DESK STUDY SYDNEY AVENUE

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Manchester Airport Ltd

MAG Landside - FI, SA & VCC
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1. Introduction

Jacobs has been appointed by Manchester Airport group (MAG) to deliver a RIBA 3 design refresh for Design & Build Tender (MAG will be responsible for tendering) for a link road from Thorley Lane to Sydney Avenue through the MAG Staff West Car Park.

The proposed project is to design and construct a road connecting Thorley Lane and Sydney Avenue as well as making Improvements to Thorley Land and Runger Lane, involving constructing new road pavement and reprofiling of an existing cutting along with some minor cutting earthworks. Jacobs UK has been requested to complete a desk top study on Sydney Avenue and the surrounding area. Jacobs will then design a Ground Investigation (GI), which will be procured by MAG.

This report is a desk-based study of existing and available data to identify and verify any significant geotechnical, geoenvironmental and hydrogeological issues that potentially could impact the proposed Thornley Lane – Sydney Avenue link road or the proposed improvements to Thorley Lane.

This Study does not assess the following issues which will need to be considered in relation to the project:

- Geomorphology
- Ecology
- Archaeology
- Utilities
- Land Ownership

The Study is set out in the following sections:

- Section 1 provides a brief introduction to the project;
- Section 2 details the proposed works;
- Section 3 lists the reviewed data sources;
- Section 4 describes the site location;
- Section 5 summarises the historical development of the site;
- Section 6 describes the ground conditions;
- Section 7 contains the environmental setting;
- Section 8 contains the geotechnical risk assessment;
- Section 9 contains the geoenvironmental initial conceptual site model;
- Section 10 concludes with the ground investigations recommendations;
- Section 11 lists the references used and are marked using (X).

2. Proposed Works

The proposed works encompass the design and construction of a Link Road from West End Roundabout to Thorley Lane, as well as improvements to Thorley Lane and Runger Lane including the closure of Sydney Avenue.

The primary construction works involves a single carriageway link road that will traverse through the Staff West Car Park connecting the West End Roundabout and Thorley Lane. This will require the construction of new road pavement and some relatively minor earthworks including cutting through the existing landscaping berm (approximately 1.5m in height) at the western end of the Staff West Car Park, to create a new junction with Thorley Lane and construction of minor embankment, up to 0.5m in height at the West End Roundabout to accommodate the transition between roundabout and car park levels.

Furthermore, Thorley Lane and Runger Lane will undergo improvement works entailing the construction of new road pavement and reprofiling of the existing cutting along the landscaping berm with a possible minor retaining structure up to 1m in hight at locations where slope reprofiling will be insufficient.

The outline of the proposed works and associate earthworks is presented in Figure 1.

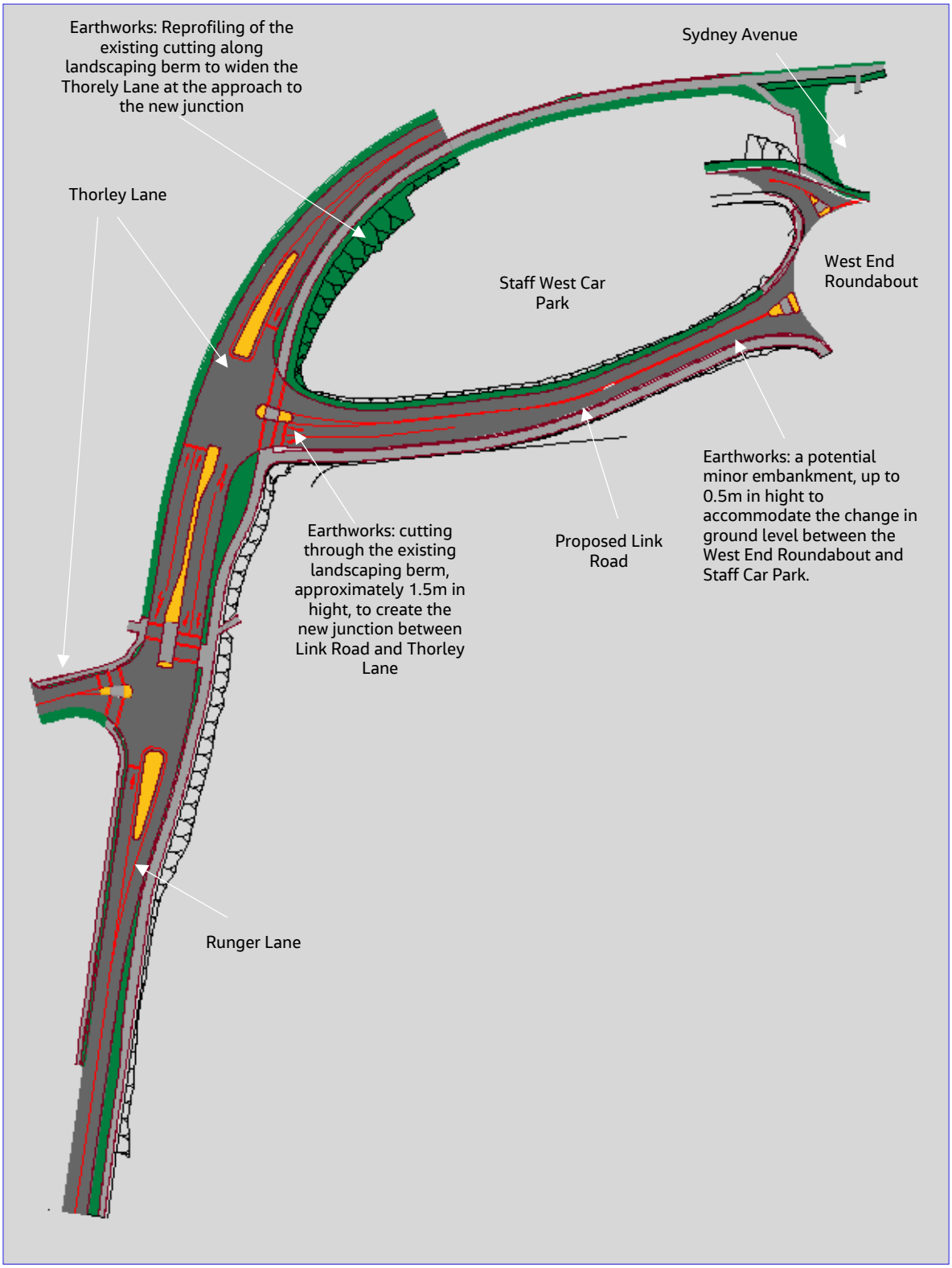


Figure 1 - Outline of the proposed design and associated earthworks.

3. Data Sources

The following data sources have been reviewed:

- British Geological Survey (BGS) digital mapping (On-shore GeoIngex including Geology and borehole records): https://www.bgs.ac.uk/geological-data/map-viewers/.
- Cheshire Brine Subsidence Compensation Board, Compensation District and Consultation Areas Map.
- Groundsure, Enviro+GeoInsight Report, Reference: GS-1VC-S58-9Q6-YI7.
- Groundsure, Map Insight Report, Reference: GS-6S3-T31-TVJ-L2P.
- Groundsure and Cheshire Brine Subsidence Compensation Board, Cheshire Salt Search, Reference: GS-1UU-V1Z-JB7-5TO.
- Satellite imagery and Ordnance Survey (OS) mapping.
- Zetica online Unexploded Bomb Risk Maps: https://zeticauxo.com/downloads-and-resources/risk-maps/
- DEFRA interactive digital mapping https://magic.defra.gov.uk/MagicMap.aspx
- Coal Authority interactive digital mapping https://mapapps2.bgs.ac.uk/coalauthority/home.html

4. Site Location

4.1 Description

The site is located to the north of Manchester Airport, approximately 400m northwest from the main Terminal 2 Building (T2). It comprises the Manchester Airport West Staff Car Park and sections of Sydney Avenue, Thorley Lane, Runger Lane, and a landscaping berm located between the car park and Thorley Lane. The nearest postcode is WA15 8UL. The approximate British National Grid reference for the site is SJ 81130 86026. From the north, the site is bounded by a private car park and green belt adjacent to the M56 Motorway. From the south, the site is bounded by Manchester Airport Terminal 2. To the east of the site, there is the West End Roundabout. To the west, the site is bounded by Runger Lane and another private car park. The site location is illustrated in Figure 1. Redline site boundary is shown on Figure 2.

The topographical map shows the ground level of the site gently inclining upwards towards the east/northeast, with elevations ranging from 64 to 68 AOD. Between Thorley Lane, the northern boundary of the Manchester Airport West Staff West Car Park, there is an approximately 1.5m high landscaping berm, heavily vegetated with trees and bushes, with a public footpath running at its crest. The footpath can be accessed through the steps from both, Thorley Lane and Staff Car Park. The berm's width varies between approximately 10m and 20m.

The south verge of Thorley Lane varies in width between 2.5 and 12m, widening towards the junction with Runger Lane, accommodating grassed landscaping area, a footpath and cycling lane. The verge is bounded by a landscaping berm from the south. The northern verge of Thorley Lane is grassed and relatively narrow with some trees/bushes present. The West End Roundabout and Manchester Airport West Staff Car Park are separated by a strip of grassed land, varying in width from 6 to 20m, gently sloping from the roundabout level towards the carpark. The car park itself is approximately 130m long (NW–SE) and 65m wide (NE–SW).

Figure 2 - Site Boundary

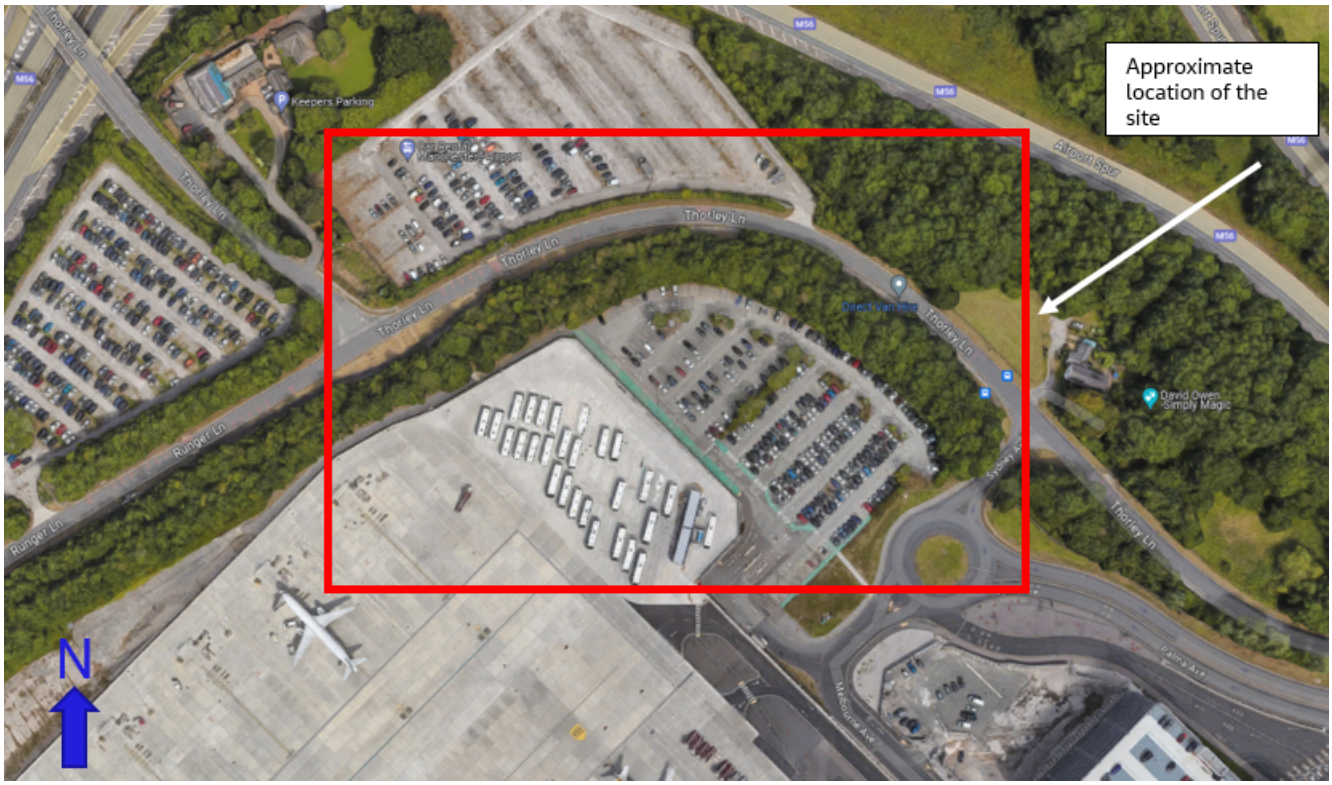


Figure 3 - Proposed Development Boundary



4.2 Site Walkover

Site walkover was undertaken on the 18th of October 2023 at Manchester Airport. In attendance were Rhianne Hughes (Jacobs), Nicholas Kendall (Jacobs), Rhys Harris (Jacobs) and Thomas Cleeton (Jacobs).

The following provides a summary of the observations made during the walkover. This should be read in conjunction with the photographs included in Appendix A.

Observation area 1

The car park is easily accessible from Sydney Avenue through automatic ticket gates. These gates have no height restrictions but are only one lane wide (approximately 3m wide). A sloping ground covered in grass separates the West End Roundabout and carpark, the sloping ground is approximately 1.5 meters high (from the roundabout road level to the carpark level) and at 45 ^{o}. A pathway skirts around the perimeter of the embankment connecting the West End Roundabout to the car park with low wooden fencing.

Observation areas 2 and 3

There are two large lighting poles with vegetation along/near the proposed road alignment, and potential risk of utilities under the car park.

Observation area 4

At the northwest end of the car park there is a paved public pathway around the outside of the perimeter exterior between the airport and vegetated embankment. The path connects the car park to Thorley Lane via steps over the embankment. The embankment is 1.5-2m high. At the top of the steps to the northeast there is a trail that follows the top of the embankment, which could be used to access the top of the embankment for ground investigation but these steps would need to be reviewed by a specialist GI contractor to ensure there is adequate space for the machinery. Either side of the embankment the ground is vegetated with plants and trees. There is a fallen tree indicates a potential lack of ground stability.

Observation area 5

At the intersection where Runger Lane and Thorley Lane meet, there is a digger on the side of the road within a fenced area. There is also evidence of underground utilities with a 230-watt voltage box on the side of the road and manholes and drains.

Geoenvironmental observations

During the site walkover, no evidence of significant ground and groundwater contamination (e.g., asbestos containing materials, oily sheens, etc) were observed. Made ground, of unknown chemical quality and therefore a potential source of contamination, is anticipated in the vicinity of the highways and car parks.

5. Historical Development

5.1 Historical Mapping

A review of historical mapping provided within the Groundsure Map Insight Report (in Appendix C) (Groundsure Ltd, 2023a) has been undertaken and the information has been summarised in Table 1. Maps from 1872 to 2023 have been reviewed for this site. Please note the Groundsure report covers an area that is slightly larger than the site currently being considered. Where appropriate, past industrial land uses and features recorded in the Groundsure Enviro+Geo Insight Report (Groundsure Ltd, 2023b) have been added to Table 1, for completeness.

Table 1 - Historical development of the site

Year	Map Scale	Key Developments
1877-79**	1:2,500	The site is predominantly agricultural, comprising fields and trees. Two ponds are situated on site (one in the north and one in the southwest of the site area). Within 200m of the site there are 12 surface water bodies: 1. Fairywell Brook approximately 90m east. 2. One pond approximately 100m east. 3. Two ponds that are approximately 100m south. 4. One pond approximately 50m southwest. 5. Three ponds approximately 100m southeast. 6. Timperly Brook approximately 150m southwest. 7. One pond approximately 200m northeast. 8. Two ponds approximately 125m north. The surrounding area appears to be mainly agricultural, with a small number of buildings in a hamlet approximately 100m south of the site called Etrop Green, and a small forest located approximately 150m north of the site. There is a small collection of buildings at the east of the site called Haletop. Thorley Lane cuts across the site in a northwest to southeast direction and then splits into two roads about 50m past the site. A small woodland is present approximately 90m to the north of the site.
1898 **	1:2,500	No significant changes are apparent within the site boundary. The ponds previously described in bullets and 7, and one of the ponds in bullet 8 is no longer mapped. The Enviro-Geo Insight Report records an unspecified heap approximately 118m northeast of the site.
1909**	1:2,500	No significant changes are apparent within the site boundary.
1960 – 1964**	1:1,250	No significant changes are apparent within the site boundary. One of the ponds previously described in bullet 3, and the pond in bullet 4 is no longer mapped.
1962 – 1964**	1:2,500	No significant changes are apparent within the site boundary. One of the buildings within the hamlet of Etrop Green, located approximately 100m south, is noted as Etrop Green FarmA.
1963 – 1964**	1:1,250	No significant changes are apparent within the site boundary. A woodland is shown approximately 200m west of the site.
1973 – 1976**	1:1,250	Large change has occurred surrounding the site. The M56 has been created to the West including a Junction to the North separating the new motorway into 2 sections. Part of the motorway continues north, however part of the road heads east within 100m of the site. Thorley Lane has been developed into a bridge over the new road, however, doesn't appear to have changed in the site location. The pond in bullet 2 above is no longer mapped. A building is labelled as Haletop Farm within the hamelet of Haletop. The woodland to the west is labelled as Davenportgreen Wood.
1974	1:1,250	Thorley Lane has been developed to go north through the top of the site (similarly to the 2023 design) as well as below (as it had in the past). The pond in the north of the site is no longer mapped (potentially infilled) and is covered by Thorley Lane.
1990 – 1992**	1:1,250	More development has occurred creating Runger Lane to the south of Thorley Lane.

Year	Map Scale	Key Developments
1990 – 1993**	1:1,250	More development has occurred turning the majority of our site into a car park for Manchester Airport. The southern route of Thorley Lane has become removed off the Map, suggesting it was removed as part of the Car park construction. Lots of development has also occurred to the East and South of the site, new roads have appeared, and other car parks have been constructed as well. A cycle track has been installed it next to Thorley Lane. The southwestern onsite pond is no longer mapped. The remaining pond described in bullet 5 above is no longer mapped.
1993 – 1995**	1:1,250	No significant changes are apparent within the site boundary. The Enviro-Geo Insight Report records an electrical substation approximately 105m east of the site.
1995**	1:1,250	No significant changes are apparent within the site boundary. The Enviro-Geo Insight Report records an unspecified heap approximately 77m northeast of the site.
2003**	1:1,250	No significant changes are apparent within the site boundary.
2023	1:10,560	No significant changes are apparent within the site boundary.

In summary, the site is located in what was historically a largely agricultural area until the development of the M56 in c. 1973. This was shortly followed by the development of nearby roads including the changes to Thorley Lane. As the Airport expanded, into what is the current Manchester airport, the area surrounding the site underwent urbanisation with the majority of our site becoming a car park in approximately 1993.

5.2 Existing Structures / Developments

From aerial photography (Groundsure Ltd, 2023b), there are several existing developments within 50m of the site; Thorley Lane, Runger Lane, Sydney Avenue, two private car parks, MAG West Staff Car Park, and the MAG T2 boundary. These structures were developed between c. 1877 to present day.

6. Ground Conditions

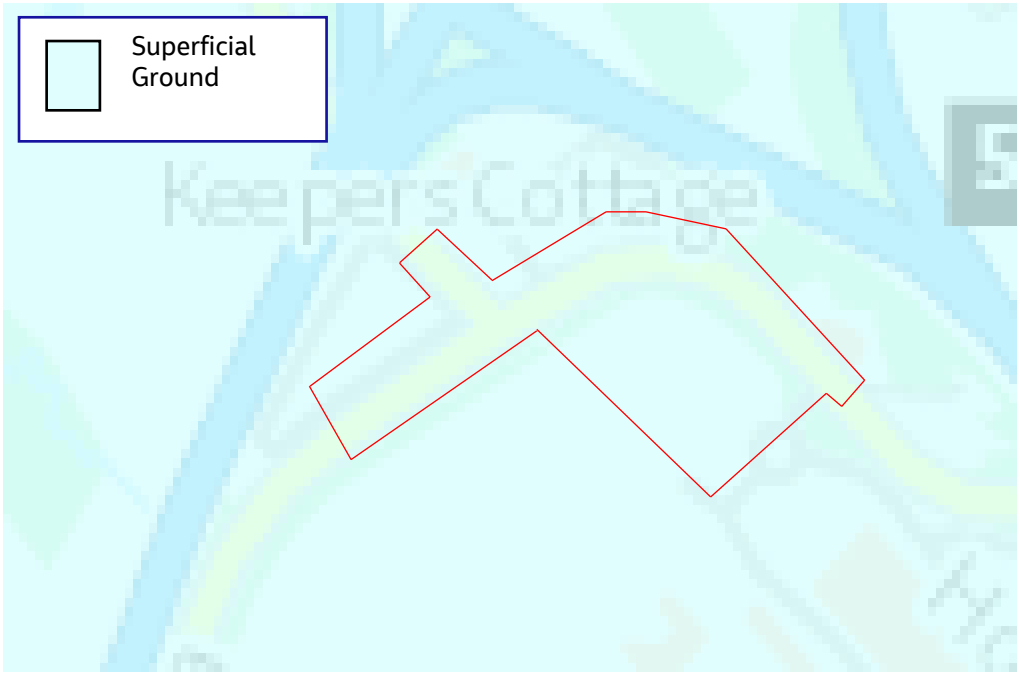
6.1 Made Ground

BGS online mapping does not record any artificial (made) ground across the site (British Geological Survey, 2023). However, made ground will be associated with the road network and car parks present within the proximity of the site. Based on aerial photography of the site it can be expected to find surfacing material and landscaping areas. The aerial photographs are found in the Groundsure report (Appendix B)

6.2 Superficial Ground

The superficial geology underlying the site is recorded to be Devensian Till (Diamicton) (British Geological Survey, 2023) (see figure 4). Till is unsorted and unstratified drift, generally overconsolidated, deposited directly by and underneath a glacier without subsequent reworking by water from the glacier. It consists of a heterogenous mixture of clay, sand, gravel, and boulders varying widely in size and shape (Diamicton) (BGS, 2023). More detail is found in the Groundsure Report (Groundsure Ltd, 2023b)

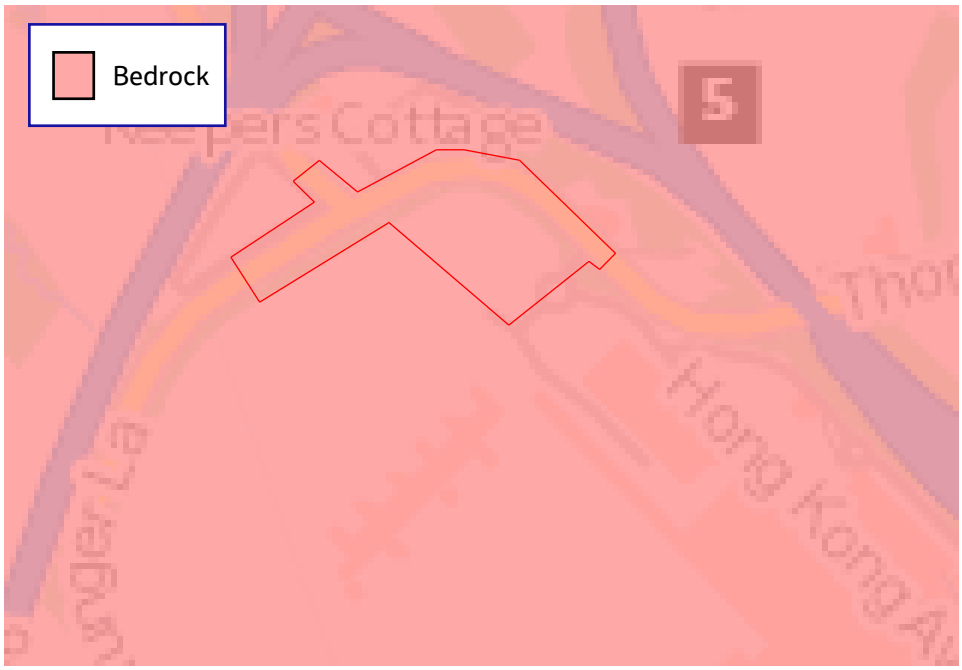
Figure 4 - Superficial Ground (British Geological Survey, 2023)



6.3 Bedrock Geology

Using BGS Mapping, the Bedrock has been determined to consist of Bollin Mudstone, the upper part consists of predominantly laminated reddish-brown and greenish-grey mudstone with siltstones. The lower part is a structureless and laminated, dominantly reddish-brown mudstone. The thickness of this rock is predicted to be 360m. This bedrock is the top of the Tarporley Siltstone Formation and the base of the Northwich Halite Member. More detail is found in the Groundsure Report (Groundsure Ltd, 2023b) .

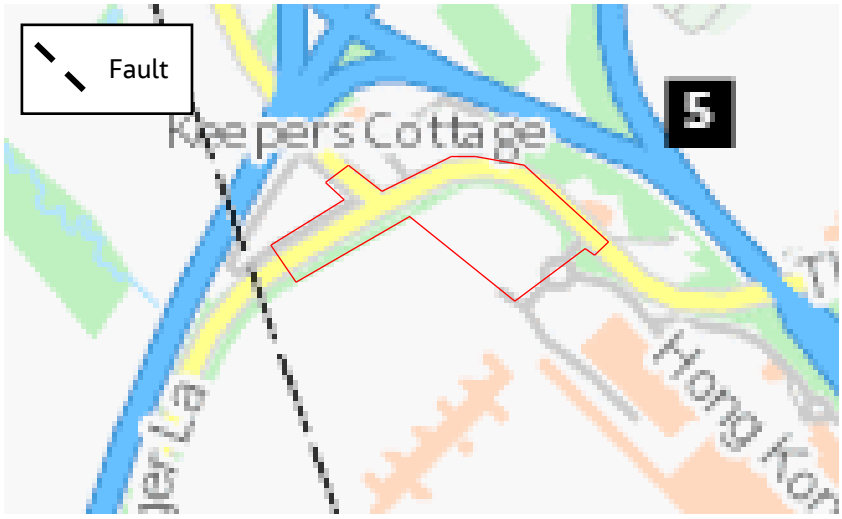
Figure 5 - Bedrock Geology (British Geological Survey, 2023)



6.4 Structural Geology

The BGS mapping shows a fault within 100 meters of the west / southwest of the site. The fault's strike direction is NNW to SSE. The displacement of the fault is unknown. The next nearest fault is 1.7km away so would not impact the geology of the site. More detail is found in the Groundsure Report (Groundsure Ltd, 2023b) .

Figure 6 - Structural Geology



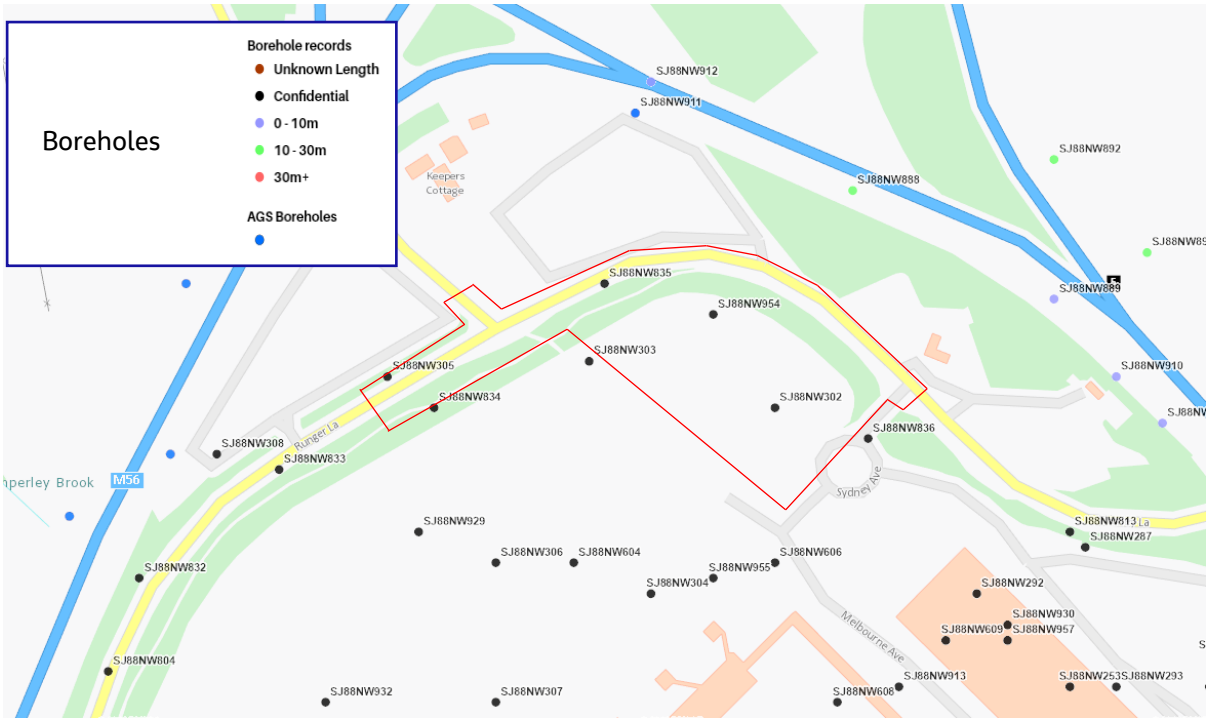
6.5 Available Borehole Records

BGS mapping online (British Geological Survey, 2023) shows that are there are a large number of boreholes nearby, understood to be predominantly associated with the construction of new structures. The closest boreholes (within 100 meters including those within the Staff West Car Park) are marked as 'confidential'. This borehole data has been requested but had not been received at the time of preparing this report.

The Figure below shows the locations of the boreholes near the site accorindg to Geoindex (British Geological Survey, 2023), similarly the Groundsure report (Groundsure Ltd, 2023b) shows similar results with four

'confidential' boreholes located within the site boundary and a further 46 boreholes within 250m of site. Of the 46 boreholes nearby 10 are available to be accessed for Ground modelling purposes while the other 36 are 'confidential'. On the Figure below (Figure 7) the black boreholes are confidential and the blue, green, and purple are accessible. The purple show boreholes that are 0-10m long, green is 10-30, and the blue boreholes have AGS data.

Figure 7 - Available Boreholes Locations



On the table below is a summary of the information available from the boreholes nearest the site, 0-250m from the site boundaries.

Table 2 - Available Borehole Logs

Geoindex ID	Year	Eastings	Northings	Distance from site (m)	Drilled Depth (m bgl)	Topsoil	Superficial Ground	Bedrock
SJ88NW911	1991	381010	386240	50	9.9	0-0.2m of Topsoil.	0.2-0.5m of Stiff Red Brown silty clay.	0.5-9.9m of Red/Brown Mudstone and Siltstone. Highly fractured
SJ88NW887	1991	380760	386210	50	15	0-0.3m of Topsoil	0.3-1.2m of Stiff Hard mottled Clay.	1.2-15m of Red/Brown Mudstone and Siltstone (Decrease in weathering as depth increases)
SJ88NW912	1991	381020	386260	80	9.8	0-0.2m of Topsoil.	0.2-0.75m of Stiff red brown silty clay.	0.75-9.8m of Red/Brown moderately weathered, weak highly fractured Mudstone and Siltstone.
SJ88NW888	1991	381150	386190	70	12.3	0-1m Topsoil and Marl Fill.	1-2.2m of mottled Soft red brown silty clay with medium gravel.	2.2-12.3m of Red/Brown Mudstone and Siltstone (Decrease in weathering as depth increases). Highly fractured, moderately weak and thinly laminated.
SJ88NW889	1991	381280	386120	120	9.6	0-0.2m of Topsoil.	0.-0.6m of Firm red brown silty clay with fine to course sub angular gravel.	0.6-9.6m of Red brown fresh to slightly weathered thinly laminated mustone and siltstone
SJ88NW892	1991	381280	386210	160	12.2	0-0.25m of Topsoil.	0.25-2.8m of Stiff mottled red brown silty clay.	2.8-12.2m of Thinly laminated weak mustone and siltstone which is red brown and moderately weak,

6.6 Available Past Ground Investigations

6.6.1 RoC Consulting report

RoC Consulting completed a Ground Investigation (Consulting, 2018) on a site at World Way roundabout at Manchester Airport T2, approximately 750m away from the site. RoC drilled 4 boreholes to depths of x3 20m and x1 25m. The results of these boreholes are as follows:

- Made ground was found at all 4 locations at varying depths around 1.5m – 7.5m but stopped at approximately 68m AoD.
- Superficial deposits consisting of Sandy gravel and clay approximately 4m thick and stopped around 64.5m AoD.
- Bedrock consisting of Mudstone and Siltstone continued for approximately 300m. The bedrock started at a maximum depth of 66m AoD, but on average started at 64 AoD.

Laboratory testing was also completed by RoC, they completed both Chemical and Geotechnical testing. The determinands that were tested include Toxic and phytotoxic metals and metalloids ; Total and Speciated Polycyclic Aromatic Hyrdocarbons ; Other inorganic substances ; Asbestos ID ; SVOC's ; Total Petroleum Hydrocarbons ; water soluble sulphate and pH ; Waste Acceptance Criteria. The Geotechnical tests included Plasticity Index ; undrained shear strength ; PSD ; Shear Box ; Rock Strength and UCS.

6.7 Ground Model

The following preliminary ground model is based on all relevant borehole information. However, the data provided by the M56 Motorway boreholes is the most heavily relied upon due to close proximity to the site.

Table 3 - Ground Model

Stratum / Grounwater level	Depth of Stratum top (m bgl).	Thickness (m).	Comments
Made Ground	0	<0.5	- Topsoil. - Engineered Fill – concrete / tarmac from Car park surface and pavements. - Unknown materials associated with infilled ponds, highway, and car park construction.
Superficial Deposits	~0.5 - 3.5	~ 3	- Devensian Till consisting of mainly Red to Brown Clay. - Till can contain Grey Siltstone. - Till is rounded to subangular. - Contains fine to course Gravel.
Bedrock	~3.5 - 360	~ 360	- Bollin Mudstone Bedrock is mostly Weak to Extremely weak Mudstone. - Can contain Siltstone. - Grey and Red to Brown colour. - Highly Fractured. - Laminated or Interlaminated rock.

Stratum / Grounwater level	Depth of Stratum top (m bgl).	Thickness (m).	Comments
			- Low Depth Mudstone is often weathered.
Groundwater	~1 – 5.5	4.5	- Groundwater is expected at this level with a likely flow towards Timperley Brook in the West.

6.8 Ground Related Hazards

The potential ground related hazards detailed in the Groundsure Enviro+Geo Insight report (Groundsure Ltd, 2023b) are summarised below:

- Very low risk of shrinking or swelling clays,
- Very low risk of running sands,
- Negligible risk of compressible deposits (defined as very soft materials that may compress if loaded, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations),
- Very low risk of collapsible deposits,
- Very low risk of landslides,
- Negligible risk of ground dissolution of soluble rocks.

6.9 Mining

No coal mining has been recorded within 500m of the site (Groundsure Ltd, 2023b).

43 instances of surface ground workings have been recorded within 250m of site, these are primarily ponds, unspecified heaps and cuttings. (Groundsure Ltd, 2023b).

6.10 Brine Subsidence

The Groundsure report (Groundsure Ltd, 2023b) indicates that the site lies within the Cheshire Brine Compensation District. The extraction of brine over many years has caused some areas within Cheshire to be at risk of subsidence. The Cheshire Salt Search report (Cheshire Brine Subsidence Compensation Board, 2023) (Appendix D) was subsequently commissioned and recorded the following findings:

- The property is not within a Consultation Area prescribed by the Cheshire Brine Subsidence Compensation.
- No records of damage have been filed in relation to the property, or part thereof since 8 January 1959.
- There are no historic brine wells/shafts located within 20m of the site.
- There is no area, line, or point of weakness relating to historic brine pumping or natural dissolution, within 50m of the site.
- There are no current or proposed uncontrolled brine pumping sites within 3km of the site.
- There is no existing planning consent for brine extraction by controlled methods within 200m of the site.
- The Board does not possess any records of abandoned rock salt underground mining within 90m of the site.
- There is no existing planning consent for rock salt mining within 120m of the site.

There are also no current or historical records of brine extraction and rock salt workings in the site's vicinity it is considered that the risk of brine subsidence to existing earthworks is low. However, there remains a risk to the wider project that brine subsidence may cause damage to the roads and structures in this area. See risk register for potential mitigation.

6.11 Unexplored Ordnance Risk

The risk maps provided on the Zetica website (Zetica, 2023a) (Appendix E) show that most of the site sits within a low-risk area from unexploded ordnance (UXO) and a small area on the East edge of the site sits within a moderate risk area.

Due to previous development within the moderate risk areas of the site as well as the majority of the whole site, it is assumed these areas will have a low risk of UXO and that any work going forward will therefore have a small UXO risk.

6.12 Radon

According to the Groundsure Enviro+Geo Insight Report, fewer than 1% of homes in the surrounding area are indicated to be above the action level for radon protective measures (Groundsure Ltd, 2023b). It should be noted that no buildings or confined spaces are planned as part of the proposed scheme and therefore the risk from radon gas is negligible.

7. Environmental setting

7.1 Hydrology

7.1.1 Surface Water Bodies

At present, the Groundsure Enviro+Geo Insight Report (Groundsure Ltd, 2023b) indicates that there are two surface watercourses that are not influenced by normal tidal action within 250m of the site. These surface watercourses have water all year-round, and they are on ground surface level. The closest is Fairywell Brook and is situated 91m (at its closest point) East of the site. The Brook travels in a Northwest to Southeast direction. The other is named Timperley Brook and is situated 158m (at its closest point) to the Southwest of the site, where it similarly travels in a northwest to Southeast direction.

7.1.2 Surface Water Abstractions

There are no current licensed surface water abstractions recorded within 1km of the site.

7.1.3 Water Quality Data

From the Catchment Data Explorer (Environment Agency, 2023), the overall classification of the Sinderland Brook (Fairywell Brook and Baguley Brook) Water Body was 'Moderate' in 2019 (Environment Agency, 2021a). The ecological and chemical classifications were 'Moderate' and 'Fail' respectively. The overall classification of the Timperley Brook Water Body is 'Moderate' in 2019 (Environment Agency, 2021b). The ecological and chemical classifications were 'Moderate' and 'Fail' respectively.

7.1.4 Fluvial and Surface Water Flood Risk

The Groundsure Enviro+Geo Insight Report indicates the site is not at risk of flooding from rivers (Groundsure Ltd, 2023b).

With the exception of the southeast boundary, the majority of the site is not at risk from surface water flooding (Groundsure Ltd, 2023b).

The southeast boundary could be subjected to 0.1m – 0.3m of surface water flooding during a 1 in 1000 year flood event, according to the Groundsure Enviro+Geo Insight Report (Groundsure Ltd, 2023b). There are parcels of the surrounding area, within 250m, that could be subjected to surface water flooding up to depths greater than 1.0m during 1 in 30 year to 1 in 1000 year flood events.

7.2 Hydrogeology

7.2.1 Aquifer characteristics

The following aquifer designations are assigned to the geological units discussed in Sections 6.2 and 6.3 (Groundsure Ltd, 2023b):

- Glacial Till: Secondary (undifferentiated): A secondary A or B aquifer designation cannot be assigned to this deposit. This is likely due to the material being designated as a minor aquifer or non-aquifer in different locations due to the variable characteristics of the material.
- Bollin Mudstone Member: Secondary B Aquifer: "Predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering".

7.2.2 Groundwater Source Protection Zones

There are no groundwater source protection zones within 1km of the site.

7.2.3 Groundwater Vulnerability

The soils on site are indicated to have a low leaching potential meaning that they provide the greatest protection from pollution. Therefore, the groundwater vulnerability is considered to be low.

It must be noted that groundwater vulnerability maps are intended to be used as a guide only and they do not show information on local activities such as quarrying or depth to the water table. Site-specific information will be gathered as part of proposed ground investigation and subsequent risk assessment will be undertaken to assess any potential risks to controlled waters resulting from the proposed scheme.

7.2.4 Anticipated Depth to Groundwater and Flow Direction

The historical BGS logs indicate that groundwater is likely to be found between 1.0 and 5.5m bgl, with the likely flow westwards towards Timperley Brook.

7.2.5 Groundwater Abstractions

There are no licensed or recorded potable groundwater abstractions within 1km of the site. It is however possible that there may be private abstractions which are not recorded in the Groundsure Enviro+Geo Insight Report (Groundsure Ltd, 2023b).

7.2.6 Groundwater Flood Risk

Groundwater flooding on site and within 250m is indicated to be low (Groundsure Ltd, 2023b).

7.3 Sensitive Land Uses

7.3.1 National Designations

Davenport Green Wood, a designated Ancient and Semi-Natural Woodland, is located 210m to the west of the site (Groundsure Ltd, 2023b).

The Merseyside and Greater Manchester Green Belt is situated 61m west of the site (Groundsure Ltd, 2023b).

7.3.2 Nearest High Sensitivity Development

The nearest residential properties (a part of Wythenshawe) are approximately 450m to the northeast of the site. Approximately 350m to the northeast of the site is an area of allotments.

7.3.3 Scheduled Monuments and Listed Buildings

Haletop Farm (Grade II listed building) is situated approximately 30m east of the site (Groundsure Ltd, 2023b).

7.4 Environmental Database Information

7.4.1 Waste Sites

There are no active, recent, or historical landfill sites within 250m of the site (Groundsure Ltd, 2023b). There is a waste exemption (Reference: WEX097141) approximately 215m west of the site, for storage of sludge on a farm (Groundsure Ltd, 2023b).

7.4.2 Current Industrial Land Uses

On site, there is one mast (telecommunication) in the southwest on Thorley Lane (Groundsure Ltd, 2023b). Approximately 99m east of the site, there is an electricity substation, and there are four gantries within 250m of the site (Groundsure Ltd, 2023b).

7.4.3 Licensed Industrial Activities

There are no licensed industrial activities within 250m of the site (Groundsure Ltd, 2023b).

7.4.4 Pollution Incidents

There are four historic licensed discharges (licensed to Manchester Airport) to controlled waters within 250m of the site, the closest being a 'Miscellaneous Discharge' (surface water), permit number: 016992830, located 167m southwest, discharging to the Timperly Brook. Further information on this and other discharge consents is detailed within the Groundsure Enviro+Geo Insight Report (Groundsure Ltd, 2023b).

7.5 Agricultural Land Classification

The site is situated on Grade 3 Agricultural Land which is described as "Good to moderate quality agricultural land" (Groundsure Ltd, 2023b)

8. Geotechnical Risk Register

A qualitative approach has been used to present the geotechnical risk register for the site.

Under a qualitative risk assessment, the degree of risk is the expected impact of damage, loss or harm for a given hazard, under particular circumstances which is expressed as:

Degree of Risk = Likelihood x Effect

The likelihood and the scale of effect are determined using Table 4 and Table 5 respectively, which together then provide the degree of risk based on Table 6.

Table 4 - Scale of likelihood

Likelihood	Scale
Improbable	1
Remote	2
Occasional	3
Probable	4
Frequent	5

Table 5 - Scale of Effect

Effect	Scale
Insignificant	1
Marginal	2
Serious	3
Critical	4
Catastrophic	5

Table 6 - Degree of Risk

Degree of Risk	Risk Level	Recommend Response
1 to 5	Trivial	None
6 to 8	Significant	Consider attention
9 to 15	Substantial	Attention required
16 to 25	Intolerable	Work must not start until risk is reduced

Table 7 - Geotechnical Risk Register

Risk No.	Hazard	Risk	Activity	Pre- Mitigation				Mitigation	Post- Mitigation				Residual Risk
				Likelihood	Effect	Result	Risk Level		Likelihood	Effect	Result	Risk Level	
1	Unknown location of utilities beneath the site.	Utility strike resulting in injury or fatality to personnel or damage to equipment and/or structures.	Ground Investigation. Construction.	4	4	16	Intolerable	Undertake buried services GPR survey with inspection pits and scanning during GI.	2	4	8	Significant	Residual risk of services not being detected.
2	Uncertain ground conditions. Little to no ground investigation information available for the proposed site.	Inadequate, unsafe, or uneconomic design. Unforeseen geotechnical hazards.	Ground Investigation. Construction. Permanent Works.	4	4	16	Intolerable	Undertake ground investigation, geotechnical and geoenvironmental lab testing to inform design development and future stages of project.	1	4	4	Trivial	Risk of unknown conditions remain but has been reduced by the GI.

