



Phase I Site Investigation

Boat Lane

Northenden

October 2025

For

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**EARTH ENVIRONMENTAL
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A Technics Group Company

PHASE I GEOENVIRONMENTAL DESK STUDY

BOAT LANE

NORTHENDEN

Report Ref: A6986/25/FDS/V2

SEPTEMBER 2025

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1.0 INTRODUCTION

Appointment

- 1.1 BTP Architects have commissioned Earth Environmental & Geotechnical Ltd on behalf of their client (Kris Sun) to undertake a Phase I Environmental Desk Study for the proposed new development at Boat Lane, Northenden.
- 1.2 It is understood that the client is proposing to demolish the existing building yard buildings and construct 5no. new residential houses.
- 1.3 A proposed development plan is presented in Figure 1, overleaf.

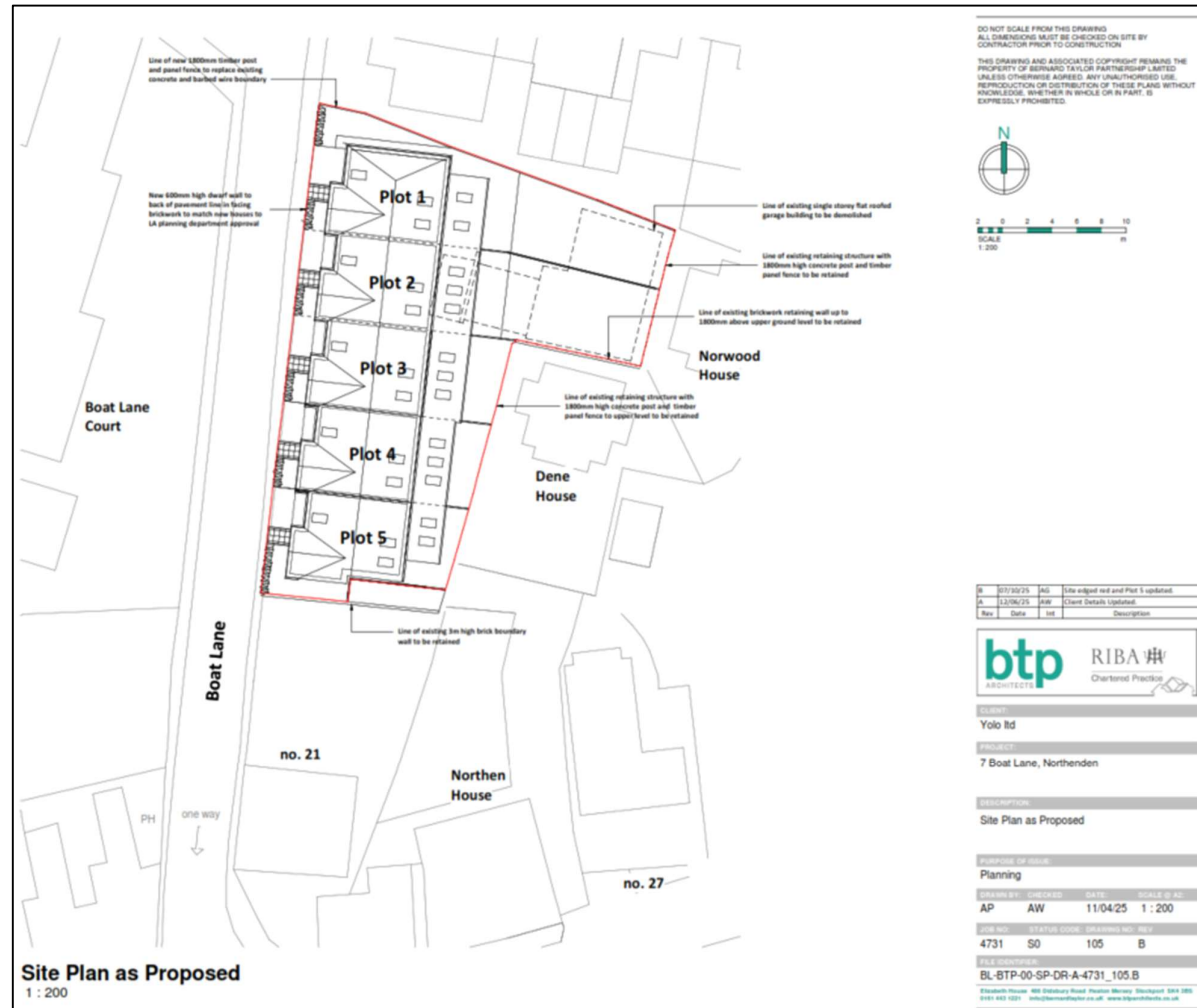
Objective

- 1.4 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.

Scope

- 1.5 The Phase I Environmental Desk Study comprises a site reconnaissance visit and a review of the following information sources, some of which were provided by the client.
 - British Geological Survey online maps.
 - Google Earth imagery.
 - 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.
 - Manchester City Council planning portal.

Figure 1: Proposed Development Plan



2.0 SITE LOCATION AND DESCRIPTION

- 2.1 The site (0.10 hectares) is located at 7 Boat Lane, Northenden, approximately 8km south of Manchester city centre.
- 2.2 The approximate National Grid Reference for the centre of the site is SJ 83219 90136 (X: 383219, Y: 390136) and postcode M22 4HR.
- 2.3 The site is occupied by a disused breakers yard, entirely covered with hardstanding. There is a single-storey small toilet block in the central west of the site, adjacent to a portable metal-framed office block. The northeast of the site features two single-storey brick-built garages with metal-covered and metal-roofed areas. There are overgrown shrubs in the northwest, central, and southeastern boundaries of the site.
- 2.4 Access to the site is gained via the gate from Boat Lane, in the southwest corner of the site.
- 2.5 The site is bounded by brick walls on the north and south, a concrete wall to the west, and fencing to the east.
- 2.6 The surrounding area is residential in all directions with multiple mature trees, including Leylandii, silver birch, sycamore, and cherry.
- 2.7 A location plan is shown below as Figure 2, together with a recent site photograph as Figure 3 (overleaf).

