions	There are no buildings or historical buildings within the proposed development area.
Foundations	The depth and type of proposed foundations would depend on the ground conditions present on site. There is likely to be artificial deposits underlying the areas of the former refuse tips. Uncontrolled made ground and landfill material in the shallow subsurface may present design challenges for the depth and type of future foundations.
Floor Slabs	A ground-bearing floor slab is not anticipated to be suitable for the proposed development. However, verification of the ground would be required.

Geotechnical Design Considerations	
Groundwater	Groundwater conditions are not known at this stage. For detailed knowledge of the groundwater regime, an intrusive geotechnical investigation would be needed. However, it is recorded that the site is underlain by Secondary A aquifer. The highest risk of groundwater flooding on the site is recorded as low.
Soakaways	Soakaways are not considered to be feasible on the site, based on the anticipated underlying refuse heap material, as well as the underlying natural boulder clay deposits, which generally have low permeability.
Earthworks	Extensive earthworks are likely to be required to form a foundation platform.
Slopes	The surface topography of the site is uneven and slightly undulating, however generally slopes upwards to the southeast of the site. There is an estimated 7m elevation difference between the northeast and southeast corners of the site. The potential for slope instability should be assessed if the site is to be cleared of trees.
Retaining Walls	Retaining walls may be required for the proposed development due to the slopes present on site.
Chemically aggressive ground conditions	Chemically aggressive ground conditions are expected at this site due to the former refuse tips recorded on site. However, an intrusive geotechnical investigation would be necessary to confirm this at the specified development location.



8.0 CONCLUSIONS AND RECOMMENDATIONS

8.1 Conclusions

8.1.1 *Environmental*

The overall risk from soil contamination to future residential end users is concluded to be **HIGH**.

The risk from soil contamination to adjacent/ neighbouring end users and construction workers is concluded to be **LOW to MODERATE**.

The risk to local groundwater within the underlying aquifers from mobile/ leachable contaminants is considered to be **LOW**.

The risk to surface waters/ controlled waters is concluded to be **MODERATE**.

The risk from ground gas to end users is considered to be **HIGH**

The site does not lie within a radon-affected area and therefore radon protection measures are not required for any new structures.

8.1.2 *Geotechnical*

Whilst a detailed geotechnical assessment is outside the scope of this report, the following conclusions have been made based on data available at this stage. It should be noted that a full geotechnical assessment as part of a Phase 2 Ground Investigation would be required to provide any further recommendations.

The site is not within an area affected by shallow coal mining or non-coal mining.

The site is not within an area that is considered to be significantly affected by geotechnical hazards, including shrink/ swell clays and ground dissolution of soluble rocks. However, due to the topography of the area and the steep slopes that exist on site, there is a risk of landslips especially along the western site section.

Based on the preliminary recorded ground conditions at the site, it is considered that soakaways/ sustainable drainage is unlikely to be feasible onsite.

8.2 Recommendations

A Phase 2 ground investigation is recommended for contamination testing to assess the risk from soil contamination to future end users, adjacent site users and construction works at this site from the historical uses on site. Ground gas monitoring regime would also be required, given the gas risk on site.

As part of a Phase 2 investigation, it would be prudent to obtain soil samples for geotechnical analysis and to ascertain geotechnical parameters of the site, subject to proposed structural requirements. It may also be necessary to conduct a slope stability assessment, subject to the final proposed design.

APPENDIX 1
GROUNDSURE REPORTS

APPENDIX 2
SITE PHOTOGRAPHS

Earth Environmental & Geotechnical Ltd Tel: 0161 975 6088 Email: headoffice@technicsgroup.com Web: www.earthenvironmental.co.uk	SITE PHOTOGRAPHS 
Job No.: A7878	Site: Bury New Road, Ramsbottom
Plate 1 View facing south showing historical site entrance	Plate 2 View facing north showing dry stone wall boundary
	
Date: 3rd July 2026	Date: 3rd July 2026
Plate 3 View facing northwest showing southeast site corner	Plate 4 View facing north showing slope of adjacent road
	
Date: 3rd July 2026	Date: 3rd July 2026

Earth Environmental & Geotechnical Ltd Tel: 0161 975 6088 Email: headoffice@technicsgroup.com Web: www.earthenvironmental.co.uk	SITE PHOTOGRAPHS  EARTH ENVIRONMENTAL & GEOTECHNICAL A Technics Group Company
Job No.: A7878	Site: Bury New Road, Ramsbottom
Plate 5 View facing north showing northern site boundary	Plate 6 View facing north showing gap in northern boundary fence, providing foot access
	