Risk No.	Hazard	Risk	Activity	Pre- Mitigation				Mitigation	Post- Mitigation				Residual Risk
3	Unknown composition of Made Ground	Unexpected made ground which could results in damage to equipment or delay of programme.	Ground Investigation. Construction.	3	2	6	Substantial	Site Walkover. **GI with associated testing to be carried out at next stage.**	1	2	2	Trivial	There may be contaminated material that wasn't targeted by GI.
4	Unknown Groundwater Level	Cause problems during construction when creating foundations etc.	Construction.	3	3	9	Substantial	Undertake GI and geotechnical lab testing to inform design development.	1	3	3	Trivial	Unexpected groundwater entering excavations and affecting construction activity.
5	Brine Subsidence	Presence of gypsum or halite and associated dissolution or collapse breccias. Damage to existing structures.	Ground Investigation. Construction. Permanent Works.	2	3	6	Significant	Review existing confidential boreholes and site-specific desk study and GI reports.	1	4	4	Trivial	Any GI done is unlikely to prove/encounter the dissolution features and there remains a risk that they are present or may develop in the future

Risk No.	Hazard	Risk	Activity	Pre- Mitigation				Mitigation	Post- Mitigation				Residual Risk
6	UXO across the site.	Unexpected Ordnance strike resulting in injury or fatality to personnel or equipment.	Ground Investigation. Construction. Permanent Works.	1	4	4	Trivial	Complete an UXO Risk Assessment.	1	4	4	Trivial	Still a residual risk that UXO might be present that wasn't disturbed during the recent development works
7	Unexpected Cobbles, Boulders, or obstructions within the Made ground or glacial till.	Can present a risk to deep piling works. Obstructive to Ground works.	Ground Investigation. Construction.	3	3	9	Substantial	Ground Investigation methodology to consider presence of obstructions. To be flagged to Contractor	1	3	3	Trivial	There may be a residual risk of cobbles and boulders based on the anticipated ground conditions, i.e. if there is glacial till present.
8	Unexpected soils/water contamination (including asbestos).	Personnel, public and environment exposed to pollution. Abnormal remediation/ waste disposal costs.	Ground Investigation. Construction.	2	4	8	Significant	Ground Investigation (including laboratory analysis) and subsequent risk assessment. Contamination management plan commissioned to identify and manage any unidentified contamination during the construction works.	1	4	4	Trivial	Residual risk remains given heterogeneous nature of ground conditions.

9. Initial Geoenvironmental Conceptual Model

The UK takes a risk-based and suitable for use approach for dealing with land contamination. A guidance framework for risk assessment and management is set out in the EA online Land Contamination: Risk Management guidance (LCRM) (Environment Agency, 2021a). This section represents the Preliminary Risk Assessment stage outlined in the LCRM.

Risks presented by contaminated land depend not only on the nature or the potential contaminants, but also on the receptors/targets at risk of pollution or harm, and the pathways by which contaminants may reach such receptors. The primary purpose of a preliminary risk assessment is to develop an initial Conceptual Site Model (CSM) to identify potential contaminant linkages based on the information available at this stage. The contaminant linkage concept relies on the identification of the following:

- Source: a potential contaminant in on or order the land at a concentration likely to have the potential to cause pollution or harm.
- Receptor: living organisms, ecological systems or property which could be adversely affected by the contaminant; and
- Pathway: a route by which the contaminant can reach or come in contact with the receptor.

Where all three are present, "potential contaminant linkages" could be identified that may require further investigation or assessment to help determine whether or not they represent potentially significant unacceptable risks. LCRM sets out a tiered framework for risk assessment, consisting of:

- Preliminary risk assessment – first tier of assessment that develops an initial conceptual site model (CSM) to establish whether there are any potentially unacceptable risks.
- Generic Quantitative Risk Assessment (GQRA) – uses generic assessment criteria (GACs) and assumptions to estimate risk; or
- Detailed Quantitative Risk Assessment (DQRA) – uses detailed site-specific information to estimate risk.

As the risk assessment moves on through each stage of investigation, the CSM can be refined to reflect the increasing level of knowledge about the site. Contaminants of concern may be added or removed from the model as site investigation data become available, and similarly pathways may be confirmed, refined, or eliminated from further consideration. The objective of the risk assessment should be to provide a clear picture of what, if any, significant risks are present, identify if remedial actions are required, or identify areas of uncertainty where further information/assessment is required before a conclusion can be reached.

9.1 Potential Sources of Contamination

Potential sources of contamination were identified during this desk-based assessment:

Table 8 - Potential sources of contamination

Location	Potential sources	Contaminants of concern	Current or historical?
On-site	Made ground / fill material associated with highway, car park and infilled ponds	Unknown fill material but could include tarmacadam and brick, and containing inorganics, polycyclic aromatic hydrocarbons (PAHs), asbestos, ground gases. Ground gas generation potential: very low/low.	Current/ Historical
Off-site	Agricultural activities and features, including waste exemption	Toxic and phytotoxic metals, inorganics, asbestos, petroleum hydrocarbons, and ground gas. Ground gas generation potential: very low/low.	Historical

Location	Potential sources	Contaminants of concern	Current or historical?
	Airport activities and features	Toxic and phytotoxic metals, organic / inorganic compounds, hydrocarbons, PAHs, Volatile and Semi-Volatile Organic Compounds (VOCs / SVOCs), Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS), Herbicides, Glycols.	Current/ Historical
	Made ground / fill material associated Infilled ponds and unspecified heaps	Unknown fill material but potentially including brick, ash and clinker and containing toxic and phytotoxic metals, inorganics, PAHs, asbestos. Ground gas generation potential: very low/low.	Historical
	Industrial land uses and features, including electric substation.	Petroleum hydrocarbons, chlorinated solvents, fuels, PAHs, toxic and phytotoxic metals, polychlorinated biphenyls (PCBs) (if pre-1980s), asbestos.	Current/ Historical

9.2 Potential Pathways of Contamination

Potential exposure / migration pathways are summarised below:

- Dermal /Ingestion of soils and contaminated groundwater/ Inhalation of dust particulates, asbestos fibres, and vapours.
- Vertical migration, inhalation and explosion of ground gases and/or vapours.
- Direct contact with material used in infrastructure. Property (Buildings and Services) – Buried concrete, piles and other sub-surface service pipes could be affected by direct contact with aggressive ground conditions / chemical attack on susceptible materials.
- Leaching of contaminants from soils and vertical migration via permeable unsaturated strata to shallow and/ or deep groundwater; and
- Lateral migration of contaminants in shallow groundwater (dissolved and immiscible phases) providing base flow to surface waters.

In addition to the above, contaminants could migrate across the site and wider area via preferential pathways such as buried services and foundations. At this stage, no preferential pathways have been identified but the CSM should be continuously assessed throughout the design stage of the scheme.

9.3 Potential Receptors of Contamination

The sensitive receptors identified at or in the vicinity of the scheme that could be affected by the potential sources identified are:

- Construction / maintenance workers/ Future site users.
- Offsite residential or commercial/industrial property / listed buildings.
- Infrastructure (aggressive ground).
- Secondary Undifferentiated aquifer within the superficial Glacial Till.
- Secondary B Aquifer within the underlying Bollin Mudstone Member.
- Fairywell Brook and Timperley Brook.

9.4 Preliminary Risk Assessment

The preliminary risk assessment (PRA) findings and potentially complete pollutant linkages are shown in Table 9-2, assuming the future use of the site as a new link road. The risk classification is based on the combination

of hazard, consequence, and probability, using a risk matrix from CIRIA C552 (Construction Industry Research and Information Association, 2001), a summary of which is provided in Appendix F.

Table 9 - Risk estimation for potential pollutant linkages

Potential source	Possible pathway	Potential receptor	Severity	Likelihood	Potential risk
Onsite Sources to All Receptors					
Made ground / fill material associated with highway, car park and infilled ponds.	Dermal contact with contaminants. Ingestion of contaminated soil or groundwater; and Inhalation of contaminated soil dusts, asbestos fibres and/or vapours.	Future construction/ maintenance workers during excavation works	Medium	Low likelihood	Moderate/low
		Future site users (members of the public)	Medium	Unlikely	Low
	Inhalation of windblown contaminated soil dusts or vapour from migrating groundwater.	Adjacent site users (residential & commercial land users)	Mild	Low likelihood	Low
	Migration and ingress of ground gases into build-up in confined spaces and explosion/ asphyxiation.	Adjacent site users (residential & commercial land users)	Medium	Unlikely	Low
		Future construction/ maintenance workers during excavation works	Medium	Unlikely	Low
		Adjacent property (residential, commercial, and listed buildings)	Medium	Unlikely	Low
	Leaching of contaminants to groundwater	Groundwater (Secondary Undifferentiated superficial aquifer and Secondary B bedrock aquifer)	Medium	Low likelihood	Moderate/Low
	Lateral migration via surface runoff and/or groundwater migration	Surface water (Fairywell Brook – approximately 91m east and Timperley Brook – 158m southwest).	Medium	Low likelihood	Moderate/Low
		Ecological receptors (Ancient Woodland – 210m west, and Greenbelt – 61m west)	Mild	Unlikely	Very low
	Direct contact with contaminated soil/	Proposed infrastructure	Mild	Low likelihood	Low

Potential source	Possible pathway	Potential receptor	Severity	Likelihood	Potential risk
	groundwater and chemical attack	Existing Adjacent property (residential, commercial, and listed buildings)	Mild	Low likelihood	Low
Offsite Sources to Onsite Receptors					
Historic and current land uses and features including: • Agricultural activities and features. • Airport activities and features. • Infilled ponds and unspecified heaps. • Industrial land uses and features.	Inhalation of windblown contaminated soil dusts or vapour from migrating groundwater.	Future construction/ maintenance workers during excavation works	Medium	Unlikely	Low
		Future site users (members of the public) in soft landscaped areas	Medium	Unlikely	Low
		Future site users (members of the public) in hardstanding areas	Medium	Unlikely	Low
	Migration and ingress of ground gases into build-up in confined spaces and explosion/ asphyxiation.	Future construction/ maintenance workers during excavation works	Medium	Unlikely	Low
	Leaching of contaminants and lateral migration in groundwater beneath site	Groundwater (secondary superficial and bedrock aquifers)	Medium	Low likelihood	Moderate/Low
	Direct contact with contaminated soil/ groundwater and chemical attack	Proposed infrastructure	Mild	Low likelihood	Low

9.5 Potential pollutant linkages

Assuming the future use of the site as a new link road, potential pollutant linkages, with risk ratings of moderate/low or higher, identified in Table 9 comprise the following:

1. Onsite made ground and fill materials > oral, dermal, and inhalation exposure > future construction and maintenance workers.
2. Onsite made ground and fill materials > leaching of contaminants > groundwater (Secondary Undifferentiated superficial aquifer and Secondary B bedrock aquifer).
3. Onsite made ground and fill materials > lateral migration and surface runoff > surface water bodies.
4. Offsite historic and current land use > leaching of contaminants and lateral migration > groundwater beneath site (Secondary Undifferentiated superficial aquifer and Secondary B bedrock aquifer).

The above-mentioned potentially complete pollutant linkages should be assessed further through site investigation and quantitative risk assessment. A scope of works for a proposed ground investigation is discussed in Chapter 10.

9.6 Data gaps and uncertainties

The key data gaps and uncertainties identified in the initial CSM during the desk study stage include:

- The site-specific ground and groundwater conditions are unknown.
- The contamination status of the made ground and infilled ponds beneath the site is unknown.
- The presence and location of private groundwater abstractions within 1km of the site.

The above data gaps and uncertainties will be addressed through the implementation of an intrusive ground investigation and further enquiries with the Local Authority.

10. Recommendations

As of time of writing, the recommendation would be to complete a ground investigation (GI) for the site. This is due to limited data on the ground and groundwater of the site.

From a land quality perspective, the GI should target onsite sources of contamination (primarily the made ground across the site and the historical infilled ponds) to ascertain the contamination potential of the site. Samples of soil and groundwater should be tested in these areas to ascertain the conditions below the site.

The laboratory testing suites should reflect the potential contaminants of concern detailed in Table 9-1 but are likely to include: heavy metals, inorganics (leachate and groundwater only), asbestos, Total Petroleum Hydrocarbon Criteria Working Group (TPHCWG), Benzene-Toluene-Ethylbenzene (BTEX), PAHs, VOCs, SVOCs, and PFAS (predominantly groundwater). Where preliminary waste classification is required, the laboratory soil testing suite should include moisture content and TPH with identification (ID).

Ground gas monitoring is not considered necessary given that no buildings or confined spaces are planned as part of the proposed scheme.

The ground investigation should be undertaken in general accordance with BS 5930:2015+A2:2020 – Code of Practice for ground investigations (British Standards Institution, 2020) and BS 10175:2011+A2:2017 – Investigation of potentially contaminated sites – Code of practice (British Standards Institution, 2017).

A Ground Investigation may not be necessary / could be reduced in size if the borehole records for the 4 boreholes that are located on the site are made accessible to the Jacobs Geotechnical team together with the results of any geoenvironmental testing undertaken as part of the investigation. If these borehole records are not made available then Jacob's suggestion would be to complete a ground investigation that examines and samples soils and rock from shallow and deep depths, up to 10m bgl. Jacobs expects the use of drilling with rotary coring and machine dug trail pits to provide sufficient samples to examine the soil and rock.

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Appendix A. Site Walkover Figures

Appendix A Figure 1 – Site walkover photos



Photo taken 10 meters south from observation point 3 looking southeast across the car park at profile where the road is to be built.

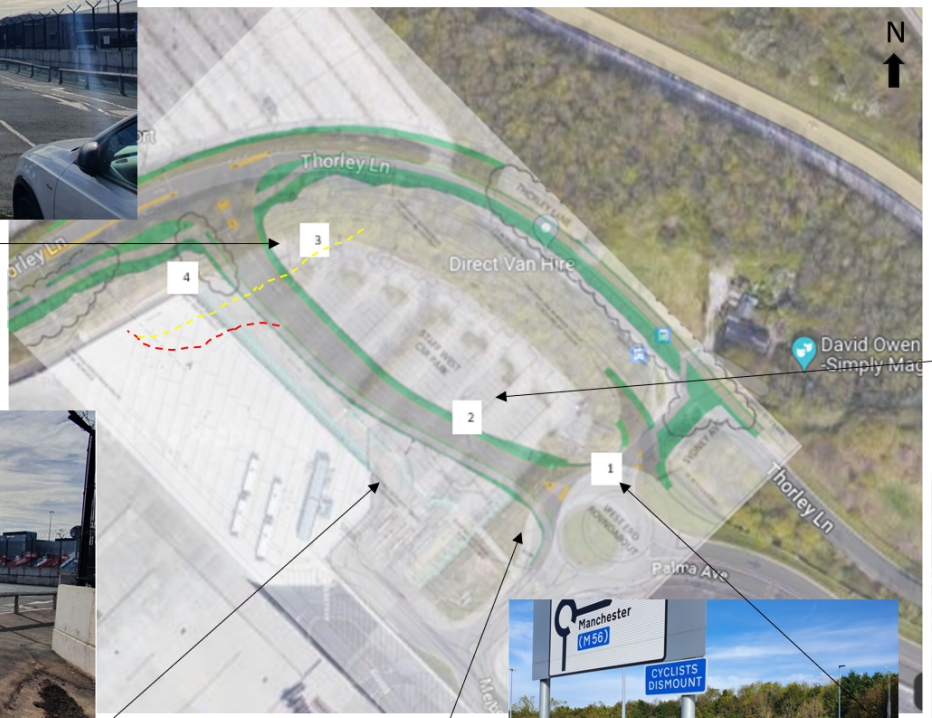




Photo taken at observation point 2, in the car park of large lamp post located along/near alignment of proposed road. There is vegetation around the lamp post. Photo taken facing Northwest.



The Entrance to MAG staff car park has payment gate. This entrance has no height restrictions. Photo taken in a south direction.

Looking northeast from grassed bank leading from roundabout to car park. Photo taken facing North.





Taken from observation point 1 looking northeast from grassed bank leading from roundabout to car park.

Appendix A Figure 2 – Site walkover photos

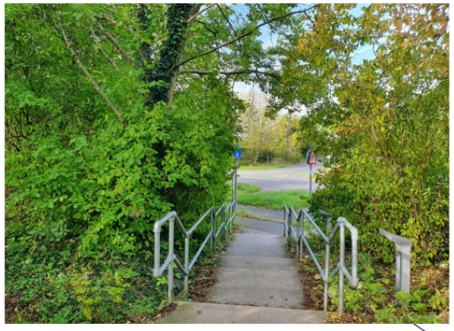
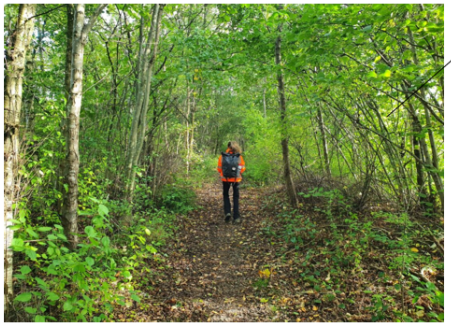


Photo taken from the top of the embankment looking northwest leading down to Thorley Lane.



Vegetated public path that runs through the trees at the top of the 1.5-2m embankment, yellow dashed line. Without interfering with the trees this will provide 3-4m vertical clearance for potential window samples. Photo facing northeast.



Looking northwest, photo taken of fallen tree found along vegetated public path at top of embankment.



Photo taken from observation point 3 looking northwest at lamp post near embankment.

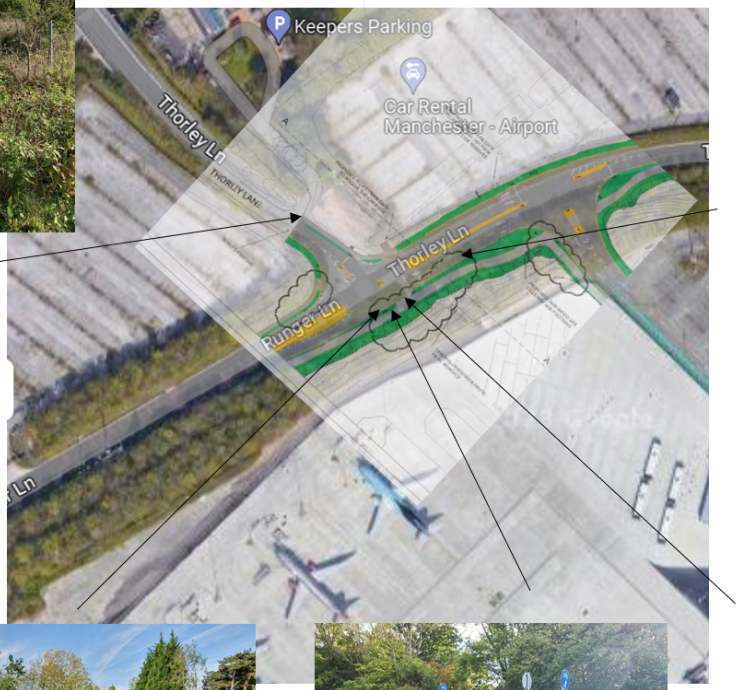
Access from car park through to Thorley Lane. There is path that follows the red dashed line. It goes up and down some stairs, this enables you to pass over the vegetated embankment to meet Thorley Lane. The embankment is 1.5-2m tall vegetated with trees and plants. Photo facing southwest.

Appendix A Figure 3 – Site walkover photos





Photo taken looking northwest of fenced section with digger, drains and voltage mains (230 watts) at the intersection where Thorley Lane and Runger Lane meet.





Pedestrian crossing taken facing northwest.





Looking southwest down Runger Lane.



Taken looking northwest towards the intersection where Runger Lane and Thorley Lane meet.



Photo taken from other side of the embankment, facing approximately south east.

Appendix B. Groundsure Enviro+Geo Insight Report

Groundsure
LOCATION INTELLIGENCE

Enviro+Geo Insight

DAVENPORT GREEN COTTAGE, SHAY LANE, HALE BARNS, WA15 8UD

Order Details

Date: 10/10/2023

Your ref: MAG42040

Our Ref: GS-1VC-S58-9Q6-YI7

Site Details

Location: 381031 386113

Area: 2.41 ha

Authority: Manchester City Council ↗



Summary of findings p. 2 >

Aerial image p. 9 >

OS MasterMap site plan p.14 >

groundsure.com/insightuserguide ↗

Contact us with any questions at:
info@groundsure.com ↗
01273 257 755

Certified B Corporation

Summary of findings

Page	Section	Past land use >	On site	0-50m	50-250m	250-500m	500-2000m
15 >	1.1 >	Historical industrial land uses >	1	0	13	9	-
16 >	1.2 >	Historical tanks >	0	0	0	1	-
17 >	1.3 >	Historical energy features >	0	0	1	0	-
17	1.4	Historical petrol stations	0	0	0	0	-
17	1.5	Historical garages	0	0	0	0	-
18	1.6	Historical military land	0	0	0	0	-
Page	Section	Past land use - un-grouped >	On site	0-50m	50-250m	250-500m	500-2000m
19 >	2.1 >	Historical industrial land uses >	1	0	18	11	-
21 >	2.2 >	Historical tanks >	0	0	0	2	-
21 >	2.3 >	Historical energy features >	0	0	2	0	-
21	2.4	Historical petrol stations	0	0	0	0	-
22	2.5	Historical garages	0	0	0	0	-
Page	Section	Waste and landfill >	On site	0-50m	50-250m	250-500m	500-2000m
23	3.1	Active or recent landfill	0	0	0	0	-
23	3.2	Historical landfill (BGS records)	0	0	0	0	-
24	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
24	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
24	3.5	Historical waste sites	0	0	0	0	-
24	3.6	Licensed waste sites	0	0	0	0	-
24 >	3.7 >	Waste exemptions >	0	0	1	0	-
Page	Section	Current industrial land use >	On site	0-50m	50-250m	250-500m	500-2000m
26 >	4.1 >	Recent industrial land uses >	1	0	5	-	-
27	4.2	Current or recent petrol stations	0	0	0	0	-
27	4.3	Electricity cables	0	0	0	0	-
27	4.4	Gas pipelines	0	0	0	0	-
27	4.5	Sites determined as Contaminated Land	0	0	0	0	-

28	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
28	4.7	Regulated explosive sites	0	0	0	0	-
28	4.8	Hazardous substance storage/usage	0	0	0	0	-
28	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
28	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
29	4.11	Licensed pollutant release (Part A(2)/B)	0	0	0	0	-
29	4.12	Radioactive Substance Authorisations	0	0	0	0	-
29 >	**4.13 >**	**Licensed Discharges to controlled waters >**	0	0	7	4	-
31	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
31	4.15	Pollutant release to public sewer	0	0	0	0	-
31	4.16	List 1 Dangerous Substances	0	0	0	0	-
31	4.17	List 2 Dangerous Substances	0	0	0	0	-
32	4.18	Pollution Incidents (EA/NRW)	0	0	0	0	-
32	4.19	Pollution inventory substances	0	0	0	0	-
32	4.20	Pollution inventory waste transfers	0	0	0	0	-
32	4.21	Pollution inventory radioactive waste	0	0	0	0	-

Page	Section	**Hydrogeology >**	On site	0-50m	50-250m	250-500m	500-2000m
33 >	**5.1 >**	**Superficial aquifer >**	Identified (within 500m)				
34 >	**5.2 >**	**Bedrock aquifer >**	Identified (within 500m)				
35 >	**5.3 >**	**Groundwater vulnerability >**	Identified (within 50m)				
36	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
36	5.5	Groundwater vulnerability- local information	None (within 0m)				
38	5.6	Groundwater abstractions	0	0	0	0	0
39 >	**5.7 >**	**Surface water abstractions >**	0	0	0	0	5
40	5.8	Potable abstractions	0	0	0	0	0
40	5.9	Source Protection Zones	0	0	0	0	-
41	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-

Page	Section	**Hydrology >**	On site	0-50m	50-250m	250-500m	500-2000m
42 >	**6.1 >**	**Water Network (OS MasterMap) >**	0	0	4	-	-

43 >	6.2 >	Surface water features >	0	0	2	-	-
43 >	6.3 >	WFD Surface water body catchments >	2	-	-	-	-
44 >	6.4 >	WFD Surface water bodies >	0	0	0	-	-
44 >	6.5 >	WFD Groundwater bodies >	1	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
45	7.1	Risk of flooding from rivers and the sea	None (within 50m)				
45	7.2	Historical Flood Events	0	0	0	-	-
45	7.3	Flood Defences	0	0	0	-	-
46	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
46	7.5	Flood Storage Areas	0	0	0	-	-
47	7.6	Flood Zone 2	None (within 50m)				
47	7.7	Flood Zone 3	None (within 50m)				
Page	Section	Surface water flooding >					
48 >	8.1 >	Surface water flooding >	1 in 30 year, 0.1m - 0.3m (within 50m)				
Page	Section	Groundwater flooding >					
50 >	9.1 >	Groundwater flooding >	Low (within 50m)				
Page	Section	Environmental designations >	On site	0-50m	50-250m	250-500m	500-2000m
51 >	10.1 >	Sites of Special Scientific Interest (SSSI) >	0	0	0	0	2
52	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
52	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
52	10.4	Special Protection Areas (SPA)	0	0	0	0	0
52	10.5	National Nature Reserves (NNR)	0	0	0	0	0
53	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
53 >	10.7 >	Designated Ancient Woodland >	0	0	1	0	6
53	10.8	Biosphere Reserves	0	0	0	0	0
54	10.9	Forest Parks	0	0	0	0	0
54	10.10	Marine Conservation Zones	0	0	0	0	0
54 >	10.11 >	Green Belt >	0	0	2	0	0
54	10.12	Proposed Ramsar sites	0	0	0	0	0

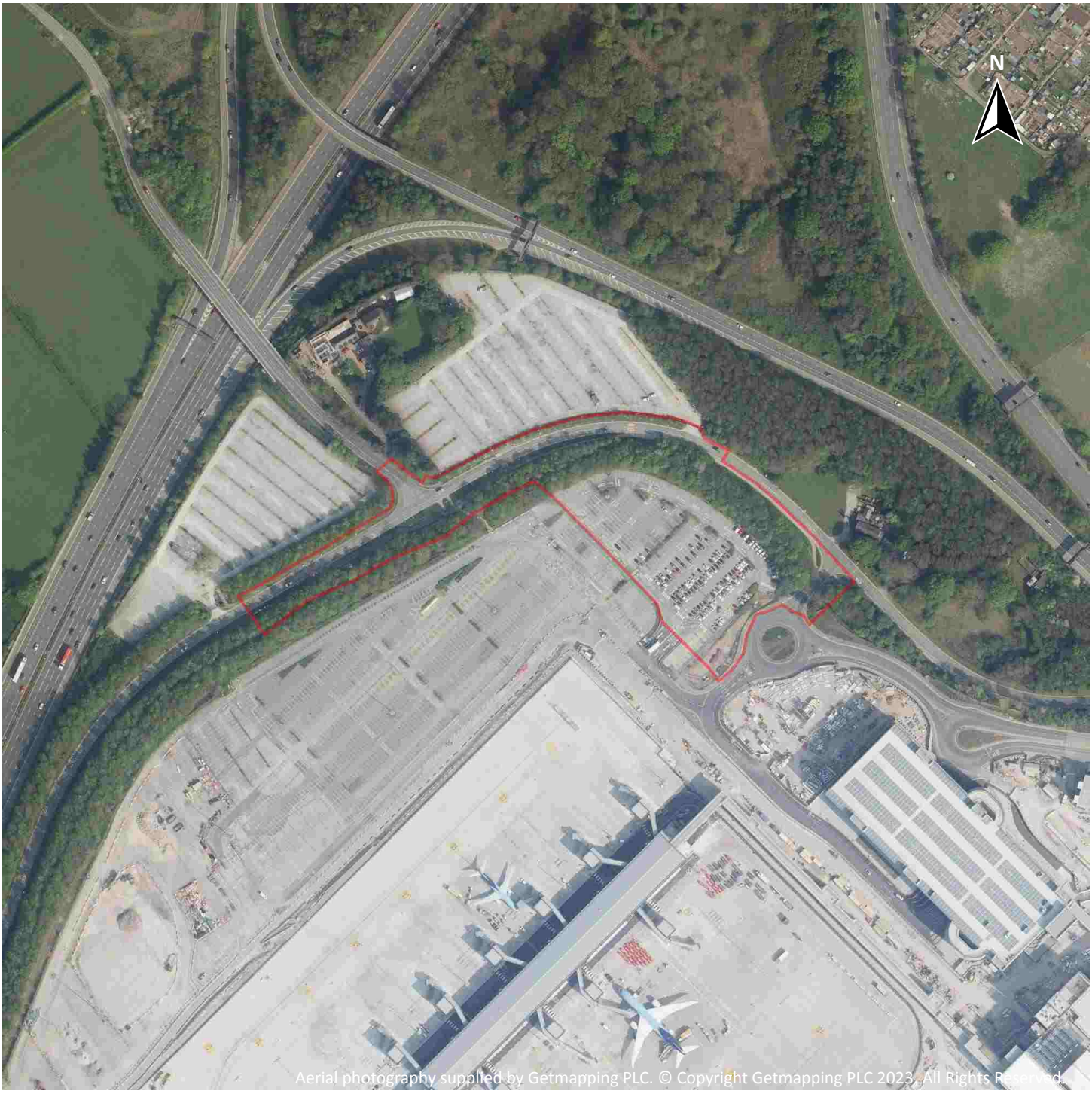
55	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
55	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
55	10.15	Nitrate Sensitive Areas	0	0	0	0	0
55	10.16	Nitrate Vulnerable Zones	0	0	0	0	0
56 >	10.17 >	SSSI Impact Risk Zones >	1	-	-	-	-
57 >	10.18 >	SSSI Units >	0	0	0	0	2
Page	Section	**Visual and cultural designations** >	On site	0-50m	50-250m	250-500m	500-2000m
59	11.1	World Heritage Sites	0	0	0	-	-
60	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
60	11.3	National Parks	0	0	0	-	-
60 >	11.4 >	Listed Buildings >	0	1	0	-	-
61	11.5	Conservation Areas	0	0	0	-	-
61	11.6	Scheduled Ancient Monuments	0	0	0	-	-
61	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	**Agricultural designations** >	On site	0-50m	50-250m	250-500m	500-2000m
62 >	12.1 >	Agricultural Land Classification >	Grade 3 (within 250m)				
63	12.2	Open Access Land	0	0	0	-	-
63 >	12.3 >	Tree Felling Licences >	0	1	39	-	-
65	12.4	Environmental Stewardship Schemes	0	0	0	-	-
65	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	**Habitat designations** >	On site	0-50m	50-250m	250-500m	500-2000m
66 >	13.1 >	Priority Habitat Inventory >	0	3	6	-	-
67	13.2	Habitat Networks	0	0	0	-	-
67	13.3	Open Mosaic Habitat	0	0	0	-	-
67	13.4	Limestone Pavement Orders	0	0	0	-	-
Page	Section	**Geology 1:10,000 scale** >	On site	0-50m	50-250m	250-500m	500-2000m
68 >	14.1 >	10k Availability >	Identified (within 500m)				
69	14.2	Artificial and made ground (10k)	0	0	0	0	-
70 >	14.3 >	Superficial geology (10k) >	1	0	0	0	-

71	14.4	Landslip (10k)	0	0	0	0	-
72 >	14.5 >	Bedrock geology (10k) >	1	0	1	0	-
73 >	14.6 >	Bedrock faults and other linear features (10k) >	0	0	1	0	-
Page	Section	Geology 1:50,000 scale >	On site	0-50m	50-250m	250-500m	500-2000m
74 >	15.1 >	50k Availability >	Identified (within 500m)				
75	15.2	Artificial and made ground (50k)	0	0	0	0	-
75	15.3	Artificial ground permeability (50k)	0	0	-	-	-
76 >	15.4 >	Superficial geology (50k) >	1	0	0	0	-
77 >	15.5 >	Superficial permeability (50k) >	Identified (within 50m)				
77	15.6	Landslip (50k)	0	0	0	0	-
77	15.7	Landslip permeability (50k)	None (within 50m)				
78 >	15.8 >	Bedrock geology (50k) >	1	0	1	0	-
79 >	15.9 >	Bedrock permeability (50k) >	Identified (within 50m)				
79 >	15.10 >	Bedrock faults and other linear features (50k) >	0	0	1	0	-
Page	Section	Boreholes >	On site	0-50m	50-250m	250-500m	500-2000m
80 >	16.1 >	BGS Boreholes >	3	6	37	-	-
Page	Section	Natural ground subsidence >					
83 >	17.1 >	Shrink swell clays >	Very low (within 50m)				
84 >	17.2 >	Running sands >	Very low (within 50m)				
85 >	17.3 >	Compressible deposits >	Negligible (within 50m)				
86 >	17.4 >	Collapsible deposits >	Very low (within 50m)				
87 >	17.5 >	Landslides >	Very low (within 50m)				
88 >	17.6 >	Ground dissolution of soluble rocks >	Negligible (within 50m)				
Page	Section	Mining and ground workings >	On site	0-50m	50-250m	250-500m	500-2000m
90	18.1	BritPits	0	0	0	0	-
91 >	18.2 >	Surface ground workings >	0	6	37	-	-
92	18.3	Underground workings	0	0	0	0	0
93	18.4	Underground mining extents	0	0	0	0	-
93	18.5	Historical Mineral Planning Areas	0	0	0	0	-

93	18.6	Non-coal mining	0	0	0	0	0
93	18.7	JPB mining areas	None (within 0m)				
93	18.8	The Coal Authority non-coal mining	0	0	0	0	-
94	18.9	Researched mining	0	0	0	0	-
94	18.10	Mining record office plans	0	0	0	0	-
94	18.11	BGS mine plans	0	0	0	0	-
94	18.12	Coal mining	None (within 0m)				
95 >	**18.13 >**	**Brine areas >**	Identified (within 0m)				
95	18.14	Gypsum areas	None (within 0m)				
95	18.15	Tin mining	None (within 0m)				
95	18.16	Clay mining	None (within 0m)				
Page	Section	Ground cavities and sinkholes	On site	0-50m	50-250m	250-500m	500-2000m
96	19.1	Natural cavities	0	0	0	0	-
96	19.2	Mining cavities	0	0	0	0	0
96	19.3	Reported recent incidents	0	0	0	0	-
96	19.4	Historical incidents	0	0	0	0	-
97	19.5	National karst database	0	0	0	0	-
Page	Section	**Radon >**					
98 >	**20.1 >**	**Radon >**	Less than 1% (within 0m)				
Page	Section	**Soil chemistry >**	On site	0-50m	50-250m	250-500m	500-2000m
100 >	**21.1 >**	**BGS Estimated Background Soil Chemistry >**	4	1	-	-	-
100	21.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
100	21.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-
Page	Section	**Railway infrastructure and projects >**	On site	0-50m	50-250m	250-500m	500-2000m
101	22.1	Underground railways (London)	0	0	0	-	-
101	22.2	Underground railways (Non-London)	0	0	0	-	-
102	22.3	Railway tunnels	0	0	0	-	-
102	22.4	Historical railway and tunnel features	0	0	0	-	-
102	22.5	Royal Mail tunnels	0	0	0	-	-

102	22.6	Historical railways	0	0	0	-	-
102	22.7	Railways	0	0	0	-	-
103	22.8	Crossrail 1	0	0	0	0	-
103	22.9	Crossrail 2	0	0	0	0	-
103 >	**22.10 >**	**HS2 >**	0	0	2	0	-

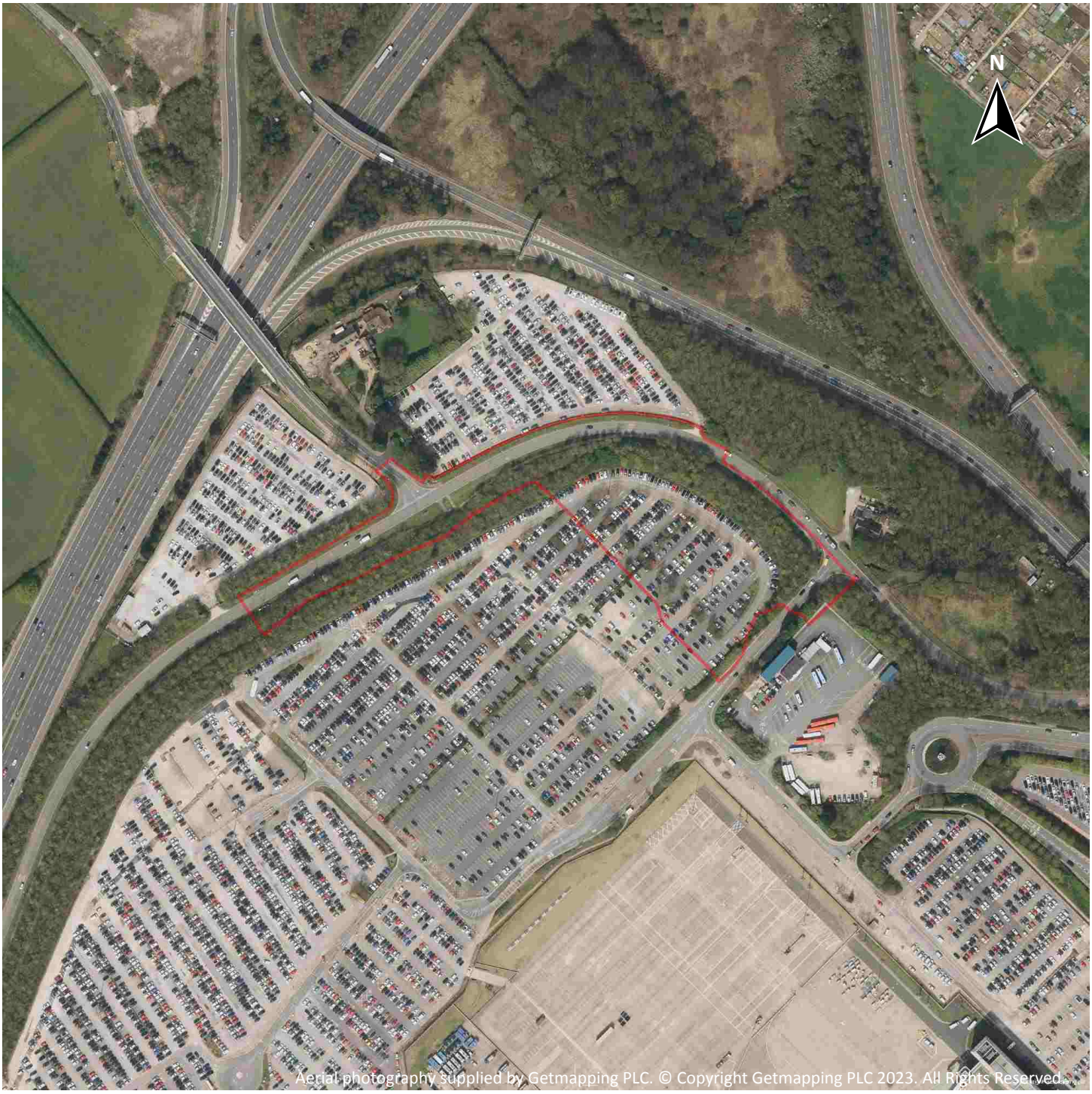
Recent aerial photograph



Capture Date: 22/04/2019

Site Area: 2.41ha

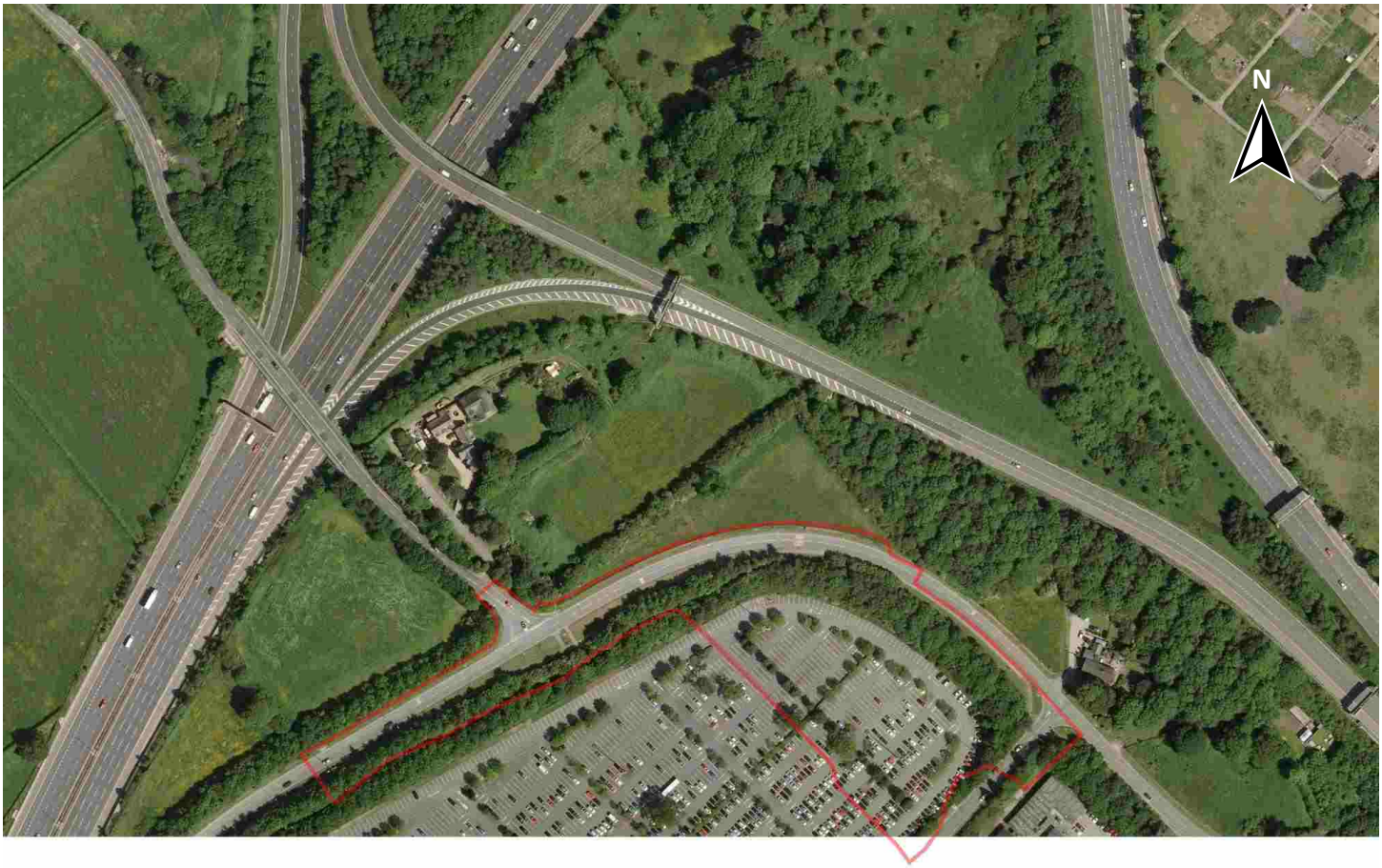
Recent site history - 2016 aerial photograph