Figure 2: Site Location Plan

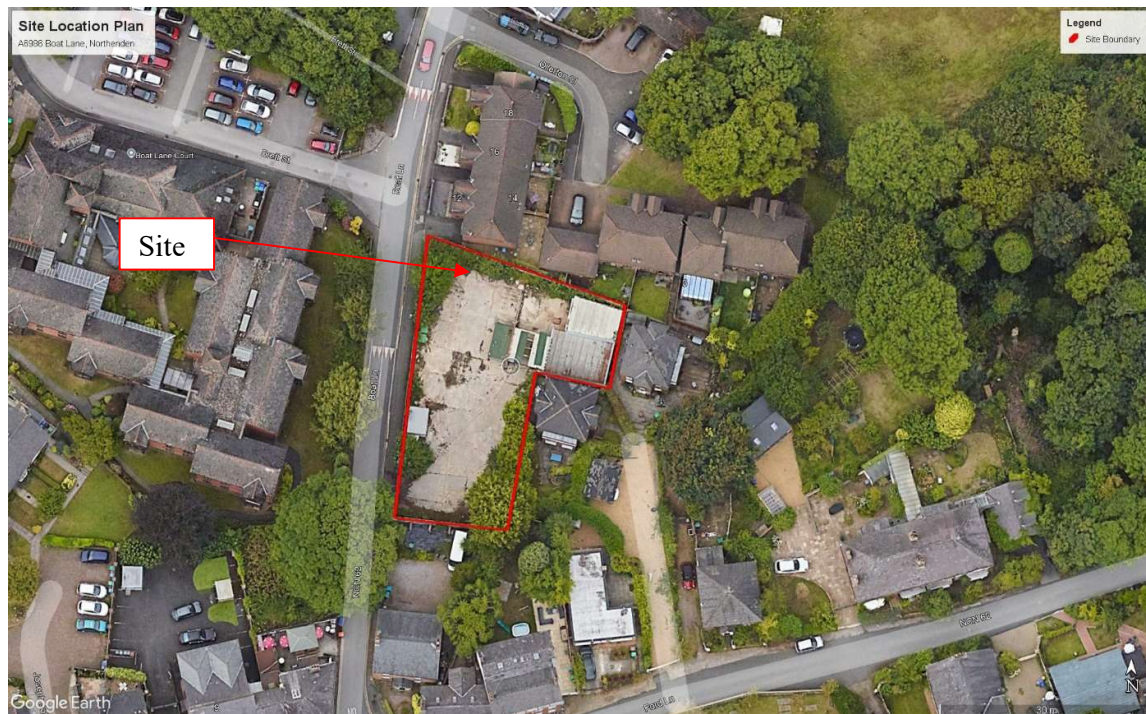


Figure 3: Site Photograph



Site Utility Services

- 2.8 Site service plans have not been obtained for the site on behalf of the client. The status of all services should be checked before any development (including site investigation) commencing.

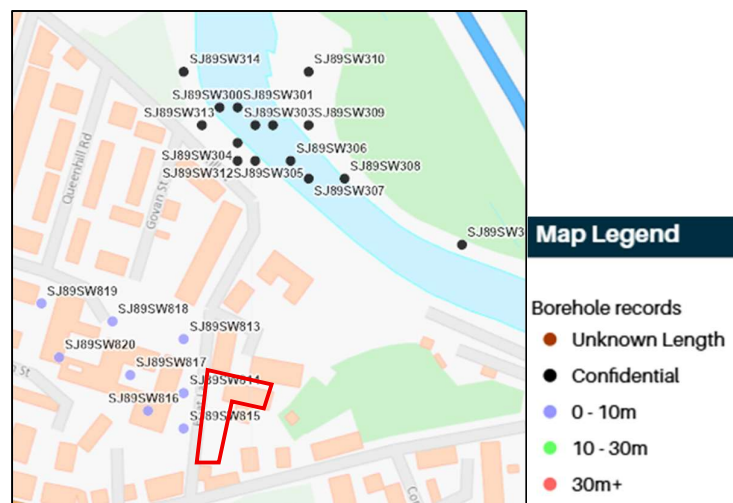
3.0 ENVIRONMENTAL SETTING

- 3.1 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).
- 3.2 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

Geology

- 3.3 The BGS states the site is not underlain by artificial deposits or made ground.
- 3.4 The site is recorded to be underlain by superficial deposits of Glacial Fluvial, comprising unconsolidated sands and gravels.
- 3.5 The site is recorded to be underlain by bedrock of the Triassic Wilmslow Sandstone Formation, which the BGS Lexicon describes as 'red brown to brick-red, fine- to medium-grained, generally pebble-free, cross-bedded sandstones, with sporadic siltstones'.
- 3.6 There are 2no. records of linear features within 500m of the site boundary. The closest record refers to a normal fault located 13m to the west of the site.
- 3.7 There are no records of landslips within 500m of the site boundary.
- 3.8 There are 33no. borehole records identified within 250m of the site. The boreholes to the west of the site indicate a stratum of made ground over interbedded clay, gravels, and sands over glacial till with a rockhead at between 4.20 and 4.90m bgl.

Figure 4: BGS Borehole Location Plan



- 3.9 The following hazard ratings apply to the site and land within 50m are presented in the Enviro + Geo Insight Report

- Shrink / swell clays: Negligible
- Running sands: Very Low

- | | |
|--|------------|
| • Compressible deposits: | Negligible |
| • Collapsible deposits: | Very Low |
| • Landslides: | Very Low |
| • Ground dissolution of soluble rocks: | Negligible |

Hydrogeology and Hydrology

- 3.10 The superficial deposits of Glacial Fluvial Deposits are classified by the Environment Agency (EA) as a “Secondary A Aquifer,” described as “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 aquifer has an intergranular flow type and high to very high permeability.
- 3.11 The bedrock geology of the Wilmslow Sandstone Formation, classified by the EA as a “Principal Aquifer,” is described as “Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers” The aquifer has a intergranular flow type of high permeability.
- 3.12 The groundwater vulnerability and soil leaching potential of the site have been classified as high vulnerability. The BGS describes low vulnerability areas as “Areas 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.”
- 3.13 There are 7no. groundwater abstraction licence records within 2km of the site. The closest record refers to an active licence located 781m to the northeast of the site.
- 3.14 There are 2no. surface water abstraction licence records within 2km of the site. The closest record refers to a historical license located 1033m to the northwest of the site.
- 3.15 There are no potable abstraction license records within 2km of the site.
- 3.16 The site is not located within a groundwater Source Protection Zone.
- 3.17 The site is not located within a Source Protection Zone with a confined aquifer.
- 3.18 There are 8no. water network entries within 250m of the site. The closest record refers to a surface water course located 166m to the northeast of the site.
- 3.19 There are 5no. surface water features within 250m of the site.
- 3.20 There is 1no. record of a Water Framework Directive (WFD) surface water body catchment located on the site. The record refers to the Mersey (upstream of Manchester Ship Canal) water body catchment, Bolin Dean Mersey Upper operational catchment, and Mersey Upper management catchment.
- 3.21 There is 1no. record of a WFD surface water body located within 500m of the site. The record refers to the Sinderland Brook (Fairlywell Brook and Baguley Brook) with a failed chemical rating and a moderate ecological rating.

