

Site Details:

LONGLEY LANE,
MANCHESTER, M22 4LA

Client Ref: 8928G_-_Oakwood
Report Ref: GS-6176287
Grid Ref: 383406, 389462

Map Name: 1:10,000 Raster

Map date: 2002

Scale: 1:10,000

Printed at: 1:10,000



2002



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Production date: 16 July 2019

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Site Details:

LONGLEY LANE,
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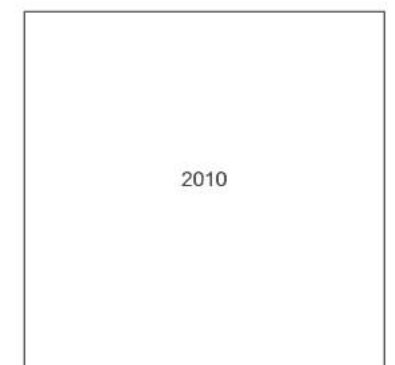
Client Ref: 8928G_-_Oakwood
Report Ref: GS-6176287
Grid Ref: 383406, 389462

Map Name: National Grid

Map date: 2010

Scale: 1:10,000

Printed at: 1:10,000

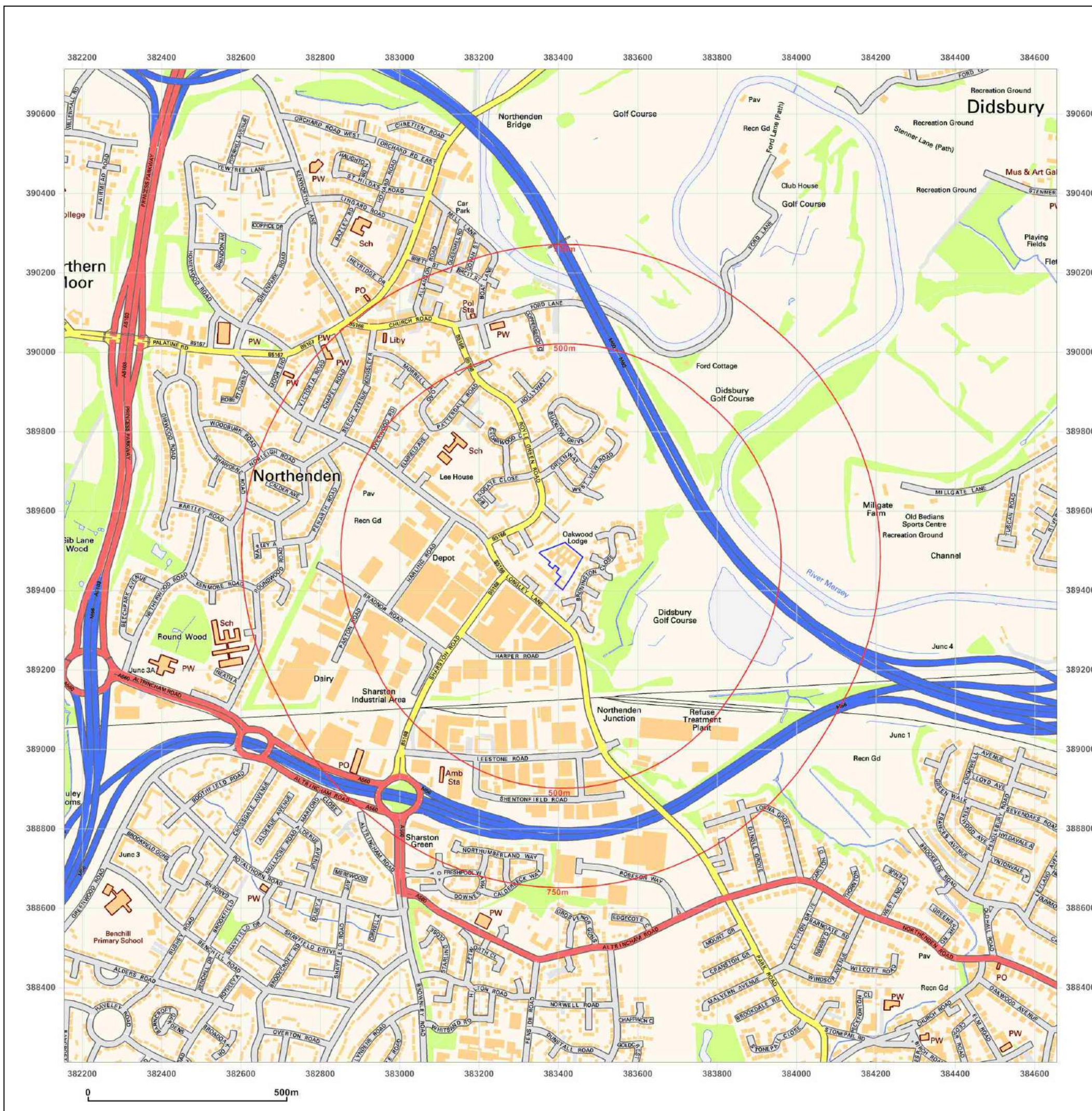


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Site Details:

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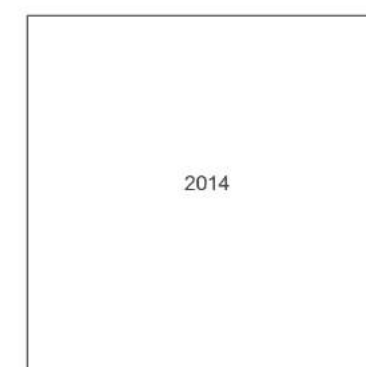
Client Ref: 8928G_-_Oakwood
Report Ref: GS-6176287
Grid Ref: 383406, 389462