Capture Date: 21/04/2016

Site Area: 2.41ha

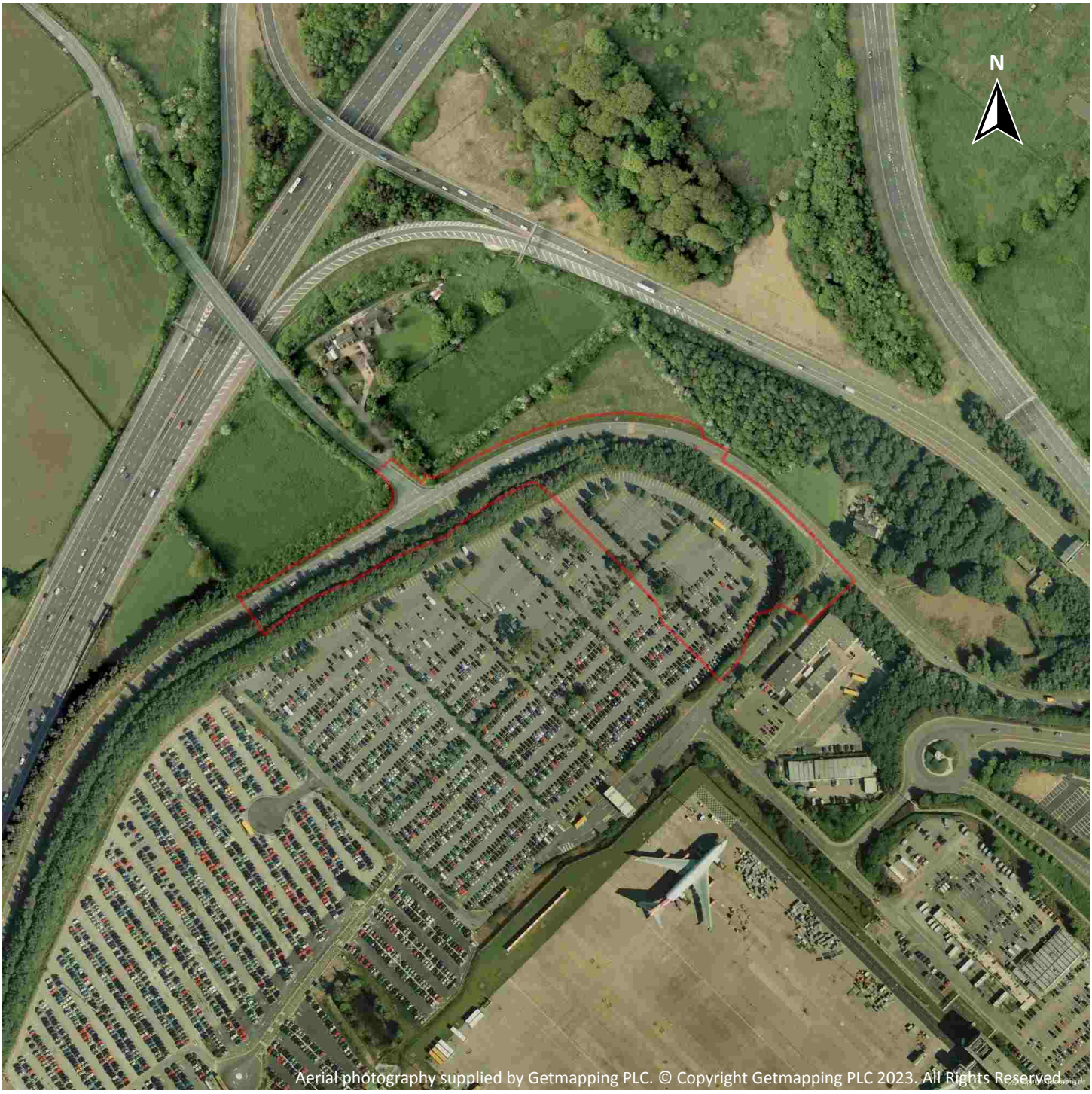
Recent site history - 2009 aerial photograph



Capture Date: 02/06/2009

Site Area: 2.41ha

Recent site history - 2005 aerial photograph



Capture Date: 15/05/2005

Site Area: 2.41ha

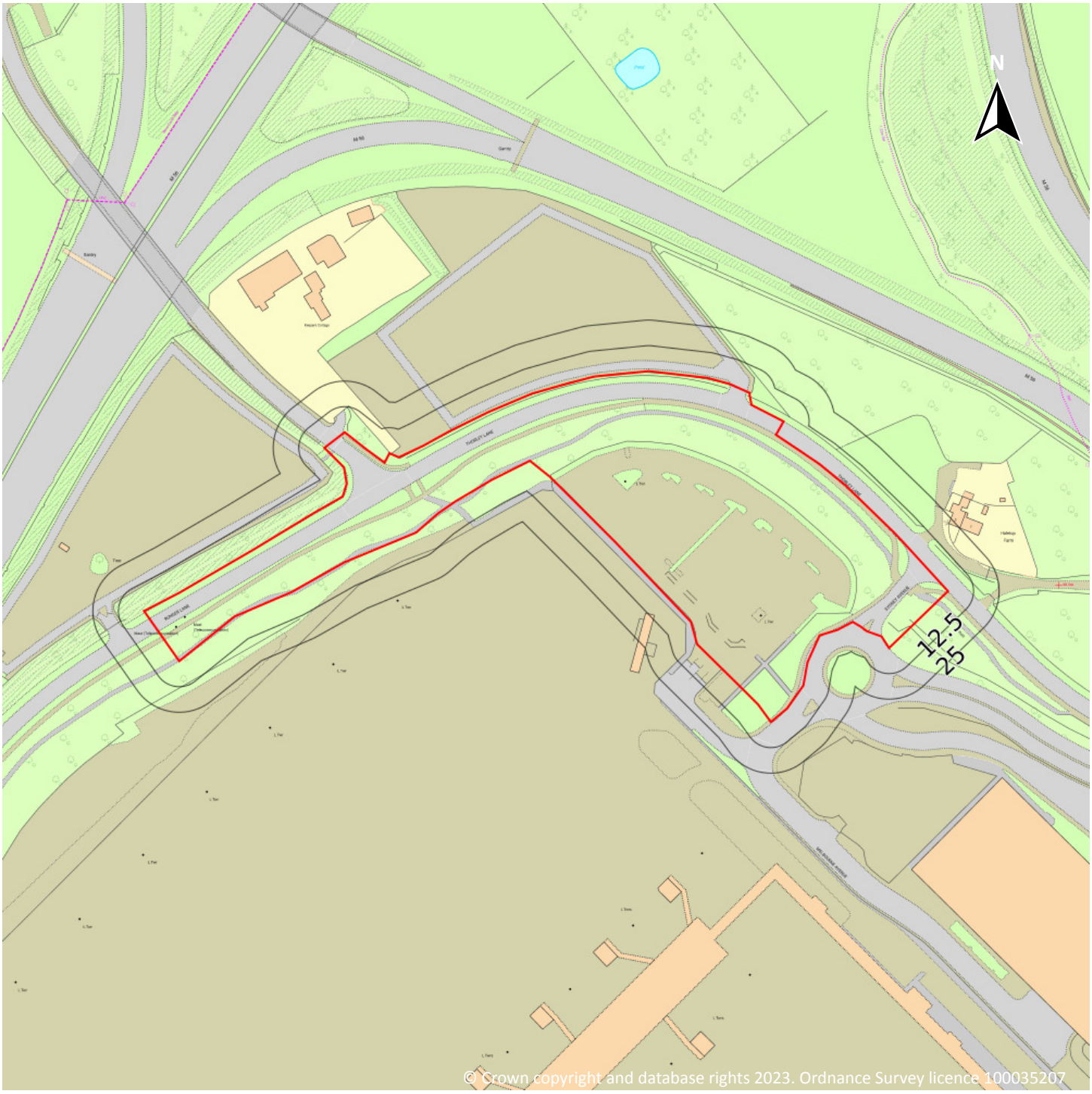
Recent site history - 2000 aerial photograph



Capture Date: 27/06/2000

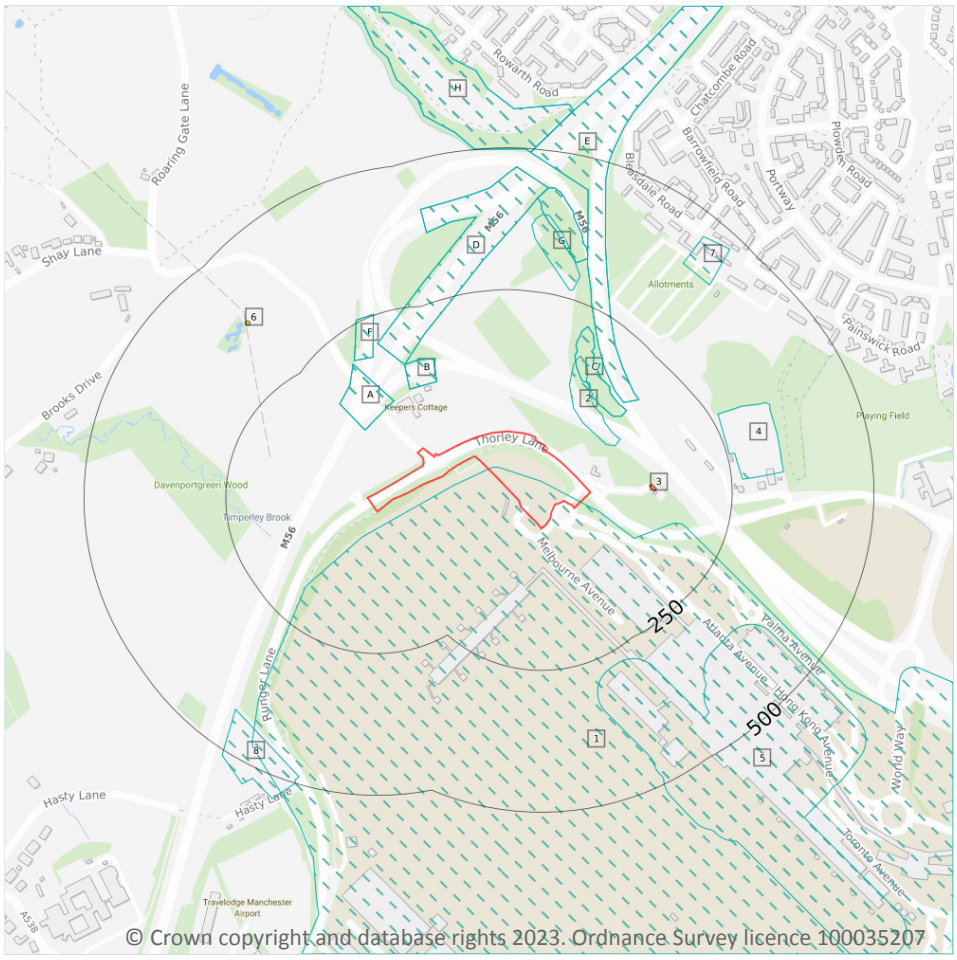
Site Area: 2.41ha

OS MasterMap site plan



Site Area: 2.41ha

1 Past land use



1.1 Historical industrial land uses

Records within 500m	23

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 1:10,560 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 15 >**

ID	Location	Land use	Dates present	Group ID
1	**On site**	**Airport**	**1995**	**845359**

ID	Location	Land use	Dates present	Group ID
2	77m NE	Unspecified Heap	1995	878096
A	94m NW	Cuttings	1975	964848
A	94m NW	Cuttings	1989 - 1995	981847
B	107m NW	Cuttings	1975	851887
B	107m NW	Cuttings	1989 - 1995	926819
C	118m NE	Unspecified Heap	1989	893299
C	118m NE	Unspecified Heap	1975	982914
D	151m NW	Cuttings	1989 - 1995	879675
D	151m NW	Cuttings	1975	941588
E	152m NE	Cuttings	1989 - 1995	852650
E	152m NE	Cuttings	1975	935711
F	183m NW	Cuttings	1975	980649
F	183m NW	Cuttings	1989 - 1995	928250
4	254m E	Nursery	1967	831898
G	265m N	Unspecified Heap	1995	979977
5	273m SE	Terminal	1995	827993
G	315m N	Unspecified Heap	1989	872100
G	315m N	Unspecified Heap	1975	954193
7	403m NE	Isolation Hospital	1910 - 1938	866195
8	429m SW	Unspecified Depot	1975	818393
H	494m N	Unspecified Heap	1989 - 1995	894531
H	494m N	Unspecified Heap	1975	920360

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m	**1**

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or

succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 15 >**

ID	Location	Land use	Dates present	Group ID
6	369m NW	Unspecified Tank	1909 - 1935	129543

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m	1

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 15 >**

ID	Location	Land use	Dates present	Group ID
3	105m E	Electricity Substation	1993 - 1995	70205

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m	0

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m	0

Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or

succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

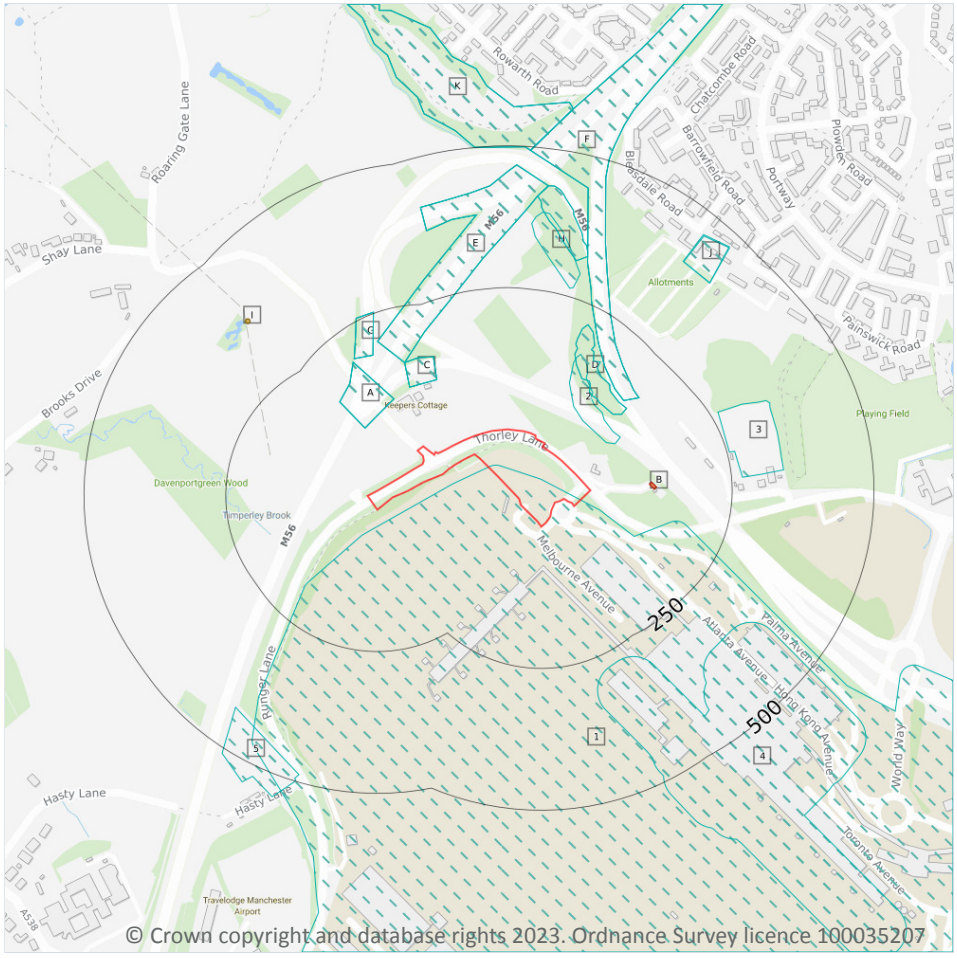
1.6 Historical military land

Records within 500m	0

Areas of military land digitised from multiple sources including the National Archives, local records, MOD records and verified other sources, intelligently grouped into contiguous features.

This data is sourced from Ordnance Survey / Groundsure / other sources.

2 Past land use - un-grouped



Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

2.1 Historical industrial land uses

Records within 500m	30

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 10,560 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 19 >**

ID	Location	Land Use	Date	Group ID
1	**On site**	**Airport**	**1995**	**845359**
2	77m NE	Unspecified Heap	1995	878096
A	94m NW	Cuttings	1995	981847

ID	Location	Land Use	Date	Group ID
A	94m NW	Cuttings	1975	964848
A	94m NW	Cuttings	1989	981847
C	107m NW	Cuttings	1995	926819
C	107m NW	Cuttings	1975	851887
C	107m NW	Cuttings	1989	926819
D	118m NE	Unspecified Heap	1975	982914
D	118m NE	Unspecified Heap	1989	893299
E	151m NW	Cuttings	1995	879675
E	151m NW	Cuttings	1975	941588
E	151m NW	Cuttings	1989	879675
F	152m NE	Cuttings	1995	852650
F	152m NE	Cuttings	1975	935711
F	152m NE	Cuttings	1989	852650
G	183m NW	Cuttings	1995	928250
G	183m NW	Cuttings	1975	980649
G	183m NW	Cuttings	1989	928250
3	254m E	Nursery	1967	831898
H	265m N	Unspecified Heap	1995	979977
4	273m SE	Terminal	1995	827993
H	315m N	Unspecified Heap	1975	954193
H	315m N	Unspecified Heap	1989	872100
J	403m NE	Isolation Hospital	1938	866195
J	403m NE	Isolation Hospital	1910	866195
5	429m SW	Unspecified Depot	1975	818393
K	494m N	Unspecified Heap	1995	894531
K	494m N	Unspecified Heap	1975	920360
K	494m N	Unspecified Heap	1989	894531

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m	2

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 19 >**

ID	Location	Land Use	Date	Group ID
I	369m NW	Unspecified Tank	1909	129543
I	369m NW	Unspecified Tank	1935	129543

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m	2

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 19 >**

ID	Location	Land Use	Date	Group ID
B	105m E	Electricity Substation	1995	70205
B	105m E	Electricity Substation	1993	70205

This data is sourced from Ordnance Survey / Groundsure.

2.4 Historical petrol stations

Records within 500m	0

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

2.5 Historical garages

Records within 500m	0

Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

3 Waste and landfill



3.1 Active or recent landfill

Records within 500m	0

Active or recently closed landfill sites under Environment Agency/Natural Resources Wales regulation.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.2 Historical landfill (BGS records)

Records within 500m	0

Landfill sites identified on a survey carried out on behalf of the DoE in 1973. These sites may have been closed or operational at this time.

This data is sourced from the British Geological Survey.

3.3 Historical landfill (LA/mapping records)

Records within 500m	0

Landfill sites identified from Local Authority records and high detail historical mapping.

This data is sourced from the Ordnance Survey/Groundsure and Local Authority records.

3.4 Historical landfill (EA/NRW records)

Records within 500m	0

Known historical (closed) landfill sites (e.g. sites where there is no PPC permit or waste management licence currently in force). This includes sites that existed before the waste licensing regime and sites that have been licensed in the past but where a licence has been revoked, ceased to exist or surrendered and a certificate of completion has been issued.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.5 Historical waste sites

Records within 500m	0

Waste site records derived from Local Authority planning records and high detail historical mapping.

This data is sourced from Ordnance Survey/Groundsure and Local Authority records.

3.6 Licensed waste sites

Records within 500m	0

Active or recently closed waste sites under Environment Agency/Natural Resources Wales regulation.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.7 Waste exemptions

Records within 500m	1

Activities involving the storage, treatment, use or disposal of waste that are exempt from needing a permit. Exemptions have specific limits and conditions that must be adhered to.

Features are displayed on the Waste and landfill map on **page 23 >**

ID	Location	Site	Reference	Category	Sub-Category	Description
1	215m W	RIVERS LANE, URMSTON, MANCHESTER, M41 7JB	WEX097141	Storing waste exemption	On a farm	Storage of sludge

This data is sourced from the Environment Agency and Natural Resources Wales.

4 Current industrial land use



4.1 Recent industrial land uses

Records within 250m	6

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 26 >**

ID	Location	Company	Address	Activity	Category
1	**On site**	**Mast (Telecommunication)**	**Greater Manchester, WA15**	**Telecommunications Features**	**Infrastructure and Facilities**
A	99m E	Electricity Sub Station	Greater Manchester, WA15	Electrical Features	Infrastructure and Facilities

ID	Location	Company	Address	Activity	Category
2	118m N	Gantry	Greater Manchester, WA15	Travelling Cranes and Gantries	Industrial Features
A	146m E	Gantry	Greater Manchester, WA15	Travelling Cranes and Gantries	Industrial Features
3	147m NW	Gantry	Greater Manchester, WA15	Travelling Cranes and Gantries	Industrial Features
4	159m E	Gantry	Greater Manchester, WA15	Travelling Cranes and Gantries	Industrial Features

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m	0

Open, closed, under development and obsolete petrol stations.

This data is sourced from Experian.

4.3 Electricity cables

Records within 500m	0

High voltage underground electricity transmission cables.

This data is sourced from National Grid.

4.4 Gas pipelines

Records within 500m	0

High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.5 Sites determined as Contaminated Land

Records within 500m	0

Contaminated Land Register of sites designated under Part 2a of the Environmental Protection Act 1990.

This data is sourced from Local Authority records.

4.6 Control of Major Accident Hazards (COMAH)

Records within 500m	0

Control of Major Accident Hazards (COMAH) sites. This data includes upper and lower tier sites, and includes a historical archive of COMAH sites and Notification of Installations Handling Hazardous Substances (NIHHS) records.

This data is sourced from the Health and Safety Executive.

4.7 Regulated explosive sites

Records within 500m	0

Sites registered and licensed by the Health and Safety Executive under the Manufacture and Storage of Explosives Regulations 2005 (MSER). The last update to this data was in April 2011.

This data is sourced from the Health and Safety Executive.

4.8 Hazardous substance storage/usage

Records within 500m	0

Consents granted for a site to hold certain quantities of hazardous substances at or above defined limits in accordance with the Planning (Hazardous Substances) Regulations 2015.

This data is sourced from Local Authority records.

4.9 Historical licensed industrial activities (IPC)

Records within 500m	0

Integrated Pollution Control (IPC) records of substance releases to air, land and water. This data represents a historical archive as the IPC regime has been superseded.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.10 Licensed industrial activities (Part A(1))

Records within 500m	0

Records of Part A(1) installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.11 Licensed pollutant release (Part A(2)/B)

Records within 500m	0

Records of Part A(2) and Part B installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

This data is sourced from Local Authority records.

4.12 Radioactive Substance Authorisations

Records within 500m	0

Records of the storage, use, accumulation and disposal of radioactive substances regulated under the Radioactive Substances Act 1993.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.13 Licensed Discharges to controlled waters

Records within 500m	11

Discharges of treated or untreated effluent to controlled waters under the Water Resources Act 1991.

Features are displayed on the Current industrial land use map on **page 26 >**

ID	Location	Address	Details	
5	167m SW	MANCHESTER AIRPORT DOUBLEWOOD BROOK, DOUBLE WOOD BROOK OUTFALL, MANCHESTER AIRPORT, MANCHESTER, GREATER MANCHESTER, M90 1QX	Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: 016992830 Permit Version: 1 Receiving Water: TIMPERLEY BROOK	Status: POST NRA LEGISLATION WHERE ISSUE DATE > 31-AUG-89 (HISTORIC ONLY) Issue date: - Effective Date: 30/09/1994 Revocation Date: 19/01/2001
B	172m W	MANCHESTER AIRPORT, MANCHESTER, MANCHESTER, M90 1QX	Effluent Type: TRADE DISCHARGES - SITE DRAINAGE Permit Number: EPRGB3398RG Permit Version: 1 Receiving Water: RIVER BOLLIN & TIMPERLEY BROOK	Status: NEW ISSUED UNDER EPR 2010 Issue date: 25/08/2017 Effective Date: 25/08/2017 Revocation Date: 13/03/2019
B	172m W	MANCHESTER AIRPORT, MANCHESTER, MANCHESTER, M90 1QX	Effluent Type: TRADE DISCHARGES - SITE DRAINAGE Permit Number: EPRGB3398RG Permit Version: 1 Receiving Water: RIVER BOLLIN & TIMPERLEY BROOK	Status: NEW ISSUED UNDER EPR 2010 Issue date: 25/08/2017 Effective Date: 25/08/2017 Revocation Date: 13/03/2019

ID	Location	Address	Details	
B	172m W	MANCHESTER AIRPORT, MANCHESTER, MANCHESTER, M90 1QX	Effluent Type: TRADE DISCHARGES - SITE DRAINAGE Permit Number: EPRGB3398RG Permit Version: 1 Receiving Water: RIVER BOLLIN & TIMPERLEY BROOK	Status: NEW ISSUED UNDER EPR 2010 Issue date: 25/08/2017 Effective Date: 25/08/2017 Revocation Date: 13/03/2019
B	172m W	MANCHESTER AIRPORT, MANCHESTER, MANCHESTER, M90 1QX	Effluent Type: TRADE DISCHARGES - SITE DRAINAGE Permit Number: EPRGB3398RG Permit Version: 1 Receiving Water: RIVER BOLLIN & TIMPERLEY BROOK	Status: NEW ISSUED UNDER EPR 2010 Issue date: 25/08/2017 Effective Date: 25/08/2017 Revocation Date: 13/03/2019
6	185m SW	MAN-TP, UNIT 307, YORK DRIVE, MANCHESTER AIRPORT, MANCHESTER, M90 5QL	Effluent Type: TRADE DISCHARGES - PROCESS EFFLUENT - NOT WATER COMPANY Permit Number: EPRHB3690WL Permit Version: 1 Receiving Water: TIMPERLEY BROOK	Status: NEW ISSUED UNDER EPR 2010 Issue date: 05/02/2018 Effective Date: 05/02/2018 Revocation Date: -
7	229m SW	MAN-TP, UNIT 307, YORK DRIVE, MANCHESTER AIRPORT, MANCHESTER, M90 5QL	Effluent Type: TRADE DISCHARGES - PROCESS EFFLUENT - NOT WATER COMPANY Permit Number: EPRHB3690WL Permit Version: 1 Receiving Water: TIMPERLEY BROOK	Status: NEW ISSUED UNDER EPR 2010 Issue date: 05/02/2018 Effective Date: 05/02/2018 Revocation Date: -
C	296m SW	MANCHESTER AIRPORT: SITE DRAINAGE, AND CONTAINMENT SYSTEM, OLYMPIC HOUSE, OFF THE DOMESTIC APPROACH ROAD, MANCHESTER, M90 1QX	Effluent Type: TRADE DISCHARGES - SITE DRAINAGE (CONTAM SURFACE WATER, NOT WASTE SIT Permit Number: EPRCB3299EN Permit Version: 2 Receiving Water: RIVER BOLLIN & NEARBY TRIBS	Status: VARIED UNDER EPR 2010 Issue date: 15/02/2019 Effective Date: 15/02/2019 Revocation Date: -
C	300m SW	MAN-TP, UNIT 307, YORK DRIVE, MANCHESTER AIRPORT, MANCHESTER, M90 5QL	Effluent Type: TRADE DISCHARGES - PROCESS EFFLUENT - NOT WATER COMPANY Permit Number: EPRHB3690WL Permit Version: 1 Receiving Water: TIMPERLEY BROOK	Status: NEW ISSUED UNDER EPR 2010 Issue date: 05/02/2018 Effective Date: 05/02/2018 Revocation Date: -
C	311m SW	SETTLEMENT LAGOONS AT, WEST APRON PHASES 6A AND 6B, COSTAIN LIMITED WEST GATE, CARGO CENTRE, MANCHSTER AIRPORT, M90 5FL	Effluent Type: TRADE DISCHARGES - SITE DRAINAGE Permit Number: 016993775 Permit Version: 1 Receiving Water: TIMPERLEY BROOK	Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 15/06/2005 Effective Date: 15/06/2005 Revocation Date: 14/03/2008

ID	Location	Address	Details	
8	383m S	MAN-TP, UNIT 307, YORK DRIVE, MANCHESTER AIRPORT, MANCHESTER, M90 5QL	Effluent Type: TRADE DISCHARGES - PROCESS EFFLUENT - NOT WATER COMPANY Permit Number: EPRHB3690WL Permit Version: 1 Receiving Water: TIMPERLEY BROOK	Status: NEW ISSUED UNDER EPR 2010 Issue date: 05/02/2018 Effective Date: 05/02/2018 Revocation Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

4.14 Pollutant release to surface waters (Red List)

Records within 500m	0

Discharges of specified substances under the Environmental Protection (Prescribed Processes and Substances) Regulations 1991.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.15 Pollutant release to public sewer

Records within 500m	0

Discharges of Special Category Effluents to the public sewer.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.16 List 1 Dangerous Substances

Records within 500m	0

Discharges of substances identified on List I of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.17 List 2 Dangerous Substances

Records within 500m	0

Discharges of substances identified on List II of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.18 Pollution Incidents (EA/NRW)

Records within 500m	0

Records of substantiated pollution incidents. Since 2006 this data has only included category 1 (major) and 2 (significant) pollution incidents.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.19 Pollution inventory substances

Records within 500m	0

The pollution inventory (substances) includes reporting on annual emissions of certain regulated substances to air, controlled waters and land. A reporting threshold for each substance is also included. Where emissions fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

4.20 Pollution inventory waste transfers

Records within 500m	0

The pollution inventory (waste transfers) includes reporting on annual transfers and recovery/disposal of controlled wastes from a site. A reporting threshold for each waste type is also included. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

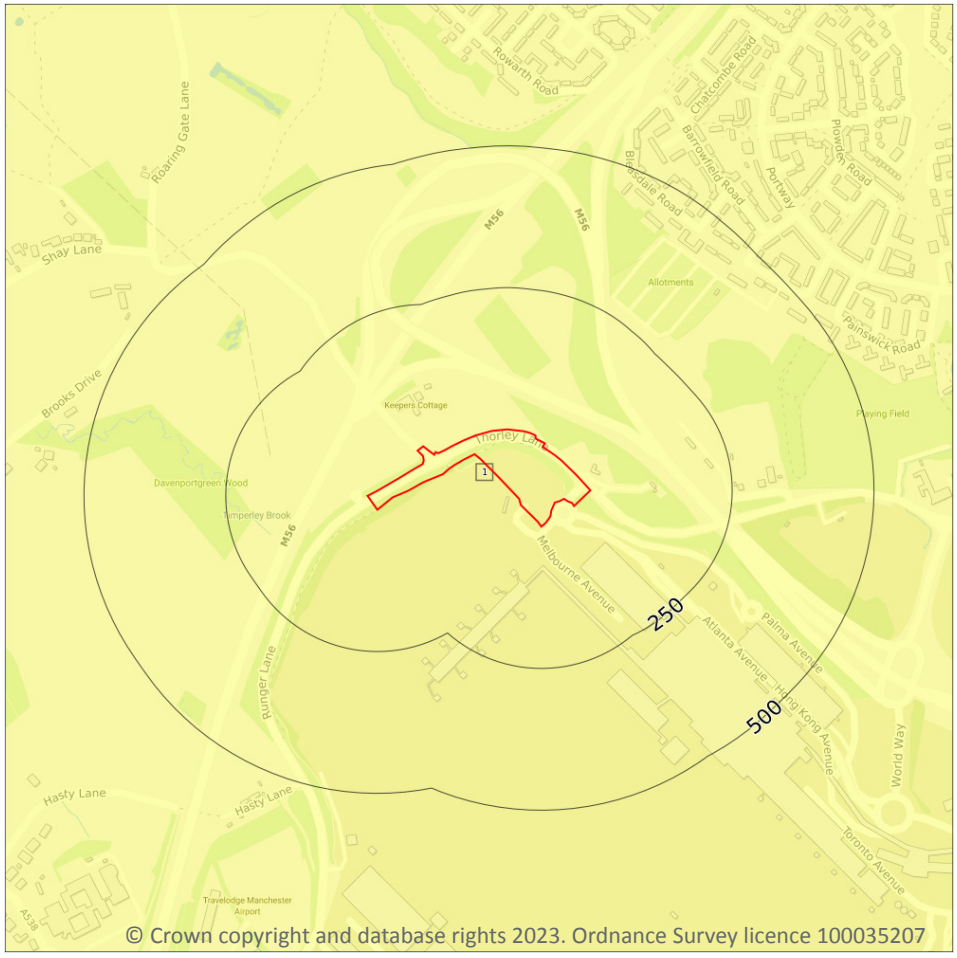
4.21 Pollution inventory radioactive waste

Records within 500m	0

The pollution inventory (radioactive wastes) includes reporting on annual releases of radioactive substances from a site, including the means of release. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

5 Hydrogeology - Superficial aquifer



5.1 Superficial aquifer

Records within 500m	1

Aquifer status of groundwater held within superficial geology.

Features are displayed on the Hydrogeology map on **page 33 >**

ID	Location	Designation	Description
1	**On site**	**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**

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

Bedrock aquifer



Site Outline

Search buffers in metres (m)

- Principal
- Secondary A
- Secondary B
- Secondary Undifferentiated
- Unproductive

5.2 Bedrock aquifer

Records within 500m	1

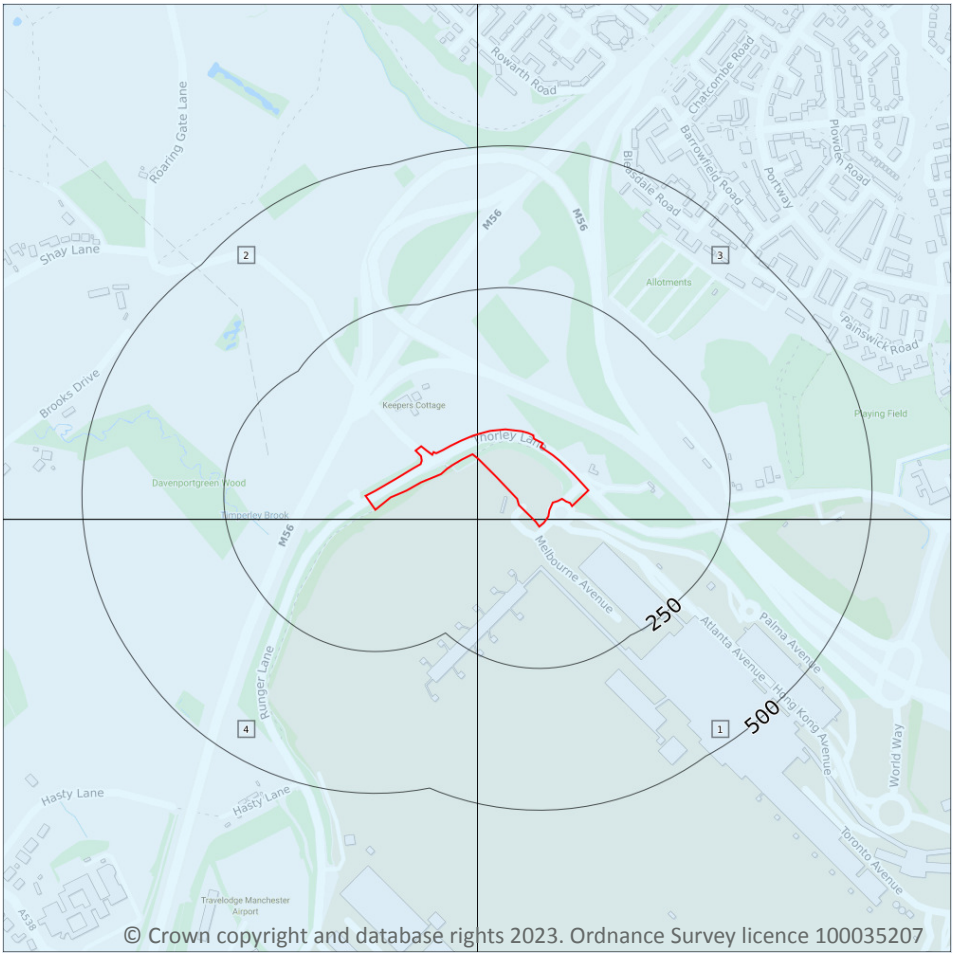
Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on **page 34 >**

ID	Location	Designation	Description
1	On site	Secondary B	Predominantly lower permeability layers which may store/yield limited amounts of groundwater due to localised features such as fissures, thin permeablehorizons and weathering. These are generally the water-bearing parts of the former non-aquifers

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

Groundwater vulnerability



Site Outline

Search buffers in metres (m)

Superficial vulnerability
- Principal superficial aquifer, high vulnerability
- Secondary superficial aquifer, high vulnerability
- Principal superficial aquifer, medium vulnerability
- Secondary superficial aquifer, medium vulnerability
- Principal superficial aquifer, low vulnerability
- Secondary superficial aquifer, low vulnerability

Bedrock vulnerability
- Principal bedrock aquifer, high vulnerability
- Secondary bedrock aquifer, high vulnerability
- Principal bedrock aquifer, medium vulnerability
- Secondary bedrock aquifer, medium vulnerability
- Principal bedrock aquifer, low vulnerability
- Secondary bedrock aquifer, low vulnerability

Other information
- Unproductive aquifer
- Soluble rock risk
- Local information

5.3 Groundwater vulnerability

Records within 50m	4

An assessment of the vulnerability of groundwater to a pollutant discharged at ground level based on the hydrological, geological, hydrogeological and soil properties within a one kilometre square grid. Groundwater vulnerability is described as High, Medium or Low as follows:

- High - 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.
- 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 a low permeability.

Features are displayed on the Groundwater vulnerability map on **page 35 >**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	**On site**	**Summary Classification: Secondary superficial aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer**	**Leaching class: Low Infiltration value: <40% Dilution value: 300-550mm/year**	**Vulnerability: Low Aquifer type: Secondary Thickness: 3-10m Patchiness value: >90% Recharge potential: Low**	**Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures**
2	**On site**	**Summary Classification: Secondary superficial aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer**	**Leaching class: Low Infiltration value: <40% Dilution value: 300-550mm/year**	**Vulnerability: Low Aquifer type: Secondary Thickness: 3-10m Patchiness value: >90% Recharge potential: Low**	**Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures**
3	**On site**	**Summary Classification: Secondary superficial aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer**	**Leaching class: Low Infiltration value: <40% Dilution value: 300-550mm/year**	**Vulnerability: Low Aquifer type: Secondary Thickness: 3-10m Patchiness value: >90% Recharge potential: Low**	**Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures**
4	16m W	Summary Classification: Secondary superficial aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: 300-550mm/year	Vulnerability: Low Aquifer type: Secondary Thickness: 3-10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

5.4 Groundwater vulnerability- soluble rock risk

Records on site	**0**

This dataset identifies areas where solution features that enable rapid movement of a pollutant may be present within a 1km grid square.

This data is sourced from the British Geological Survey and the Environment Agency.

5.5 Groundwater vulnerability- local information

Records on site	**0**

This dataset identifies areas where additional local information affecting vulnerability is held by the Environment Agency. Further information can be obtained by contacting the Environment Agency local Area groundwater team through the Environment Agency National Customer Call Centre on 03798 506 506 or by

email on enquiries@environment-agency.gov.uk ↗.

This data is sourced from the British Geological Survey and the Environment Agency.

Abstractions and Source Protection Zones



Site Outline

Search buffers in metres (m)

- Source Protection Zone 1 — Inner catchment
- Source Protection Zone 2 — Outer catchment
- Source Protection Zone 3 — Total catchment
- Source Protection Zone 4 — Zone of Special Interest
- Source Protection Zone 1c — Inner catchment - confined aquifer
- Source Protection Zone 2c — Outer catchment - confined aquifer
- Source Protection Zone 3c — Total catchment - confined aquifer
- Drinking water abstraction licences
- Drinking water abstraction licences — Polygon features
- Drinking water abstraction licences — Linear features
- Groundwater abstraction licence (point)
- Groundwater abstraction licence (area)
- Groundwater abstraction licence (linear)
- Surface Water Abstractions (point)
- Surface Water Abstractions (area)
- Surface Water Abstractions (linear)

5.6 Groundwater abstractions

Records within 2000m	0

Licensed groundwater abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, between two points (line data) or a larger area.

This data is sourced from the Environment Agency and Natural Resources Wales.

5.7 Surface water abstractions

Records within 2000m	5

Licensed surface water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on **page 38 >**

ID	Location	Details	
-	1268m W	Status: Historical Licence No: 2569017036/R1 Details: Spray Irrigation - Direct Direct Source: Surface, Non-Tidal - North West Region Point: UNDERGROUND STORAGE TANK FED BY LOCAL SURFACE DRAINAGE Data Type: Point Name: RINGWAY GOLF CLUB LIMITED Easting: 379536 Northing: 386114	Annual Volume (m^3): 5000 Max Daily Volume (m^3): 71.5 Original Application No: - Original Start Date: 28/04/2004 Expiry Date: 31/03/2018 Issue No: 1 Version Start Date: 28/04/2004 Version End Date: -
-	1268m W	Status: Historical Licence No: 2569017036/R02 Details: Spray Irrigation - Direct Direct Source: Surface, Non-Tidal - North West Region Point: UNDERGROUND STORAGE TANK FED BY LOCAL SURFACE DRAINAGE Data Type: Point Name: RINGWAY GOLF CLUB LIMITED Easting: 379536 Northing: 386114	Annual Volume (m^3): 5000 Max Daily Volume (m^3): 60 Original Application No: NPS/WR/020466 Original Start Date: 01/04/2018 Expiry Date: 31/03/2030 Issue No: 1 Version Start Date: 01/04/2018 Version End Date: -
-	1304m W	Status: Historical Licence No: 2569017036 Details: Spray Irrigation - Direct Direct Source: Surface, Non-Tidal - North West Region Point: UNDERGROUND STORAGE TANK FED BY LOCAL SURFACE DRAINAGE Data Type: Point Name: THE SECRETARY Easting: 379500 Northing: 386100	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 13/07/1999 Expiry Date: 12/07/2004 Issue No: 1 Version Start Date: 13/07/1999 Version End Date: -

ID	Location	Details	
-	1304m W	Status: Historical Licence No: 2569017036/R1 Details: Spray Irrigation - Direct Direct Source: Surface, Non-Tidal - North West Region Point: UNDERGROUND STORAGE TANK FED BY LOCAL SURFACE DRAINAGE Data Type: Point Name: RINGWAY GOLF CLUB LIMITED Easting: 379500 Northing: 386100	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 28/04/2004 Expiry Date: 31/03/2018 Issue No: 1 Version Start Date: 28/04/2004 Version End Date: -
-	1304m W	Status: Historical Licence No: 2569017036/R1 Details: Spray Irrigation - Direct Direct Source: Surface, Non-Tidal - North West Region Point: UNDERGROUND STORAGE TANK FED BY LOCAL SURFACE DRAINAGE Data Type: Point Name: RINGWAY GOLF CLUB LIMITED Easting: 379500 Northing: 386100	Annual Volume (m^3): 5000 Max Daily Volume (m^3): 71.5 Original Application No: - Original Start Date: 28/04/2004 Expiry Date: 31/03/2018 Issue No: 1 Version Start Date: 28/04/2004 Version End Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

5.8 Potable abstractions

Records within 2000m	**0**

Licensed potable water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

This data is sourced from the Environment Agency and Natural Resources Wales.

5.9 Source Protection Zones

Records within 500m	**0**

Source Protection Zones define the sensitivity of an area around a potable abstraction site to contamination.

This data is sourced from the Environment Agency and Natural Resources Wales.

5.10 Source Protection Zones (confined aquifer)

Records within 500m	0

Source Protection Zones in the confined aquifer define the sensitivity around a deep groundwater abstraction to contamination. A confined aquifer would normally be protected from contamination by overlying geology and is only considered a sensitive resource if deep excavation/drilling is taking place.

This data is sourced from the Environment Agency and Natural Resources Wales.

6 Hydrology



Site Outline

Search buffers in metres (m)

Water Network (OS MasterMap)

Surface water features (wider than 5m)

Surface water features (narrower than 5m)

WFD River, canal and surface water transfer water bodies

WFD Lake water bodies

WFD Transitional and coastal water bodies

WFD Surface water body catchments boundaries

WFD Groundwater body boundaries

6.1 Water Network (OS MasterMap)

Records within 250m	**4**

Detailed water network of Great Britain showing the flow and precise central course of every river, stream, lake and canal.

Features are displayed on the Hydrology map on **page 42 >**

ID	Location	Type of water feature	Ground level	Permanence	Name
3	91m E	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Fairywell Brook

ID	Location	Type of water feature	Ground level	Permanence	Name
A	158m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Timperley Brook
B	184m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Timperley Brook
C	206m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Timperley Brook

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m	2

Covering rivers, streams and lakes (some overlap with OS MasterMap Water Network data in previous section) but additionally covers smaller features such as ponds. Rivers and streams narrower than 5m are represented as a single line. Lakes, ponds and rivers or streams wider than 5m are represented as polygons.

Features are displayed on the Hydrology map on **page 42 >**

This data is sourced from the Ordnance Survey.

6.3 WFD Surface water body catchments

Records on site	2

The Water Framework Directive is an EU-led framework for the protection of inland surface waters, estuaries, coastal waters and groundwater through river basin-level management planning. In terms of surface water, these basins are broken down into smaller units known as management, operational and water body catchments.

Features are displayed on the Hydrology map on **page 42 >**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
1	**On site**	**River**	**Sinderland Brook (Fairywell Bk and Baguley Bk)**	**GB112069061270**	**Bollin Dean Mersey Upper**	**Mersey Upper**
A	**On site**	**River**	**Timperley Brook**	**GB112069061260**	**Bollin Dean Mersey Upper**	**Mersey Upper**

This data is sourced from the Environment Agency and Natural Resources Wales.

6.4 WFD Surface water bodies

Records identified	2

Surface water bodies under the Directive may be rivers, lakes, estuary or coastal. To achieve the purpose of the Directive, environmental objectives have been set and are reported on for each water body. The progress towards delivery of the objectives is then reported on by the relevant competent authorities at the end of each six-year cycle. The river water body directly associated with the catchment listed in the previous section is detailed below, along with any lake, canal, coastal or artificial water body within 250m of the site. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each water body listed.

Features are displayed on the Hydrology map on **page 42 >**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
5	499m N	River	Sinderland Brook (Fairywell Bk and Baguley Bk)	GB112069061270 ↗	Moderate	Fail	Moderate	2019
-	1371m NW	River	Timperley Brook	GB112069061260 ↗	Moderate	Fail	Moderate	2019

This data is sourced from the Environment Agency and Natural Resources Wales.