- 3.22 There is 1no. record of a WFD groundwater body located on the site. The record refers to the Weaver and Dane Quaternary Sand and Gravel Aquifers. The river received a poor chemical rating in 2019.

Ground Workings, Mining and Other Underground Workings

- 3.23 There are no records of BritPits within 500m of the site.
- 3.24 There are no records of historical surface ground working features identified within 250m of the site boundary.

Mining and Other Underground Workings

- 3.25 Reference to the Coal Authority shows that the site is not located within an identified coal mining area.
- 3.26 There are no records for historical underground working features identified within 1km of the site.
- 3.27 There are no records for non-coal mining areas located within 1km of the site.
- 3.28 There are no areas of gypsum extraction, brine extraction, tin mining, or clay mining within 1km of the site.
- 3.29 There are no records for mining cavities identified within 1km of the site.
- 3.30 There are no records of natural cavities identified within 1km of the site.
- 3.31 There are no records of historical or reported incidents within 500m of the site.

Radon Potential

- 3.32 The structure is within an area where less than 1% of properties are above the Action Level.
- 3.33 Therefore, radon protection measures are not necessary.

Landfill & Waste Management Activity

- 3.34 There are no records for the current Environment Agency/Natural Resource Wales landfill records within 500m of the site.
- 3.35 There are no records of BGS/DoE non-operational landfill sites within 500m of the site.
- 3.36 There are no records of historical landfill sites from the Local Authority and Historical Mapping Records within 500m of the site.
- 3.37 There are no records of a historic Environment Agency/Natural Resource Wales landfill site within 500m of the site.
- 3.38 There are 9no. records of historical waste sites from the Local Authority and Historical Mapping Records within 500m of the site. A total of 7no. records refer to the site as a breaker's yard.

- 3.39 There are no records of current Environment Agency/Natural Resources Wales licensed waste sites within 500m of the site.
- 3.40 There are 3no. records of waste treatment, transfer, or disposal sites within 500m of the site. Two of the records are onsite and relate to the recovery of scrap metal and storage of waste in a secure place.

Industrial Land Use Information

- 3.41 There are 48no. records of historical industrial land uses identified within 500m of the site. The closest record refers to a police station located 11m to the southwest of the site; there are no further records within 100m of the site.
- 3.42 There are 5no records of current potentially contaminative land uses identified within 500m of the site. The record refers to a domestic appliances shop located 106m west of the site.
- 3.43 There are 6no. records of historical tanks identified within 500m of the site. The closest record refers to an unspecified tank located 35m to the northeast of the site, dated 1898.
- 3.44 There are 15no. records of historical energy features identified within 500m of the site. The closest record refers to an electrical substation located 172m to the south of the site.
- 3.45 There are 2no. records for current petrol or fuel sites within 500m of the site. The closest record refers to an obsolete petrol station located 267m to the north of the site.
- 3.46 There are no records of historical petrol or fuel sites within 500m of the site.
- 3.47 There are 16no. historical garages and motor vehicle repair site records identified within 500m of the site. The closest record refers to a garage located 217m to the west of the site.
- 3.48 There are no records of historical military land within 500m of the site.
- 3.49 There are no National Grid high voltage underground electricity transmission cables within 500m of the site.
- 3.50 There are no National Grid high-pressure gas transmission pipelines within 500m of the site.
- 3.51 There are no records of historical railway and tunnel features identified within 250m of the site.
- 3.52 There are no historical railway lines identified within 250m of the site.
- 3.53 There are no. records of the current active railway line records identified within 250m of the site.
- 3.54 There are no underground railway lines or tunnels identified within 250m of the site.
- 3.55 The site is within 500m of the route of the HS2 rail project. A tunnel is located 151m to the northwest of the site.

Environmental Permits, Incidents, and Registers

- 3.56 The Groundsure Report includes records of environmental permits, incidents, and registers within 500m of the site, which are summarised in Table 1 below.

Table 1: Environmental Permits, Incidents, and Registers within 500m of the Site

Permit/Incident/Register	Number
Sites Determined as Contaminated Land under Part 2a EPA 1990	0
Dangerous or Hazardous (COMAH and NIHHS) Sites	0
Regulated Explosive Sites	0
Historical Licensed Industrial Activities (IPC)	0
Part A (1) and IPPC Authorised Activities	5
Part A (2) and Part B Activities and Enforcements	3
Pollutant Release to Surface Waters (Red List)	0
List 1 Dangerous Substances Inventory Sites	0
List 2 Dangerous Substances Inventory Sites	0
Category 3 or 4 Radioactive Substance Authorisations	0
Licensed Discharge Consents	1
Planning Hazardous Substance Consents and Enforcements	0
Pollutant Release to Public Sewer	0
Substantiated Pollution Incidents	3
Pollution Inventory Substances, Wastes, and Radioactive Wastes	0

- 3.57 There are 5no. records for the Licensed Industrial Activities Part A(1) located within 500m of the site. The closest record refers to Dunton Technologies Limited, located 227m to the east of the site.
- 3.58 There are 3no. records for the Licensed Industrial Activities Part A(2)/B located within 500m of the site. The closest record refers to a Dry Cleaners located 248m to the east of the site.
- 3.59 There are 3no. records for the Pollution Incidents (EA/NRW) located within 500m of the site. The closest record refers to an incident 103m to the northeast of the site, with a minor water impact.
- 3.60 There is 1no. record for the Licensed Discharge Consent located within 500m of the site. The record refers to Trade Discharge- site drainage located 316m to the north of the site.

Environmentally Sensitive Sites

- 3.61 There are no records of Sites of Special Scientific Interest (SSSI) within 2km of the site.
- 3.62 There are no records of RAMSAR sites, special areas of conservation, special protection areas, nature reserves, local nature reserves, biosphere reserves, marine conservation zones, and Nitrate Vulnerable Zones or designated ancient woodland on the site.
- 3.63 The site is adjacent to a Green Belt Area.

Ecology

- 3.64 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.
- 3.65 There are no records for tree felling licenses, open access land, environmental stewardship schemes, or country stewardship schemes on site.
- 3.66 The site is classified as Urban land.
- 3.67 There are no records for habitat networks, priority habitat inventory, open mosaic habitats, or limestone pavement orders located onsite.