Date: 3rd July 2026	Date: 3rd July 2026
Plate 7 View facing southeast showing fallen trees	Plate 8 View facing southwest showing crest of slope
	
Date: 3rd July 2026	Date: 3rd July 2026

Earth Environmental & Geotechnical Ltd Tel: 0161 975 6088 Email: headoffice@technicsgroup.com Web: www.earthenvironmental.co.uk	SITE PHOTOGRAPHS  EARTH ENVIRONMENTAL & GEOTECHNICAL A Technics Group Company
Job No.: A7878	Site: Bury New Road, Ramsbottom
Plate 9 View facing southeast showing site sloping up to the south	Plate 10 View facing northwest showing fence blocks
	
Date: 3rd July 2026	Date: 3rd July 2026

Site Walkover Photograph Locations



APPENDIX 3

SITE WALKOVER NOTES

WALK OVER SURVEY REPORT

Site: Bury New Road, Ramsbottom **Date:** 3rd July 2026

Job No: A7878

Undertaken By: DS

Purpose of Site Walkover:

- 1) Provide further information for the Desk Study Report;
- 2) Identify potential contamination sources, pathways, and receptors;
- 3) Identify geotechnical features and potential geohazards;
- 4) Determine locations for exploratory boreholes.

Desk Study features checked during site visit	Feature and Information required	Present	Description / Comments
Site Setting	Description required for:		
	Town/Country/Suburb Setting		Site is located at the edge of Ramsbottom town centre.
	Industrial/Residential/Retail Usage		Site is located generally within a residential setting.
	Current Site use (if undertaking security and access to the site)		Site is currently unoccupied, undeveloped woodland.
Evidence of Past Activities	Are there:		
	Any relevant street names in area?	Yes/No	Bury New Road directly east of the site.
	Features or relics which indicate past history?	Yes/No	N/A
Geographic Setting	Description required for: Low lying flood plain/dry valley/rolling hills etc.		Woodland area within a valley, adjacent to a river.
Ground Conditions	Is there any evidence of:		
	Mining, Mine entries Subsidence	Yes/No	N/A
	Landslip/slope erosion	Yes/No	None noted, however due to the variable elevation across the site, it may be possible.
	Former investigation works	Yes/No	N/A
Topography	Description required for:		
	Are there apparent differences between site and surrounding area? (If yes describe the presence of retaining walls, and slopes).	Yes/No	Large elevation difference across the site (circa. 7m higher in southeast in comparison with northeast). The local area continues the same trend, sloping down to the north and up to the south. Steep slope leading to the River Irwell to the west of the site. Steep drop to the north where there is a building yard.
	Is there evidence of Made Ground / Fill on site.	Yes/No	None apparent during walkover.
Site Boundaries and Neighbours	Description required for:		
	Type of boundary demarcation (if any) on each side of site, usage of adjacent land and name of industrial/commercial occupiers.		N - Wooden fence - Building Yard (lower elevation) E - Dry Stone Wall - Bury New Road and residential area. S - Undefined, open to woodland - Residential property.