6.5 WFD Groundwater bodies

Records on site	1

Groundwater bodies are also covered by the Directive and the same regime of objectives and reporting detailed in the previous section is in place. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each groundwater body listed.

Features are displayed on the Hydrology map on **page 42 >**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
2	**On site**	**Weaver and Dane Quaternary Sand and Gravel Aquifers**	**GB41202G991700 ↗**	**Poor**	**Poor**	**Good**	**2019**

This data is sourced from the Environment Agency and Natural Resources Wales.

7 River and coastal flooding

7.1 Risk of flooding from rivers and the sea

Records within 50m	0

The chance of flooding from rivers and/or the sea in any given year, based on cells of 50m within the Risk of Flooding from Rivers and Sea (RoFRaS)/Flood Risk Assessment Wales (FRAW) models. Each cell is allocated one of four flood risk categories, taking into account flood defences and their condition. The risk categories for RoFRaS for rivers and the sea and FRAW for rivers are; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 100 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 100 chance) or High (greater than or equal to 1 in 30 chance). The risk categories for FRAW for the sea are; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 200 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 200 chance) or High (greater than or equal to 1 in 30 chance).

This data is sourced from the Environment Agency and Natural Resources Wales.

7.2 Historical Flood Events

Records within 250m	0

Records of historic flooding from rivers, the sea, groundwater and surface water. Records began in 1946 when predecessor bodies started collecting detailed information about flooding incidents, although limited details may be included on flooding incidents prior to this date. Takes into account the presence of defences, structures, and other infrastructure where they existed at the time of flooding, and includes flood extents that may have been affected by overtopping, breaches or blockages.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.3 Flood Defences

Records within 250m	0

Records of flood defences owned, managed or inspected by the Environment Agency and Natural Resources Wales. Flood defences can be structures, buildings or parts of buildings. Typically these are earth banks, stone and concrete walls, or sheet-piling that is used to prevent or control the extent of flooding.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.4 Areas Benefiting from Flood Defences

Records within 250m	0

Areas that would benefit from the presence of flood defences in a 1 in 100 (1%) chance of flooding each year from rivers or 1 in 200 (0.5%) chance of flooding each year from the sea.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.5 Flood Storage Areas

Records within 250m	0

Areas that act as a balancing reservoir, storage basin or balancing pond to attenuate an incoming flood peak to a flow level that can be accepted by the downstream channel or to delay the timing of a flood peak so that its volume is discharged over a longer period.

This data is sourced from the Environment Agency and Natural Resources Wales.

River and coastal flooding - Flood Zones

7.6 Flood Zone 2

Records within 50m	0

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land between Flood Zone 3 (see next section) and the extent of the flooding from rivers or the sea with a 1 in 1000 (0.1%) chance of flooding each year.

This data is sourced from the Environment Agency and Natural Resources Wales.

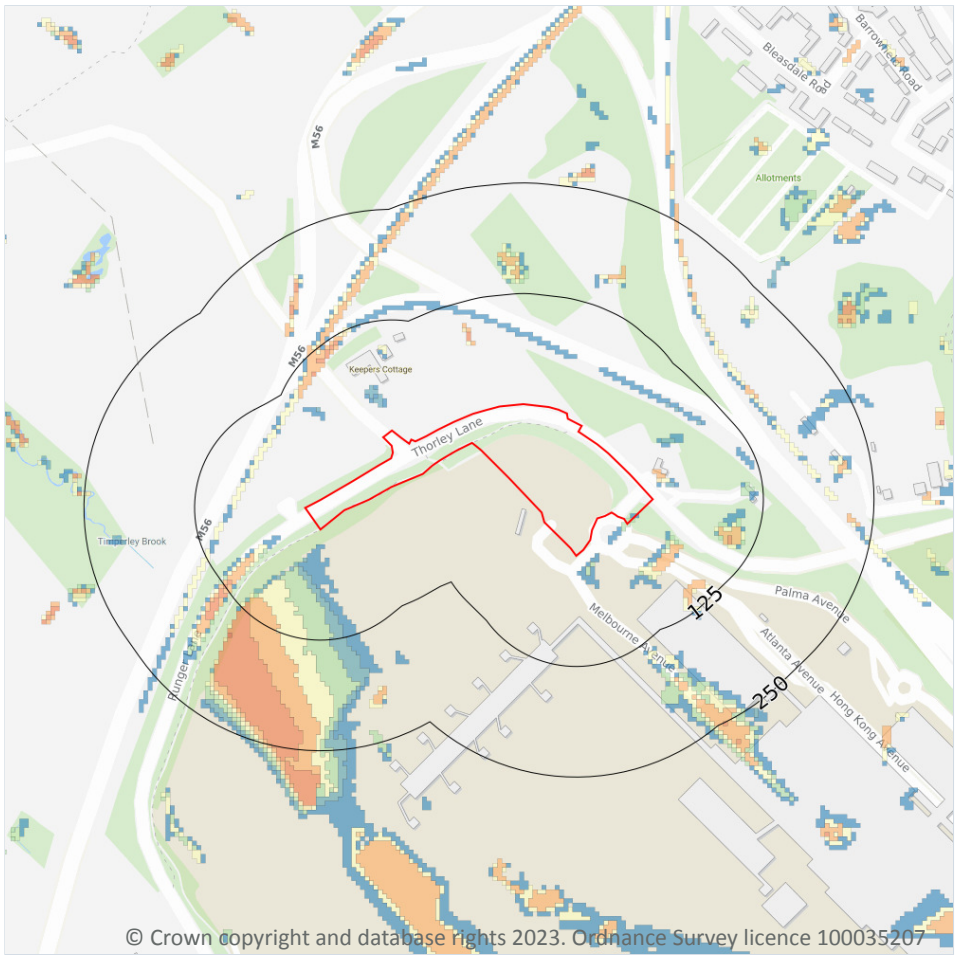
7.7 Flood Zone 3

Records within 50m	0

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land with a 1 in 100 (1%) or greater chance of flooding each year from rivers or a 1 in 200 (0.5%) or greater chance of flooding each year from the sea.

This data is sourced from the Environment Agency and Natural Resources Wales.

8 Surface water flooding



8.1 Surface water flooding

Highest risk on site	**1 in 250 year, 0.1m - 0.3m**
Highest risk within 50m	**1 in 30 year, 0.1m - 0.3m**

Ambiental Risk Analytics surface water (pluvial) FloodMap identifies areas likely to flood as a result of extreme rainfall events, i.e. land naturally vulnerable to surface water ponding or flooding. This data set was produced by simulating 1 in 30 year, 1 in 100 year, 1 in 250 year and 1 in 1,000 year rainfall events. Modern urban drainage systems are typically built to cope with rainfall events between 1 in 20 and 1 in 30 years, though some older ones may flood in a 1 in 5 year rainfall event.

Features are displayed on the Surface water flooding map on **page 48 >**

The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site.

The table below shows the maximum flood depths for a range of return periods for the site.

Return period	Maximum modelled depth
1 in 1000 year	Between 0.1m and 0.3m
1 in 250 year	Between 0.1m and 0.3m
1 in 100 year	Negligible
1 in 30 year	Negligible

This data is sourced from Ambiental Risk Analytics.

9 Groundwater flooding



Site Outline

Search buffers in metres (m)

High

Moderate - High

Moderate

Low

Negligible

9.1 Groundwater flooding

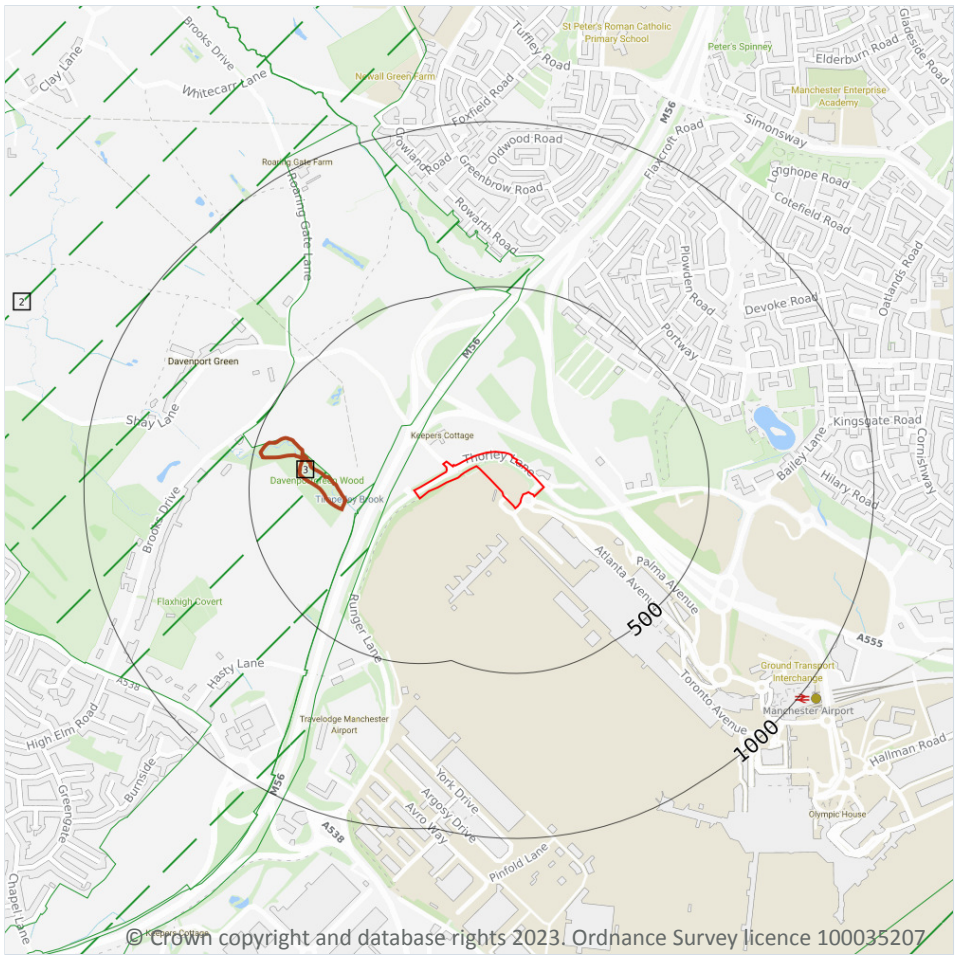
Highest risk on site	**Low**
Highest risk within 50m	**Low**

Groundwater flooding is caused by unusually high groundwater levels. It occurs when the water table rises above the ground surface or within underground structures such as basements or cellars. Groundwater flooding tends to exhibit a longer duration than surface water flooding, possibly lasting for weeks or months, and as a result it can cause significant damage to property. This risk assessment is based on a 1 in 100 year return period and a 5m Digital Terrain Model (DTM).

Features are displayed on the Groundwater flooding map on **page 50 >**

This data is sourced from Ambiental Risk Analytics.

10 Environmental designations



Site Outline

Search buffers in metres (m)

Sites of Special Scientific Interest (SSSI)

Designated Ancient Woodland

Green Belt

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m	2

Sites providing statutory protection for the best examples of UK flora, fauna, or geological or physiographical features. Originally notified under the National Parks and Access to the Countryside Act 1949, SSSIs were re-notified under the Wildlife and Countryside Act 1981. Improved provisions for the protection and management of SSSIs were introduced by the Countryside and Rights of Way Act 2000 (in England and Wales) and (in Scotland) by the Nature Conservation (Scotland) Act 2004 and the Wildlife and Natural Environment (Scotland) Act 2010.

Features are displayed on the Environmental designations map on **page 51 >**

ID	Location	Name	Data source
-	1615m S	Cotteril Clough	Natural England

ID	Location	Name	Data source
-	1981m S	Cotteril Clough	Natural England

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.2 Conserved wetland sites (Ramsar sites)

Records within 2000m	0

Ramsar sites are designated under the Convention on Wetlands of International Importance, agreed in Ramsar, Iran, in 1971. They cover all aspects of wetland conservation and wise use, recognizing wetlands as ecosystems that are extremely important for biodiversity conservation in general and for the well-being of human communities. These sites cover a broad definition of wetland; marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, and even some marine areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.3 Special Areas of Conservation (SAC)

Records within 2000m	0

Areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.4 Special Protection Areas (SPA)

Records within 2000m	0

Sites classified by the UK Government under the EC Birds Directive, SPAs are areas of the most important habitat for rare (listed on Annex I to the Directive) and migratory birds within the European Union.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.5 National Nature Reserves (NNR)

Records within 2000m	0

Sites containing examples of some of the most important natural and semi-natural terrestrial and coastal ecosystems in Great Britain. They are managed to conserve their habitats, provide special opportunities for scientific study or to provide public recreation compatible with natural heritage interests.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.6 Local Nature Reserves (LNR)

Records within 2000m	0

Sites managed for nature conservation, and to provide opportunities for research and education, or simply enjoying and having contact with nature. They are declared by local authorities under the National Parks and Access to the Countryside Act 1949 after consultation with the relevant statutory nature conservation agency.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.7 Designated Ancient Woodland

Records within 2000m	7

Ancient woodlands are classified as areas which have been wooded continuously since at least 1600 AD. This includes semi-natural woodland and plantations on ancient woodland sites. 'Wooded continuously' does not mean there is or has previously been continuous tree cover across the whole site, and not all trees within the woodland have to be old.

Features are displayed on the Environmental designations map on **page 51 >**

ID	Location	Name	Woodland Type
3	210m W	Davenport Green Wood	Ancient & Semi-Natural Woodland
-	1451m S	Cotterill Clough	Ancient & Semi-Natural Woodland
-	1563m SW	Sunbank Wood	Ancient & Semi-Natural Woodland
-	1933m SW	Hennersley Bank	Ancient & Semi-Natural Woodland
-	1968m SW	Warburton Wood	Ancient & Semi-Natural Woodland
-	1982m S	Cotterill Clough	Ancient & Semi-Natural Woodland
-	1996m SW	Bollin Bank	Ancient & Semi-Natural Woodland

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.8 Biosphere Reserves

Records within 2000m	0

Biosphere Reserves are internationally recognised by UNESCO as sites of excellence to balance conservation and socioeconomic development between nature and people. They are recognised under the Man and the Biosphere (MAB) Programme with the aim of promoting sustainable development founded on the work of the local community.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.9 Forest Parks

Records within 2000m	0

These are areas managed by the Forestry Commission designated on the basis of recreational, conservation or scenic interest.

This data is sourced from the Forestry Commission.

10.10 Marine Conservation Zones

Records within 2000m	0

A type of marine nature reserve in UK waters established under the Marine and Coastal Access Act (2009). They are designated with the aim to protect nationally important, rare or threatened habitats and species.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.11 Green Belt

Records within 2000m	2

Areas designated to prevent urban sprawl by keeping land permanently open.

Features are displayed on the Environmental designations map on **page 51 >**

ID	Location	Name	Local Authority name
1	61m W	Merseyside and Greater Manchester	Manchester
2	123m W	Merseyside and Greater Manchester	Trafford

This data is sourced from the Ministry of Housing, Communities and Local Government.

10.12 Proposed Ramsar sites

Records within 2000m	0

Ramsar sites are areas listed as a Wetland of International Importance under the Convention on Wetlands of International Importance especially as Waterfowl Habitat (the Ramsar Convention) 1971. The sites here supplied have a status of 'Proposed' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.13 Possible Special Areas of Conservation (pSAC)

Records within 2000m	0

Special Areas of Conservation are areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive. Those sites supplied here are those with a status of 'Possible' having been identified for potential adoption under the framework.

This data is sourced from Natural England and Natural Resources Wales.

10.14 Potential Special Protection Areas (pSPA)

Records within 2000m	0

Special Protection Areas (SPAs) are areas designated (or 'classified') under the European Union Wild Birds Directive for the protection of nationally and internationally important populations of wild birds. Those sites supplied here are those with a status of 'Potential' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.15 Nitrate Sensitive Areas

Records within 2000m	0

Areas where nitrate concentrations in drinking water sources exceeded or was at risk of exceeding the limit of 50 mg/l set by the 1980 EC Drinking Water Directive. Voluntary agricultural measures as a means of reducing the levels of nitrate were introduced by DEFRA as MAFF, with payments being made to farmers who complied. The scheme was started as a pilot in 1990 in ten areas, later implemented within 32 areas. The scheme was closed to further new entrants in 1998, although existing agreements continued for their full term. All Nitrate Sensitive Areas fell within the areas designated as Nitrate Vulnerable Zones (NVZs) in 1996 under the EC Nitrate Directive (91/676/EEC).

This data is sourced from Natural England.

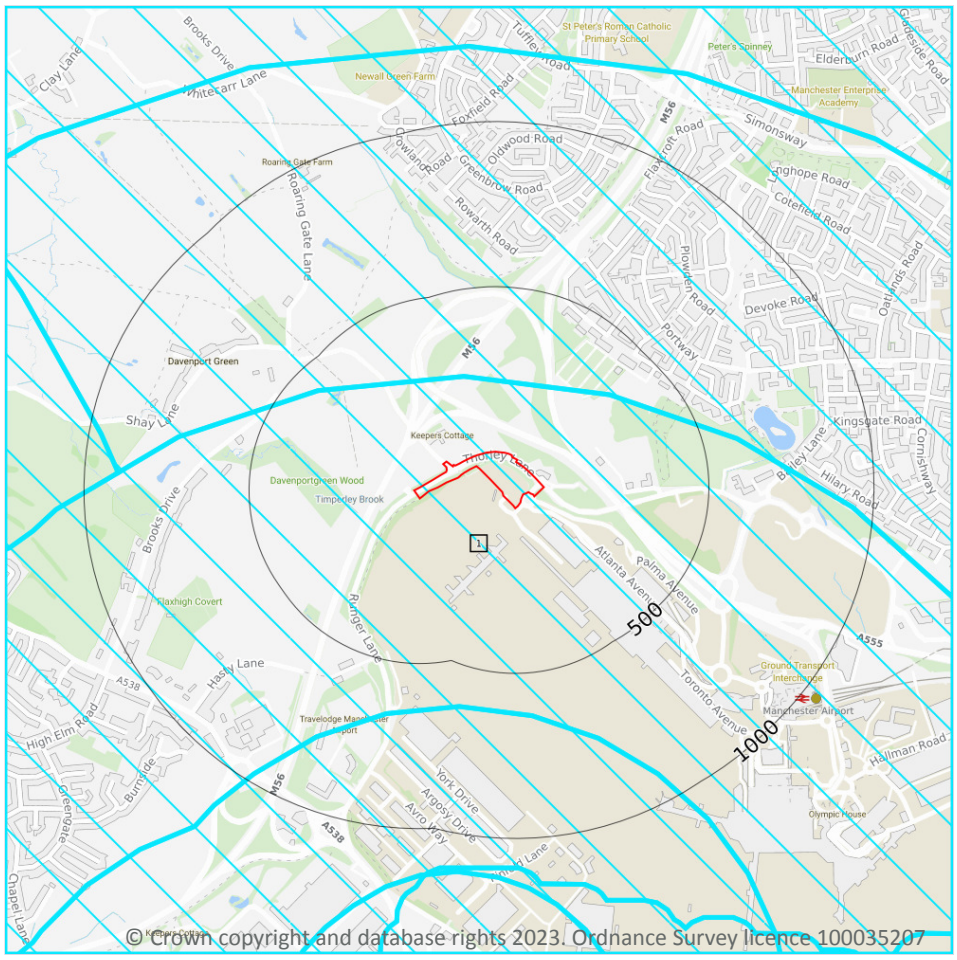
10.16 Nitrate Vulnerable Zones

Records within 2000m	0

Areas at risk from agricultural nitrate pollution designated under the EC Nitrate Directive (91/676/EEC). These are areas of land that drain into waters polluted by nitrates. Farmers operating within these areas have to follow mandatory rules to tackle nitrate loss from agriculture.

This data is sourced from Natural England and Natural Resources Wales.

SSSI Impact Zones and Units



Site Outline

Search buffers in metres (m)

SSSI Impact Risk Zones

SSSI Units

- Not recorded
- Favourable
- Unfavourable - Recovering
- Unfavourable - No change
- Unfavourable - Declining
- Partially destroyed
- Destroyed

10.17 SSSI Impact Risk Zones

Records on site	1

Developed to allow rapid initial assessment of the potential risks to SSSIs posed by development proposals. They define zones around each SSSI which reflect the particular sensitivities of the features for which it is notified and indicate the types of development proposal which could potentially have adverse impacts.

Features are displayed on the SSSI Impact Zones and Units map on **page 56 >**

ID	Location	Type of developments requiring consultation
1	On site	**Infrastructure - Pipelines and underground cables, pylons and overhead cables. Any transport proposal including road, rail and by water (excluding routine maintenance). Airports, helipads and other aviation proposals. Minerals, Oil and Gas - Planning applications for quarries, including: new proposals, Review of Minerals Permissions (ROMP), extensions, variations to conditions etc. Oil & gas exploration/extraction. Air pollution - Any industrial/agricultural development that could cause AIR POLLUTION (incl: industrial processes, livestock & poultry units with floorspace > 500m², slurry lagoons & digestate stores > 200m², manure stores > 250t). Combustion - General combustion processes >20MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion Waste - Landfill. Incl: inert landfill, non-hazardous landfill, hazardous landfill. Composting - Any composting proposal with more than 75000 tonnes maximum annual operational throughput. Incl: open windrow composting, in-vessel composting, anaerobic digestion, other waste management Water supply - Large infrastructure such as warehousing / industry where total net additional gross internal floorspace following development is 1,000m² or more.**

This data is sourced from Natural England.

10.18 SSSI Units

Records within 2000m	**2**

Divisions of SSSIs used to record management and condition details. Units are the smallest areas for which Natural England gives a condition assessment, however, the size of units varies greatly depending on the types of management and the conservation interest.

Features are displayed on the SSSI Impact Zones and Units map on **page 56 >**

ID: -
Location: 1615m S
SSSI name: Cotteril Clough
Unit name: Eastern Woodland
Broad habitat: Broadleaved, Mixed And Yew Woodland - Lowland
Condition: Favourable
Reportable features:

Feature name	Feature condition	Date of assessment
Lowland mixed deciduous woodland	Favourable	13/06/2013
Wet woodland	Favourable	13/06/2013

ID: -
Location: 1981m S
SSSI name: Cotteril Clough
Unit name: Western Woodland
Broad habitat: Broadleaved, Mixed And Yew Woodland - Lowland
Condition: Favourable
Reportable features:

Feature name	Feature condition	Date of assessment
Lowland mixed deciduous woodland	Favourable	30/05/2014
Wet woodland	Favourable	30/05/2014

This data is sourced from Natural England and Natural Resources Wales.

11 Visual and cultural designations



Site Outline

Search buffers in metres (m)

- Listed buildings
- Conservation areas
- Conservation areas - no data
- National Parks
- Areas of Outstanding Natural Beauty
- Registered parks and gardens
- Scheduled Monuments
- World Heritage Sites

11.1 World Heritage Sites

Records within 250m	0

Sites designated for their globally important cultural or natural interest requiring appropriate management and protection measures. World Heritage Sites are designated to meet the UK's commitments under the World Heritage Convention.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.2 Area of Outstanding Natural Beauty

Records within 250m	0

Areas of Outstanding Natural Beauty (AONB) are conservation areas, chosen because they represent 18% of the finest countryside. Each AONB has been designated for special attention because of the quality of their flora, fauna, historical and cultural associations, and/or scenic views. The National Parks and Access to the Countryside Act of 1949 created AONBs and the Countryside and Rights of Way Act, 2000 added further regulation and protection. There are likely to be restrictions to some developments within these areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

11.3 National Parks

Records within 250m	0

In England and Wales, the purpose of National Parks is to conserve and enhance landscapes within the countryside whilst promoting public enjoyment of them and having regard for the social and economic well-being of those living within them. In Scotland National Parks have the additional purpose of promoting the sustainable use of the natural resources of the area and the sustainable social and economic development of its communities. The National Parks and Access to the Countryside Act 1949 established the National Park designation in England and Wales, and The National Parks (Scotland) Act 2000 in Scotland.

This data is sourced from Natural England, Natural Resources Wales and the Scottish Government.

11.4 Listed Buildings

Records within 250m	1

Buildings listed for their special architectural or historical interest. Building control in the form of 'listed building consent' is required in order to make any changes to that building which might affect its special interest. Listed buildings are graded to indicate their relative importance, however building controls apply to all buildings equally, irrespective of their grade, and apply to the interior and exterior of the building in its entirety, together with any curtilage structures.

Features are displayed on the Visual and cultural designations map on **page 59 >**

ID	Location	Name	Grade	Reference Number	Listed date
1	30m E	Haletop Farm	II	1356645	17/11/1986

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.5 Conservation Areas

Records within 250m	0

Local planning authorities are obliged to designate as conservation areas any parts of their own area that are of special architectural or historic interest, the character and appearance of which it is desirable to preserve or enhance. Designation of a conservation area gives broader protection than the listing of individual buildings. All the features within the area, listed or otherwise, are recognised as part of its character. Conservation area designation is the means of recognising the importance of all factors and of ensuring that planning decisions address the quality of the landscape in its broadest sense.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.6 Scheduled Ancient Monuments

Records within 250m	0

A scheduled monument is an historic building or site that is included in the Schedule of Monuments kept by the Secretary of State for Digital, Culture, Media and Sport. The regime is set out in the Ancient Monuments and Archaeological Areas Act 1979. The Schedule of Monuments has c.20,000 entries and includes sites such as Roman remains, burial mounds, castles, bridges, earthworks, the remains of deserted villages and industrial sites. Monuments are not graded, but all are, by definition, considered to be of national importance.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

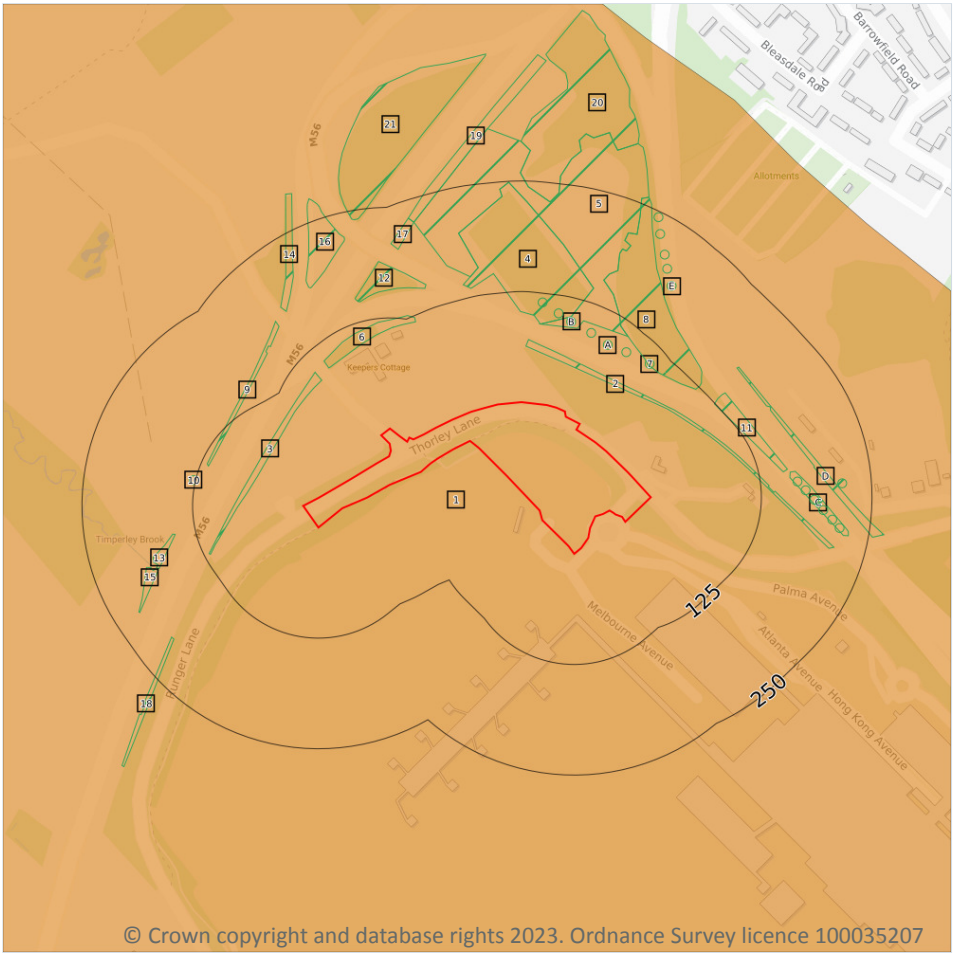
11.7 Registered Parks and Gardens

Records within 250m	0

Parks and gardens assessed to be of particular interest and of special historic interest. The emphasis being on 'designed' landscapes, rather than on planting or botanical importance. Registration is a 'material consideration' in the planning process, meaning that planning authorities must consider the impact of any proposed development on the special character of the landscape.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

12 Agricultural designations



Site Outline

Search buffers in metres (m)

- Grade 1 - excellent quality
- Grade 2 - very good quality
- Grade 3 - good to moderate quality
- Grade 3a - good quality
- Grade 3b - moderate quality
- Grade 4 - poor quality
- Grade 5 - very poor quality
- Non-agricultural land
- Urban land
- Exclusion land
- Tree felling licences
- Open Access land

12.1 Agricultural Land Classification

Records within 250m	1

Classification of the quality of agricultural land taking into consideration multiple factors including climate, physical geography and soil properties. It should be noted that the categories for the grading of agricultural land are not consistent across England, Wales and Scotland.

Features are displayed on the Agricultural designations map on **page 62 >**

ID	Location	Classification	Description
1	On site	Grade 3	**Good to moderate quality agricultural land. Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where more demanding crops are grown yields are generally lower or more variable than on land in Grades 1 and 2.**

This data is sourced from Natural England.

12.2 Open Access Land

Records within 250m	0

The Countryside and Rights of Way Act 2000 (CROW Act) gives a public right of access to land without having to use paths. Access land includes mountains, moors, heaths and downs that are privately owned. It also includes common land registered with the local council and some land around the England Coast Path. Generally permitted activities on access land are walking, running, watching wildlife and climbing.

This data is sourced from Natural England and Natural Resources Wales.

12.3 Tree Felling Licences

Records within 250m	40

Felling Licence Application (FLA) areas approved by Forestry Commission England. Anyone wishing to fell trees must ensure that a licence or permission under a grant scheme has been issued by the Forestry Commission before any felling is carried out or that one of the exceptions apply.

Features are displayed on the Agricultural designations map on **page 62 >**

ID	Location	Description	Reference	Application date
2	50m NE	Selective Fell/Thin (Unconditional)	018/366/15-16	-
3	62m W	Selective Fell/Thin (Unconditional)	018/366/15-16	-
A	85m NE	Single Tree	018/366/15-16	-
A	88m NE	Single Tree	018/366/15-16	-
4	90m N	Selective Fell/Thin (Unconditional)	018/366/15-16	-
5	90m N	Selective Fell/Thin (Unconditional)	018/366/15-16	-
A	91m NE	Single Tree	018/366/15-16	-
B	93m N	Single Tree	018/366/15-16	-
6	96m NW	Selective Fell/Thin (Unconditional)	018/366/15-16	-
7	99m NE	Single Tree	018/366/15-16	-
B	100m N	Single Tree	018/366/15-16	-
8	102m NE	Selective Fell/Thin (Unconditional)	018/366/15-16	-
B	110m N	Single Tree	018/366/15-16	-
9	115m W	Selective Fell/Thin (Unconditional)	018/366/15-16	-
10	122m W	Single Tree	018/366/15-16	-
11	124m E	Selective Fell/Thin (Unconditional)	018/366/15-16	-

ID	Location	Description	Reference	Application date
12	147m NW	Selective Fell/Thin (Unconditional)	018/366/15-16	-
13	148m W	Selective Fell/Thin (Unconditional)	018/366/15-16	-
C	159m E	Selective Fell/Thin (Unconditional)	018/366/15-16	-
C	162m E	Single Tree	018/366/15-16	-
D	167m E	Selective Fell/Thin (Unconditional)	018/366/15-16	-
C	170m E	Single Tree	018/366/15-16	-
14	176m NW	Selective Fell/Thin (Unconditional)	018/366/15-16	-
15	179m W	Selective Fell/Thin (Unconditional)	018/366/15-16	-
C	180m E	Single Tree	018/366/15-16	-
E	181m NE	Single Tree	018/366/15-16	-
16	182m NW	Selective Fell/Thin (Unconditional)	018/366/15-16	-
C	191m E	Single Tree	018/366/15-16	-
E	193m NE	Single Tree	018/366/15-16	-
17	201m NW	Selective Fell/Thin (Unconditional)	018/366/15-16	-
C	202m E	Single Tree	018/366/15-16	-
E	205m NE	Single Tree	018/366/15-16	-
18	206m SW	Selective Fell/Thin (Unconditional)	018/366/15-16	-
C	211m E	Single Tree	018/366/15-16	-
D	212m E	Single Tree	018/366/15-16	-
E	223m NE	Single Tree	018/366/15-16	-
19	224m N	Selective Fell/Thin (Unconditional)	018/366/15-16	-
20	228m N	Selective Fell/Thin (Unconditional)	018/366/15-16	-
E	239m NE	Single Tree	018/366/15-16	-
21	239m NW	Selective Fell/Thin (Unconditional)	018/366/15-16	-

This data is sourced from the Forestry Commission.

12.4 Environmental Stewardship Schemes

Records within 250m	0

Environmental Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. The schemes identified may be historical schemes that have now expired, or may still be active.

This data is sourced from Natural England.

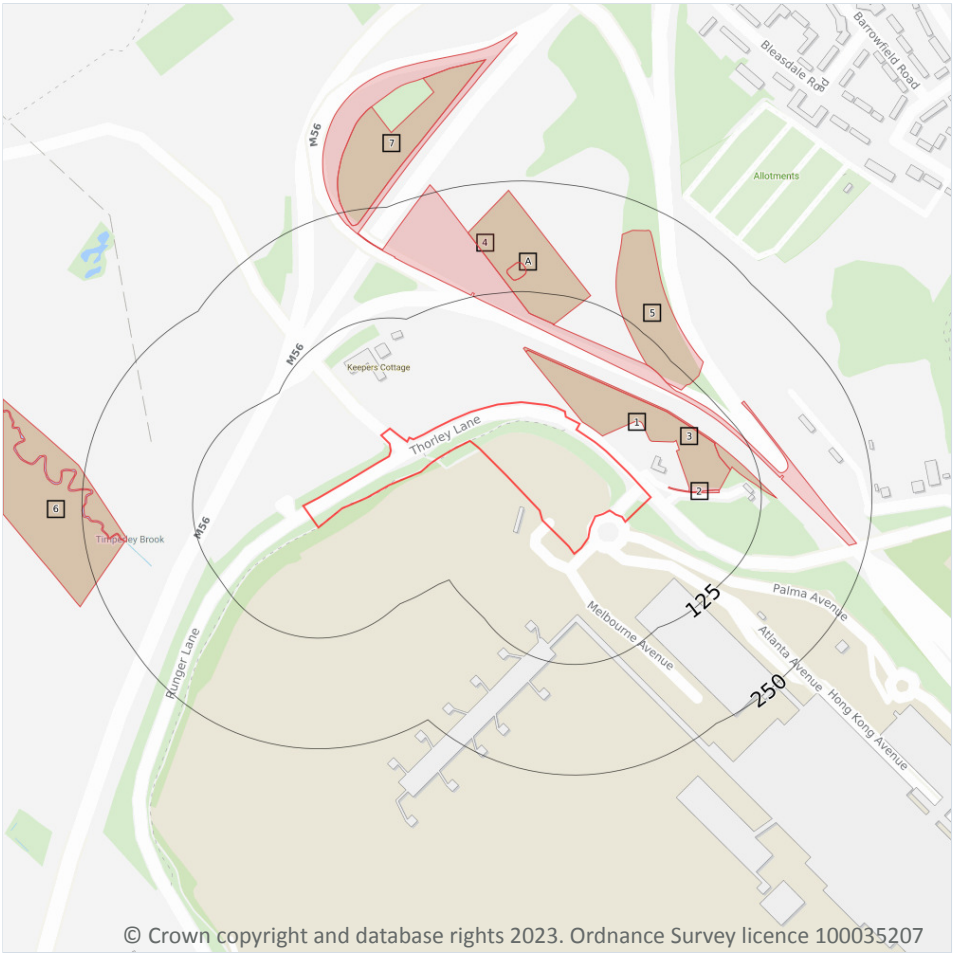
12.5 Countryside Stewardship Schemes

Records within 250m	0

Countryside Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. Main objectives are to improve the farmed environment for wildlife and to reduce diffuse water pollution.

This data is sourced from Natural England.

13 Habitat designations



Site Outline

Search buffers in metres (m)

Priority Habitat Inventory
Open Mosaic Habitat
Limestone Pavement Orders

Habitat Networks

Primary Habitat
Restorable Habitat
Associated Habitats
Habitat Restoration-Creation
Network Enhancement Zone 1
Network Enhancement Zone 2

13.1 Priority Habitat Inventory

Records within 250m	9

Habitats of principal importance as named under Natural Environment and Rural Communities Act (2006) Section 41.

Features are displayed on the Habitat designations map on **page 66 >**

ID	Location	Main Habitat	Other habitats
1	4m NE	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
2	23m E	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
3	46m NE	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
4	72m NE	No main habitat but additional habitats present	Additional: DWOOD (INV 50%)

ID	Location	Main Habitat	Other habitats
A	92m N	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
5	101m NE	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
A	138m N	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
6	203m W	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
7	233m NW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)

This data is sourced from Natural England.

13.2 Habitat Networks

Records within 250m	0

Habitat networks for 18 priority habitat networks (based primarily, but not exclusively, on the priority habitat inventory) and areas suitable for the expansion of networks through restoration and habitat creation.

This data is sourced from Natural England.

13.3 Open Mosaic Habitat

Records within 250m	0

Sites verified as Open Mosaic Habitat. Mosaic habitats are brownfield sites that are identified under the UK Biodiversity Action Plan as a priority habitat due to the habitat variation within a single site, supporting an array of invertebrates.

This data is sourced from Natural England.

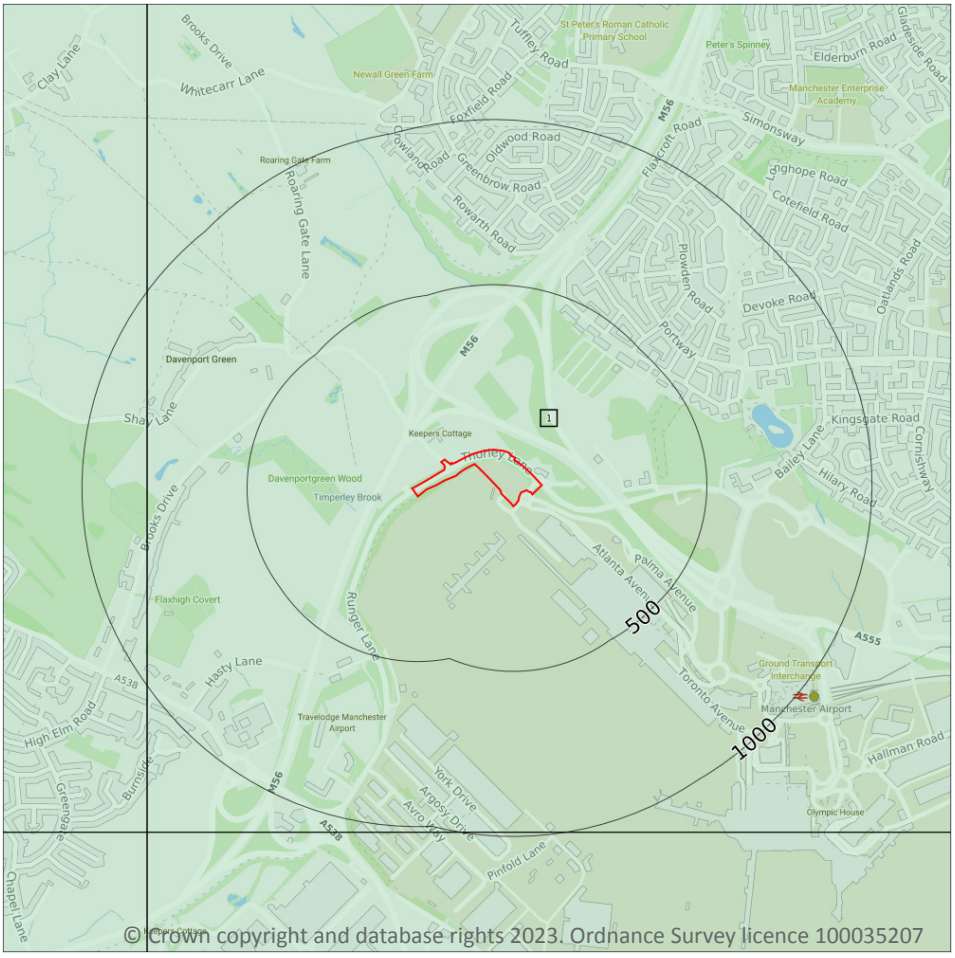
13.4 Limestone Pavement Orders

Records within 250m	0

Limestone pavements are outcrops of limestone where the surface has been worn away by natural means over millennia. These rocks have the appearance of paving blocks, hence their name. Not only do they have geological interest, they also provide valuable habitats for wildlife. These habitats are threatened due to their removal for use in gardens and water features. Many limestone pavements have been designated as SSSIs which affords them some protection. In addition, Section 34 of the Wildlife and Countryside Act 1981 gave them additional protection via the creation of Limestone Pavement Orders, which made it a criminal offence to remove any part of the outcrop. The associated Limestone Pavement Priority Habitat is part of the UK Biodiversity Action Plan priority habitat in England.

This data is sourced from Natural England.

14 Geology 1:10,000 scale - Availability



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14.1 10k Availability

Records within 500m	1

An indication on the coverage of 1:10,000 scale geology data for the site, the most detailed dataset provided by the British Geological Survey. Either 'Full', 'Partial' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:10,000 scale - Availability map on **page 68 >**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**No coverage**	**Full**	**Full**	**No coverage**	**SJ88NW**

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Artificial and made ground

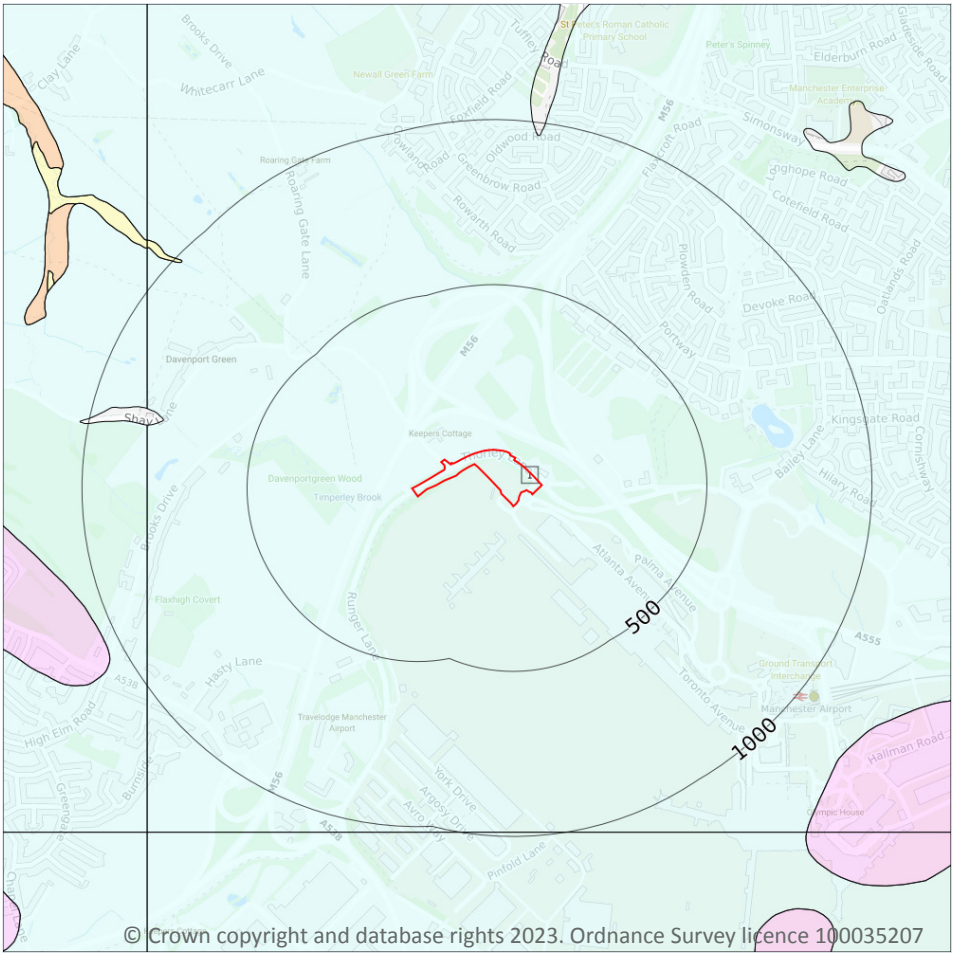
14.2 Artificial and made ground (10k)

Records within 500m	0

Details of made, worked, infilled, disturbed and landscaped ground at 1:10,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (10k)

Superficial geology (10k)
Please see table for more details.