Archaeology

- 3.68 An archaeological assessment falls outside the brief of this report. Where considered necessary, advice should be sought from an archaeological specialist in this respect.
- 3.69 However, there are no records of World Heritage Sites, Areas of Outstanding Natural Beauty, National Parks, Listed Buildings, Scheduled Ancient Monuments, or Registered Parks and Gardens within 250m of the site.
- 3.70 The site is within the Northenden Conservation Area.

Potential Flood Risks

- 3.71 Detailed assessment of flood risk is outside the scope of this report. However, reference to Environment Agency records indicates that the site does not lie within a Zone 2 or Zone 3 Flood Zone.
- 3.72 There is a low risk of flooding from rivers and sea (RoFRaS) within 50m of the site.
- 3.73 There are 6no records of historical flood events within 250m of the site. The closest record is located 5m to the south and dated 10/10/2011. The remaining records are located more than 50m from the site.
- 3.74 There are 6no. records of flood defences located within 250m of the site. The closest record is situated 92m to the northeast of the site.
- 3.75 There are no records of areas benefiting from flood defences within 250m of the site.
- 3.76 There is 1no. record of an area used for flood storage within 250m of the site. The record refers to a location 151m to the northeast of the site.
- 3.77 The highest risk of surface water flooding occurring on-site is negligible.
- 3.78 The highest risk of groundwater flooding occurring on-site is moderate.

Unexploded Ordnance

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

4.0 SITE HISTORY

- 4.1 Reference historical plans and Google Earth imagery have determined the historical development of the site. Information in the historical mapping study has been predominantly limited to the site or within 100m of the site to focus on the most directly relevant information. Beyond this radius, only information deemed appropriate will be referenced. Each map or photograph represents a snapshot of the site and its environment at the date of the survey. Any changes that occur at other times may not have been recorded on the maps and could represent an unidentified hazard to the site.
- 4.2 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.
- 4.3 The earliest available historical mapping covering the site dates back to 1898. The site history is summarised in Table 2 and Table 3, below, followed by selected extracts from maps and aerial photographs in Figure 5 to 8.

Table 2: Summary of Site History

Date	Scale	On-Site History	Surrounding Land Use History
1897	1:10,560	There is a building in the centre of the site.	Boat Lane is to the immediate west of the site. Residential properties are present approximately 10m to the west, 50m to the southwest, to the immediate south, 40m to the east, and 60m to the north.
1898	1:2,500	Buildings in the centre and south occupy the site with a water pump.	There is no significant change compared to the previous map.
1905	1:10,560	There is no significant change compared to the previous map.	There is no significant change compared to the previous map.
1907-1911	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. Water pump not annotated.	There is no significant change compared to the previous map.
1916	1:10,560	There is no significant change compared to the previous map.	There is no significant change compared to the previous map.
1922	1:2,500	There is no significant change compared to the previous map.	A building is now present approximately 25m to the north.

Date	Scale	On-Site History	Surrounding Land Use History
1923	1:10,560	There is no significant change compared to the previous map.	There is no significant change compared to the previous map.
1934-1935	1:2,500	There are buildings in the south of the site.	Landscaping associated with a public house has occurred to the immediate north of the site.
1934-1938	1:10,560	There is no significant change compared to the previous map.	There is no significant change compared to the previous map.
1954-1955	1:10,560	There is no significant change compared to the previous map.	There is no significant change compared to the previous map.
1955-1956	1:1,250	The buildings in the south have been demolished, and a new building is present in the centre of the site.	There is no significant change compared to the previous map.
1956-1957	1:2,500	There is no significant change compared to the previous map.	There is no significant change compared to the previous map.
1966-1967	1:10,560	There is no significant change compared to the previous map.	There is no significant change compared to the previous map.
1975-1976	1:1,250	There is no significant change compared to the previous map.	There is no significant change compared to the previous map.
1977-1981	1:10,000	There is no significant change compared to the previous map.	There is no significant change compared to the previous map.
1980-1984	1:1,250	The site is labelled as a breaker's yard.	There is no significant change compared to the previous map.
1988-1989	1:10,000	The building at the centre of the site has been demolished, and a new building has been constructed in the northeast corner of the site.	A police station is approximately 15m to the southwest of the site.
1992	1:1,250	There is no significant change compared to the previous map.	Residential properties have been constructed 10m to the west of the site and to the immediate north 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.	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 3: Summary of Site History from Aerial Photographs

Date	On-Site History	Surrounding Land Use History
2000	The site is a breakers yard with a building in the northwest corner of the site.	The surrounding area is residential in all directions.
2009	There is no significant change compared to the previous photograph	There is no significant change compared to the previous photograph
2015	There is no significant change compared to the previous photograph	There is no significant change compared to the previous photograph
2019	There is no significant change compared to the previous photograph	There is no significant change compared to the previous photograph
2023	There is no significant change compared to the previous photograph	There is no significant change compared to the previous photograph

- 4.4 The earliest map in 1897 indicates that the site is occupied by a building in the centre of the site, with additional buildings in the south of the site from 1898.
- 4.5 The building was demolished in 1955, and a new building was constructed in the centre of the site.
- 4.6 In 1988, the central building was demolished, and the existing buildings in the northeast corner of the site were constructed.
- 4.7 There has been no further significant change to date.