Map Name: National Grid

Map date: 2014

Scale: 1:10,000

Printed at: 1:10,000

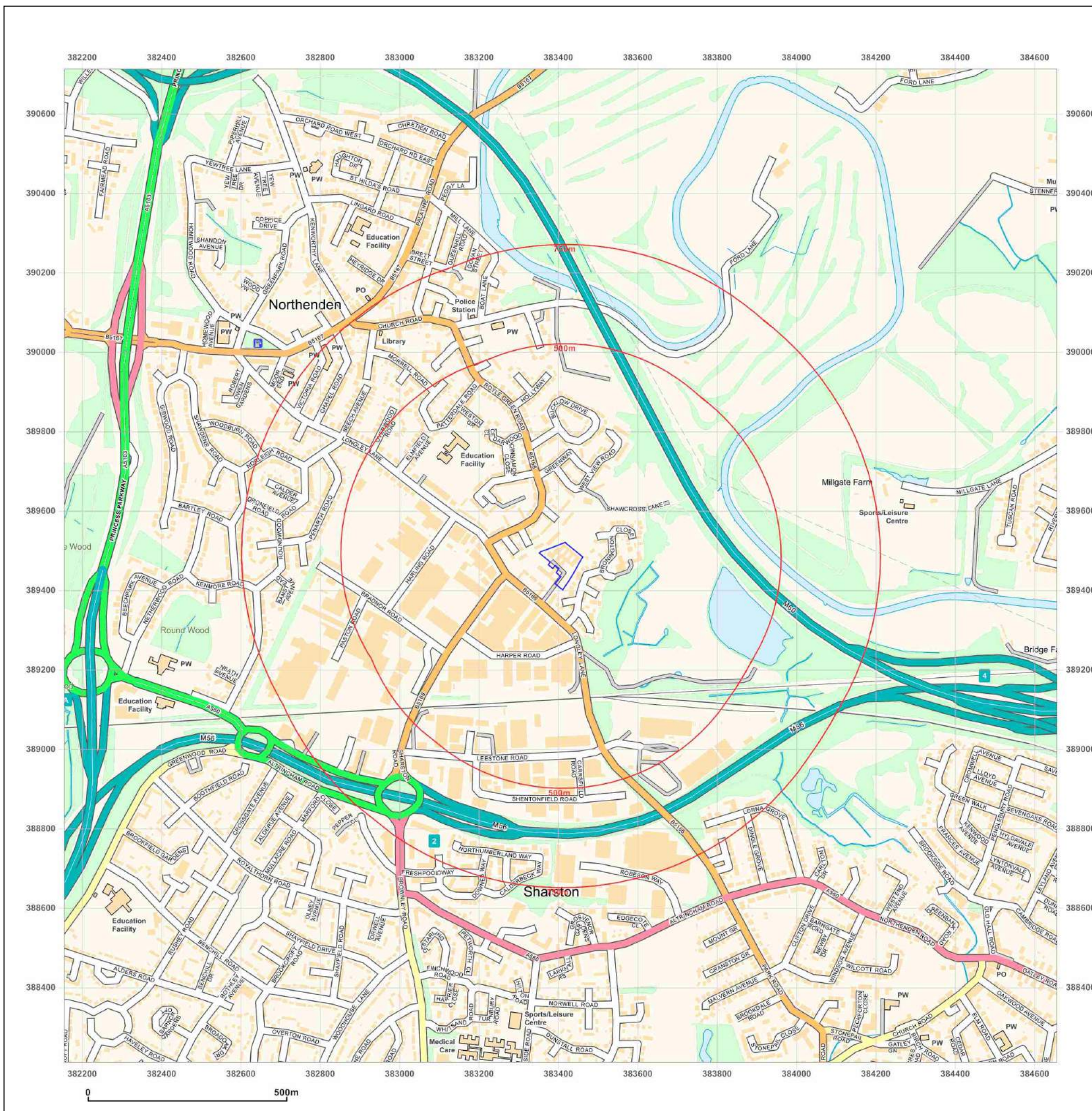


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WML Consulting	Groundsure Reference:	GS-6176286
UNIT 8 WRIGHT MOTTERSHAW LYDON CONSULTING LTD, STANLEY GREEN BUSINESS PARK, CHEADLE/CHEADLE HULME, SK8 6QL	Your Reference:	8928G_-_Oakwood
	Report Date	16 Jul 2019
	Report Delivery Method:	Email - pdf

Geo Insight

Address: LONGLEY LANE, MANCHESTER, M22 4LA

Dear Sir/ Madam,

Thank you for placing your order with Groundsure. Please find enclosed the **Groundsure Geo Insight** as requested.

If you need any further assistance, please do not hesitate to contact our helpline on 08444 159000 quoting the above Groundsure reference number.

Yours faithfully,



Managing Director
Groundsure Limited

Enc.
Groundsure Geo Insight

Address: LONGLEY LANE, MANCHESTER, M22 4LA

Date: 16 Jul 2019

Reference: GS-6176286

Client: WML Consulting



Aerial Photograph Capture date: 21-Apr-2016

Grid Reference: 383410,389477

Site Size: 0.6034ha

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Overview of Findings

The Groundsure Geo Insight provides high quality geo-environmental information that allows geo-environmental professionals and their clients to make informed decisions and be forewarned of potential ground instability problems that may affect the ground investigation, foundation design and possibly remediation options that could lead to possible additional costs.

The report is based on the BGS 1:50,000 and 1:10,000 Digital Geological Map of Great Britain, BGS Geosure data; BRITPITS database; Non-coal mining data and Borehole Records, Coal Authority data including brine extraction areas, PBA non-coal mining and natural cavities database, Johnson Poole and Bloomer mining data and Groundsure's unique database including historical surface ground and underground workings.