14.3 Superficial geology (10k)

Records within 500m	1

Superficial geological deposits at 1:10,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

Features are displayed on the Geology 1:10,000 scale - Superficial map on **page 70 >**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**TILLD-DMTN**	**Till, Devensian - Diamicton**	**Diamicton**

This data is sourced from the British Geological Survey.

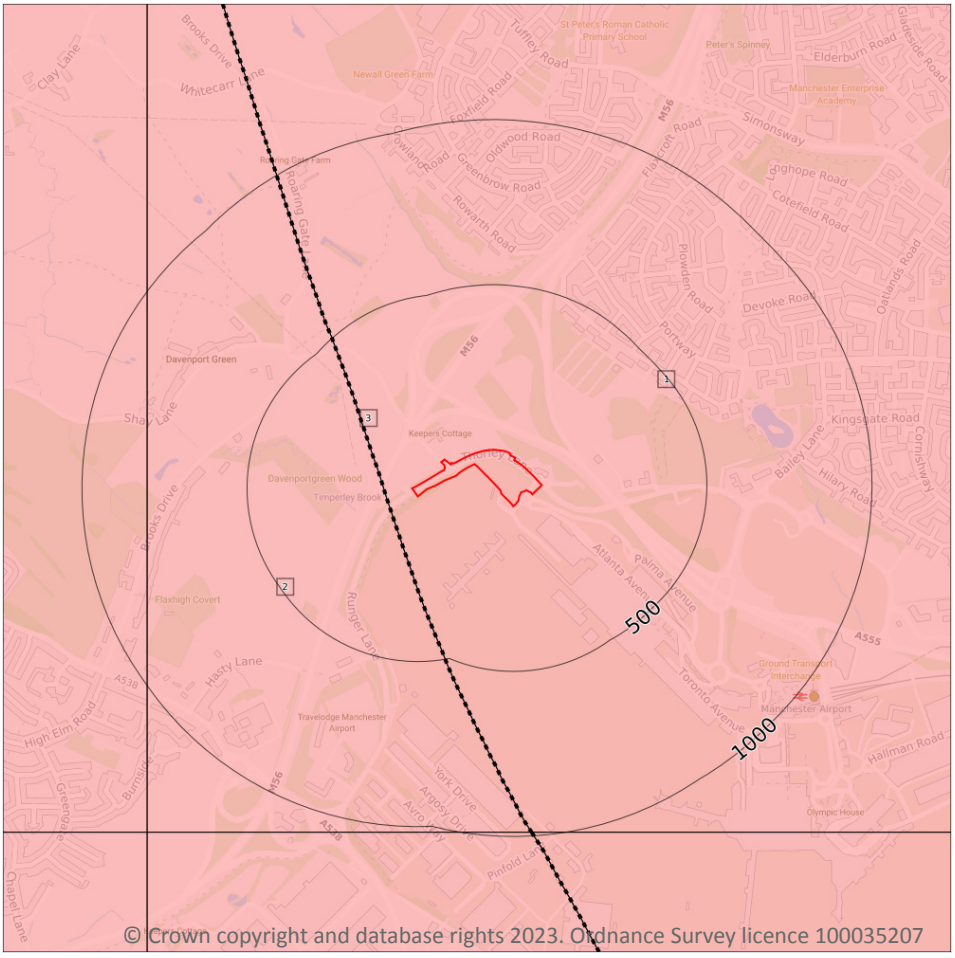
14.4 Landslip (10k)

Records within 500m	0

Mass movement deposits on BGS geological maps at 1:10,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (10k)

Bedrock geology (10k)
Please see table for more details.

14.5 Bedrock geology (10k)

Records within 500m	2

Bedrock geology at 1:10,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 72 >**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**BOM-MDST**	**Bollin Mudstone Member - Mudstone**	**Anisian Age**
2	83m W	BOM-MDST	Bollin Mudstone Member - Mudstone	Anisian Age

This data is sourced from the British Geological Survey.

14.6 Bedrock faults and other linear features (10k)

Records within 500m	1

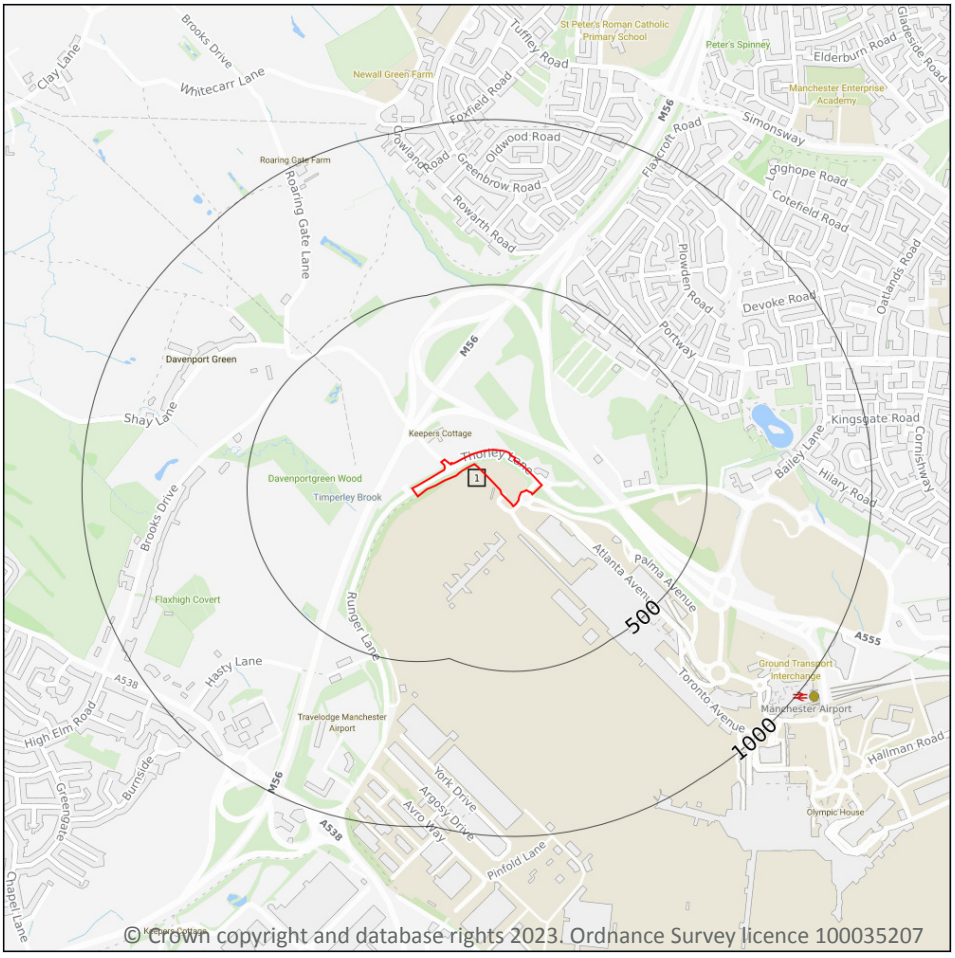
Linear features at the ground or bedrock surface at 1:10,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 72 >**

ID	Location	Category	Description
3	83m W	FAULT	Normal fault, inferred; crossmarks on downthrow side

This data is sourced from the British Geological Survey.

15 Geology 1:50,000 scale - Availability



Site Outline

Search buffers in metres (m)

Geological map tile

15.1 50k Availability

Records within 500m	1

An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:50,000 scale - Availability map on **page 74 >**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**No coverage**	**Full**	**Full**	**Full**	**EW098_stockport_v4**

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Artificial and made ground

15.2 Artificial and made ground (50k)

Records within 500m	0

Details of made, worked, infilled, disturbed and landscaped ground at 1:50,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

This data is sourced from the British Geological Survey.

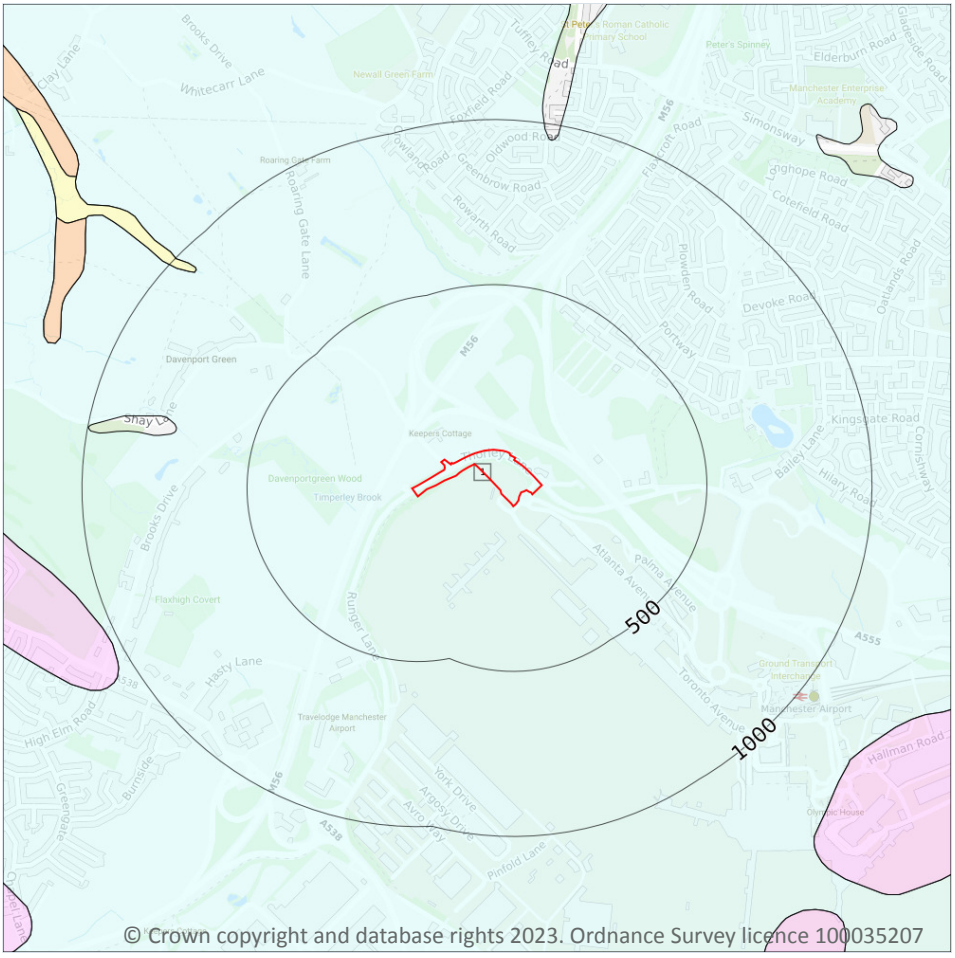
15.3 Artificial ground permeability (50k)

Records within 50m	0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any artificial deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (50k)

Superficial geology (50k)
Please see table for more details.

15.4 Superficial geology (50k)

Records within 500m **1**

Superficial geological deposits at 1:50,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

Features are displayed on the Geology 1:50,000 scale - Superficial map on **page 76 >**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**TILLD-DMTN**	**TILL, DEVENSIAN**	**DIAMICTON**

This data is sourced from the British Geological Survey.

15.5 Superficial permeability (50k)

Records within 50m	1

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any superficial deposits (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Mixed**	**High**	**Low**

This data is sourced from the British Geological Survey.

15.6 Landslip (50k)

Records within 500m	0

Mass movement deposits on BGS geological maps at 1:50,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

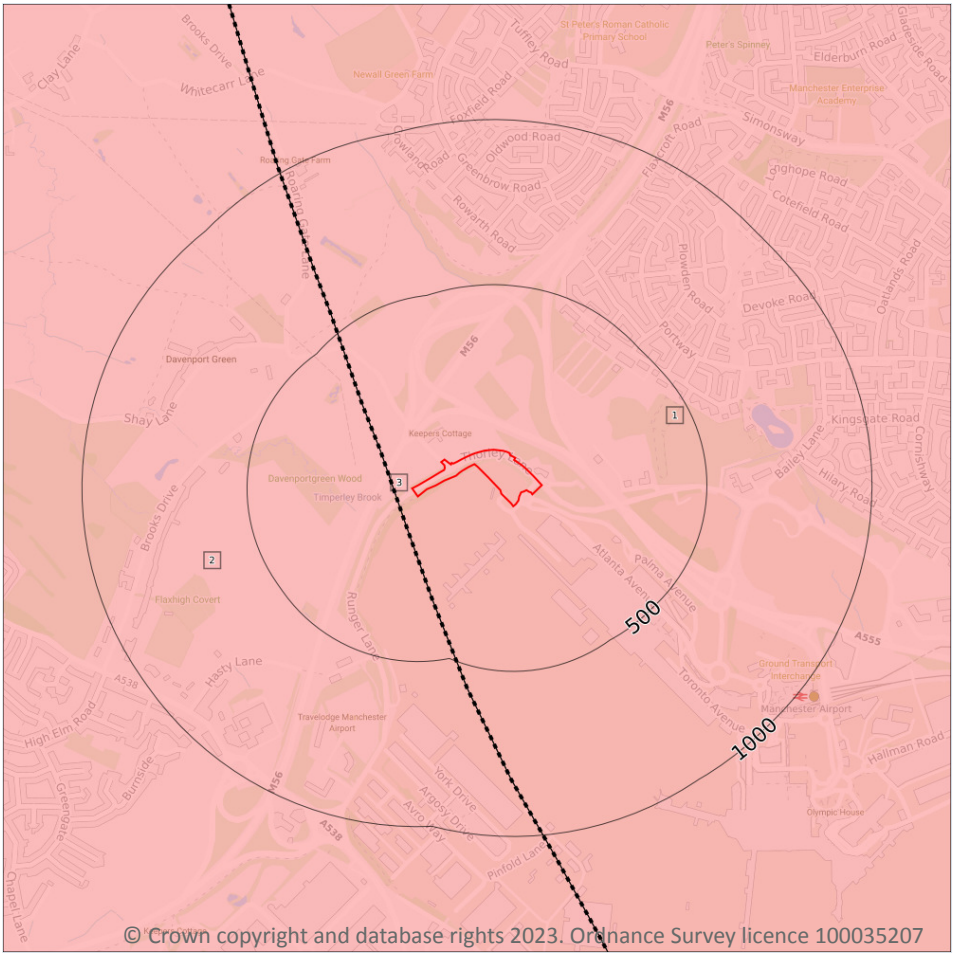
15.7 Landslip permeability (50k)

Records within 50m	0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any landslip deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Bedrock



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Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (50k)

Bedrock geology (50k)
Please see table for more details.

15.8 Bedrock geology (50k)

Records within 500m	2

Bedrock geology at 1:50,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 78 >**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**BOM-MDST**	**BOLLIN MUDSTONE MEMBER - MUDSTONE**	**ANISIAN**
2	54m W	BOM-MDST	BOLLIN MUDSTONE MEMBER - MUDSTONE	ANISIAN

This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m	1

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of bedrock (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Fracture**	**Low**	**Low**

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

Records within 500m	1

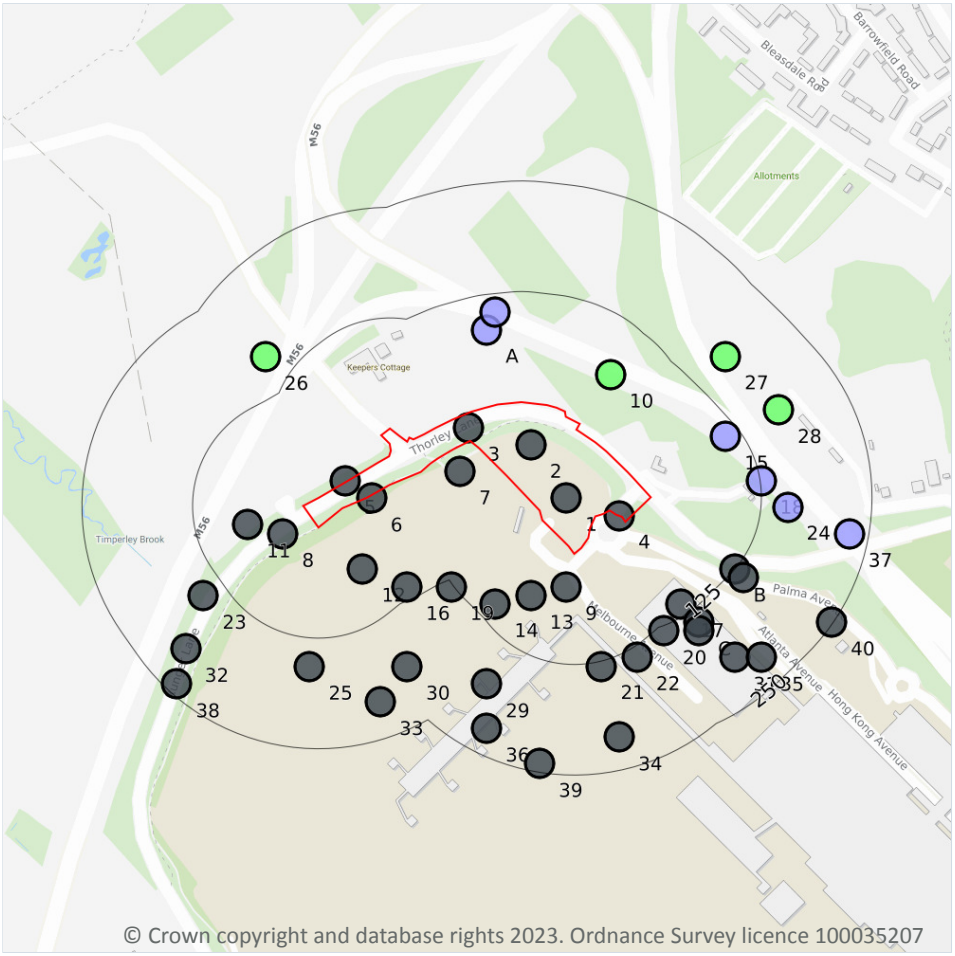
Linear features at the ground or bedrock surface at 1:50,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 78 >**

ID	Location	Category	Description
3	54m W	FAULT	Fault, inferred

This data is sourced from the British Geological Survey.

16 Boreholes



16.1 BGS Boreholes

Records within 250m	46

The Single Onshore Boreholes Index (SOBI); an index of over one million records of boreholes, shafts and wells from all forms of drilling and site investigation work held by the British Geological Survey. Covering onshore and nearshore boreholes dating back to at least 1790 and ranging from one to several thousand metres deep.

Features are displayed on the Boreholes map on **page 80 >**

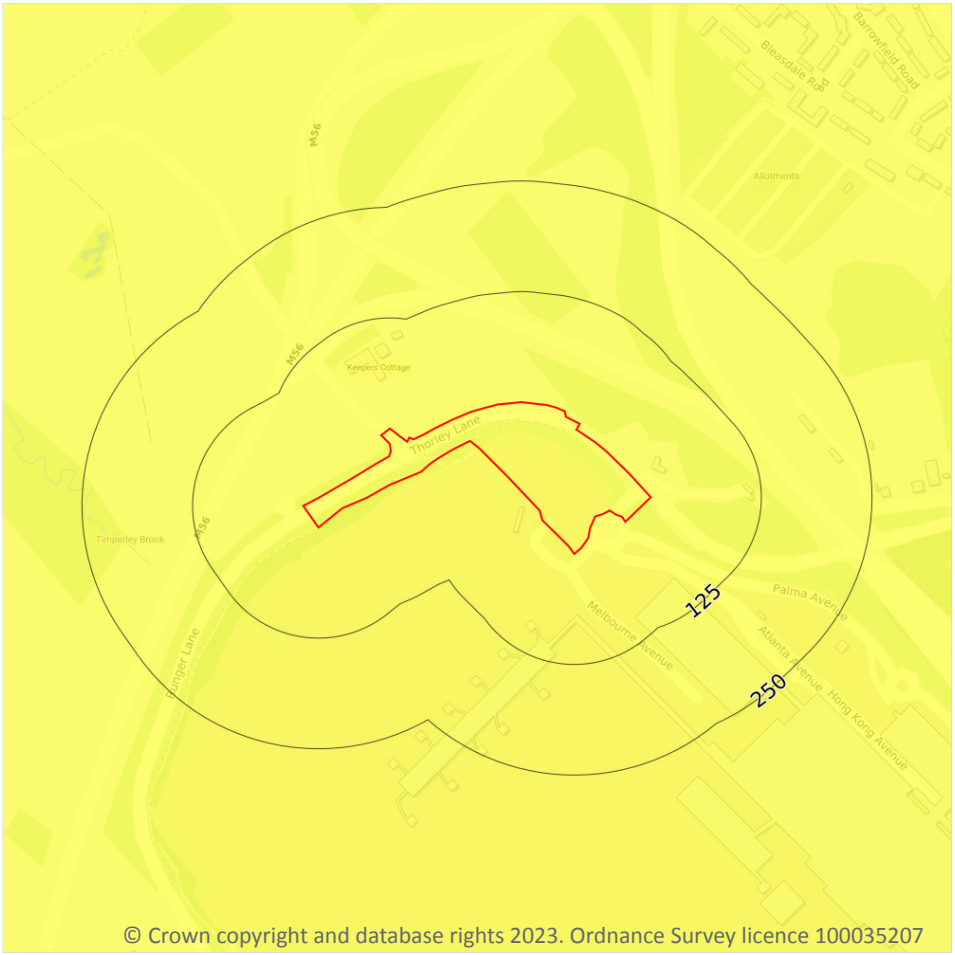
ID	Location	Grid reference	Name	Length	Confidential	Web link
1	On site	381100 386050	MHR AIRPORT TERMINAL2 TP2/66T	-	Y	N/A
2	On site	381060 386110	SECOND PASSENGER TERMINAL, MANCHESTER AIRPORT TP1	-	Y	N/A

ID	Location	Grid reference	Name	Length	Confidential	Web link
3	**On site**	**380990 386130**	**MANCHESTER AIRPORT SECOND PASSENGER TERMINAL TP 1/12**	**-**	**Y**	**N/A**
4	0m SE	381160 386030	MANCHESTER AIRPORT SECOND PASSENGER TERMINAL TP 1/13	-	Y	N/A
5	2m W	380850 386070	MHR AIRPORT TERMINAL2 TP2/69T	-	Y	N/A
6	3m W	380880 386050	MANCHESTER AIRPORT SECOND PASSENGER TERMINAL TP 1/11	-	Y	N/A
7	26m W	380980 386080	MHR AIRPORT TERMINAL2 TP2/67T	-	Y	N/A
8	37m W	380780 386010	MANCHESTER AIRPORT SECOND PASSENGER TERMINAL TP 1/10	-	Y	N/A
9	38m SE	381100 385950	MANCHESTER AIRPORT LONG STAY CAR PARK TP68T	-	Y	N/A
10	66m NE	381150 386190	M56 WIDENING JUNCTIONS 4 - 6 CH2	12.33	N	915569 ↗
11	66m W	380740 386020	MHR AIRPORT TERMINAL2 TP2/72T	-	Y	N/A
12	68m SW	380870 385970	SECOND TERMINAL, MANCHESTER AIRPORT 19	-	Y	N/A
13	68m S	381060 385940	SECOND PASSENGER TERMINAL, MANCHESTER AIRPORT TP2	-	Y	N/A
A	85m N	381010 386240	M56 WIDENING JUNCTIONS 4 - 6 CH24	9.9	N	915592 ↗
A	104m N	381020 386260	M56 WIDENING JUNCTIONS 4 - 6 CH25	9.8	N	915593 ↗
14	105m S	381020 385930	MHR AIRPORT TERMINAL2 TP2/68T	-	Y	N/A
15	109m E	381280 386120	M56 WIDENING JUNCTIONS 4 - 6 CH3	9.63	N	915570 ↗
16	110m SW	380920 385950	MHR AIRPORT TERMINAL2 TP2/70T	-	Y	N/A
17	113m SE	381230 385930	MHR AIRPORT TERMINAL2 TP2/56T	-	Y	N/A
B	125m SE	381290 385970	MANCHESTER AIRPORT SECOND PASSENGER TERMINAL TP 1/14	-	Y	N/A
18	126m E	381320 386070	M56 WIDENING JUNCTIONS 4 - 6 CH23	10.0	N	915591 ↗
19	128m SW	380970 385950	MANCHESTER AIRPORT LONG STAY CAR PARK TP66T	-	Y	N/A
20	131m SE	381210 385900	MANCHESTER AIRPORT LONG STAY CAR PARK TP71T	-	Y	N/A
21	131m SE	381140 385860	MANCHESTER AIRPORT LONG STAY CAR PARK TP70T	-	Y	N/A
22	137m SE	381180 385870	SECOND TERMINAL, MANCHESTER AIRPORT 1	-	Y	N/A

ID	Location	Grid reference	Name	Length	Confidential	Web link
B	139m SE	381300 385960	MHR AIRPORT TERMINAL2 TP2/51T	-	Y	N/A
C	141m SE	381250 385910	SECOND TERMINAL, MANCHESTER AIRPORT 20	-	Y	N/A
C	149m SE	381250 385900	SECOND PASSENGER TERMINAL, MANCHESTER AIRPORT TP4	-	Y	N/A
23	151m SW	380690 385940	MANCHESTER AIRPORT SECOND PASSENGER TERMINAL TP 1/9	-	Y	N/A
24	155m E	381350 386040	M56 WIDENING JUNCTIONS 4 - 6 CH4	9.63	N	915571 ↗
25	157m SW	380810 385860	SECOND TERMINAL, MANCHESTER AIRPORT 22	-	Y	N/A
26	158m NW	380760 386210	M56 WIDENING JUNCTIONS 4 - 6 CH1	14.87	N	915568 ↗
27	171m NE	381280 386210	M56 WIDENING JUNCTIONS 4 - 6 CH6	12.18	N	915573 ↗
28	175m E	381340 386150	M56 WIDENING JUNCTIONS 4 - 6 CH5	12.0	N	915572 ↗
29	177m S	381010 385840	MANCHESTER AIRPORT LONG STAY CAR PARK TP67T	-	Y	N/A
30	186m SW	380920 385860	MHR AIRPORT TERMINAL2 TP2/71T	-	Y	N/A
31	197m SE	381290 385870	MHR AIRPORT TERMINAL2 BH2/61	-	Y	N/A
32	203m SW	380670 385880	MANCHESTER AIRPORT SECOND PASSENGER TERMINAL 1/8	-	Y	N/A
33	209m SW	380890 385820	SECOND PASSENGER TERMINAL, MANCHESTER AIRPORT TP5	-	Y	N/A
34	213m S	381160 385780	SECOND TERMINAL, MANCHESTER AIRPORT 23	-	Y	N/A
35	217m SE	381320 385870	MHR AIRPORT TERMINAL2 TP2/57T	-	Y	N/A
36	221m S	381010 385790	SECOND PASSENGER TERMINAL, MANCHESTER AIRPORT TP6	-	Y	N/A
37	228m E	381420 386010	M56 WIDENING JUNCTIONS 4 - 6 CH22	10.0	N	915590 ↗
38	239m SW	380660 385840	MANCHESTER AIRPORT SECOND PASSENGER TERMINAL TP 1/7	-	Y	N/A
39	240m S	381070 385750	MANCHESTER AIRPORT LONG STAY CAR PARK TP69T	-	Y	N/A
40	249m SE	381400 385910	MHR AIRPORT TERMINAL2 TP2/52T	-	Y	N/A

This data is sourced from the British Geological Survey.

17 Natural ground subsidence - Shrink swell clays



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17.1 Shrink swell clays

Records within 50m	1

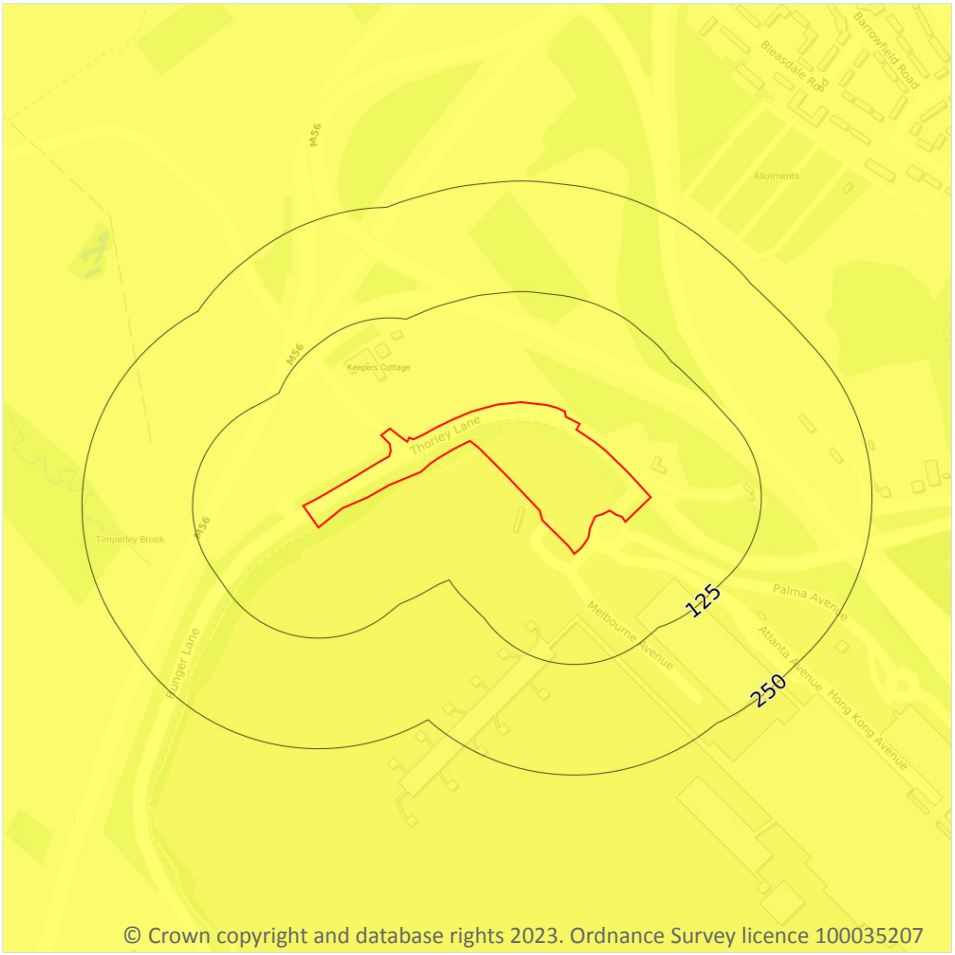
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and local drainage).

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 83 >**

Location	Hazard rating	Details
On site	**Very low**	**Ground conditions predominantly low plasticity.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Running sands



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17.2 Running sands

Records within 50m	1

The potential hazard presented by rocks that can contain loosely-packed sandy layers that can become fluidised by water flowing through them. Such sands can 'run', removing support from overlying buildings and causing potential damage.

Features are displayed on the Natural ground subsidence - Running sands map on **page 84 >**

Location	Hazard rating	Details
On site	**Very low**	**Running sand conditions are unlikely. No identified constraints on land use due to running conditions unless water table rises rapidly.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Compressible deposits



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.3 Compressible deposits

Records within 50m	1

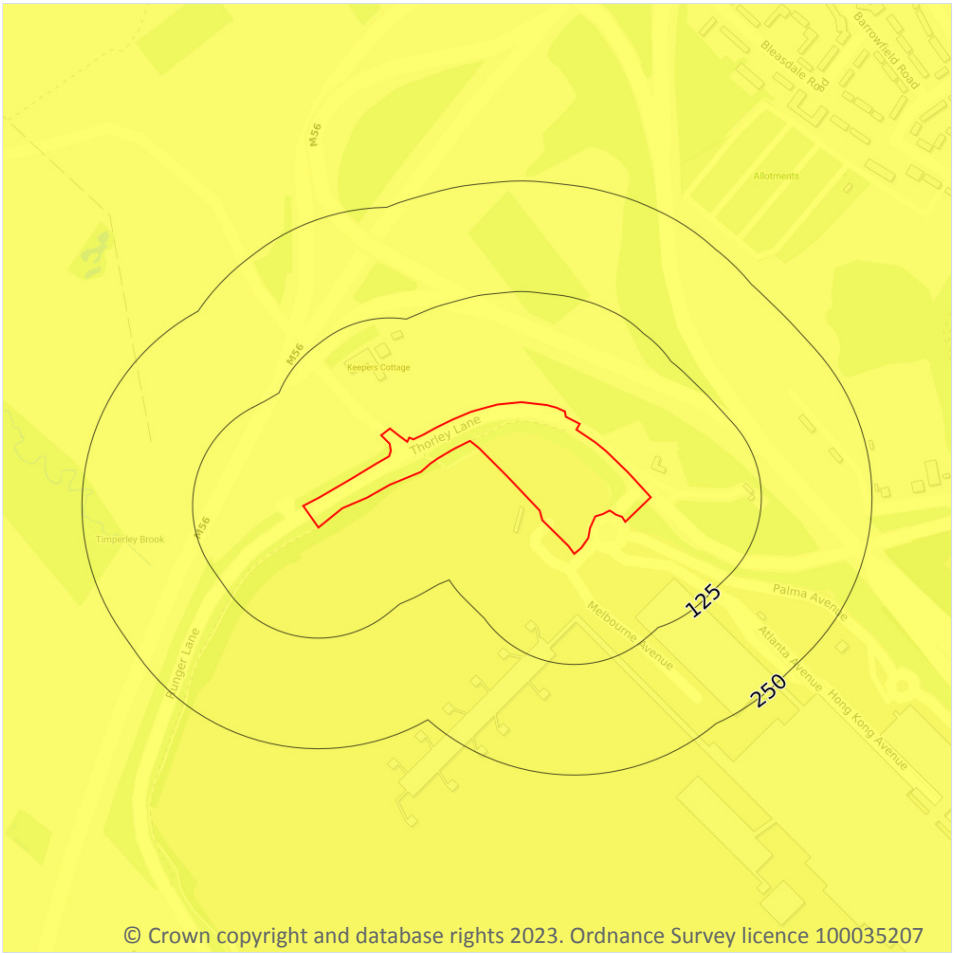
The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 85 >**

Location	Hazard rating	Details
On site	**Negligible**	**Compressible strata are not thought to occur.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Collapsible deposits



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.4 Collapsible deposits

Records within 50m	1

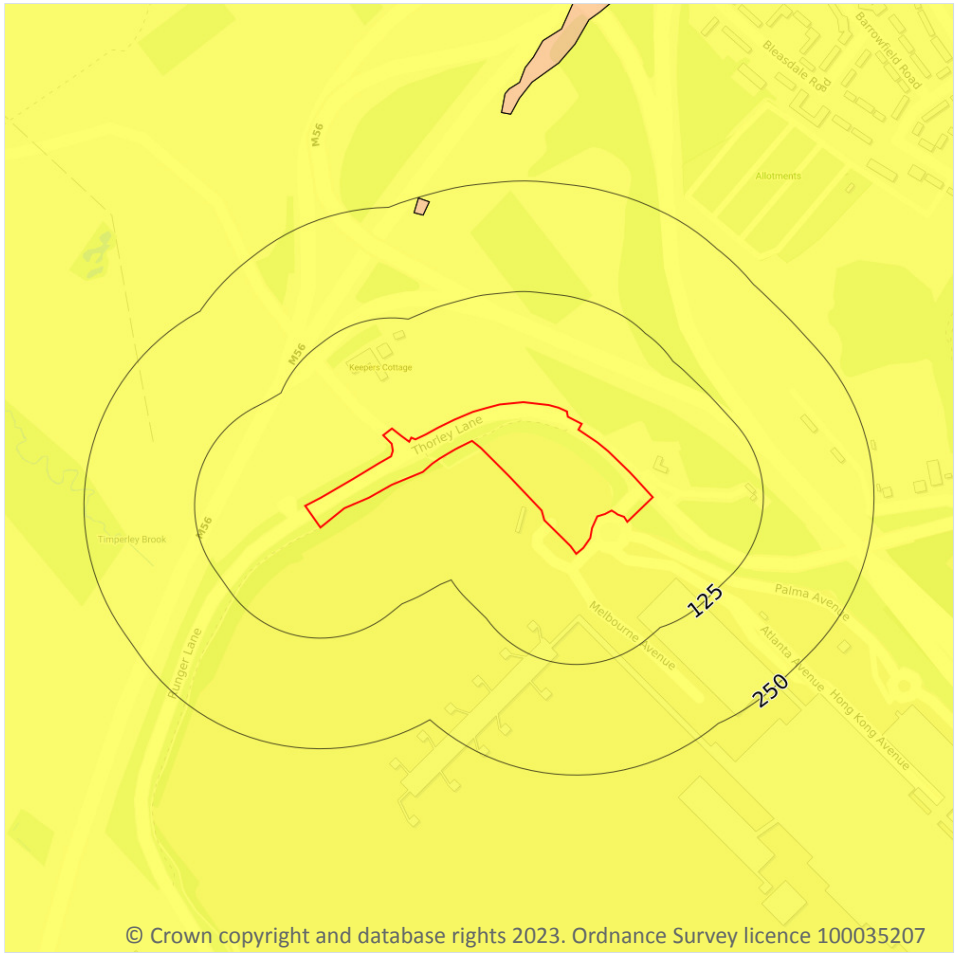
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 86 >**

Location	Hazard rating	Details
On site	**Very low**	**Deposits with potential to collapse when loaded and saturated are unlikely to be present.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Landslides



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.5 Landslides

Records within 50m	1

The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

Features are displayed on the Natural ground subsidence - Landslides map on **page 87 >**

Location	Hazard rating	Details
On site	**Very low**	**Slope instability problems are not likely to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Ground dissolution of soluble rocks



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17.6 Ground dissolution of soluble rocks

Records within 50m	1

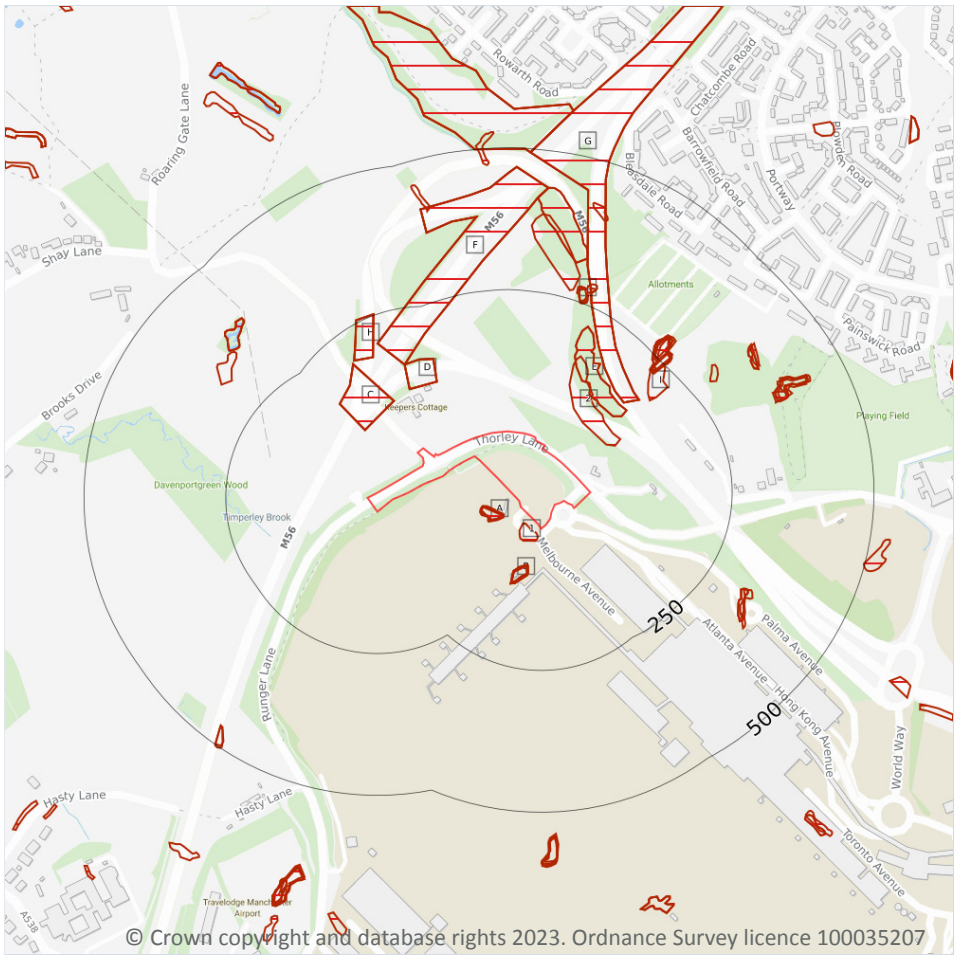
The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 88 >**

Location	Hazard rating	Details
On site	**Negligible**	**Soluble rocks are either not thought to be present within the ground, or not prone to dissolution. Dissolution features are unlikely to be present.**

This data is sourced from the British Geological Survey.

18 Mining and ground workings



Site Outline

Search buffers in metres (m)

- BritPits
- Surface ground workings
- Underground workings
- Underground mining extents
- Historical mineral planning areas
- TCA non-coal mining

Non Coal Mining

- Sporadic underground mining of restricted extent possible
- Localised small scale underground mining possible
- Small scale mining possible
- Underground mining known or likely within or in close proximity
- Underground mining known within or in very close proximity

18.1 BritPits

Records within 500m	0

BritPits (an abbreviation of British Pits) is a database maintained by the British Geological Survey of currently active and closed surface and underground mineral workings. Details of major mineral handling sites, such as wharfs and rail depots are also held in the database.

This data is sourced from the British Geological Survey.

18.2 Surface ground workings

Records within 250m	43

Historical land uses identified from Ordnance Survey mapping that involved ground excavation at the surface. These features may or may not have been subsequently backfilled.

Features are displayed on the Mining and ground workings map on **page 90 >**

ID	Location	Land Use	Year of mapping	Mapping scale
1	12m SE	Pond	1954	1:10560
A	33m S	Pond	1910	1:10560
A	34m S	Pond	1938	1:10560
A	34m S	Pond	1899	1:10560
A	34m S	Pond	1954	1:10560
A	36m S	Pond	1899	1:10560
B	68m S	Pond	1910	1:10560
B	69m S	Pond	1899	1:10560
B	69m S	Pond	1938	1:10560
B	70m S	Pond	1899	1:10560
B	70m S	Pond	1975	1:10000
B	70m S	Pond	1989	1:10000
B	70m S	Pond	1954	1:10560
B	70m S	Pond	1967	1:10560
2	77m NE	Unspecified Heap	1995	1:10000
C	94m NW	Cuttings	1975	1:10000
C	94m NW	Cuttings	1989	1:10000
C	94m NW	Cuttings	1995	1:10000
D	107m NW	Cuttings	1975	1:10000
D	107m NW	Cuttings	1989	1:10000
D	107m NW	Cuttings	1995	1:10000
E	118m NE	Unspecified Heap	1975	1:10000
E	118m NE	Unspecified Heap	1989	1:10000

ID	Location	Land Use	Year of mapping	Mapping scale
F	151m NW	Cuttings	1975	1:10000
F	151m NW	Cuttings	1989	1:10000
F	151m NW	Cuttings	1995	1:10000
G	152m NE	Cuttings	1975	1:10000
G	152m NE	Cuttings	1989	1:10000
G	152m NE	Cuttings	1995	1:10000
H	183m NW	Cuttings	1975	1:10000
H	183m NW	Cuttings	1989	1:10000
H	183m NW	Cuttings	1995	1:10000
I	187m NE	Ponds	1995	1:10000
I	225m NE	Ponds	1899	1:10560
I	226m NE	Ponds	1899	1:10560
I	228m NE	Ponds	1910	1:10560
I	229m NE	Pond	1938	1:10560
I	234m NE	Ponds	1975	1:10000
I	234m NE	Ponds	1989	1:10000
I	234m NE	Ponds	1967	1:10560
I	246m NE	Pond	1938	1:10560
I	249m NE	Pond	1954	1:10560
J	249m NE	Ponds	1954	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

18.3 Underground workings

Records within 1000m	**0**

Historical land uses identified from Ordnance Survey mapping that indicate the presence of underground workings e.g. mine shafts.