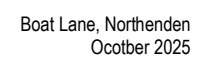


Figure 7: Ordnance Survey Map Extract 2003

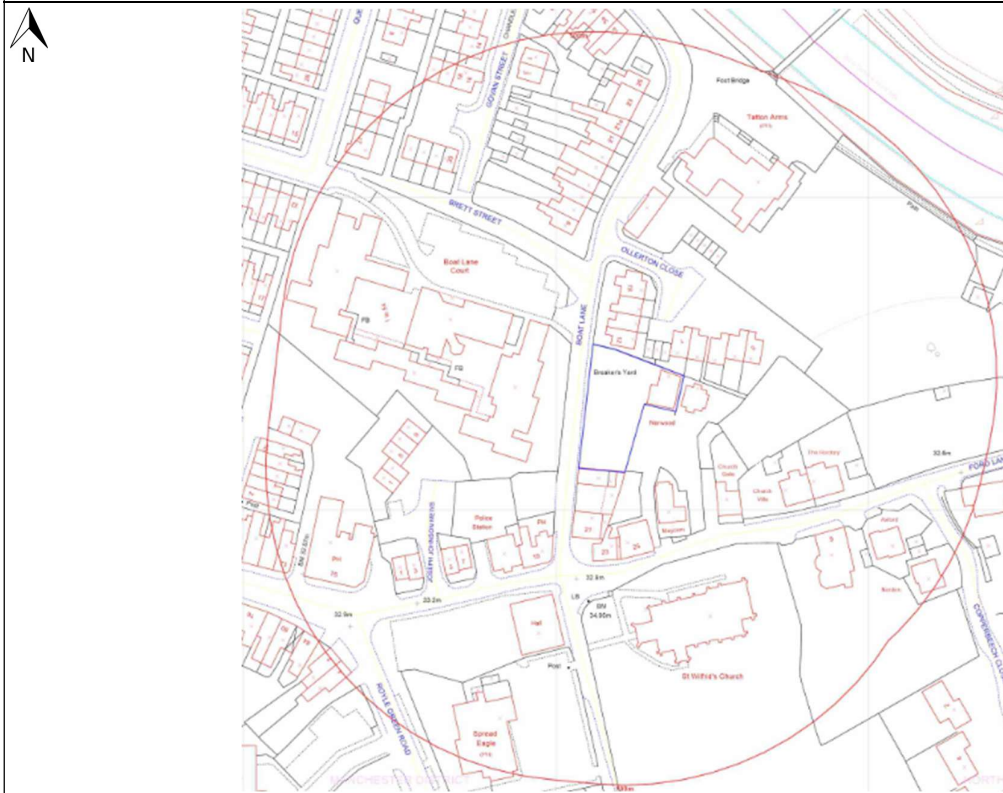
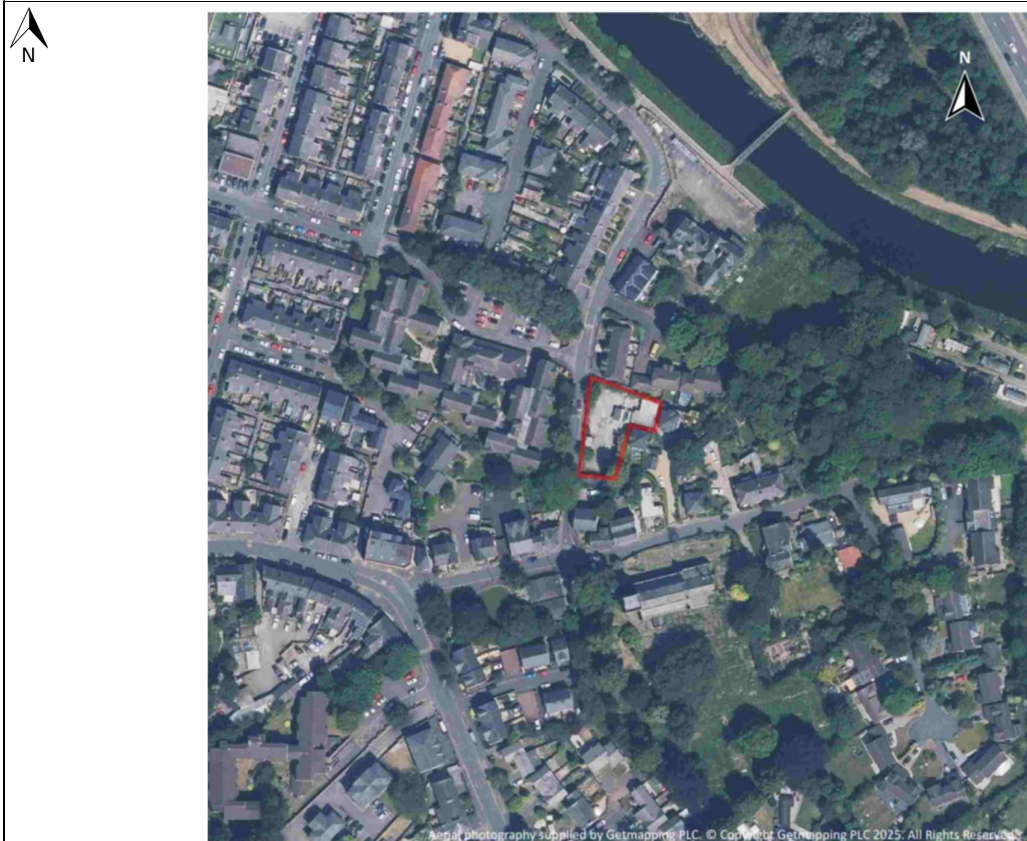