For further details on each dataset, please refer to each individual section in the report as listed. Where the database has been searched a numerical result will be recorded. Where the database has not been searched '-' will be recorded.

Section 1: Geology 1:10,000 Scale

1.1 Artificial Ground	1.1 Is there any Artificial Ground/ Made Ground present beneath the study site at 1:10,000 scale?	No
1.2 Superficial Geology and Landslips	1.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site at 1:10,000 scale?*	Yes
	1.2.2 Are there any records of landslide within 500m of the study site boundary at 1:10,000 scale?	No
1.3 Bedrock, Solid Geology and linear features	1.3.1 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.	
	1.3.2 Are there any records of linear features within 500m of the study site boundary at 1:10,000 scale?	Yes

Section 2: Geology 1:50,000 Scale

2.1 Artificial Ground	2.1.1 Is there any Artificial Ground/ Made Ground present beneath the study site?	No
	2.1.2 Are there any records relating to permeability of artificial ground within the study site*boundary?	No
2.2 Superficial Geology and Landslips	2.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site?*	Yes
	2.2.2 Are there any records of permeability of superficial ground within 500m of the study site?	Yes
	2.2.3 Are there any records of landslide within 500m of the study site boundary?	No
	2.2.4 Are there any records relating to permeability of landslips within the study site* boundary?	No

Section 2: Geology 1:50,000 Scale

2.3 Bedrock, Solid Geology and linear features

2.3.1 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.