This is data is sourced from Ordnance Survey/Groundsure.

18.4 Underground mining extents

Records within 500m	0

This data identifies underground mine workings that could present a potential risk, including adits and seam workings. These features have been identified from BGS Geological mapping and mine plans sourced from the BGS and various collections and sources.

This data is sourced from Groundsure.

18.5 Historical Mineral Planning Areas

Records within 500m	0

Boundaries of mineral planning permissions for England and Wales. This data was collated between the 1940s (and retrospectively to the 1930s) and the mid 1980s. The data includes permitted, withdrawn and refused permissions.

This data is sourced from the British Geological Survey.

18.6 Non-coal mining

Records within 1000m	0

The potential for historical non-coal mining to have affected an area. The assessment is drawn from expert knowledge and literature in addition to the digital geological map of Britain. Mineral commodities may be divided into seven general categories - vein minerals, chalk, oil shale, building stone, bedded ores, evaporites and 'other' commodities (including ball clay, jet, black marble, graphite and chert).

This data is sourced from the British Geological Survey.

18.7 JPB mining areas

Records on site	0

Areas which could be affected by former coal and other mining. This data includes some mine plans unavailable to the Coal Authority.

This data is sourced from Johnson Poole and Bloomer.

18.8 The Coal Authority non-coal mining

Records within 500m	0

This data provides an indication of the potential zone of influence of recorded underground non-coal mining workings. Any and all analysis and interpretation of Coal Authority Data in this report is made by Groundsure, and is in no way supported, endorsed or authorised by the Coal Authority. The use of the data is restricted to the terms and provisions contained in this report. Data reproduced in this report may be the copyright of the

Coal Authority and permission should be sought from Groundsure prior to any re-use.

This data is sourced from The Coal Authority.

18.9 Researched mining

Records within 500m	0

This data indicates areas of potential mining identified from alternative or archival sources, including; BGS Geological paper maps, Lidar data, aerial photographs (from World War II onwards), archaeological data services, websites, Tithe maps, and various text/plans from collected books and reports. Some of this data is approximate and Groundsure have interpreted the resultant risk area and, where possible, specific areas of risk have been captured.

This data is sourced from Groundsure.

18.10 Mining record office plans

Records within 500m	0

This dataset is representative of Mining Record Office and/or plan extents held by Groundsure and should be considered approximate. Where possible, plans have been located and any specific areas of risk they depict have been captured.

This data is sourced from Groundsure.

18.11 BGS mine plans

Records within 500m	0

This dataset is representative of BGS mine plans held by Groundsure and should be considered approximate. Where possible, plans have been located and any specific areas of risk they depict have been captured.

This data is sourced from Groundsure.

18.12 Coal mining

Records on site	0

Areas which could be affected by past, current or future coal mining.

This data is sourced from the Coal Authority.

18.13 Brine areas

Records on site	1

The Cheshire Brine Compensation District indicates areas that may be affected by salt and brine extraction in Cheshire and where compensation would be available where damage from this mining has occurred. Damage from salt and brine mining can still occur outside this district, but no compensation will be available.

Location	Details
On site	**The site is located within the Cheshire Brine Compensation District. The extraction of brine over many years has caused some properties within the Cheshire area to be at risk of subsidence. This subsidence can occur a considerable distance from the location of the extraction and further assessment is recommended. A Cheshire Salt search can be obtained direct from Groundsure or your preferrred search provider.**

This data is sourced from the Cheshire Brine Subsidence Compensation Board.

18.14 Gypsum areas

Records on site	0

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.15 Tin mining

Records on site	0

Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.

18.16 Clay mining

Records on site	0

Generalised areas that may be affected by kaolin and ball clay extraction.

This data is sourced from the Kaolin and Ball Clay Association (UK).

19 Ground cavities and sinkholes

19.1 Natural cavities

Records within 500m	0

Industry recognised national database of natural cavities. Sinkholes and caves are formed by the dissolution of soluble rock, such as chalk and limestone, gulls and fissures by cambering. Ground instability can result from movement of loose material contained within these cavities, often triggered by water.

This data is sourced from Stantec UK Ltd.

19.2 Mining cavities

Records within 1000m	0

Industry recognised national database of mining cavities. Degraded mines may result in hazardous subsidence (crown holes). Climatic conditions and water escape can also trigger subsidence over mine entrances and workings.

This data is sourced from Stantec UK Ltd.

19.3 Reported recent incidents

Records within 500m	0

This data identifies sinkhole information gathered from media reports and Groundsure's own records. This data goes back to 2014 and includes relative accuracy ratings for each event and links to the original data sources. The data is updated on a regular basis and should not be considered a comprehensive catalogue of all sinkhole events. The absence of data in this database does not mean a sinkhole definitely has not occurred during this time.

This data is sourced from Groundsure.

19.4 Historical incidents

Records within 500m	0

This dataset comprises an extract of 1:10,560, 1:10,000, 1:2,500 and 1:1,250 scale historical Ordnance Survey maps held by Groundsure, dating back to the 1840s. It shows shakeholes, deneholes and other 'holes' as noted on these maps. Dene holes are medieval chalk extraction pits, usually comprising a narrow shaft with a number of chambers at the base of the shaft. Shakeholes are an alternative name for suffusion sinkholes, most commonly found in the limestone landscapes of North Yorkshire but also extensively noted around the Brecon Beacons National Park.

Not all 'holes' noted on Ordnance Survey mapping will necessarily be present within this dataset.

This data is sourced from Groundsure.

19.5 National karst database

Records within 500m	0

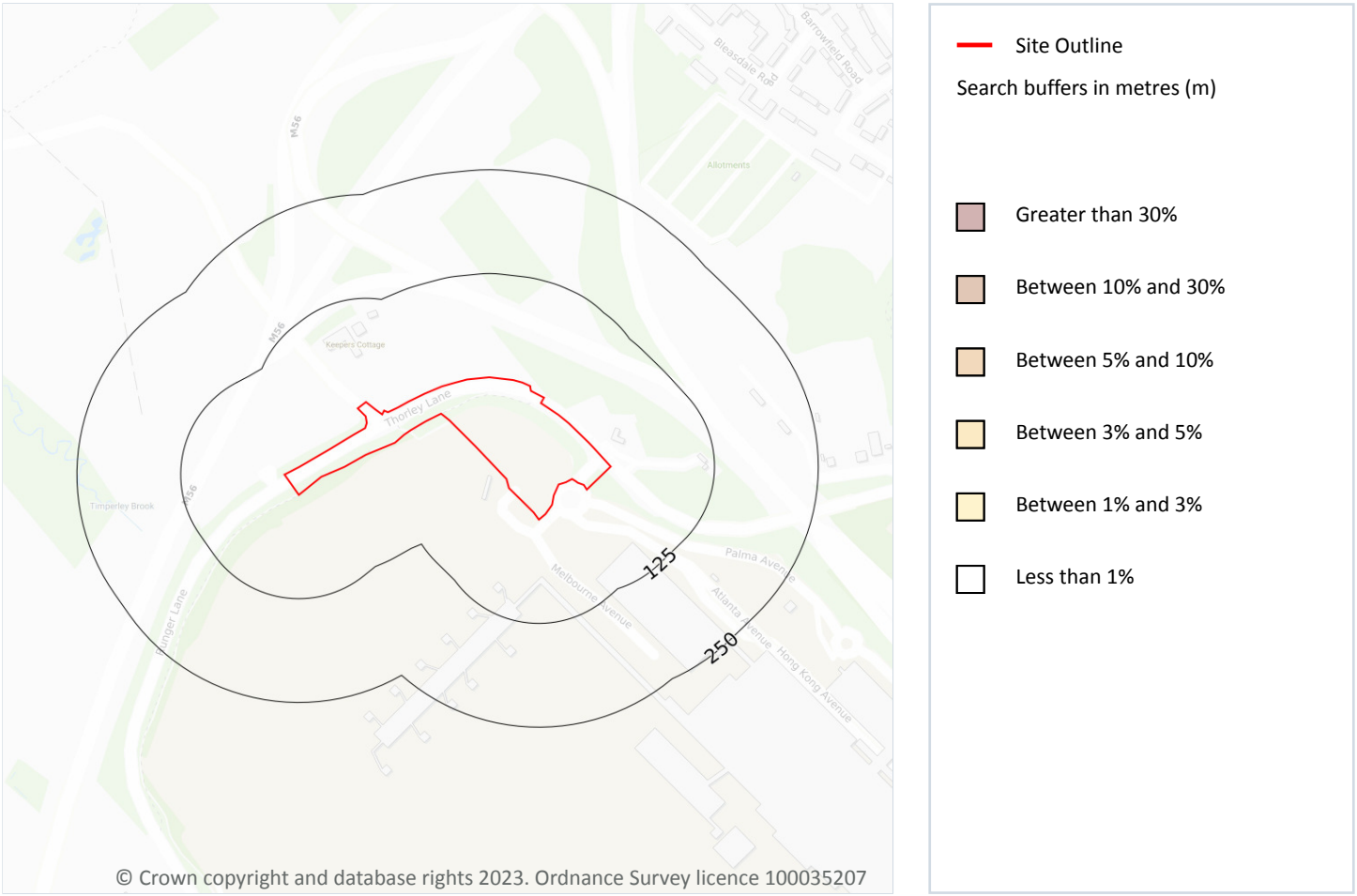
This is a comprehensive database of national karst information gathered from a wide range of sources. BGS have collected data on five main types of karst feature: Sinkholes, stream links, caves, springs, and incidences of associated damage to buildings, roads, bridges and other engineered works.

Since the database was set up in 2002 data covering most of the evaporite karst areas of the UK have now been added, along with data covering about 60% of the Chalk, and 35% of the Carboniferous Limestone outcrops. Many of the classic upland karst areas have yet to be included. Recorded so far are: Over 800 caves, 1300 stream sinks, 5600 springs, 10,000 sinkholes.

The database is not yet complete, and not all records have been verified. The absence of data does not mean that karst features are not present at a site. A reliability rating is included with each record.

This data is sourced from the British Geological Survey.

20 Radon



20.1 Radon

Records on site	1

The Radon Potential data classifies areas based on their likelihood of a property having a radon level at or above the Action Level in Great Britain. The dataset is intended for use at 1:50,000 scale and was derived from both geological assessments and indoor radon measurements (more than 560,000 records). A minimum 50m buffer should be considered when searching the maps, as the smallest detectable feature at this scale is 50m. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain (1:100,000 scale).

Features are displayed on the Radon map on **page 98 >**

Location	Estimated properties affected	Radon Protection Measures required
On site	**Less than 1%**	**None**

This data is sourced from the British Geological Survey and UK Health Security Agency.

21 Soil chemistry

21.1 BGS Estimated Background Soil Chemistry

Records within 50m	5

The estimated values provide the likely background concentration of the potentially harmful elements Arsenic, Cadmium, Chromium, Lead and Nickel in topsoil. The values are estimated primarily from rural topsoil data collected at a sample density of approximately 1 per 2 km^2. In areas where rural soil samples are not available, estimation is based on stream sediment data collected from small streams at a sampling density of 1 per 2.5 km^2; this is the case for most of Scotland, Wales and southern England. The stream sediment data are converted to soil-equivalent concentrations prior to the estimation.

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 mg/kg**
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 mg/kg**
17m W	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg

This data is sourced from the British Geological Survey.

21.2 BGS Estimated Urban Soil Chemistry

Records within 50m	0

Estimated topsoil chemistry of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc and bioaccessible Arsenic and Lead in 23 urban centres across Great Britain. These estimates are derived from interpolation of the measured urban topsoil data referred to above and provide information across each city between the measured sample locations (4 per km^2).

This data is sourced from the British Geological Survey.

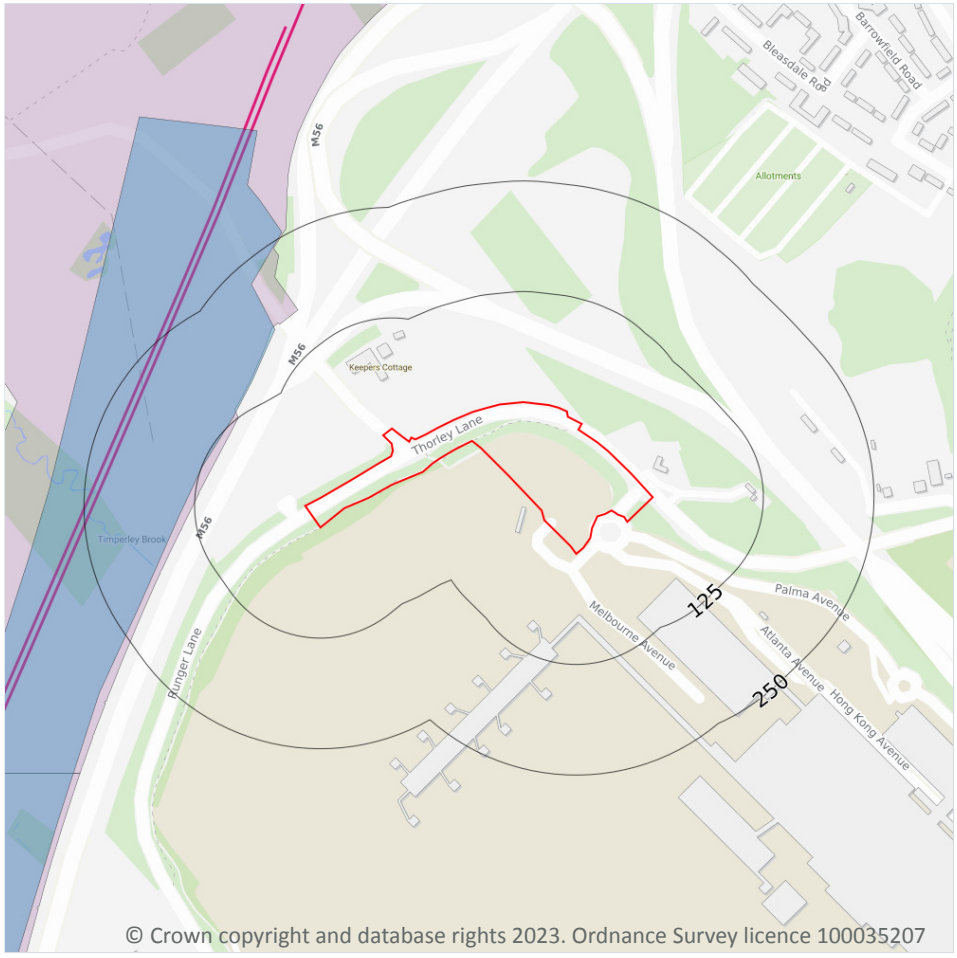
21.3 BGS Measured Urban Soil Chemistry

Records within 50m	0

The locations and measured total concentrations (mg/kg) of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc in urban topsoil samples from 23 urban centres across Great Britain. These are collected at a sample density of 4 per km^2.

This data is sourced from the British Geological Survey.

22 Railway infrastructure and projects



Site Outline

Search buffers in metres (m)

- Crossrail 1 Stations
- Crossrail 1 Route
- Crossrail 2 Stations
- Crossrail 2 Route
- Crossrail 2 Worksites
- Crossrail 2 Safeguarding
- Crossrail 2 Headhouses
- Railway stations
- Active railways
- Active tunnels
- Abandoned railways
- Historic railways
- Historic tunnels
- Underground stations
- Underground Lines
- Royal Mail tunnels
- HS2 optimised route
- HS2 Stations
- HS2 Depots
- HS2 Surface Safeguarding
- HS2 Subsurface Safeguarding

22.1 Underground railways (London)

Records within 250m	0

Details of all active London Underground lines, including approximate tunnel roof depth and operational hours.

This data is sourced from publicly available information by Groundsure.

22.2 Underground railways (Non-London)

Records within 250m	0

Details of the Merseyrail system, the Tyne and Wear Metro and the Glasgow Subway. Not all parts of all systems are located underground. The data contains location information only and does not include a depth assessment.

This data is sourced from publicly available information by Groundsure.

22.3 Railway tunnels

Records within 250m	0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

22.4 Historical railway and tunnel features

Records within 250m	0

Railways and tunnels digitised from historical Ordnance Survey mapping as scales of 1:1,250, 1:2,500, 1:10,000 and 1:10,560.

This data is sourced from Ordnance Survey/Groundsure.

22.5 Royal Mail tunnels

Records within 250m	0

The Post Office Railway, otherwise known as the Mail Rail, is an underground railway running through Central London from Paddington Head District Sorting Office to Whitechapel Eastern Head Sorting Office. The line is 10.5km long. The data includes details of the full extent of the tunnels, the depth of the tunnel, and the depth to track level.

This data is sourced from Groundsure/the Postal Museum.

22.6 Historical railways

Records within 250m	0

Former railway lines, including dismantled lines, abandoned lines, disused lines, historic railways and razed lines.

This data is sourced from OpenStreetMap.

22.7 Railways

Records within 250m	0

Currently existing railway lines, including standard railways, narrow gauge, funicular, trams and light railways.

This data is sourced from Ordnance Survey and OpenStreetMap.

22.8 Crossrail 1

Records within 500m	0

The Crossrail railway project links 41 stations over 100 kilometres from Reading and Heathrow in the west, through underground sections in central London, to Shenfield and Abbey Wood in the east.

This data is sourced from publicly available information by Groundsure.

22.9 Crossrail 2

Records within 500m	0

Crossrail 2 is a proposed railway linking the national rail networks in Surrey and Hertfordshire via an underground tunnel through London.

This data is sourced from publicly available information by Groundsure.

22.10 HS2

Records within 500m	2

HS2 is a proposed high speed rail network running from London to Manchester and Leeds via Birmingham. Main civils construction on Phase 1 (London to Birmingham) of the project began in 2019, and it is currently anticipated that this phase will be fully operational by 2026. Construction on Phase 2a (Birmingham to Crewe) is anticipated to commence in 2021, with the service fully operational by 2027. Construction on Phase 2b (Crewe to Manchester and Birmingham to Leeds) is scheduled to begin in 2023 and be operational by 2033.

Features are displayed on the Railway infrastructure and projects map on **page 101 >**

Location	Track Type	Speed (mph)	Speed (km/h)	Status
220m W	Surface Running Track	143mph	230kph	Current preferred consultation route
228m W	Surface Running Track	143mph	230kph	Current preferred consultation route

This data is sourced from HS2 ltd.

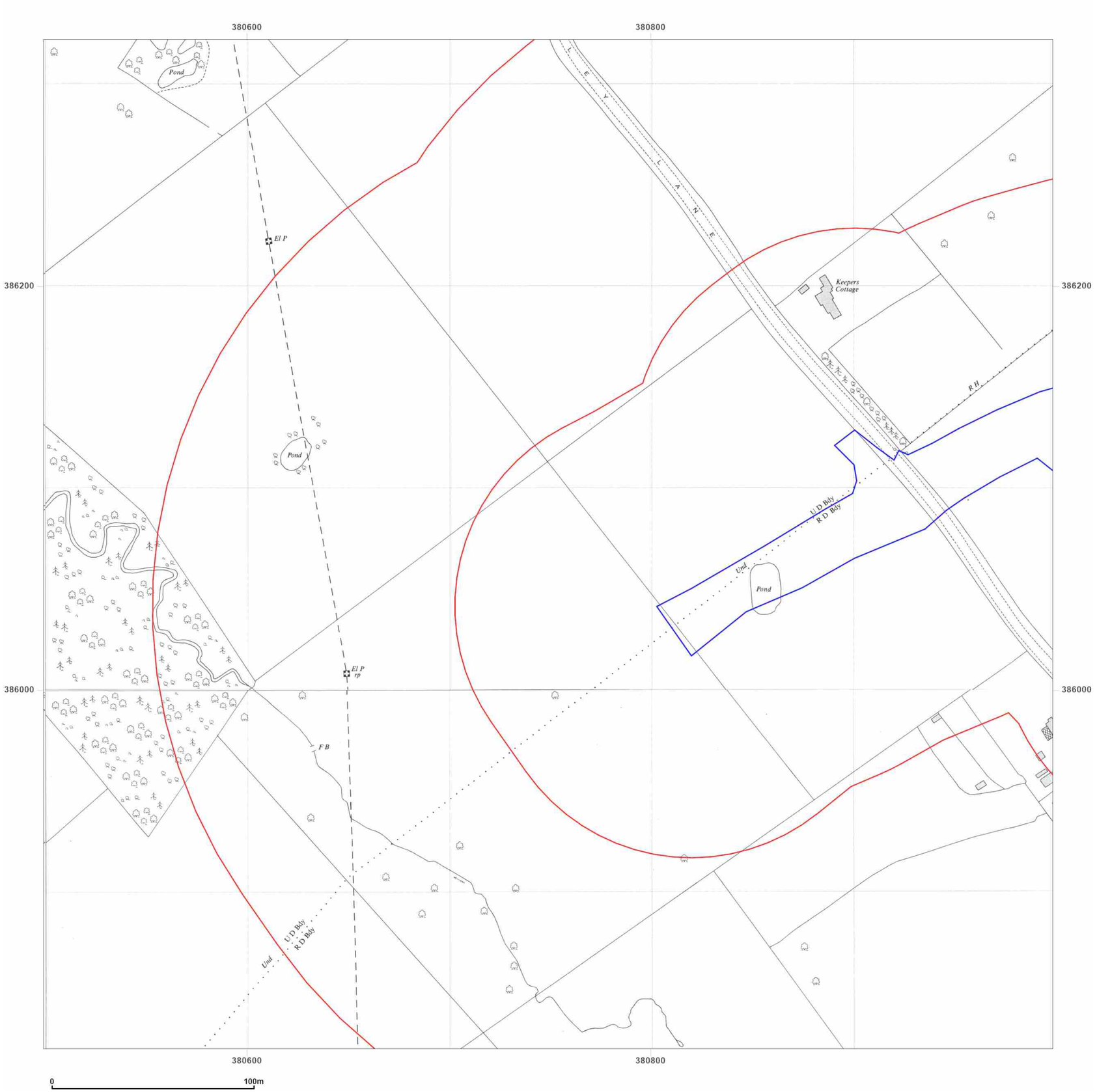
Data providers

Groundsure works with respected data providers to bring you the most relevant and accurate information. To find out who they are and their areas of expertise see https://www.groundsure.com/sources-reference ↗.

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Appendix C. Groundsure Map Insight Report



Groundsure INSIGHTS

Site Details:

DAVENPORT GREEN COTTAGE,
SHAY LANE, HALE BARNS,
WA15 8UD

Client Ref: MAG42040
Report Ref: GS-6S3-T31-TVJ-L2P_1250_1_1
Grid Ref: 380749, 386072

Map Name: National Grid
Map date: **1963-1964**
Scale: 1:1,250
Printed at: 1:2,000

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Surveyed 1962 Revised 1962 Edition N/A Copyright 1963 Levelled 1959	Surveyed 1962 Revised 1962 Edition N/A Copyright 1963 Levelled 1959

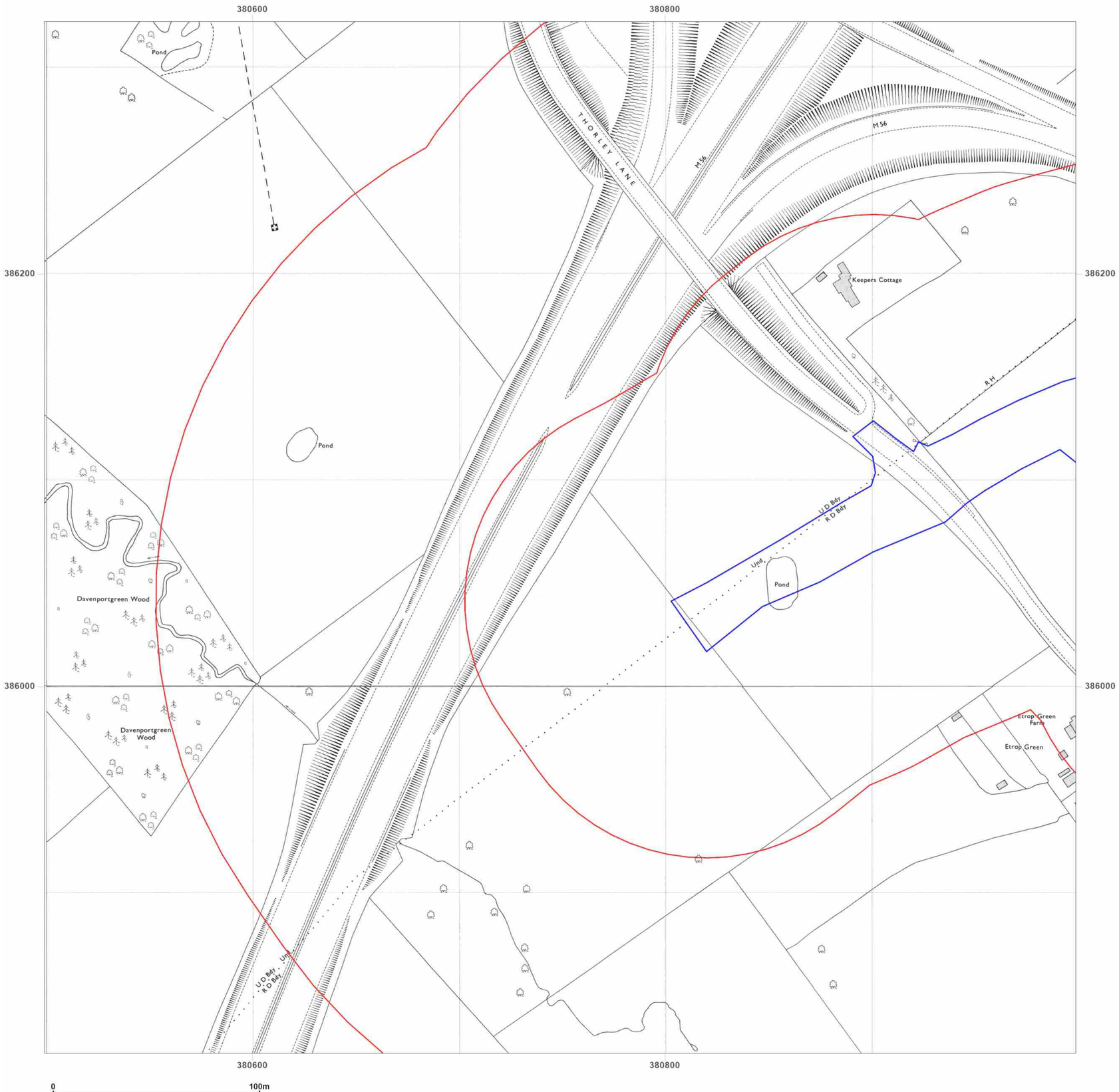
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Client Ref: MAG42040
Report Ref: GS-6S3-T31-TVJ-L2P_1250_1_1
Grid Ref: 380749, 386072

Map Name: National Grid
Map date: **1973-1976**
Scale: 1:1,250
Printed at: 1:2,000

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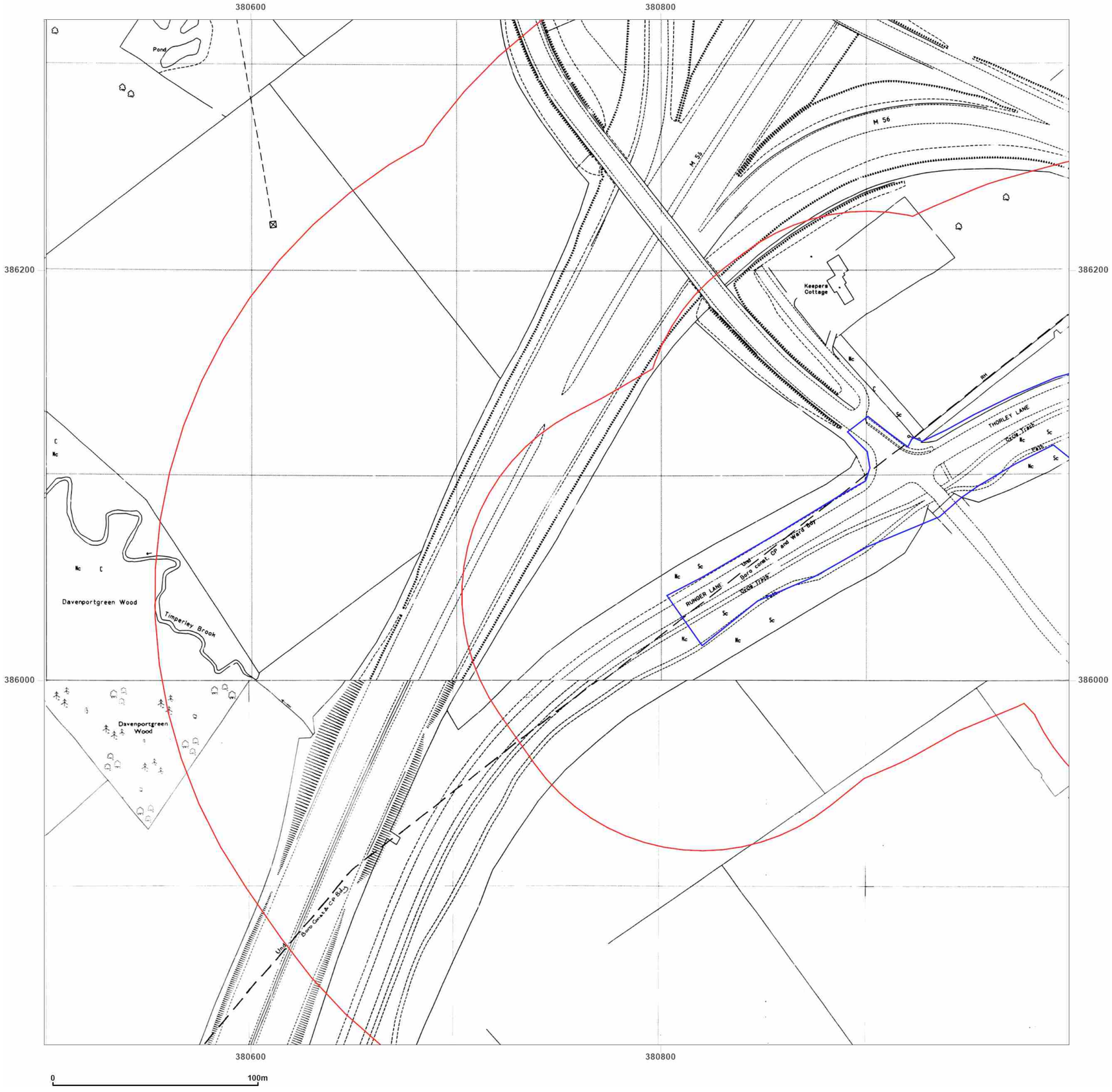
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Client Ref: MAG42040
Report Ref: GS-6S3-T31-TVJ-L2P_1250_1_1
Grid Ref: 380749, 386072

Map Name: National Grid
Map date: **1990-1992**
Scale: 1:1,250
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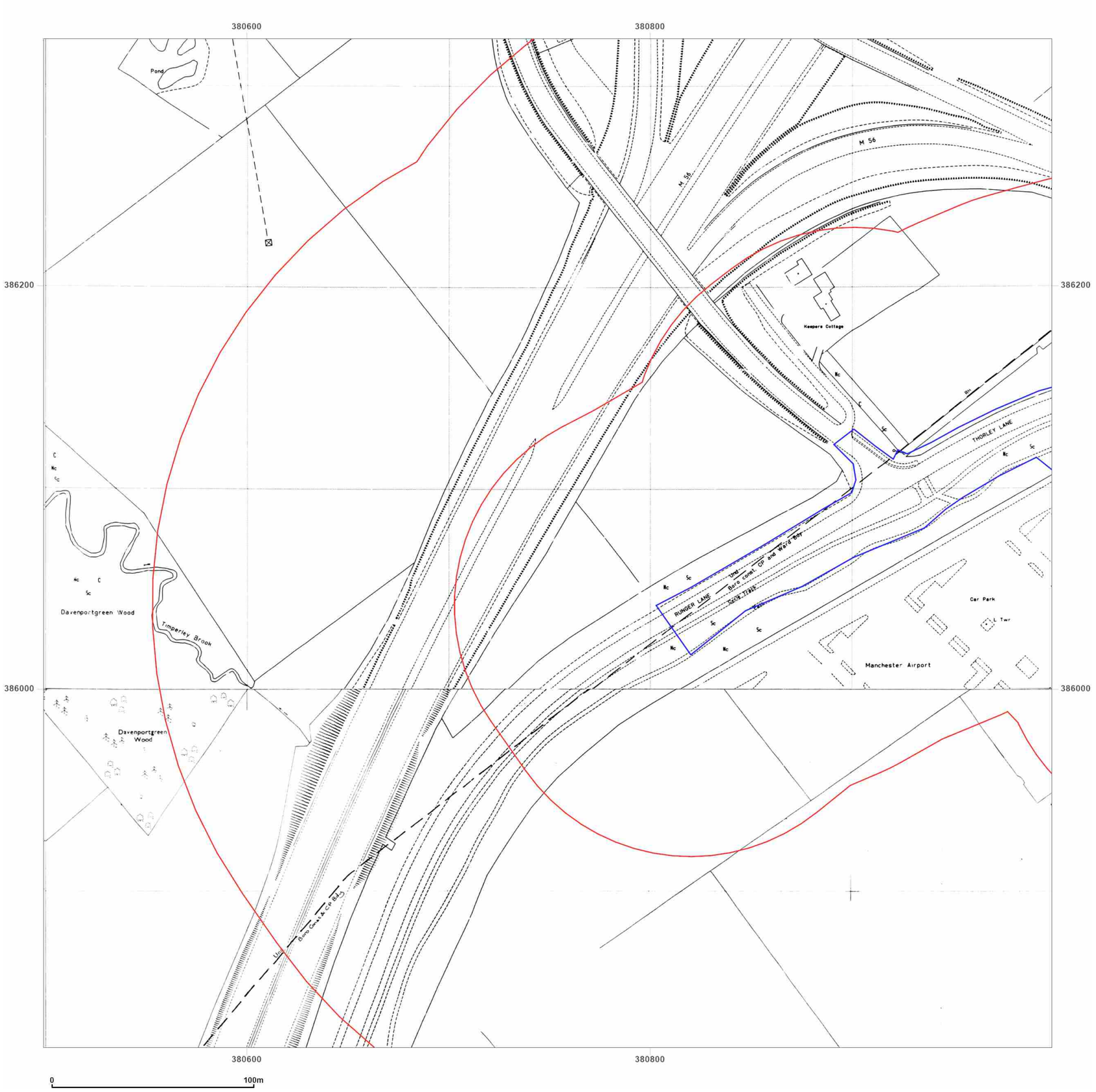
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Client Ref: MAG42040
Report Ref: GS-6S3-T31-TVJ-L2P_1250_1_1
Grid Ref: 380749, 386072

Map Name: National Grid
Map date: **1990-1995**
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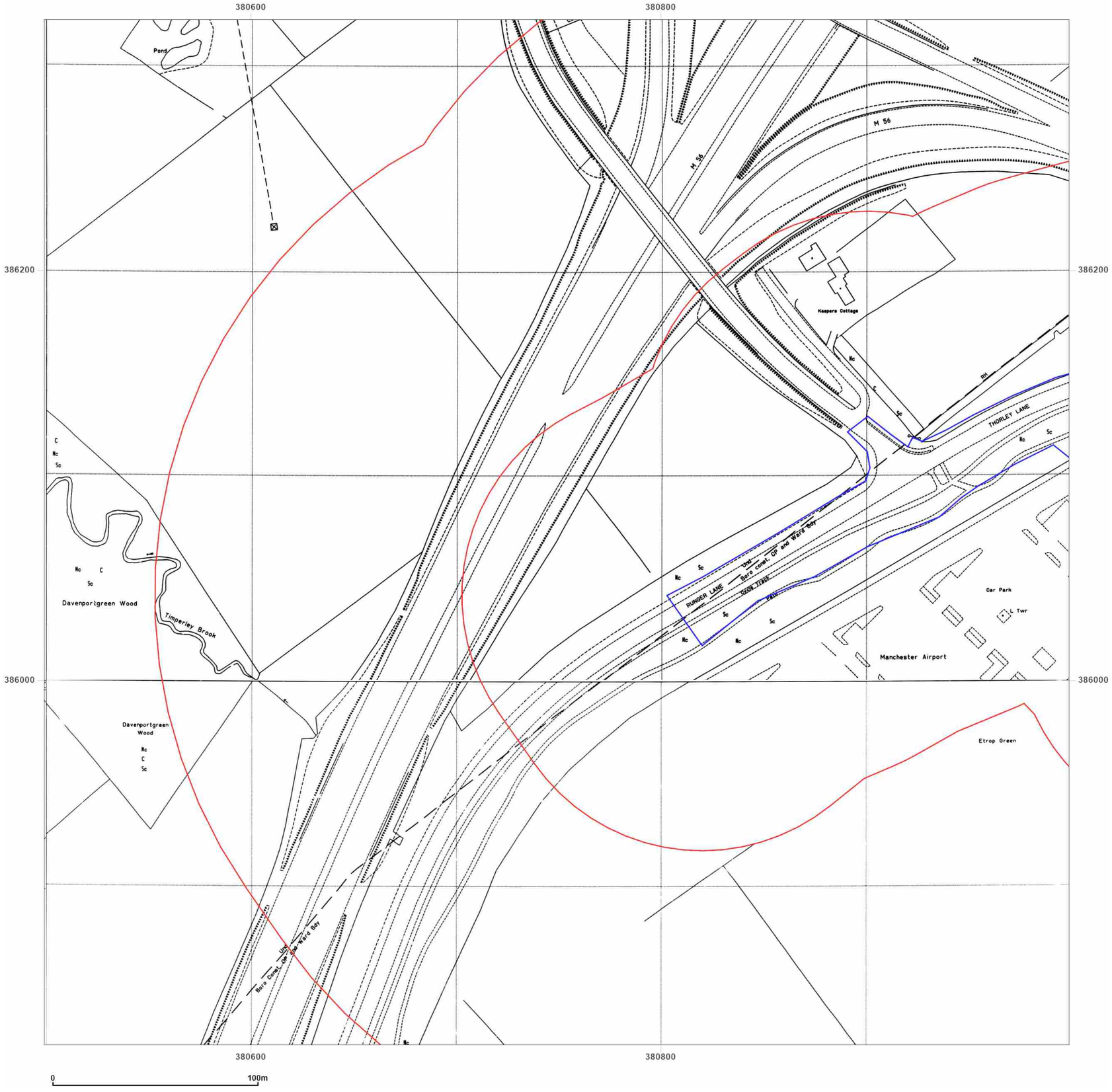
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Grid Ref: 380749, 386072

Map Name: National Grid

Map date: **1992-1995**

Scale: 1:1,250

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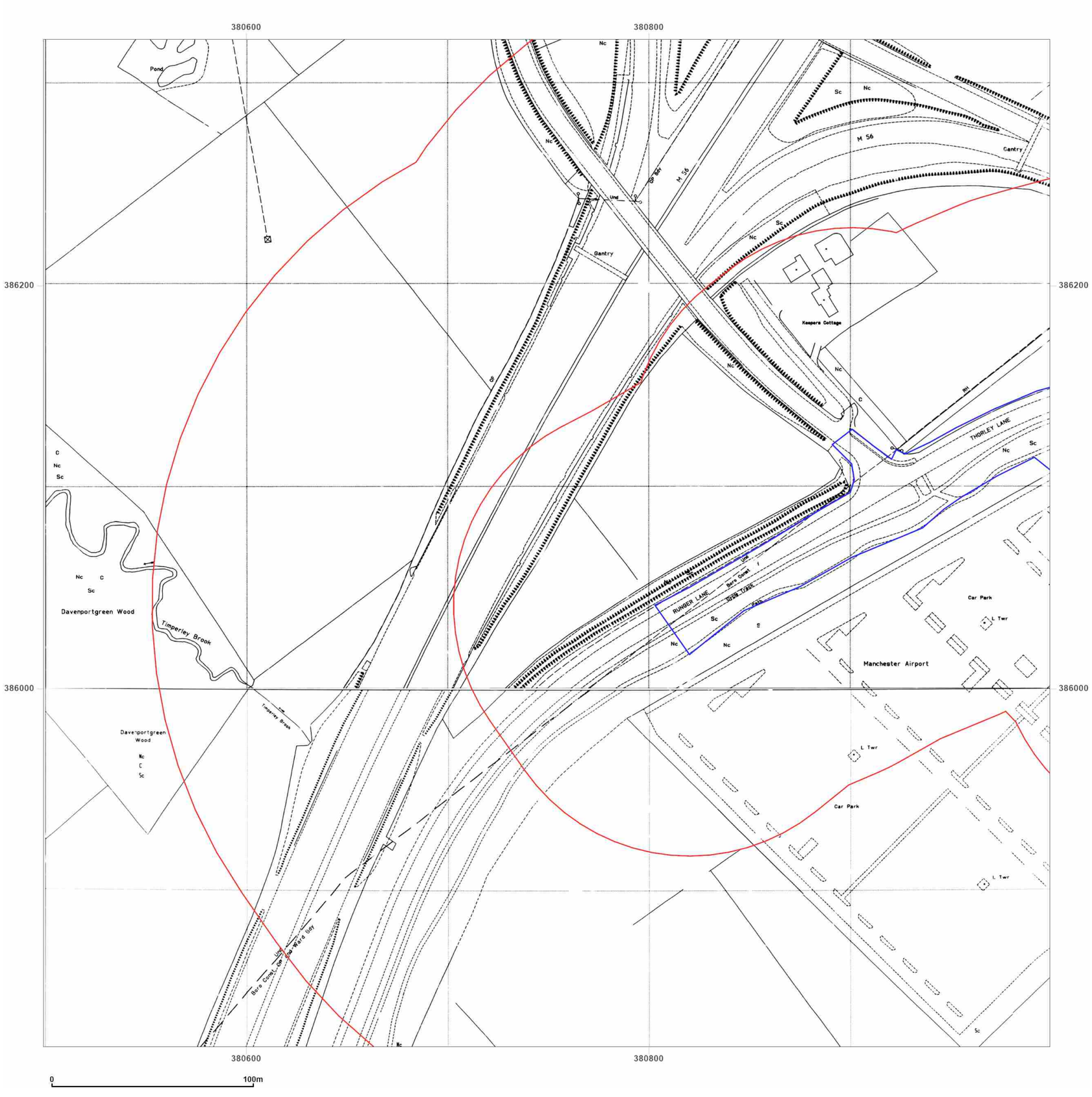
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Client Ref: MAG42040
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Grid Ref: 380749, 386072

Map Name: National Grid

Map date: **1993-1995**

Scale: 1:1,250

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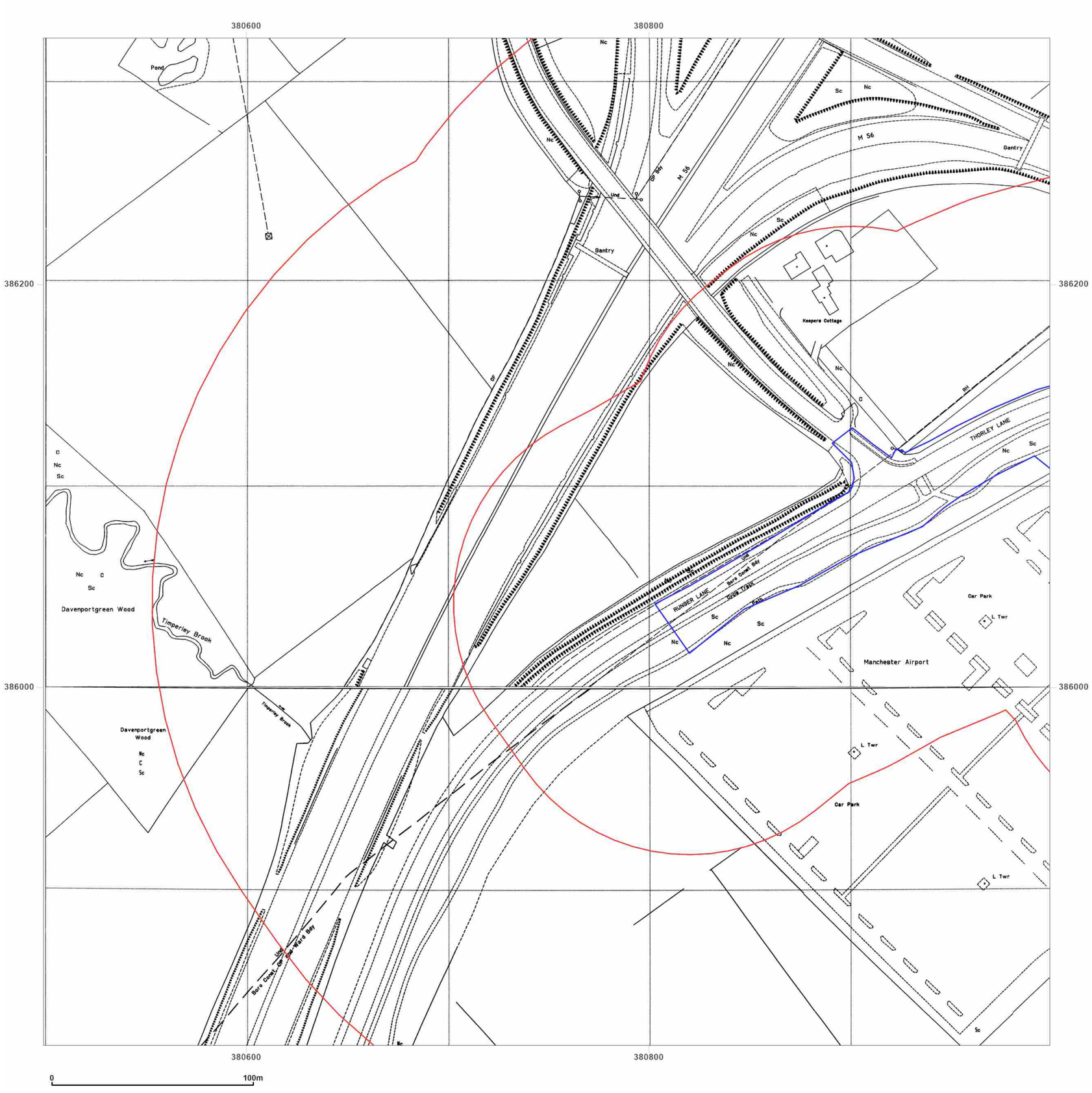
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Report Ref: GS-6S3-T31-TVJ-L2P_1250_1_1
Grid Ref: 380749, 386072