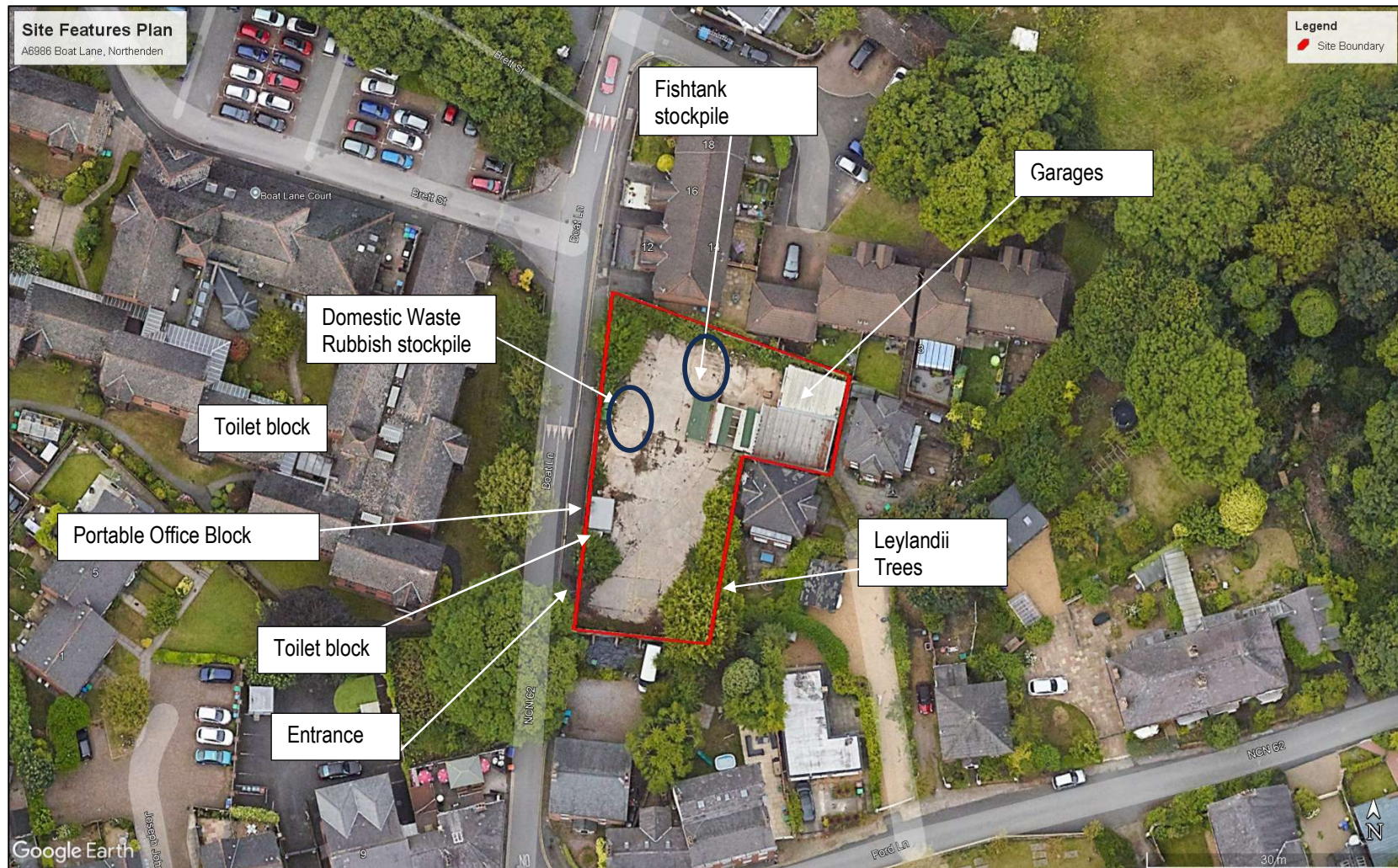
Figure 8: Aerial Photograph 2023



5.0 SITE WALKOVER SURVEY

- 5.1 A walkover survey was completed on 2nd September 2025. The photographs and notes from this survey are appended to this report as Appendix 2 and Appendix 3, respectively.
- 5.2 The site (0.10 hectares) is located at Boat Lane, Northenden, approximately 8km south of Manchester city centre.
- 5.3 The site is occupied by a disused breakers yard, entirely covered with hardstanding. There is a single-storey small toilet block in the central west of the site, adjacent to a portable metal-framed office block. The northeast of the site features two single-storey brick-built garages with metal-covered and metal-roofed areas. There are overgrown shrubs in the northwest, central, and southeastern boundaries of the site.
- 5.4 Access to the site is gained via the gate from Boat Lane, in the southwest corner of the site.
- 5.5 The site is bounded by brick walls on the north and south, a concrete wall to the west, and fencing to the east.
- 5.6 The surrounding area is residential in all directions with multiple mature trees, including Leylandii, silver birch, sycamore, and cherry.

Figure 8 Site Features Plan



6.0 PRELIMINARY CONTAMINATION RISK ASSESSMENT

Introduction

- 6.1 The following paragraphs outline a Preliminary Risk Assessment (PRA) for the site based on the above desk study information as defined by Land Contamination Risk Management Environment Agency, July 2023.
- 6.2 Table 8 provides a Preliminary Conceptual Model (PCM) which considers the source-pathway-receptor linkages present alongside the likelihood, severity and risk level as defined within Table 6 and Table 7 below. 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.
- 6.3 Table 8 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, it does not necessarily mean that a significant risk exists but indicates that further information is required through appropriate site investigation to substantiate the conceptual model.
- 6.4 The PCM/PRA is based on a residential with home grown produce end use.

Table 4: 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 the human health likely to result in significant harm. Risk of severe or irreversible effect on ground/surface water quality. Catastrophic damage to buildings / property.	Very High – there is a high potential that the source-pathway-receptor scenarios may give rise to harm to human health, or the environment and remedial action is likely to be required.
Likely – there is a pollution linkage, and all the elements are present, which means that it is probable 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 substantial adverse impact on groundwater dependant environmental receptors.	High – it is likely that the source-pathway-receptor scenarios may give rise to an impact on human health or the environment, which may require remediation and/or control measures to mitigate risks
Low likelihood– there is a pollutant linkage, and circumstances are possible for an event could occur. However, it is by no means certain that even over a longer period such event would take place, and is less likely in the shorter term	Moderate – Long term or short-term moderate effect on human health. Moderate effect on ground/surface water quality, reversible with time. Reduced reliability of a supply at a groundwater or surface water abstraction source	Moderate – it is possible that the source-pathway-receptor scenarios may give rise to an impact on human health or the environment, however it is either relatively unlikely that such would be severe, or if any harm were to occur it is more likely that harm would 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 effect 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 it is likely that this would at worst be mild.
		Very Low – it is unlikely that the source-pathway-receptor scenarios will give rise to an impact on human health or the environment.

Table 5: 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

- 6.5 The earliest map in 1897 indicates that the site is occupied by a building in the centre of the site, with additional buildings in the south of the site from 1898.
- 6.6 The building was demolished in 1955, and a new building was constructed in the centre of the site.
- 6.7 In 1988, the central building was demolished, and the existing buildings in the northeast corner of the site were constructed.
- 6.8 There has been no further significant change to date.
- 6.9 To summarise, there is potential for the presence of contamination associated with the following:
- Made ground from the demolition of previous buildings on-site.
 - Metals and TPH, PAH from the former breaker's yard.
 - Asbestos from the demolition of previous buildings onsite.

Potential Receptors

- 6.10 The following receptors have been considered for the construction and operational stages of the proposed redevelopment.
- Current site users;
 - Adjacent land users;
 - Future land users;
 - Construction workers during site development works;

Potential Pathways

- 6.11 The following pathways have been considered for the construction and operational stages of the proposed redevelopment.
- Dermal contact, ingestion, inhalation pathways of potentially contaminated soils.
 - Downward vertical migration of leachate to shallow groundwater.
 - Vertical or lateral migration of ground gas.