2.3.2 Are there any records relating to permeability of bedrock ground within the study site boundary?

Yes

2.3.3 Are there any records of linear features within 500m of the study site boundary?

Yes

Section 3: Radon

3. Radon

3.1 Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?

The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

3.2 Radon Protection

No radon protective measures are necessary.

Section 4: Ground Workings

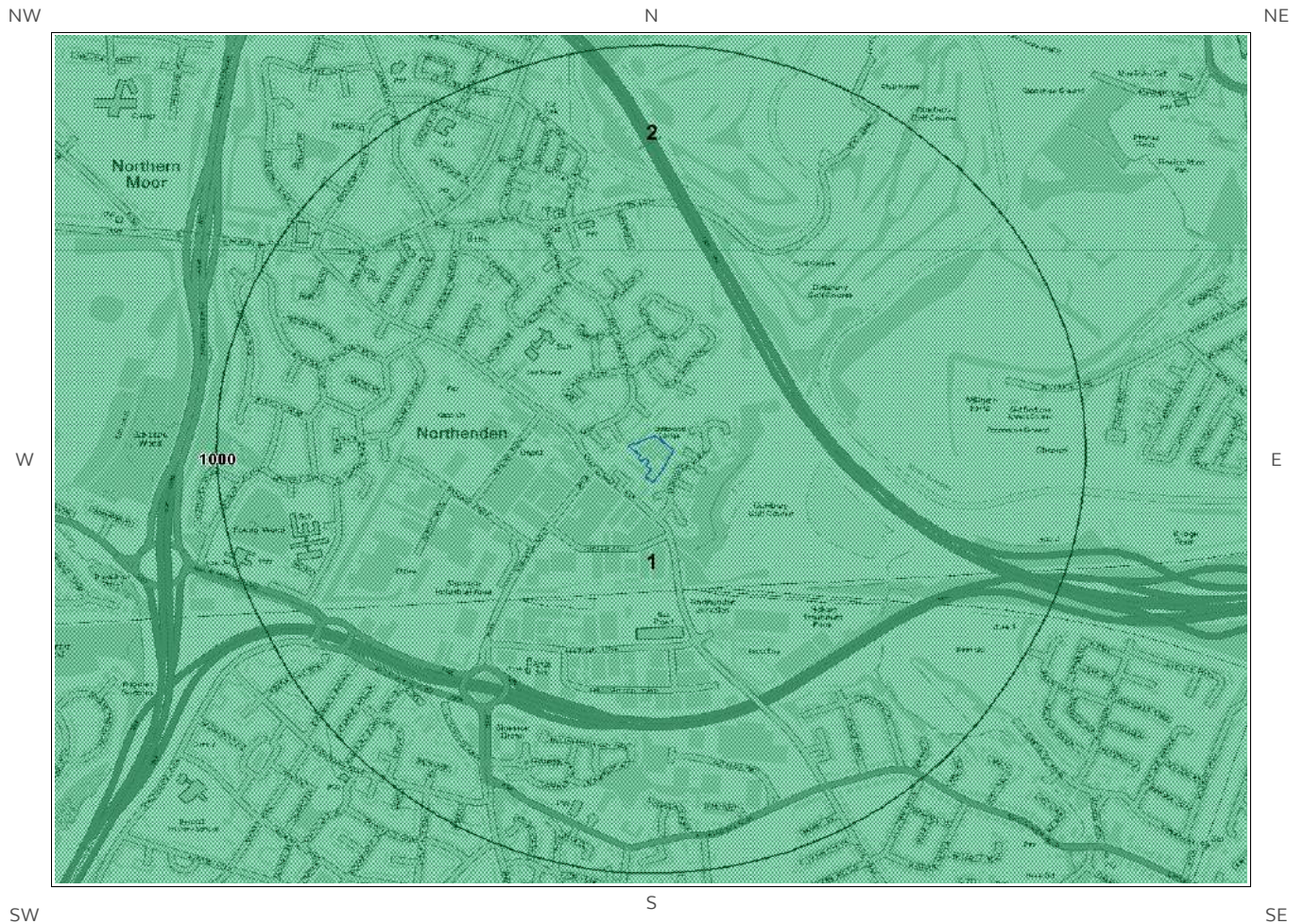
	On-site	0-50m	51-250	251-500	501-1000
4.1 Historical Surface Ground Working Features from Small Scale Mapping	0	0	14	Not Searched	Not Searched
4.2 Historical Underground Workings from Small Scale Mapping	0	0	0	0	0
4.3 Current Ground Workings	0	0	0	1	1