Map Name: National Grid
Map date: **1993-1995**
Scale: 1:1,250
Printed at: 1:2,000

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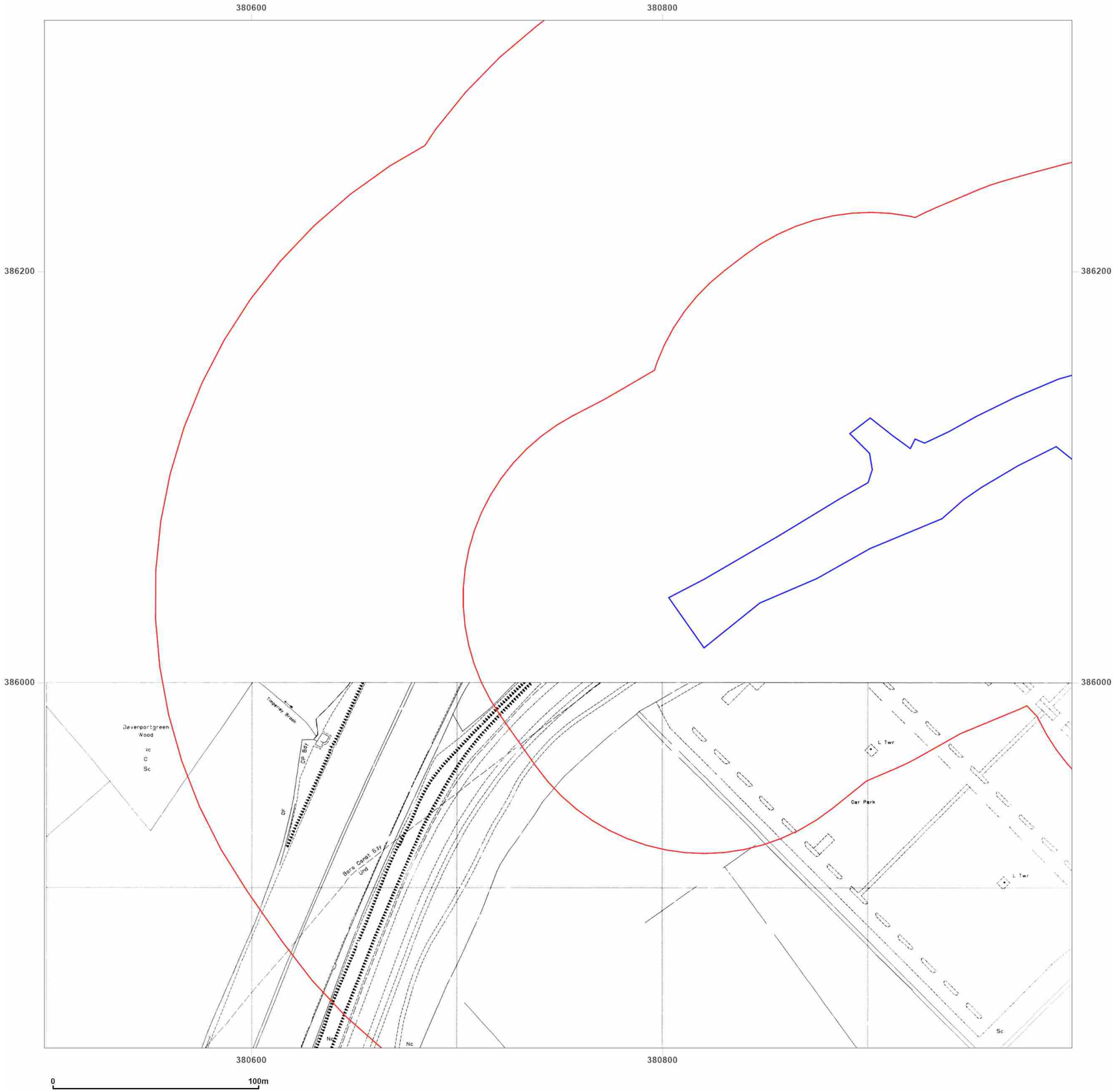
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Client Ref: MAG42040
Report Ref: GS-6S3-T31-TVJ-L2P_1250_1_1
Grid Ref: 380749, 386072

Map Name: National Grid

Map date: **1995**

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Edition N/A
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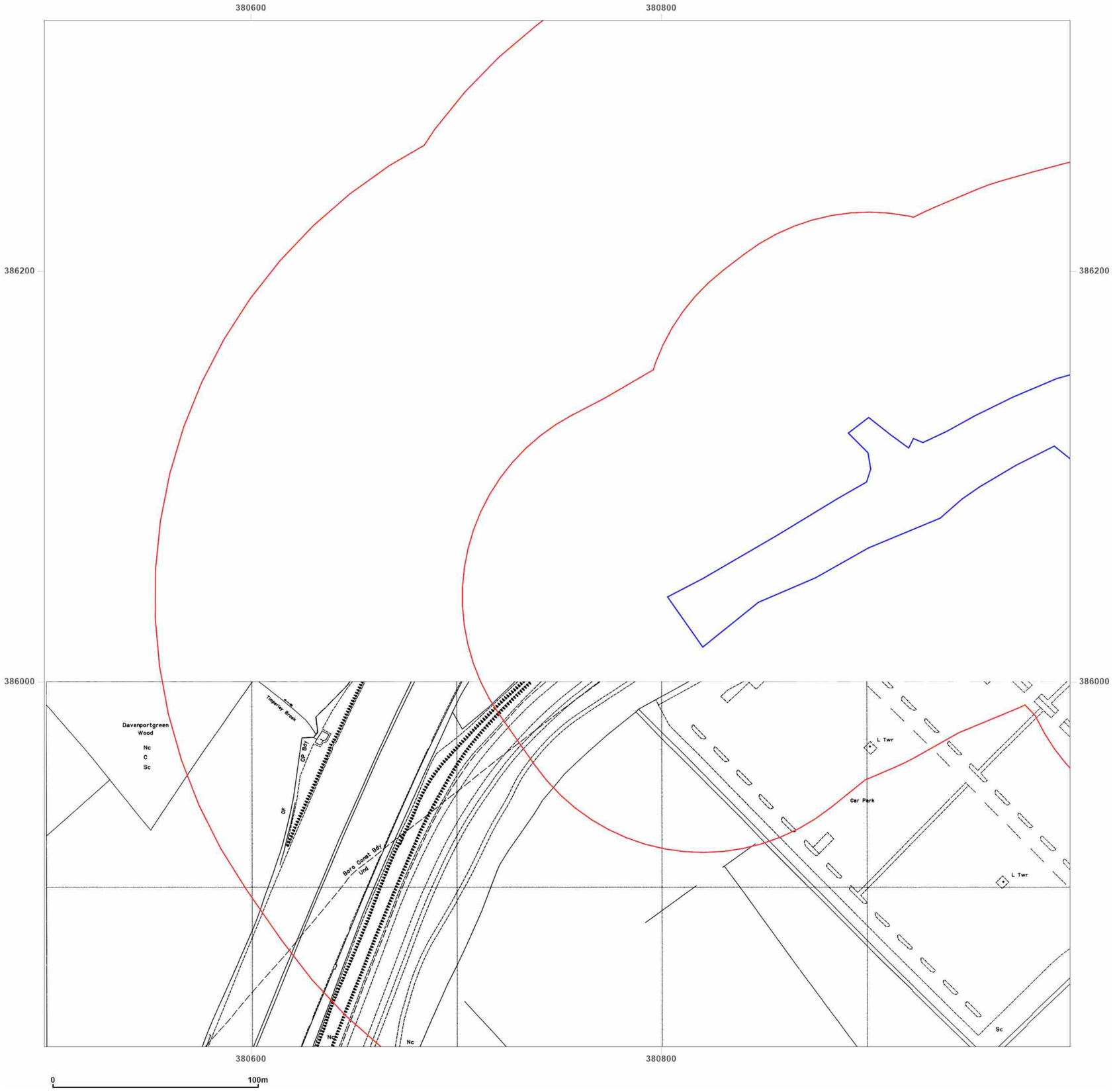
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Client Ref: MAG42040
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Grid Ref: 380749, 386072

Map Name: National Grid
Map date: **1995**
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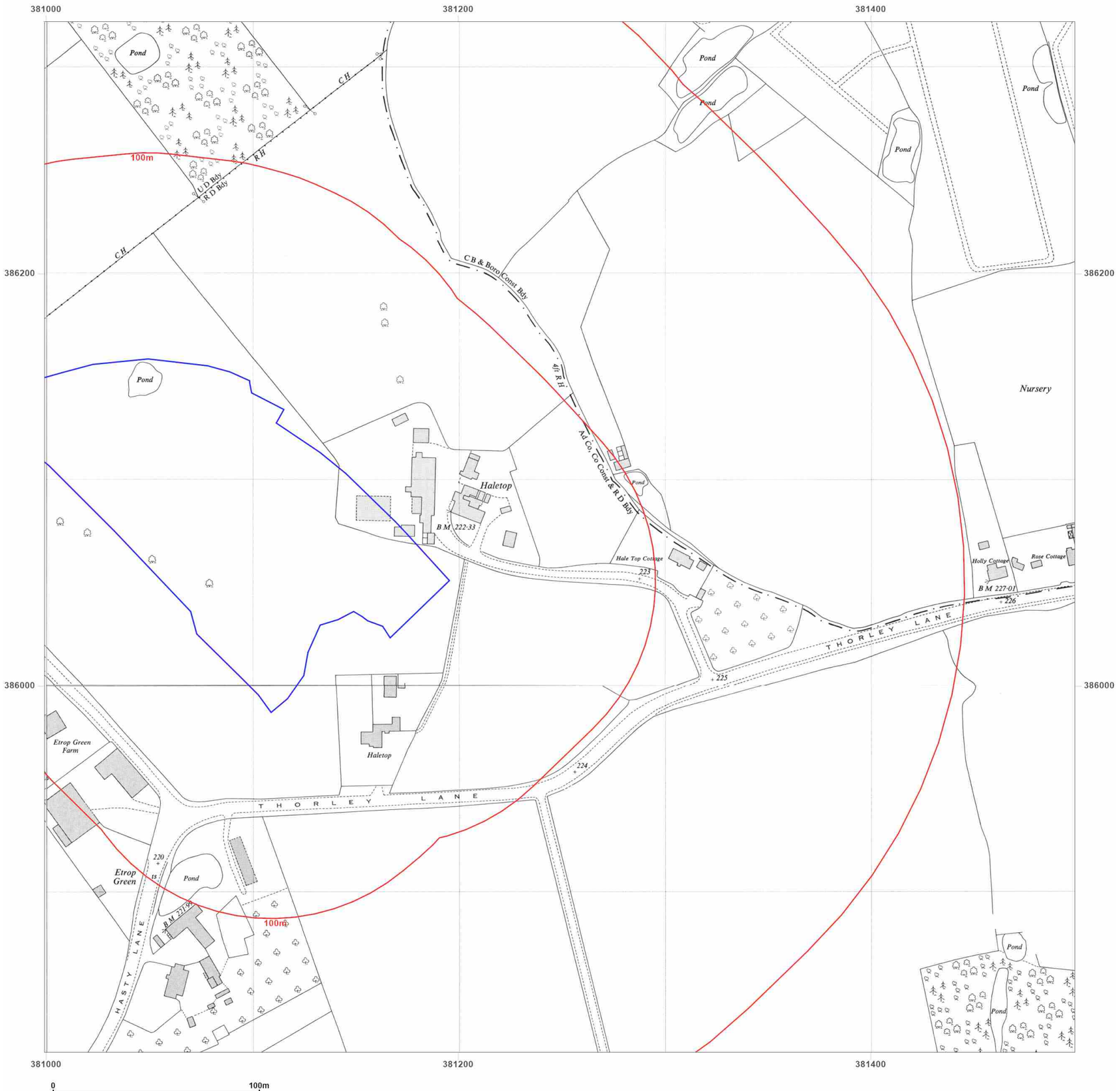
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WA15 8UD

Client Ref: MAG42040
Report Ref: GS-6S3-T31-TVJ-L2P_1250_2_1
Grid Ref: 381249, 386072

Map Name: National Grid
Map date: **1960-1964**
Scale: 1:1,250
Printed at: 1:2,000

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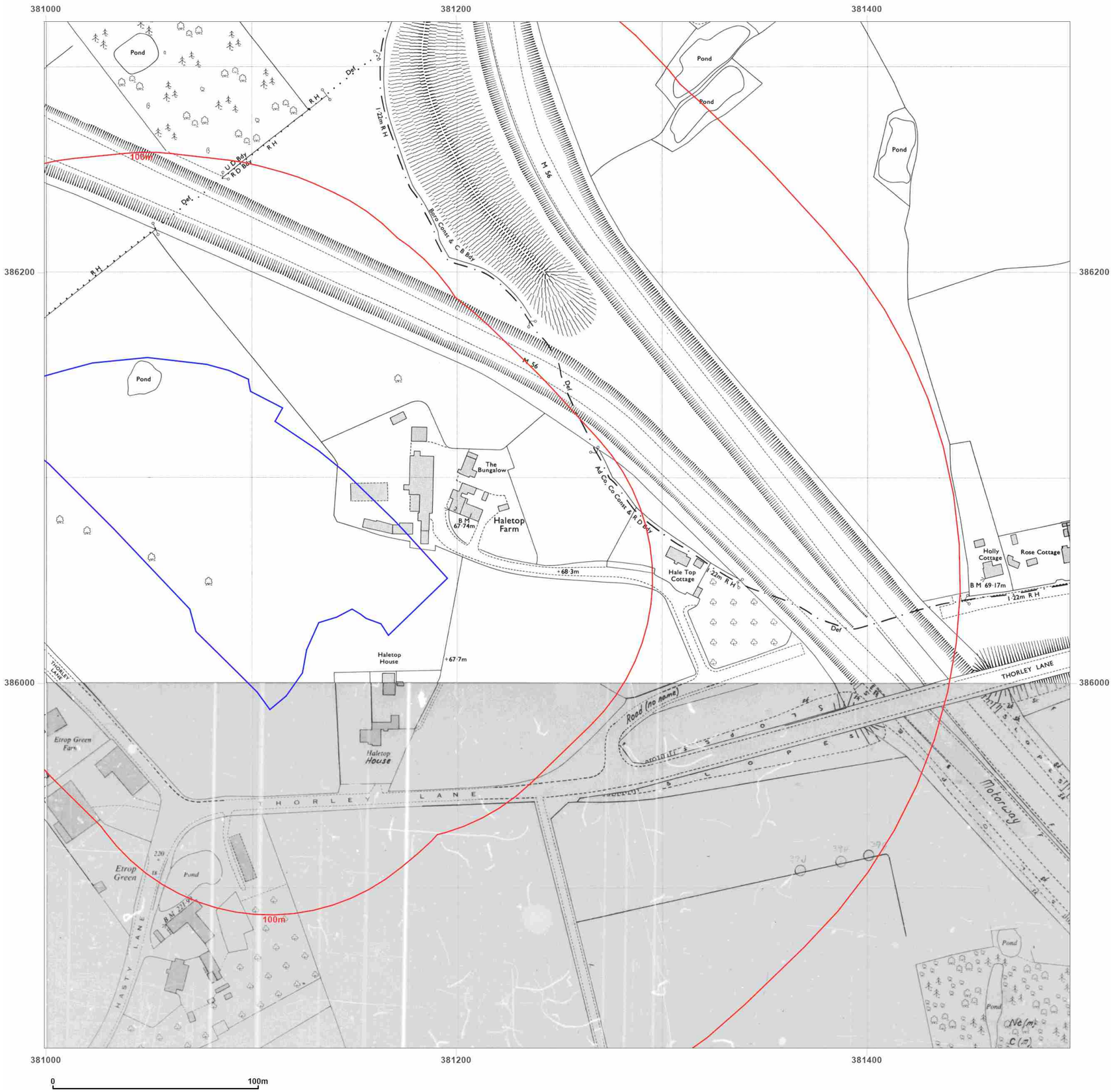
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Client Ref: MAG42040
Report Ref: GS-6S3-T31-TVJ-L2P_1250_2_1
Grid Ref: 381249, 386072

Map Name: National Grid
Map date: **1973-1974**
Scale: 1:1,250
Printed at: 1:2,000

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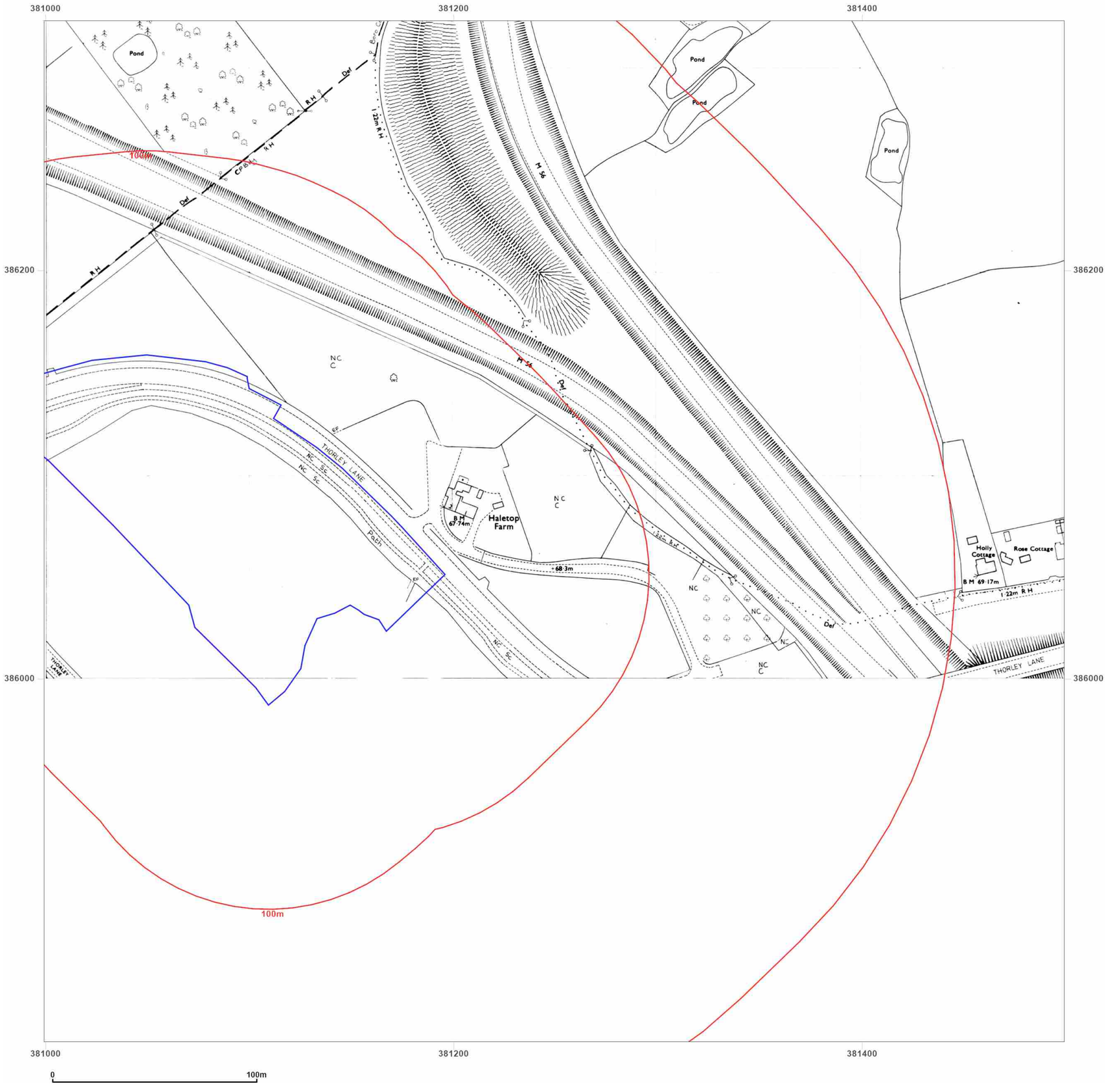
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WA15 8UD

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Grid Ref: 381249, 386072

Map Name: National Grid
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Surveyed 1959
Revised 1974
Edition N/A
Copyright 1974
Levelled 1959

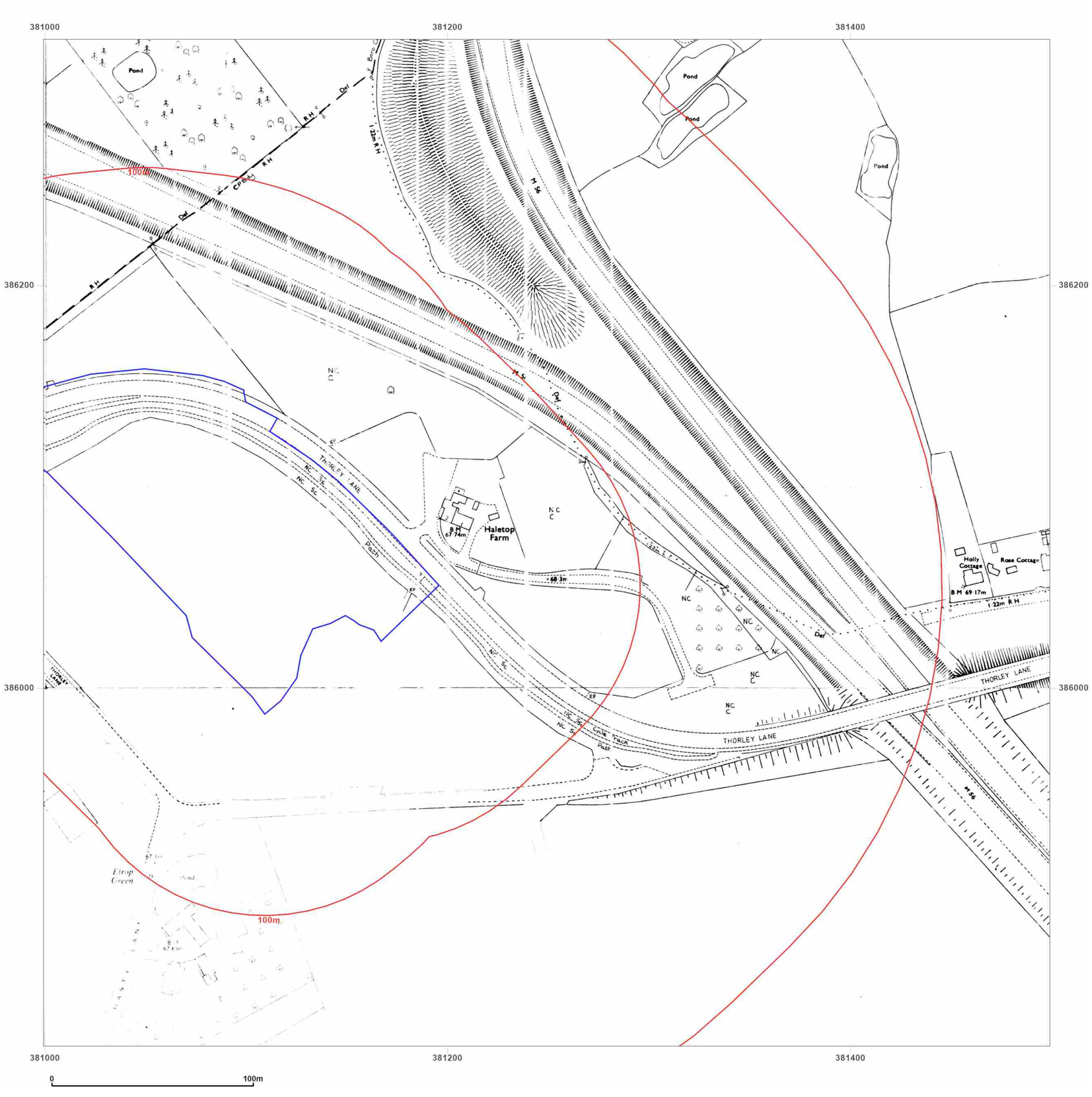
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Site Details:

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WA15 8UD

Client Ref: MAG42040
Report Ref: GS-6S3-T31-TVJ-L2P_1250_2_1
Grid Ref: 381249, 386072

Map Name: National Grid
Map date: **1990-1992**
Scale: 1:1,250
Printed at: 1:2,000

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Surveyed 1992	Surveyed N/A
Revised 1992	Revised N/A
Edition N/A	Edition N/A
Copyright 1992	Copyright N/A
Levelled N/A	Levelled N/A
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Revised 1990	Revised N/A
Edition N/A	Edition N/A
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Levelled 1959	Levelled N/A

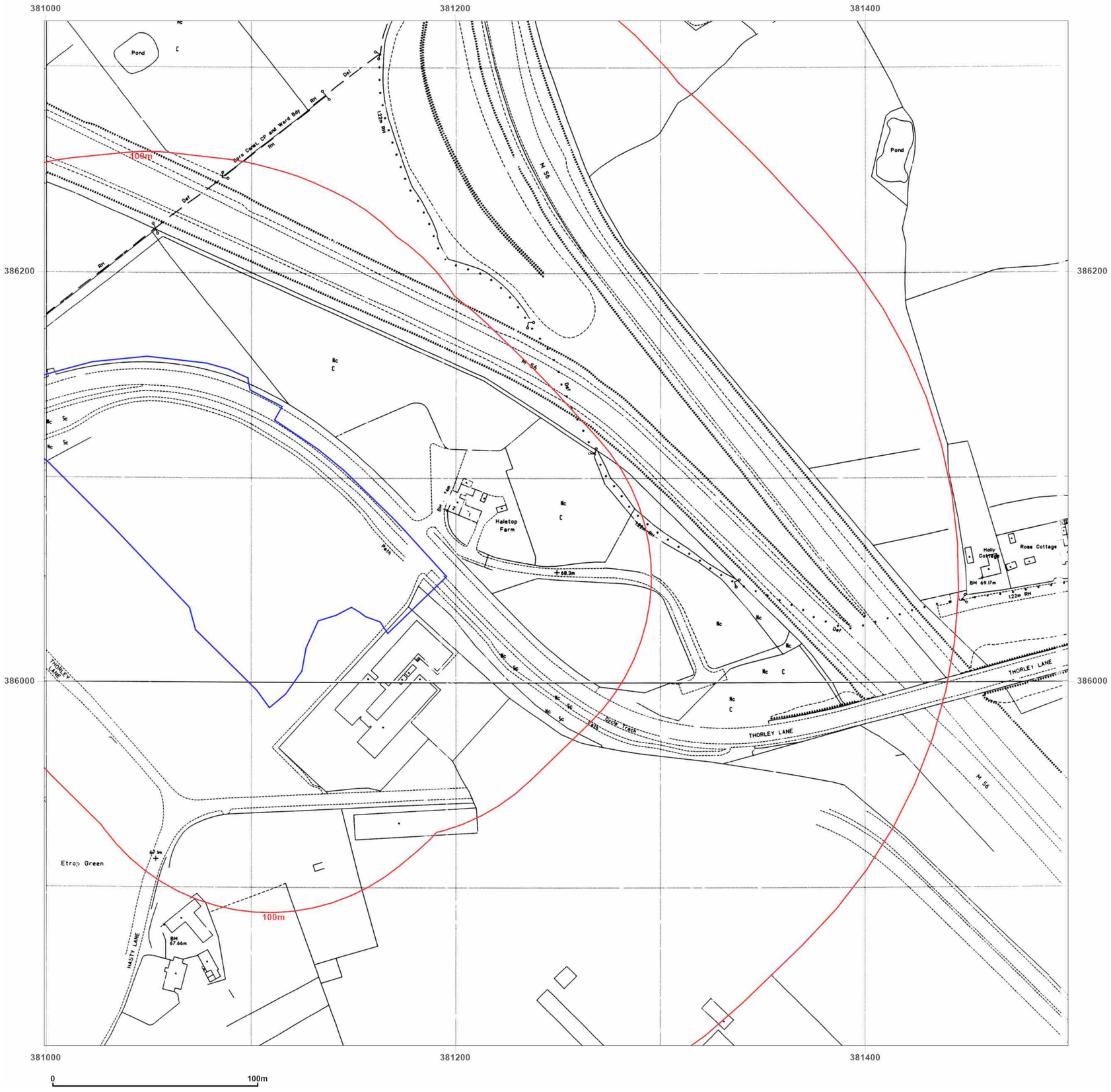
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Client Ref: MAG42040
Report Ref: GS-6S3-T31-TVJ-L2P_1250_2_1
Grid Ref: 381249, 386072

Map Name: National Grid
Map date: **1990-1993**
Scale: 1:1,250
Printed at: 1:2,000

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WA15 8UD

Client Ref: MAG42040
Report Ref: GS-6S3-T31-TVJ-L2P_1250_2_1
Grid Ref: 381249, 386072

Map Name: National Grid

Map date: **1992-1993**

Scale: 1:1,250

Printed at: 1:2,000

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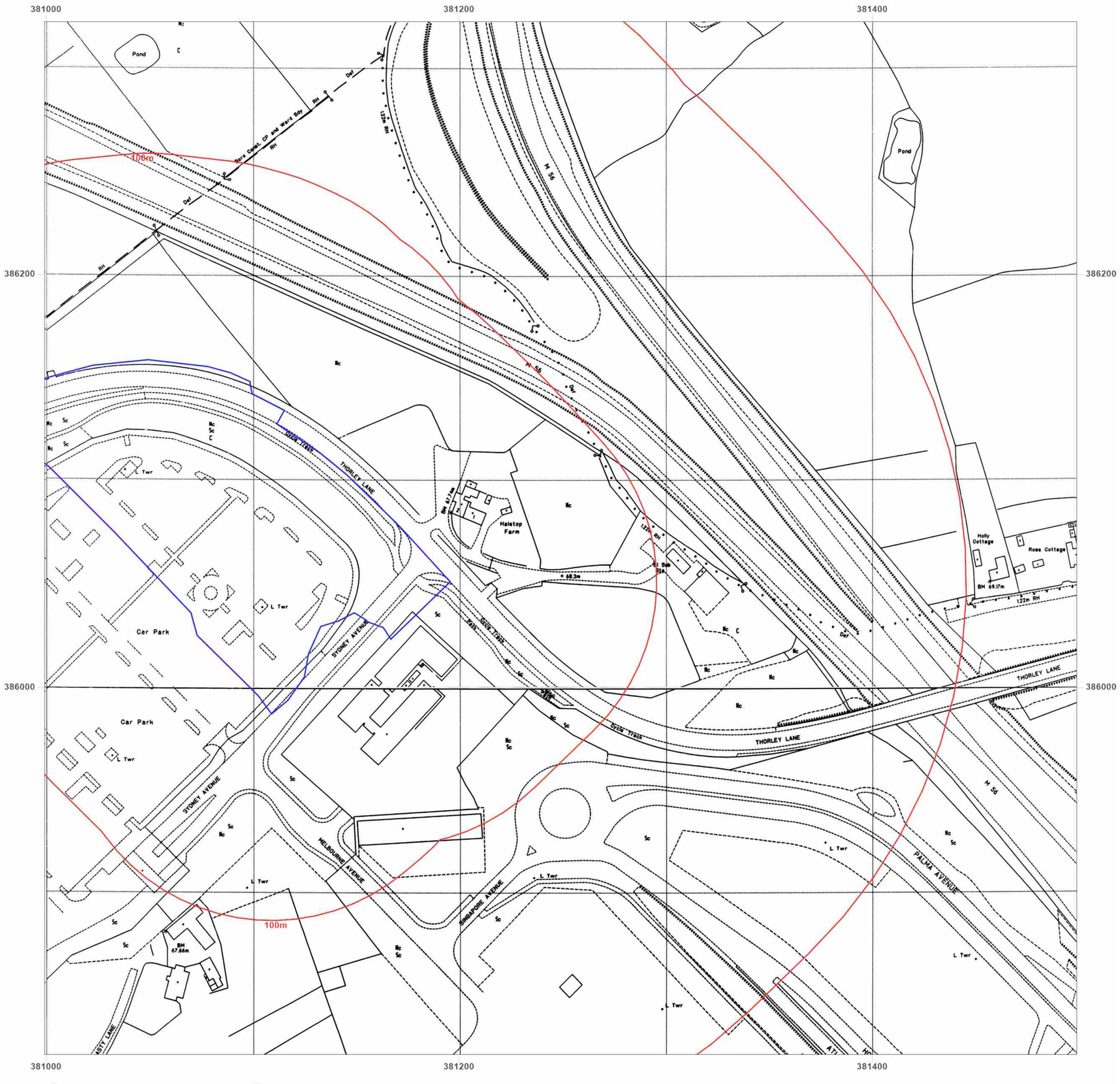
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WA15 8UD

Client Ref: MAG42040
Report Ref: GS-6S3-T31-TVJ-L2P_1250_2_1
Grid Ref: 381249, 386072

Map Name: National Grid
Map date: **1993-1995**
Scale: 1:1,250
Printed at: 1:2,000

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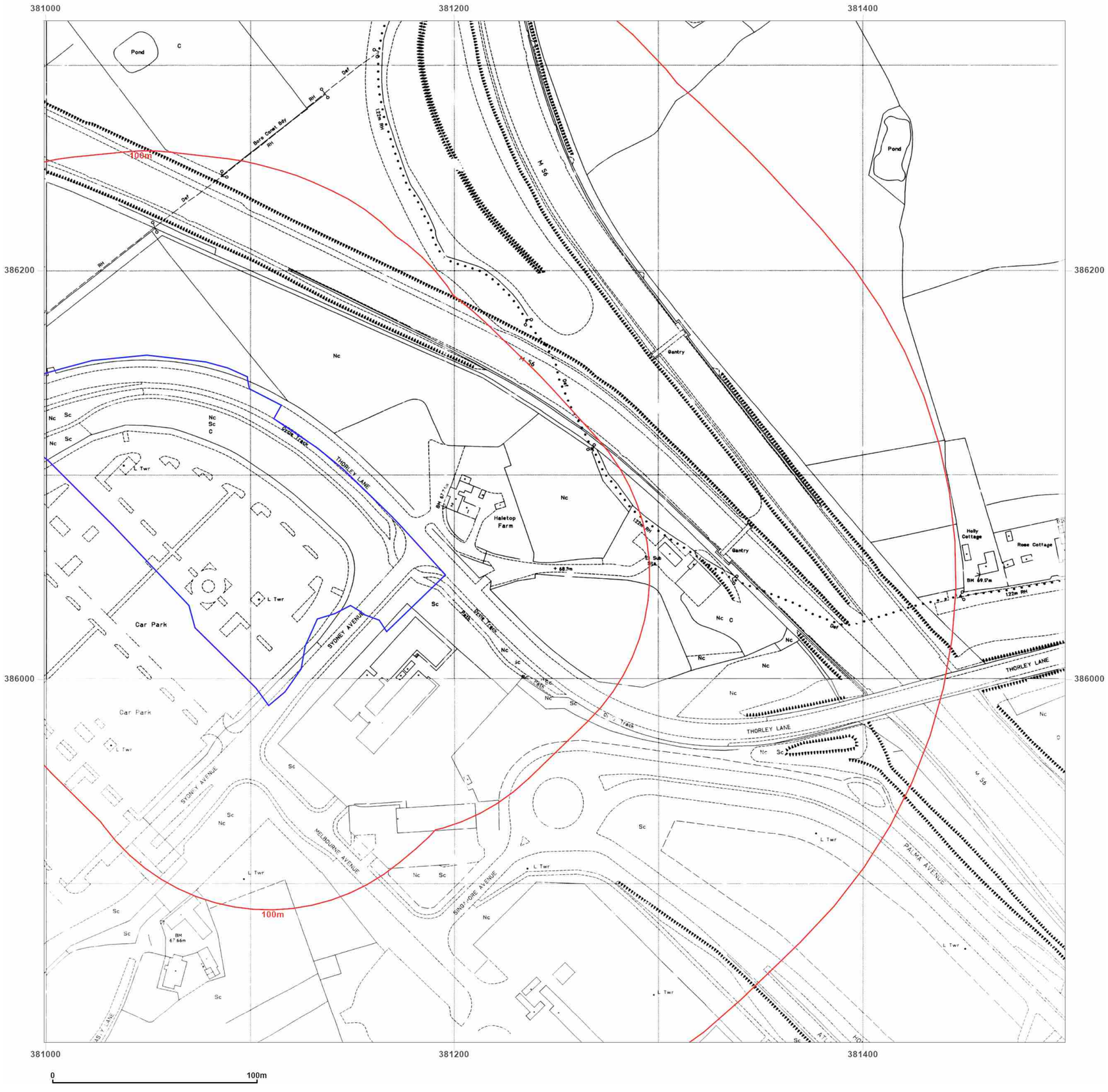
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WA15 8UD

Client Ref: MAG42040
Report Ref: GS-6S3-T31-TVJ-L2P_1250_2_1
Grid Ref: 381249, 386072

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Printed at: 1:2,000

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WA15 8UD

Client Ref: MAG42040
Report Ref: GS-6S3-T31-TVJ-L2P_1250_2_1
Grid Ref: 381249, 386072

Map Name: National Grid

Map date: **1995**

Scale: 1:1,250

Printed at: 1:2,000

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Edition N/A
Copyright 1995
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Revised 1995
Edition N/A
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Copyright 1995
Levelled N/A

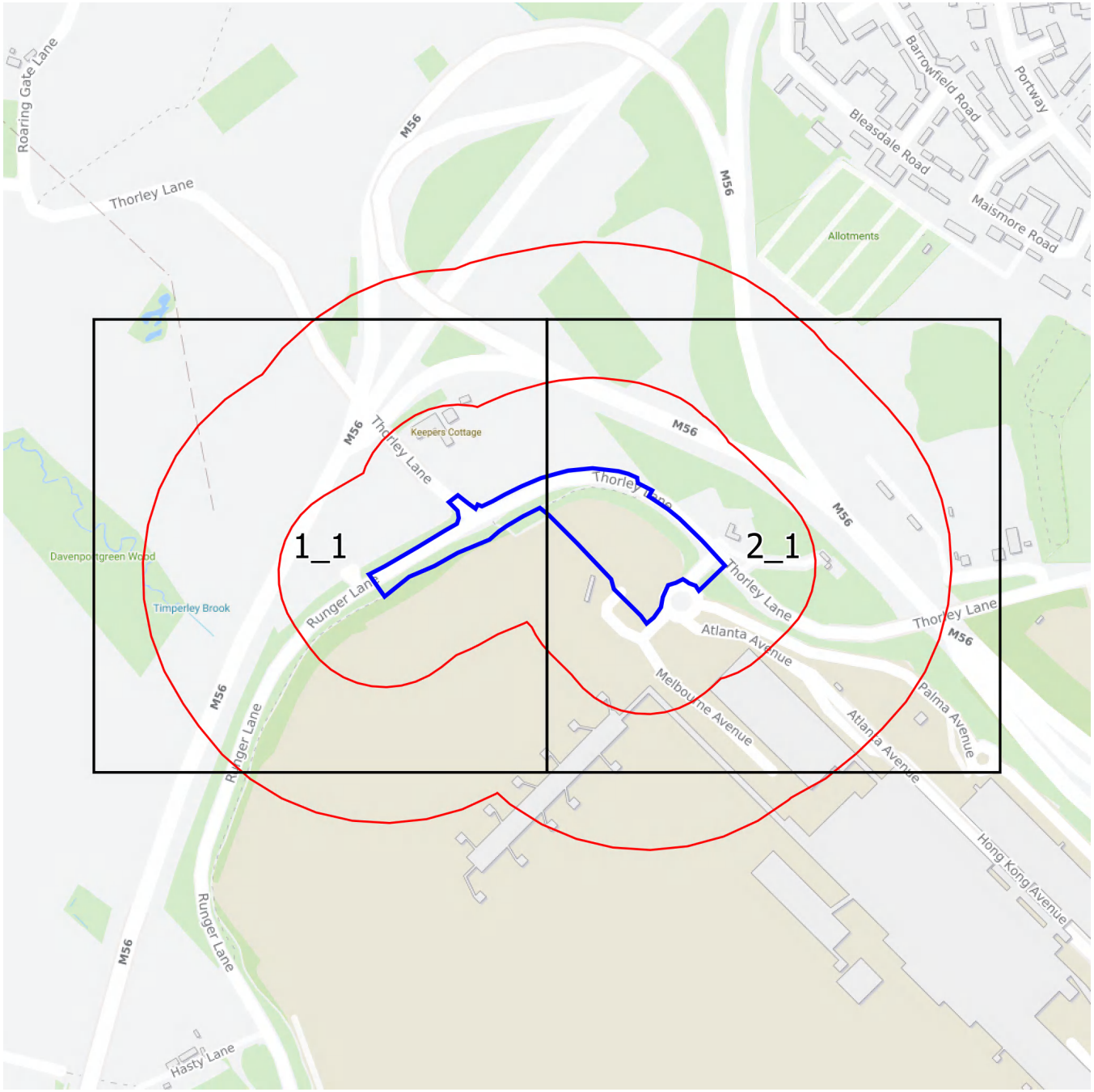
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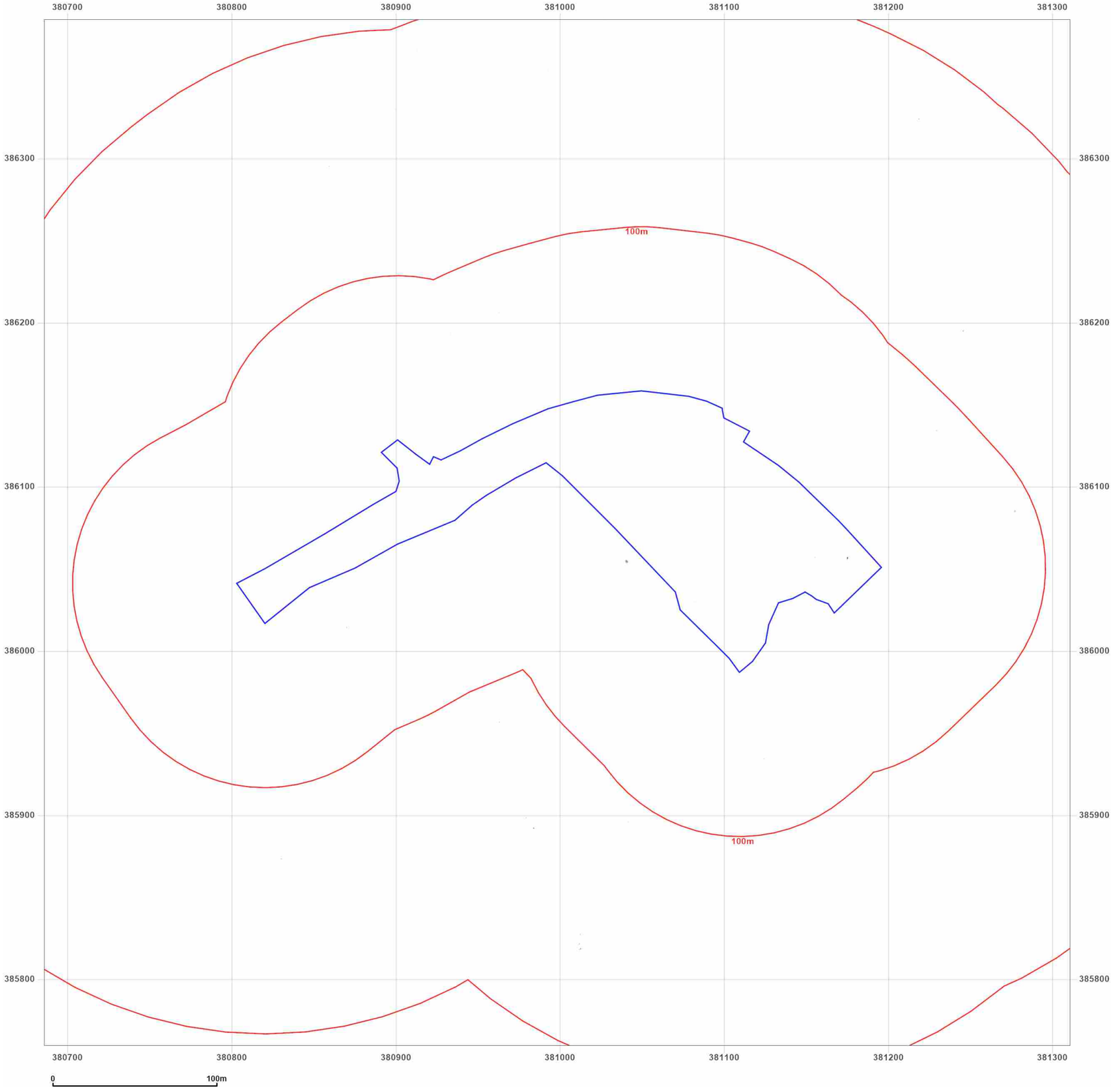
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Groundsure INSIGHTS