Table 6: Preliminary Conceptual Model

Source	Pathway	Receptor	Probability	Consequence	Risk	Comment
Made Ground (Heavy Metals, PAH, TPH, BTEX,)	Dermal contact, ingestion, and inhalation of soils dust	Current Site Users	Unlikely	Moderate	Low	The site is currently unoccupied and covered with a majority hardstanding. however, there is limited potential for direct contact between contaminated soils and receptors. The risk is therefore considered to be LOW .
		Adjacent land users	Low Likelihood	Moderate	Moderate to Low	A residential properties boarder the site. The risk to offsite land users is considered to be MODERATE to LOW . Usual dust control measures should be implemented as part of good site working practices during construction to reduce dust generation.
		Future land users	Likely	Moderate	Moderate	Given the future site usage, there is potential for direct contact between contaminated soils and receptors. The risk to future site users via direct exposure is considered to be MODERATE .
		Construction Workers	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. Assuming appropriate health and safety measures are adopted (in line with CDM and other relevant health and safety guidance), a LOW risk to construction workers is anticipated.
	Downward vertical migration of leachate to shallow groundwater	Groundwater within the Underlying Aquifer	Low Likelihood	Moderate	Moderate to Low	There is a potential source of mobile contaminants identified on-site. The granular soils beneath the site will not limit downward migration, and the groundwater vulnerability is high. The risk to groundwater is therefore considered MODERATE to LOW .
	Lateral migration in surface waters	Nearby Surface water features	Unlikely	Moderate	Low	The nearest surface water feature is 166m to the northeast and considered to be too far to influence the site. Therefore, the risk to surface waters is considered LOW .
	Vertical or lateral migration of ground gas	Current Site Users	Unlikely	Moderate	Low	There are no significant sources of ground gas within 250m of the site. The risk to current site users from ground gas is therefore considered LOW .
		Adjacent land users	Unlikely	Moderate	Low	There are no significant onsite sources of ground gas. Therefore, the risk to adjacent site users from ground gas is considered LOW .
		Future land users	Unlikely	Moderate	Low	There are no significant sources within 250m of the site. Therefore, the risk to future site users from radon and ground gas is considered LOW .
		Construction Workers	Unlikely	Moderate	Low	There are no significant onsite sources of ground gas. Construction workers may be exposed to ground gas / depleted oxygen conditions in excavations; however, the duration will be short-term. The risk to



Source	Pathway	Receptor	Probability	Consequence	Risk	Comment
						construction workers from ground gas is considered LOW .
Asbestos In soils		Current Site Users	Unlikely	Moderate	Low	The site is currently unoccupied and covered with hardstanding. There is limited potential for direct contact between contaminated soils and receptors. The risk is therefore considered to be LOW .
		Adjacent land users	Low Likelihood	Moderate	Moderate to Low	Residential properties are located in close proximity to the site boundary. Disturbance of soil during the construction phase may allow fibres to become airborne. The risk is considered to be MODERATE to LOW .
		Future land users	Likely	Moderate	Moderate	Presence of possible in the made ground given site history. Given the future site usage, there is potential for direct contact between contaminated soils and receptors. Therefore, the risk to future land users is considered to be MODERATE .
		Construction Workers	Low Likelihood	Moderate	Moderate to Low	Construction workers may be exposed to potential asbestos in soils during the construction phase. The risk is considered MODERATE to LOW .

7.0 GEOTECHNICAL HAZARDS ASSOCIATED WITH THE DEVELOPMENT

- 7.1 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 NPPF (2012) which requires that a site be suitable for its new use taking into account of ground conditions and land instability, including from natural hazards to former activities such as mining. A summary of the geotechnical considerations is provided below in Table 9.
- 7.2 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 NPPF (2021) which requires that a site be suitable for its new use taking into account of ground conditions and land instability, including from natural hazards to former activities such as mining. A summary of the geotechnical hazards and geotechnical considerations is provided below Table 7 and Table 8, respectively.

Table 7: Summary of Geotechnical Hazards

Geohazards:	
Highly Compressible Ground	Negligible
Collapsible Soils	Very Low
Swelling Clay	Negligible
Running Sand	Very Low
Ground Dissolution	Negligible
Landslip	Very low
Mining & Quarrying	No mining or quarrying is recorded as taking place on site. The site does not lie within a Coal Authority Development High Risk Area.

Table 10: Summary of Geotechnical Considerations

Geotechnical Design Considerations	
Site Clearance	Demolition will be required at the site.
Trees	There are trees adjacent to the development that will need to be considered in the foundation design.
Existing Buildings/Obstructions	There are existing buildings on the site which will need to be demolished, and foundations removed.
Foundations	The depth and type of proposed foundations would depend on the ground conditions present on site. There are no artificial deposit records underlying the proposed development area. The superficial deposit beneath the proposed developments is underlain by Glacial Fluvial.
Floor Slabs	A ground-bearing floor slab is anticipated to be unsuitable on the prepared formation level due to the presence of trees and cohesive strata. However, verification of the ground would be required.
Groundwater	Groundwater conditions are not known at this stage. For more 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 moderate.
Soakaways	Soakaways are potentially feasible on the site.
Earthworks	It is unlikely that any major earthworks will be required on the site.
Slopes	The site is relatively flat.
Retaining Walls	It is unlikely that retaining walls will be required due to the gentle sloping of the nature of the site.
Chemically aggressive ground conditions	Chemically aggressive ground conditions are not expected at this site due to the previous SI. However, an intrusive geotechnical investigation would be necessary to confirm this at the specified development location.

8.0 CONCLUSIONS AND RECOMMENDATIONS

Conclusions

- 8.1 The earliest map in 1897 indicates that the site is occupied by a building in the centre of the site, with additional buildings in the south of the site from 1898. The building was demolished in 1955, and a new building was constructed in the centre of the site. In 1988, the central building was demolished, and the existing buildings in the northeast corner of the site were constructed. There has been no further significant change to date.
- 8.2 The site is recorded to be underlain by superficial deposits of Glacial Fluvial (Secondary A Aquifer) according to the BGS.
- 8.3 The bedrock geology beneath the site is shown to be of the Triassic Wilmslow Sandstone Formation (Principal Aquifer), generally comprising the 'red brown to brick-red, fine- to medium-grained, generally pebble-free, cross-bedded sandstones, with sporadic siltstones'.
- 8.4 The overall risk from soil contamination to residential end users and construction workers is concluded to be **MODERATE to LOW**.
- 8.5 The risk to controlled waters is concluded to be **MODERATE** based on the source potential and high groundwater vulnerability.
- 8.6 The risk from ground gas to end users is considered to be **LOW**.
- 8.7 The site does not lie within a radon-affected area and therefore no radon protection measures are required for any new structures.
- 8.8 The site does not lie within a river flood plain.
- 8.9 The site lies within an area of **MODERATE** risk of UXOs.
- 8.10 A shallow foundation may be suitable; however, further assessment will be required. A suspended slab may be required due to nearby mature trees.
- 8.11 Ground bearing slabs may not be feasible and will need to be examined further.
- 8.12 Soakaways are potentially feasible on the site, subject to ground conditions and testing.

Recommendations

- 8.13 A further intrusive investigation should be undertaken to establish geotechnical parameters for the design of foundations, floor slabs and pavement construction for the proposed new structures and surrounding area.
- 8.14 As part of the geotechnical investigation, it is recommended that samples of soil be recovered for contamination testing and to confirm whether there are any potential risks.
- 8.15 Groundwater samples should be taken to assess the risk of the site to the underlying aquifer.
- 8.16 Infiltration testing should be undertaken to assess the feasibility of soakaway installation.