Section 5: Mining, Extraction & Natural Cavities

	On-site	0-50m	51-250	251-500	501-1000
5.1 Historical Mining	0	0	0	0	0
5.2 Coal Mining	0	0	0	0	0
5.3 Johnson Poole and Bloomer Mining Area	0	0	0	1	2
5.4 Non-Coal Mining*	0	0	0	0	0
5.5 Non-Coal Mining Cavities	0	0	0	0	0
5.5 Natural Cavities	0	0	0	0	0

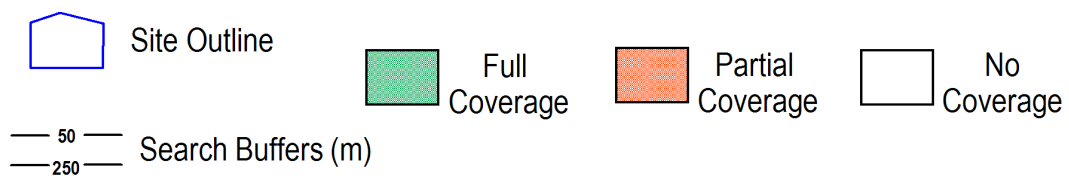
Section 5: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
5.6 Brine Extraction	0	0	0	0	0
5.7 Gypsum Extraction	0	0	0	0	0
5.8 Cornwall and Devon Metalliferous Mining	0	0	0	0	0
5.9 Clay Mining	0	0	0	0	0
Section 6: Natural Ground Subsidence	On-site				
6.1 Shrink-Swell Clay	Negligible				
6.2 Landslides	Very Low				
6.3 Ground Dissolution of Soluble Rocks	Negligible				
6.4 Compressible Deposits	Negligible				
6.5 Collapsible Deposits	Very Low				
6.5 Running Sand	Very Low				
Section 7: Borehole Records	On-site	0-50m	51-250		
7 BGS Recorded Boreholes	0	1	4		
Section 8: Estimated Background Soil Chemistry	On-site	0-50m	51-250		
8 Records of Background Soil Chemistry	2	4	0		
Section 9: Railways and Tunnels	On-site	0-50m	51-250	250-500	
9.1 Tunnels	0	0	0	Not Searched	
9.2 Historical Railway and Tunnel Features	0	0	0	Not Searched	
9.3 Historical Railways	0	0	0	Not Searched	
9.4 Active Railways	0	0	0	Not Searched	
9.5 Railway Projects	0	0	0	0	

1:10,000 Scale Availability



1_10,000 Availability Legend

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Availability of 1:10,000 Scale Geology Mapping

The following information represents the availability of the key components of the 1:10,000 scale geological data.

ID	Distance	Artificial Coverage	Superficial Coverage	Bedrock Coverage	Mass Movement Coverage
1	0.0	No deposits are mapped	Full	Full	No coverage
2	478.0	Some deposits are mapped	Full	Full	No coverage
N3	1539.0	No deposits are mapped	Full	Full	No coverage
N4	1623.0	Some deposits are mapped	Full	Full	No coverage