Desk Study features checked during site visit	Feature and Information required	Present	Description / Comments
			W - Undefined, open to woodland - steep slope down to the River Irwell.
	Note any adjacent features such as water course and other potentially environmentally sensitive uses (residential, school, infirmary, SSSI etc)		River Irwell to the west (circa 25m). New residential construction site to the west of the river. Residential terraced houses to the east of the site.
Vegetation	Are there any vegetation/trees on or close to site (if yes describe locations, type, maturity, etc)	Yes/No	The site is an area of developed woodland, occupied by various deciduous trees and vegetation of variable maturity. Generally developing or established trees.
	Is there any evidence of poor health / distress.	Yes/No	No.
Ground Surface	Are there areas of hardstanding and estimate the split between hard and soft cover? (If yes describe locations, types, and conditions).	Yes/No	Area is entirely covered by soft standing.
	Is there any evidence of any spillages or staining?	Yes/No	N/A
Site Drainage	Are there any drain covers / soakaways (if yes describe locations)	Yes/No	N/A
	Are there any outfalls/water courses on site (note the condition of water courses in open water courses. discolouration, odour, eutrophication, oily sheen, gas bubbling water, clear or cloudy)	Yes/No	N/A
	Where a watercourse runs alongside or crosses a site are there any differences in visible water quality upstream and downstream of the site?	Yes/No	No visual difference in water quality upstream and downstream.
Electrical Equipment	Are there any electricity sub stations on or adjacent to the site? Are there any electrical transformers, capacitors, pylons etc on site?	Yes/No	N/A
Buildings	Is there any evidence of asbestos construction materials e.g. roofing, insulation materials.	Yes/No	N/A
	Do any buildings have basements?	Yes/No	N/A
	Do any buildings have a boiler room (if yes, describe fuel type and storage arrangements)?	Yes/No	N/A
Landfilling	Is there any evidence of gas protection measures (gas membrane, gravel-filled trenches, venting pipes, etc)?	Yes/No	N/A
Process Air Emissions	Point Source: Are there any stacks / vents / cooling towers / abatement equipment?	Yes/No	N/A
	Fugitive Source: is there any stockpiled material / windblown dust / vapour process?	Yes/No	N/A
Storage of fuels & Chemicals	Are there any drums / containers (if yes, describe quantity, full /empty,	Yes/No	N/A

Desk Study features checked during site visit	Feature and Information required	Present	Description / Comments
	stored on hard standing / soft landscaping, bunding)?		
	Are there any above ground fuel tanks (if yes, describe locations, volumes, how many, bunding, used / disused, condition)?	Yes/No	N/A
	Is there any evidence of underground fuel tanks (fuel pumps, covers, vent pipes, how many and how large, fill point, used / disused, and condition)?	Yes/No	N/A
Accidents	In the event of a large spillage would runoff affect any vulnerable watercourse/culverts?	Yes/No	It is likely that the adjacent River Irwell would be effected in the event of a large scale spillage.
	Are emergency procedures / equipment in place?	Yes/No	N/A
Waste	Are there any waste skips present on site?	Yes/No	N/A
	Are waste storage facilities adequate?	Yes/No	N/A
	Is there any litter/fly tipped material?	Yes/No	2 pieces of 'fly tipped' material were identified on site, a flattened small water container and what appeared to be a large Heras fence base/ foot.
Atmospheric	Are there any fumes, odours originating from site or affecting site from neighbouring sites?	Yes/No	N/A
Access / Further Investigations	If a Phase 2 Investigation is likely to be required, describe any access problems including headroom where relevant, services, overhead cables, restricted access areas, confined spaces, trafficked areas, etc that are likely to affect investigation scope/techniques.		No current, viable access point for vehicles or machinery. A Phase 2 investigation would not be viable at the site in its current condition. Should also be highlighted that due to the elevation differences across the site, removal of the existing trees <i>may</i> destabilise the site/ slopes.
	Identify possible site office and storage locations.		At the time of this survey, there is nowhere on site that would be suitable for an office or storage.
	Identify possible water supply		Again, no viable water source.
Site Environs	Are there any local features that could have a harmful influence e.g. landfill, industrial processes, railway land?	Yes/No	No significant features have been identified at this stage that may be harmful to the site. The building yard to the north of the site is old, however it is at a much lower elevation than the site, therefore there is a very low chance of it impacting the site.
	Are there any sensitive water features/courses near to the site?	Yes/No	River Irwell is in close proximity to the site, which could be effected by runoff.
Local Knowledge / Anecdotal Evidence			It is understood that the site is located in the area of a historical refuse heap, previously utilised by a now removed paper mill. However, no evidence of the refuse heap was observed during this walkover and therefore would need to be confirmed via historical maps.

APPENDIX 4

REPORT LIMITATIONS

REPORT LIMITATIONS

This contract was completed by Earth Environmental & Geotechnical Ltd under a defined programme, scope of works, and terms and conditions agreed with the client. This report was compiled with all reasonable skill and care, taking into account the project objectives, the agreed scope of works, the prevailing site conditions, the budget, and the staff resources allocated to the project.

Other than that, expressly contained in the above paragraph, Earth Environmental & Geotechnical Ltd provides no other representation or warranty, whether express or implied, in relation to the services. Unless otherwise agreed, this report has been prepared exclusively for the use and reliance of the client in accordance with generally accepted consulting practices and for the intended purposes as stated in the agreement under which this work was completed. This report may not be relied upon, or transferred to, by any other party without the written agreement of a Director of Earth Environmental & Geotechnical Ltd.