APPENDIX 1

GROUNDSURE REPORTS

APPENDIX 2

SITE PHOTOGRAPHS

Earth Environmental & Geotechnical Ltd Tel: 0161 975 6088 Email: info@earthenvironmental.co.uk Web: www.earthenvironmental.co.uk	SITE PHOTOGRAPHS  EARTH ENVIRONMENTAL & GEOTECHNICAL A Technics Group Company
Job No.: A6986	Site: Boat Lane, Northenden
Plate 1 View facing north showing site	Plate 2 View facing west showing site entrance
	
Date: 2nd September 2025	Date: 2nd September 2025
Plate 3 View facing west showing portable office	Plate 4 View facing south showing boundary wall
	
Date: 2nd September 2025	Date: 2nd September 2025

Earth Environmental & Geotechnical Ltd Tel: 0161 975 6088 Email: info@earthenvironmental.co.uk Web: www.earthenvironmental.co.uk	SITE PHOTOGRAPHS  EARTH ENVIRONMENTAL & GEOTECHNICAL A Technics Group Company
Job No.: A6986	Site: Boat Lane, Northenden
Plate 5 View facing west showing vegetation and stockpile of fish tanks	Plate 6 View facing east inside garages
	
Date: 2nd September 2025	Date: 2nd September 2025
Plate 7 View facing north showing covered area and domestic waste stockpile	Plate 8 View facing south showing the site.
	
Date: 2nd September 2025	Date: 2nd September 2025

Figure 10: Site Walkover Photograph Locations



APPENDIX 3

SITE WALKOVER NOTES

WALK OVER SURVEY REPORT

Site: Wythenshawe Campus, Manchester College **Date:** 2nd September 2025

Job No: A6943

Undertaken By: Lewis Waller

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 Industrial/Residential/Retail Usage Current Site use (if undertaking security and access to the site)		The site is set in a residential (town) suburban setting. The surrounding area comprises residential properties. The site is currently a disused former breakers yard.
Evidence of Past Activities	Are there: Any relevant street names in area? Features or relics which indicate past history?	Yes/No Yes/No	
Geographic Setting	Description required for: Low lying flood plain/dry valley/rolling hills etc.		The site is situated in a low-lying area. The surrounding area is urbanised.
Ground Conditions	Is there any evidence of: Mining, Mine entries Subsidence Landslip/slope erosion Former investigation works	Yes/No Yes/No Yes/No	N/A

Desk Study features checked during site visit	Feature and Information required	Present	Description / Comments
Topography	Description required for: Are there apparent differences between site and surrounding area? (If yes describe the presence of retaining walls, and slopes). Is there evidence of Made Ground / Fill on site?	~~Yes~~/No ~~Yes~~/No	The site is relatively flat.
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. Note any adjacent features such as water course and other potentially environmentally sensitive uses (residential, school, infirmary, SSSI etc)		The surrounding area is residential in all directions.
Vegetation	Are there any vegetation/trees on or close to site (if yes describe locations, type, maturity, etc) Is there any evidence of poor health / distress?	Yes/~~No~~ ~~Yes~~/No	There are mature trees to the east and west of the site.
Ground Surface	Are there areas of hardstanding and estimate the split between hard and soft cover? (If yes describe locations, types, and conditions). Is there any evidence of any spillages or staining?	Yes/~~No~~ ~~Yes~~/No	Hardstanding accounts for approximately 100% of the site.

Desk Study features checked during site visit	Feature and Information required	Present	Description / Comments
Site Drainage	Are there any drain covers / soakaways (if yes describe locations) 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) 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 Yes/No Yes/No	There was no obvious site drainage.
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. Do any buildings have basements? Do any buildings have a boiler room (if yes, describe fuel type and storage arrangements)?	Yes/No Yes/No Yes/No	N/A

Desk Study features checked during site visit	Feature and Information required	Present	Description / Comments
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? Fugitive Source: is there any stockpiled material / windblown dust / vapour process?	Yes/No Yes/No	N/A
Storage of fuels & Chemicals	Are there any drums / containers (if yes, describe quantity, full /empty, 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?) 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 Yes/No Yes/No	N/A
Accidents	In the event of a large spillage would runoff affect any vulnerable watercourse/culverts? Are emergency procedures / equipment in place?	Yes/No Yes/No	Unknown

Desk Study features checked during site visit	Feature and Information required	Present	Description / Comments
Waste	Are there any waste skips present on site? Are waste storage facilities adequate? Is there any litter/fly tipped material?	~~Yes~~/No ~~Yes~~/No Yes/~~No~~	There are two stockpiles, one containing domestic waste and the other a stack of empty glass fish tanks and plastic storage containers.
Atmospheric	Are there any fumes, odours originating from site or affecting site from neighbouring sites?	~~Yes~~ /No	
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. Identify possible site office and storage locations. Identify possible water supply		There is no issue with access for an investigation. There is no supply of water onsite.
Site Environs	Are there any local features that could have a harmful influence e.g. landfill, industrial processes, railway land? Are there any sensitive water features/courses near to the site?		N/A
Local Knowledge / Anecdotal Evidence			
Site Dimensions	Describe shape of Site in plan and measure dimensions.		The site is an rectangular-shaped piece of land, roughly 0.1ha in area.

APPENDIX 4

REPORT LIMITATIONS

LIMITATIONS

This contract was completed by Earth Environmental & Geotechnical Ltd on the basis of a defined programme and scope of works and terms and conditions agreed with the client. This report was compiled with all reasonable skill, and care, bearing in mind the project objectives, the agreed scope of works, the prevailing site conditions, the budget, and 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, is made 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 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 2025 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 investigations, or assessment should be made if there is any significant delay in acting on the findings of this report. The passage of time may result in changes in site conditions, regulatory or other legal provisions, technology or economic conditions which 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 of 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 specifically 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 observations of existing physical conditions at the site gained from a walkover survey of the site together with Earth Environmental & Geotechnical Ltd 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 and that it has been provided in full from those it was requested from, the items relied on have 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 these have been restricted to a level of detail required to achieve the stated objectives of the work. Ground conditions can also be variable and as investigation excavations only allow examination of the ground at discrete locations. The potential exists for ground conditions to be encountered which are different to those considered in this report. The extent of the limited area depends on the soil and groundwater conditions, together with the position of any current structures and underground facilities and natural and other activities on site. In addition, chemical analysis was carried out for a limited number of parameters [as stipulated in the contract between the client and Earth Environmental & Geotechnical Ltd] based on an understanding of the available operational and historical information, and it should not be inferred that other chemical species are not present.

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 are subject to seasonal variation or changes in local drainage conditions and higher groundwater levels may occur at other times of the year than were recorded during this investigation.

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