1:1,250 Scale Grid Index

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Groundsure INSIGHTS

Site Details:

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SHAY LANE, HALE BARNS,
WA15 8UD

Client Ref: MAG42040
Report Ref: GS-6S3-T31-TVJ-L2P_LS_1_1
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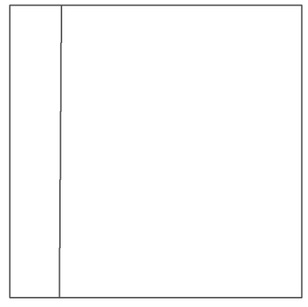
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Map date: **1872**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1872
Revised 1872
Edition N/A
Copyright N/A
Levelled N/A

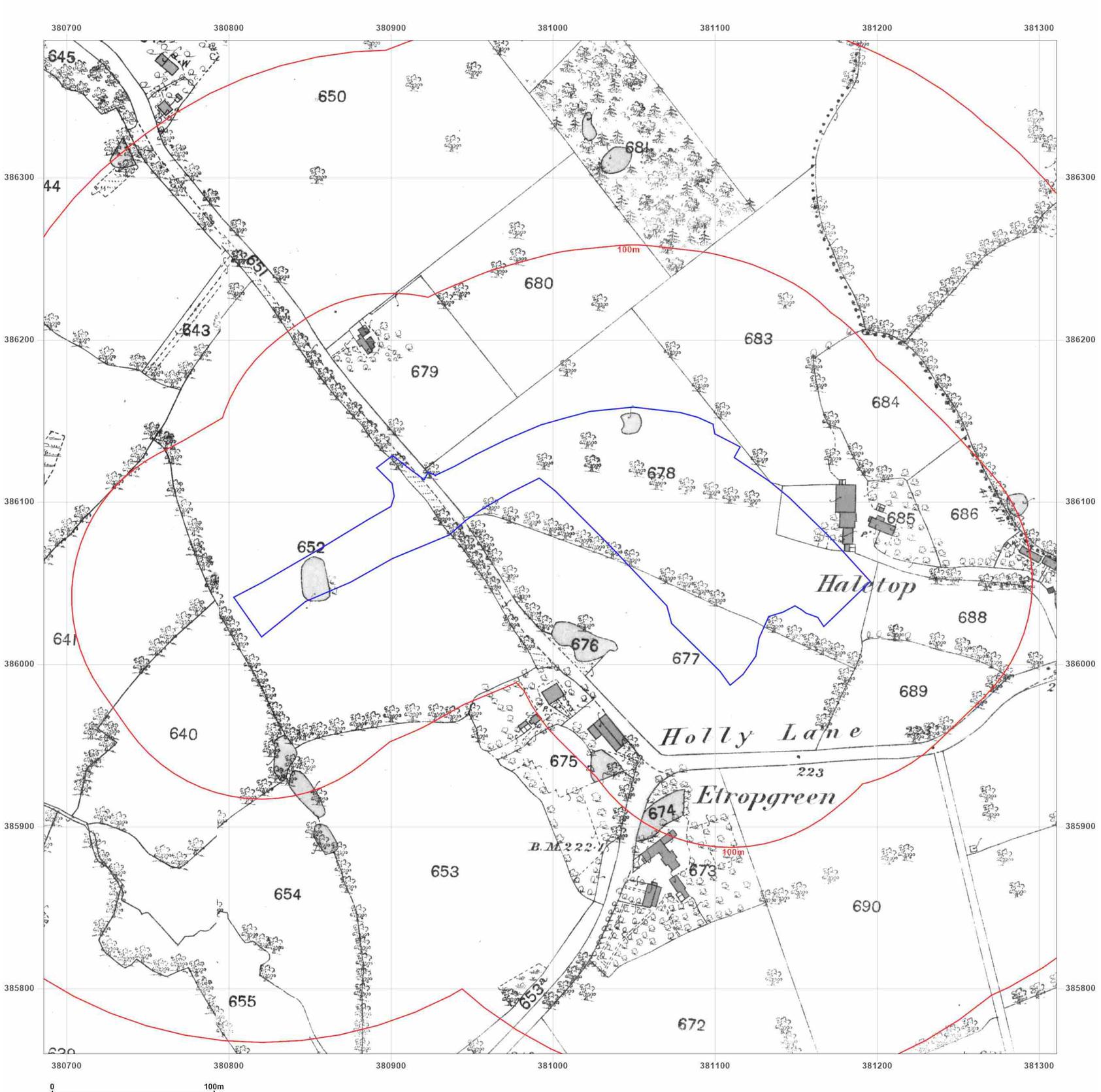
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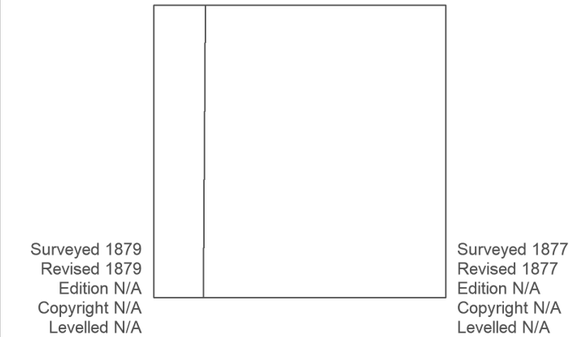
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DAVENPORT GREEN COTTAGE,
SHAY LANE, HALE BARNS,
WA15 8UD

Client Ref: MAG42040
Report Ref: GS-6S3-T31-TVJ-L2P_LS_1_1
Grid Ref: 380998, 386072

Map Name: County Series
Map date: **1877-1879**
Scale: 1:2,500
Printed at: 1:2,500

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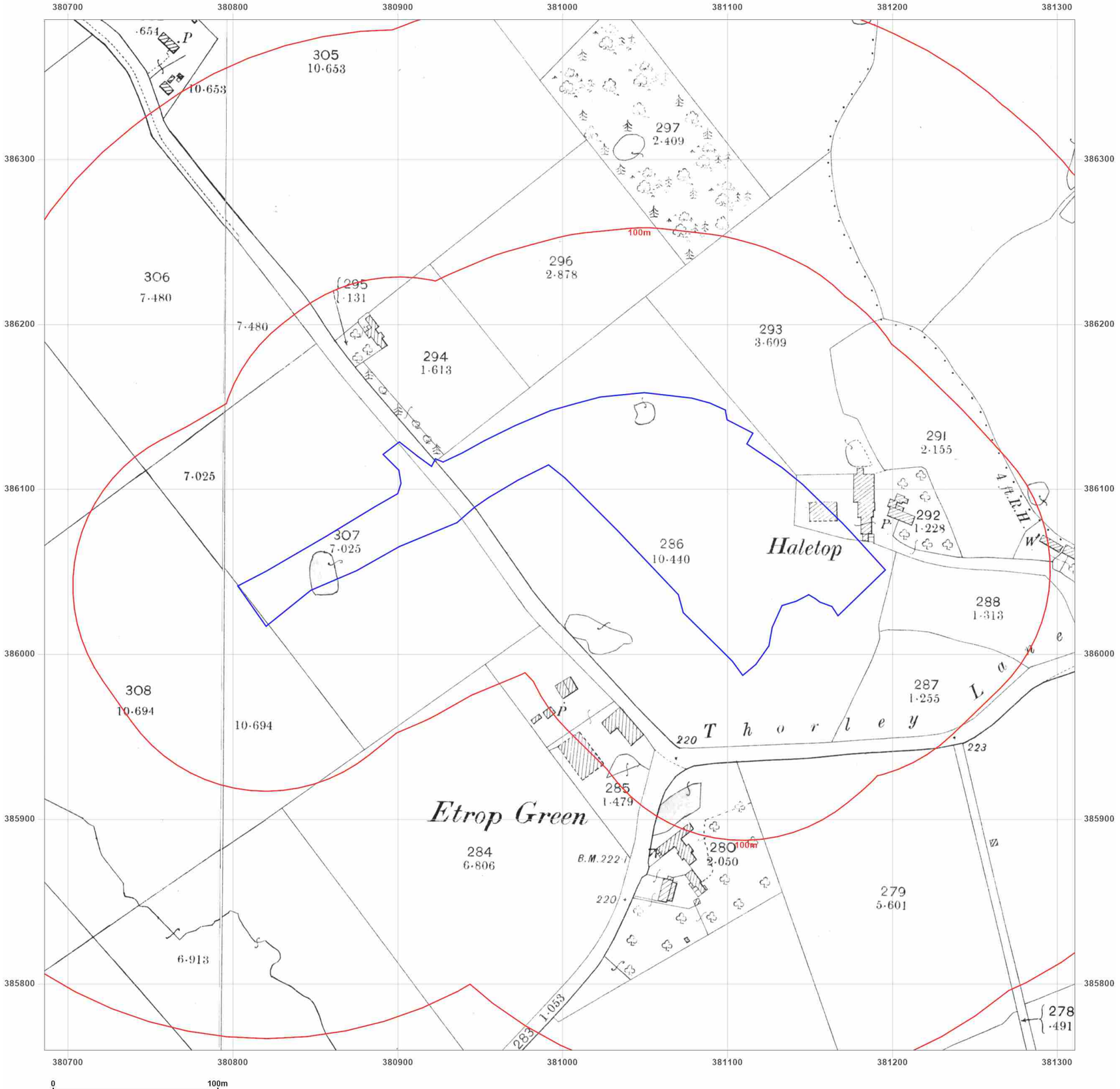
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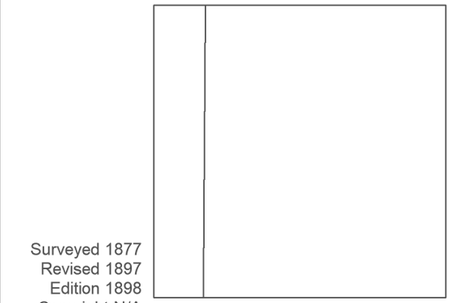
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Report Ref: GS-6S3-T31-TVJ-L2P_LS_1_1
Grid Ref: 380998, 386072

Map Name: County Series
Map date: **1898**
Scale: 1:2,500
Printed at: 1:2,500

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Revised 1897
Edition 1898
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Edition 1898
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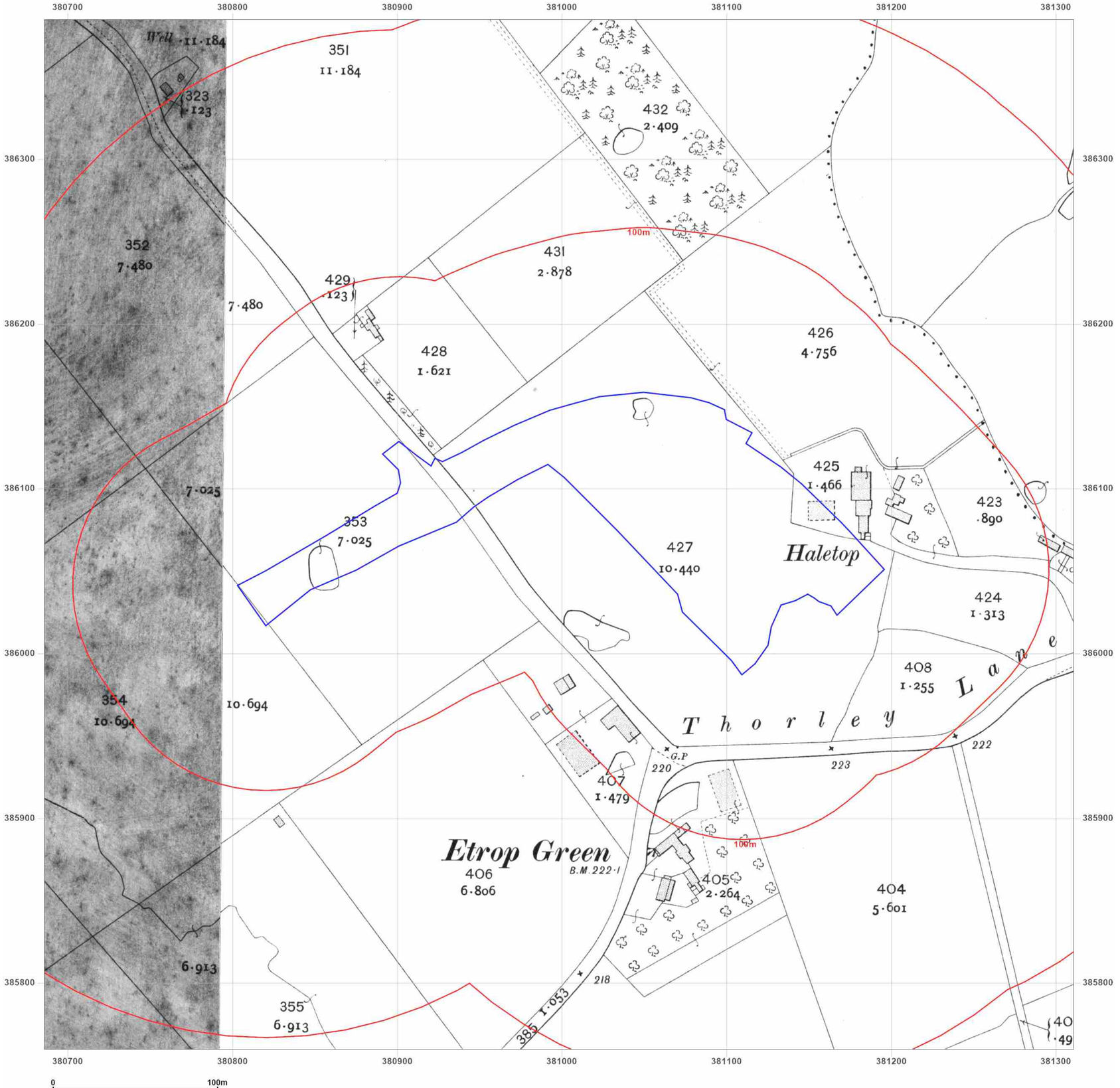
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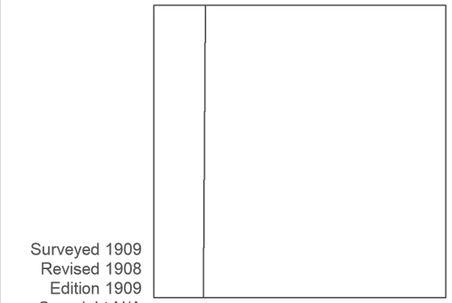
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SHAY LANE, HALE BARNS,
WA15 8UD

Client Ref: MAG42040
Report Ref: GS-6S3-T31-TVJ-L2P_LS_1_1
Grid Ref: 380998, 386072

Map Name: County Series
Map date: **1909**
Scale: 1:2,500
Printed at: 1:2,500

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Edition 1909
Copyright N/A
Levelled N/A

Surveyed 1909
Revised 1908
Edition 1909
Copyright N/A
Levelled N/A

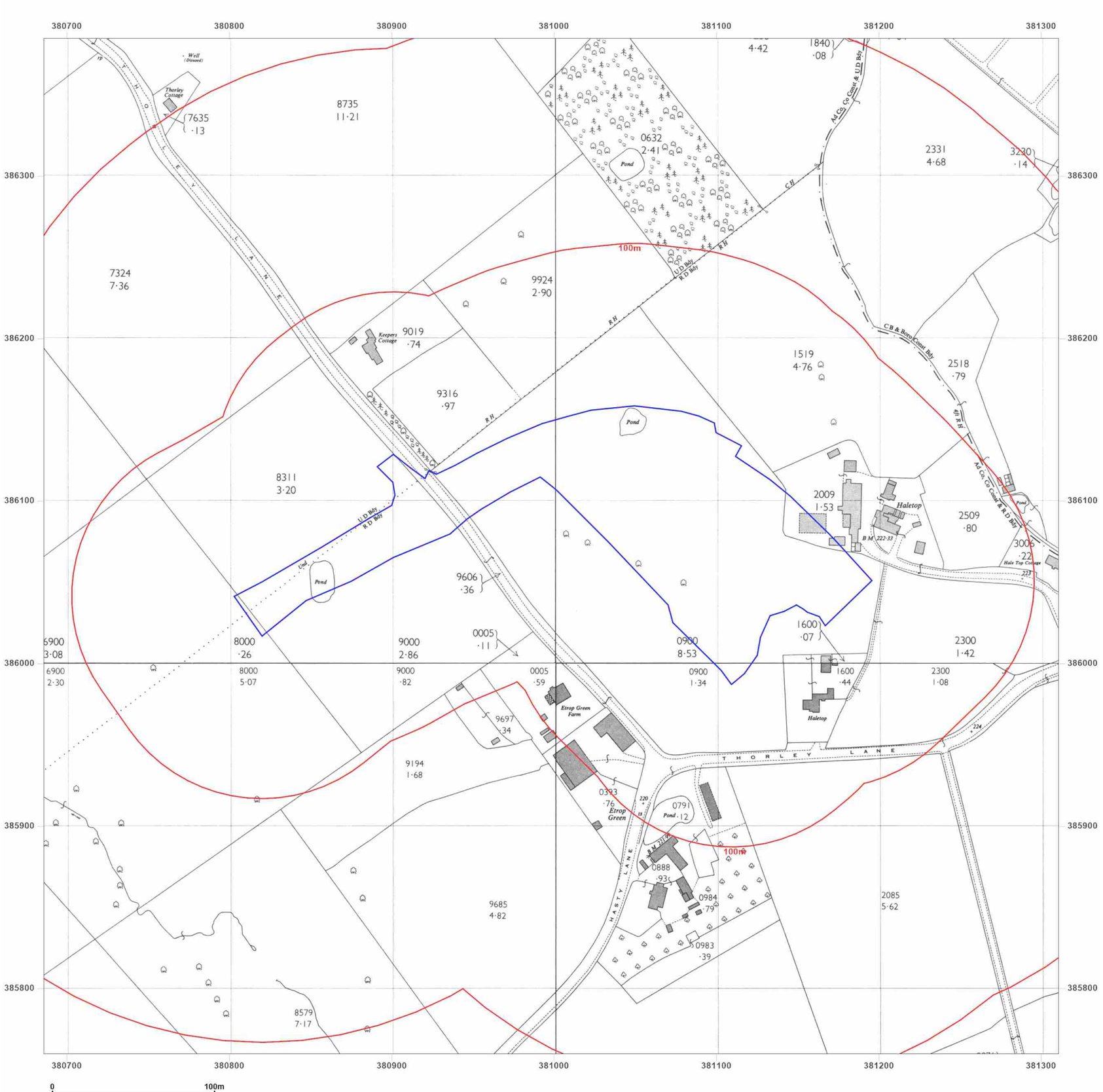
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Site Details:

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WA15 8UD

Client Ref: MAG42040
Report Ref: GS-6S3-T31-TVJ-L2P_LS_1_1
Grid Ref: 380998, 386072

Map Name: National Grid

Map date: **1962-1964**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1962
Revised 1962
Edition N/A
Copyright 1964
Levelled 1959

Surveyed 1963
Revised 1963
Edition 1964
Copyright 1964
Levelled 1959

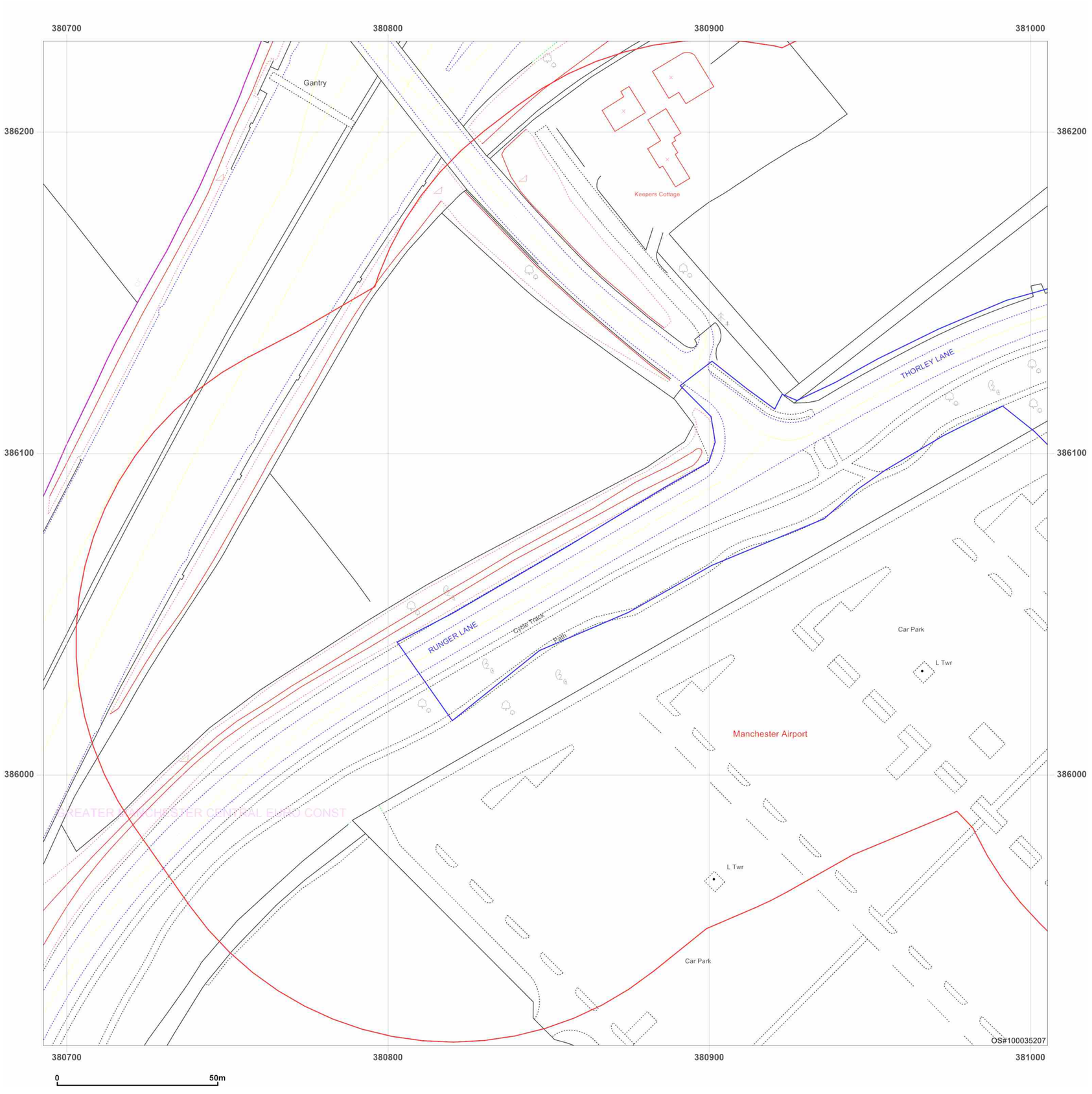
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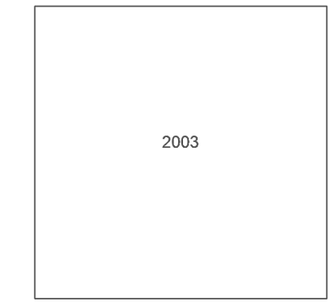
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DAVENPORT GREEN COTTAGE,
SHAY LANE, HALE BARNS,
WA15 8UD

Client Ref: MAG42040
Report Ref: GS-6S3-T31-TVJ-L2P_Landline_1_1
Grid Ref: 380849, 386072

Map Name: LandLine
Map date: **2003**
Scale: 1:1,250
Printed at: 1:1,250

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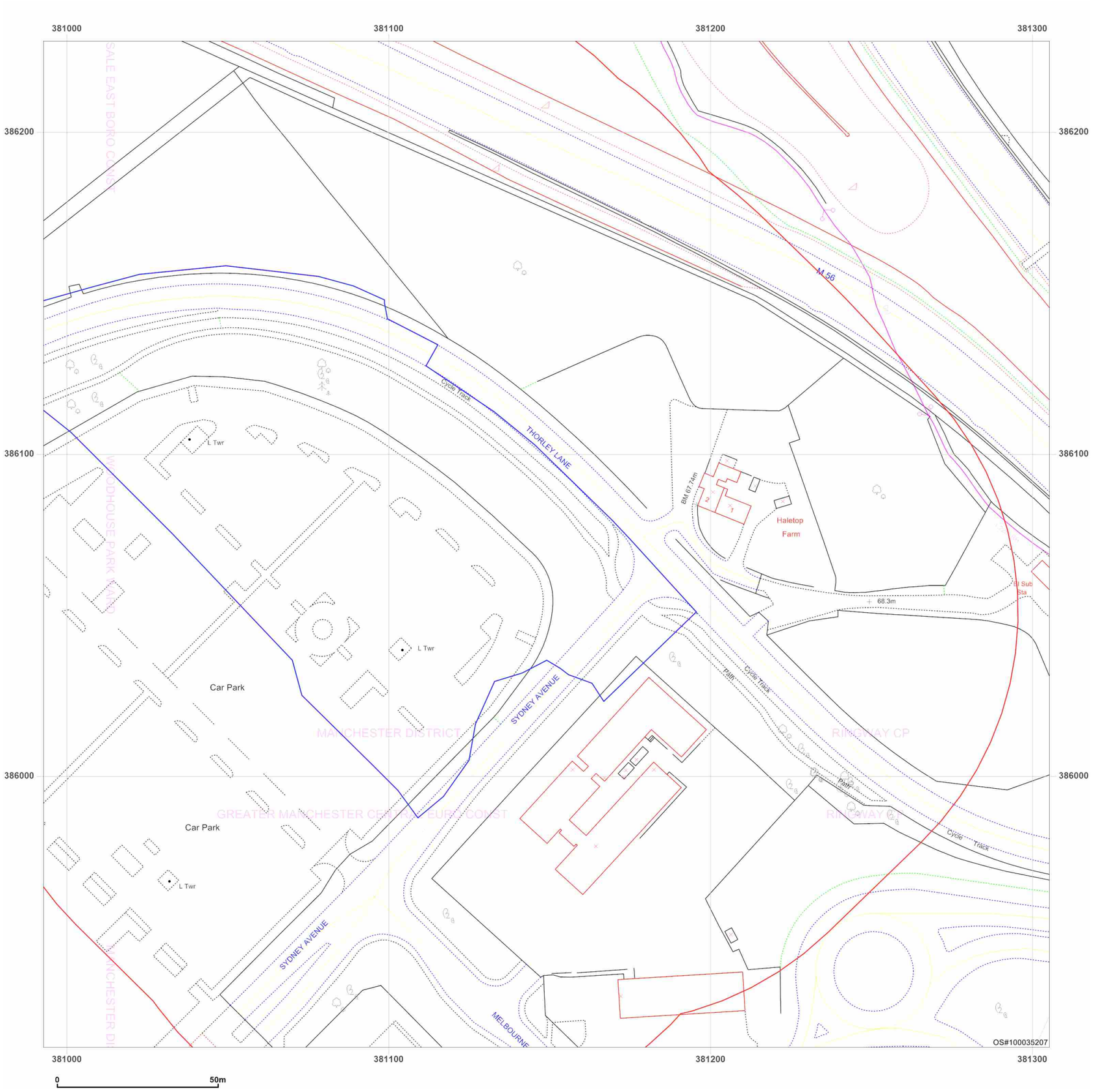
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WA15 8UD

Client Ref: MAG42040
Report Ref: GS-6S3-T31-TVJ-L2P_Landline_2_1
Grid Ref: 381149, 386072

Map Name: LandLine
Map date: **2003**
Scale: 1:1,250
Printed at: 1:1,250

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Landline Scale Grid Index

Appendix D. Cheshire Salt Search Report

Cheshire Brine
Subsidence Compensation Board

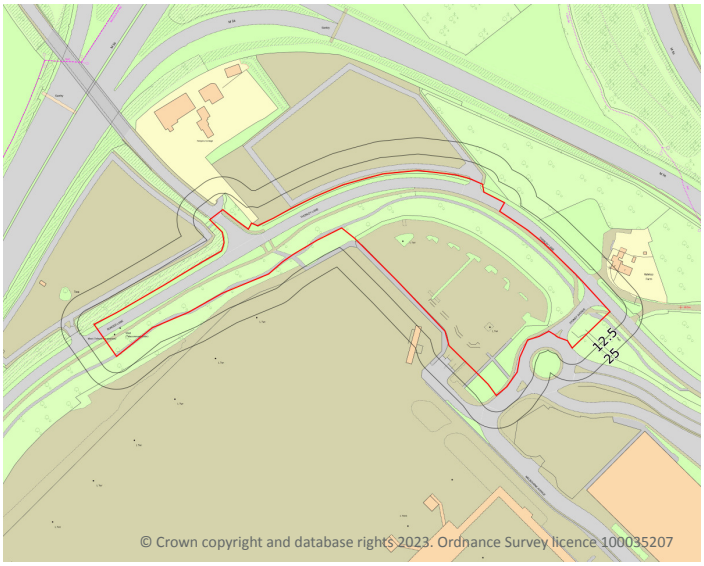
Cheshire Salt Search

DAVENPORT GREEN COTTAGE, SHAY LANE, HALE BARNS, WA15 8UD

Location plan



Site plan



Search results

Compensation District
Identified

Consultation Area
No

Notice of Damage
No

Commuted Claims
No

Future Claims Cover
Yes

Well/Shaft
No

Historical Salt Mining
No

Within DM32 Planning Policy
No

Active Salt Mining
No

Based on and limited to records held by the Cheshire Brine Subsidence Compensation Board (CBSCB) at the date of search and in relation to the address details identified by the customer in the procurement process.

Groundsure
LOCATION INTELLIGENCE

info@cheshirebrine.com
01782 276859
info@groundsure.com
01273 257 755

Ref: GS-1UU-V1Z-JB7-5YO
Your ref: MAG42040
Grid ref: 381031 386113
Date: 26 October 2023

Certified B Corporation

Search results



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Site Outline

Search buffers in metres (m)

Prescribed notice of damage

Area of weakness

Lines of weakness

Points of weakness

Shafts and wells

Cheshire Salt Search

This report is based on and limited to the records held by the Cheshire Brine Subsidence Compensation Board (CBSCB) in relation to this property and its environs, at the date of the search.

1. Is the property situated within the Compensation District?

The property is situated within the Cheshire Brine Subsidence Compensation District as prescribed by the First Schedule to the Cheshire Brine Pumping (Compensation for Subsidence) Act, 1952 (see note 2).

2. Is the property within a Consultation Area prescribed by the Cheshire Brine Subsidence Compensation Board under the provisions of section 38(1) of the 1952 Act?

The property is not within a Consultation Area prescribed by the Cheshire Brine Subsidence Compensation Board (the Board) under the provisions of Section 38(1) of the 1952 Act. It should be noted, however, that there are areas outside the consultation areas that could be at risk from the natural dissolution of the underlying saliferous strata.

3. Have any Prescribed Notice of Damage (PNOD) been filed in respect of the property since 08 January 1959 and, if so, was the claim accepted and discharged?

There is no record of a prescribed notice of damage having been filed in relation to the property, or part thereof since 08 January 1959.

4. Have any claims in respect of the property been commuted by a once and for all payment of compensation?

There has been no commutation of claims in connection with the property.

5. Would the compensation provisions of the 1952 and 1964 Acts apply should the property be affected at some future date by subsidence due to brine pumping?

If claims in respect of the property have not been commuted, then should the property suffer damage at some future date through subsidence due to brine pumping, the compensation provisions of the Cheshire Brine Pumping (Compensation for Subsidence) Acts 1952 and 1964 would be expected to apply to the property (see note 6).

6. Is there an historic brine well/shaft located within 20m of the property?

There are no historic brine wells/shafts located within 20m of the property (see note 7).

7. Is there a recorded area, line or point of weakness, relating to historic brine pumping or natural dissolution, within 50m of the property?

There is no area, line, or point of weakness relating to historic brine pumping or natural dissolution, within 50m of the property (see note 8).

8. Is there any current or proposed uncontrolled brine pumping within 3km of the property?

There are no current or proposed uncontrolled brine pumping sites within 3km of the property (see note 9).

9. Is there any planning consent for brine extraction by controlled methods of pumping within 200m of the property?

There is no existing planning consent for brine extraction by controlled methods within 200m of the property (see note 10).

10. Is the site within 90m of an area that could be affected by historical (abandoned) rock salt underground mining?

The Board does not possess any records of abandoned rock salt underground mining within 90m of the site (see note 11).

11. Is the site within the DM32 planning policy boundary which requires planning applications to have regard to potentially unstable rock salt mine workings?

The site is not within the DM32 planning policy area, which places conditions on development within the former mined areas (see note 12).

12. Is there any planning consent for rock salt extraction by underground mining within 120m of the property?

There is no existing planning consent for rock salt mining within 120m of the property (see note 13).

Additional remarks

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In relation to the determination of whether a damage notice has been filed in respect of the property, the boundaries of such notices have been identified by best endeavours in the absence of definitive file records and as such can only be regarded as approximate. For larger prescribed notice of damage boundaries, the subject of the notice could be remote from the subject property boundary.

Explanatory notes

1) Site Location

The area of land identified by the customer when digitising the enquiry boundary during the procurement process as shown on the attached plan. If the digitised boundary touches or overlaps with an adjoining property, then details relating to those adjoining properties will be included and may not be relevant to the enquiry property.

2) Compensation District

The geographic area prescribed by the Cheshire Brine Pumping (Compensation for Subsidence) Act, 1952 as subsequently amended, largely situated within Cheshire, but excluding Nantwich, and other areas, where redress is generally available for damage associated with the pumping of brine. This report only includes areas covered by the Cheshire Brine Compensation District. There are parts of Cheshire (and other parts of the country) where salt/brine can still pose a risk of subsidence. Further research may be necessary in these areas to determine the nature if this risk (if any).

3) Consultation Area

There is a statutory obligation to consult the Board with regard to development involving new foundations within these areas. Consultation with the Board is required at both the Planning Application and Building Control approval stages of development. As part of the development proposals, a suitable risk assessment should be prepared for submission and consideration by the Board.

4) Prescribed Notice of Damage Since 08 January 1959

A remedy for damage due to subsidence associated with the pumping of brine in Cheshire (in particular Northwich) dates back to 1891. However, a large proportion of the records relating to such damage are incomplete and a number of those properties have since been demolished. The Cheshire Brine Pumping (Compensation for Subsidence) Act 1952, introduced a more widespread means of redress for damage due to brine pumping within the identified Compensation District, see above. Regulations introduced on 08 January 1959 provided a specific format for the submission of a notice and progression of redress for damage and as such details of damage notices issued since 08 January 1959 contained in these searches have been limited to those received in accordance with the more formal procedures established on 08 January 1959. In relation to

the determination of whether a prescribed notice of damage has been filed in respect of the property, the boundaries of such notices have been identified by best endeavours in the absence of definitive file records and as such can only be regarded as approximate. For larger prescribed notices of damage boundaries, the subject of the notice could be removed from the subject property boundary.

5) Commutation

Where the damage to a property is likely to recur or exceed its market value, there is an option to discharge liability by a once and for all payment involving a commutation under cover of a deed of release. These deeds of release can extinguish any further means of redress and can contain a condition requiring future foundation designs to be approved by the Board to ensure future rights of redress. As a commutation has long term implications these will be declared in the searches back to 1891.

6) Future Liability

The provisions of the 1952 and 1964 Acts would be expected to be available for most properties, within the Compensation District,the exception being in relation to properties for which a commutation applies.

7) Brine Wells/Shafts

The location of the reported wells/shafts has been derived from source plan records of varying reliability, accordingly their locations have to be regarded as approximate.

8) Recorded Lines of Weakness

These features related to records of subsidence identified from historic plans. These features are referred to as 'subsidence hollows', 'lines of subsidence' etc and are regarded to represent areas of potential higher risk of subsidence.

9) Uncontrolled (wild) Brine Pumping

There are currently no wild brine pumping activities taking place within the Compensation District and there are unlikely to be such in the foreseeable future. Should the situation change then the search reports will thereafter be updated accordingly.

10) Planning Consent for Controlled Brine Pumping

Pumping of brine by controlled methods avoids the significant subsidence problems associated with uncontrolled pumping (wild brine pumping). Subsidence from controlled pumping is eliminated or of very low magnitudes. The current planning consent boundaries are likely to be significantly larger than the operational areas.

11) Abandoned Rock Salt mine workings

Rock Salt has been mined by underground mining techniques within the Cheshire Saltfield at various depths but typically within a depth of 90m. A number of these mines were abandoned without the mine having been stabilised and represent a significant subsidence risk. Some of the workings, in particular the bottom bed workings beneath Northwich town centre, have been the subject of a stabilisation scheme. In some instances, shaft records indicate the presence of workings the extent of which is unknown and in formulating this report it has been assumed that such unrecorded workings would lie within a 50m radius surrounding the respective shaft. As an initial sieving procedure, where the records of mine workings held by the Board indicate the presence or assumed presence of mine workings, a 90m reporting buffer has been applied to those boundaries for the purpose of these reports.

12) DM32 Planning Policy

This policy was introduced by Vale Royal Borough Council to ensure that no development takes place within the area covered by the policy until such time that the site is rendered fit for development and mitigated against the serious subsidence risk potentially associated with abandoned rock salt mines. Cheshire West and Chester Council is in the process of replacing this policy but the replacement policy is intended to include similar development constraints.

13) Planning Consent for Underground Rock Salt Mining

There is a single mine operation involving the extraction of rock salt by underground mining techniques currently taking place within the Cheshire Saltfield. This mining is subject to a number of conditions including the control of surface subsidence. The mine layouts have been designed by leading rock mechanics consultants acting for both the operator and planning authority to ensure compliance with the planning conditions.

Further details

Further details may be able to be obtained from the CBSCB in relation to the information provided herein, e.g. PNOD boundary or damage details, but such enquiries would be subject to a bespoke report and charge.

Terms and conditions

Groundsure's Terms and Conditions can be viewed online at this link: www.groundsure.com/terms-and-conditions-april-2023/ ↗

Appendix E. Zetica Unexploded Bomb Risk Map

UNEXPLODED BOMB RISK MAP

SITE LOCATION

Map Centre: 380985,386117



LEGEND

- **High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
- **Moderate:** Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.
- **Low:** Areas indicated as having 15 bombs per 1000acre or less.

miltary | **industry** | **UXO find**
transport | **dock** | **Luftwaffe targets**
utilities | **Bombing decoy** | **other**

How to use your Unexploded Bomb (UXB) risk map?

The map indicates the potential for Unexploded Bombs (UXB) to be present as a result of World War Two (WWII) bombing.

You can incorporate the map into your preliminary risk assessment* for potential Unexploded Ordnance (UXO) for a site. Using this map, you can make an informed decision as to whether more in-depth detailed risk assessment* is necessary.

What do I do if my site is in a moderate or high risk area?

Generally, we recommend that a detailed UXO desk study and risk assessment is undertaken for sites in a moderate or high UXB risk area.

Similarly, if your site is near to a designated Luftwaffe target or bombing decoy then additional detailed research is recommended.

More often than not, this further detailed research will conclude that the potential for a significant UXO hazard to be present on your site is actually low.

Never plan site work or undertake a risk assessment using these maps alone. More detail is required, particularly where there may be a source of UXO from other military operations which are not reflected on these maps.

If my site is in a low risk area, do I need to do anything?

If both the map and other research confirms that there is a low potential for UXO to be present on your site then, subject to your own comfort and risk tolerance, works can proceed with no special precautions.

A low risk really means that there is no greater probability of encountering UXO than anywhere else in the UK.

If you are unsure whether other sources of UXO may be present, you can ask for one of our **pre-desk study assessments (PDSA)**

If I have any questions, who do I contact?

tel: **+44 (0) 1993 886682**

email: **uxo@zetica.com**

web: **www.zeticauxo.com**

The information in this UXB risk map is derived from a number of sources and should be used in conjunction with the accompanying notes on our website: **(https://zeticauxo.com/downloads-and-resources/risk-maps/)**

Zetica cannot guarantee the accuracy or completeness of the information or data used and cannot accept any liability for any use of the maps. These maps can be used as part of a technical report or similar publication, subject to acknowledgment. The copyright remains with Zetica Ltd.

It is important to note that this map is not a UXO risk assessment and should not be reported as such when reproduced.

*Preliminary and detailed UXO risk assessments are advocated as good practice by industry guidance such as CIRIA C681 'Unexploded Ordnance (UXO), a guide for the construction industry'.

Appendix F. Preliminary Risk Assessment Methodology

Introduction

Production of a conceptual model requires an assessment of risk to be made. Risk is a combination of the likelihood of an event occurring and the magnitude of its consequences. Therefore, both the likelihood and the consequences of an event must be taken into account when assessing risk. Jacobs has adopted guidance provided in CIRIA C552 for use in the production of conceptual models.

The likelihood of an event can be classified on a four-point system using the following terms and definitions detailed in "Estimation of Probability" table.

Estimation of Probability (likelihood)

Classification	Definition
High Likelihood	There is a pollution linkage and an event that either appears very likely in the short term and almost inevitable over the long term, or there is evidence at the receptor of harm or pollution.
Likely	There is a pollutant linkage, and all the elements are present and in the right place, which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term.
Low Likelihood	There is a pollution linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period that such an event would take place and is even less likely in the shorter term.
Unlikely	There is a pollutant linkage, but circumstances are such that it is improbable that an event would occur even in the very long term.

The severity can be classified using a similar system, also based on CIRIA C552. The terms and definitions relating to severity are detailed in "Consequence of Occurrence or Severity" table.

Consequence of Occurrence or Severity

Classification	Human health	Controlled Waters	Property
Severe	Short-term (acute) risk to human health. Concentrations presents are likely to result in "significant harm" as defined by Part 2A of the Environmental Protection Act 1990.	Substantial pollution of sensitive water resources	Catastrophic damage to buildings, structures or the environment, including building collapse
Medium	Chronic damage to human health. Concentrations present that could result in significant harm.	Pollution of sensitive water resources or small-scale pollution of sensitive water resources	Significant damage to buildings, structures or the environment making it unsafe to occupy, or damage that may impair a scheduled ancient monument
Mild	Slight short-term health effects to humans. Exposure to human health is unlikely to lead to significant harm.	Pollution to non-sensitive water resources	Minor damage to sensitive buildings, structures, services, or the environment

Classification	Human health	Controlled Waters	Property
Minor	Non-permanent health effects to human health (easily prevented by means such as personal protective clothing, etc.)	Insubstantial pollution to non-sensitive water resources	Easily repairable effects of damage to buildings or structures

Once the probability of an event occurring and its consequences have been classified, a risk category can be assigned according to "Risk Rating" table.

Risk Rating

Risk matrix		Consequence of occurrence (severity)			
		Severe	**Medium**	**Mild**	**Minor**
Probability (likelihood)	**High likelihood**	Very high	High	Moderate	Moderate/low
	Likely	High	Moderate	Moderate/low	Low
	Low likelihood	Moderate	Moderate/low	Low	Very low
	Unlikely	Moderate/low	Low	Very low	Very low