If a third party relies on this report, it does so wholly at its own and sole risk and Earth Environmental & Geotechnical Ltd disclaims any liability to such parties.

It is Earth Environmental & Geotechnical Ltd's understanding that this report is to be used for the purpose described in the introduction to the report. That purpose was an important factor in determining the scope and level of the services. Should the purpose for which the report is used, or the proposed use of the site change, this report will no longer be valid, and any further use of, or reliance upon the report in those circumstances by the client without Earth Environmental & Geotechnical Ltd review and advice shall be at the client's sole and own risk.

The report was written in 2026 and should be read in light of any subsequent changes in legislation, statutory requirements, and industry best practices. Ground conditions can also change over time, and further investigation or assessment should be conducted if there is any significant delay in acting on the findings of this report. The passage of time may result in changes to site conditions, regulatory or other legal provisions, technology, or economic conditions that could render the report inaccurate or unreliable. The information and conclusions contained in this report should not be relied upon in the future without the written advice of Earth Environmental & Geotechnical Ltd. In the absence of such written advice from Earth Environmental & Geotechnical Ltd, reliance on the report in the future shall be at the client's own and sole risk. Should Earth Environmental & Geotechnical Ltd be requested to review the report in the future, Earth Environmental & Geotechnical Ltd shall be entitled to additional payment at the then existing rate or such other terms as may be agreed between Earth Environmental & Geotechnical Ltd and the client.

The observations and conclusions described in this report are based solely upon the services that were provided pursuant to the agreement between the client and Earth Environmental & Geotechnical Ltd. Earth Environmental & Geotechnical Ltd has not performed any observations, investigations, studies or testing not explicitly set out or mentioned within this report.

Earth Environmental & Geotechnical Ltd is not liable for the existence of any condition, the discovery of which would require performance of services not otherwise contained in the services. For the avoidance of doubt, unless otherwise expressly referred to in the introduction to this report, Earth Environmental & Geotechnical Ltd did not seek to evaluate the presence on or off the site of electromagnetic fields, lead paint, radon gas or other radioactive materials.

The services are based upon Earth Environmental & Geotechnical Ltd's observations of existing physical conditions at the site, gained from a walkover survey of the site, together with Earth Environmental & Geotechnical Ltd's interpretation of information, including documentation,

obtained from third parties and from the client on the history and usage of the site. The findings and recommendations contained in this report are based in part upon information provided by third parties, and whilst Earth Environmental & Geotechnical Ltd have no reason to doubt the accuracy of that information, it has not been verified.

No responsibility can be accepted for errors within third-party items presented in this report. Further Earth Environmental & Geotechnical Ltd was not authorised and did not attempt to independently verify the accuracy or completeness of information, documentation or materials received from the client or third parties, including laboratories and information services, during the performance of the services. Earth Environmental & Geotechnical Ltd is not liable for any inaccurate information, misrepresentation of data or conclusions, the discovery of which inaccuracies required the doing of any act including the gathering of any information which was not reasonably available to Earth Environmental & Geotechnical Ltd and including the doing of any independent investigation of the information provided to Earth Environmental & Geotechnical Ltd save as otherwise provided in the terms of the contract between the client and Earth Environmental & Geotechnical Ltd.

Where field investigations have been carried out, they have been restricted to the level of detail required to achieve the stated objectives of the work. Ground conditions can also be variable, and investigation excavations only allow examination of the ground at discrete locations. The potential exists for ground conditions to be encountered that differ from those considered in this report. The extent of the limited area depends on soil and groundwater conditions, the positions of any current structures and underground facilities, and natural and other activities on site. In addition, chemical analysis was carried out for a limited set of parameters [as stipulated in the contract between the client and Earth Environmental & Geotechnical Ltd], based on the available operational and historical information, and it should not be inferred that other chemical species are absent.

The groundwater conditions entered on the exploratory hole records are those observed at the time of investigation. The normal speed of investigation usually does not permit the recording of an equilibrium water level for any one water strike. Moreover, groundwater levels vary seasonally and with local drainage conditions, and higher levels may occur at other times of the year than those recorded during this investigation.

Any site drawing(s) provided in this report are not meant to be an accurate base plan but are used to present the general relative locations of features on and surrounding the site.