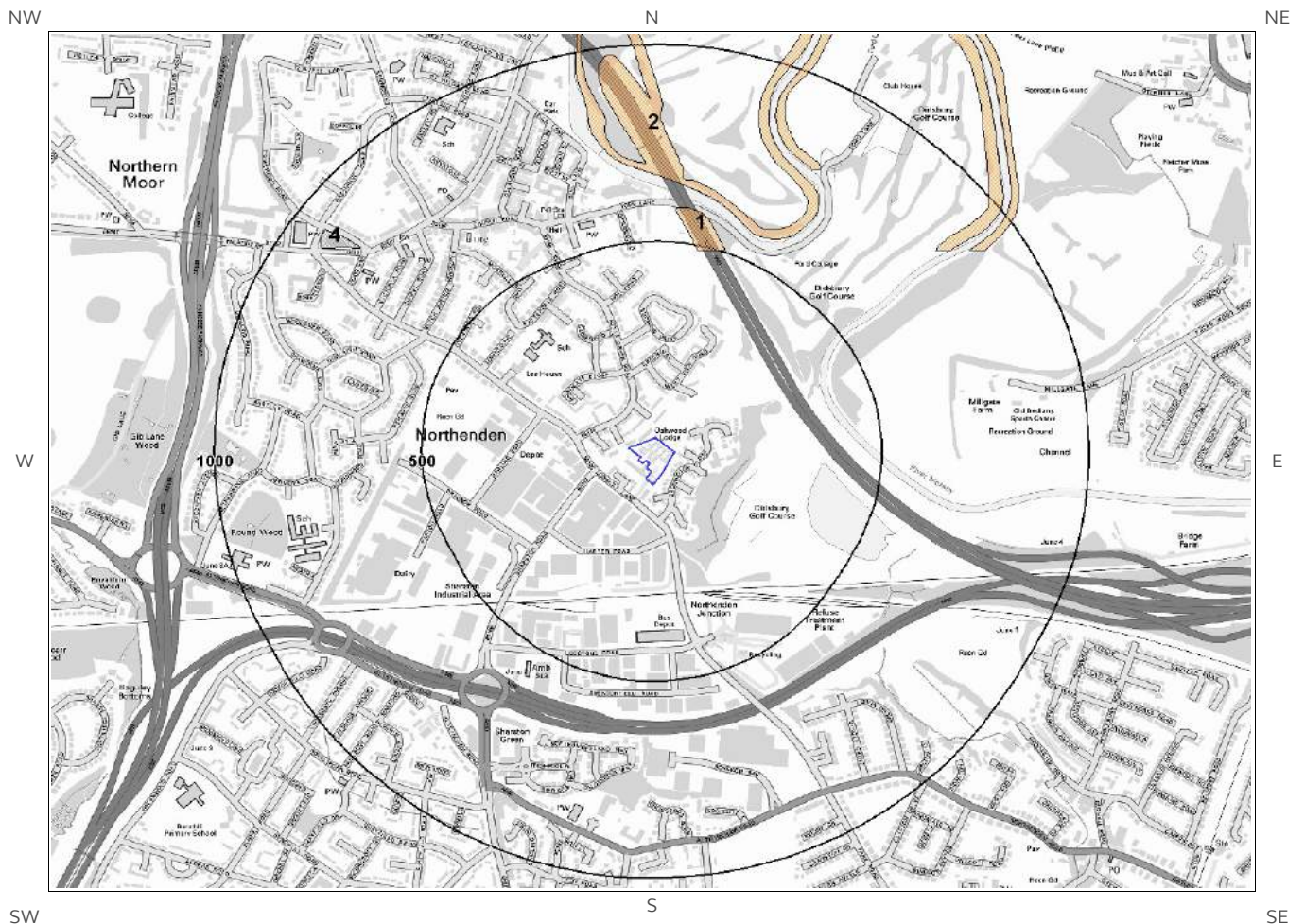
Guidance: The 1:10,000 scale geological interpretation is the most detailed generally available from BGS and is the scale at which most geological surveying is carried out in the field. The database is presented as four types of geology (artificial, mass movement, superficial and bedrock), although not all themes are mapped or available on every map sheet. Therefore a coverage layer showing the availability of the four themes is presented above.

The definitions of coverage are as follows:

Geology	Full Coverage	Partial Coverage	No Coverage
Bedrock	The whole tile has been mapped	Some but not all the tile has been mapped	No coverage
Superficial	The whole tile has been mapped	Some but not all of the tile has been mapped	No coverage
Artificial	Some deposits are mapped on this tile	-	No deposits are mapped
Mass Movement	Some deposits are mapped on this tile	-	No coverage

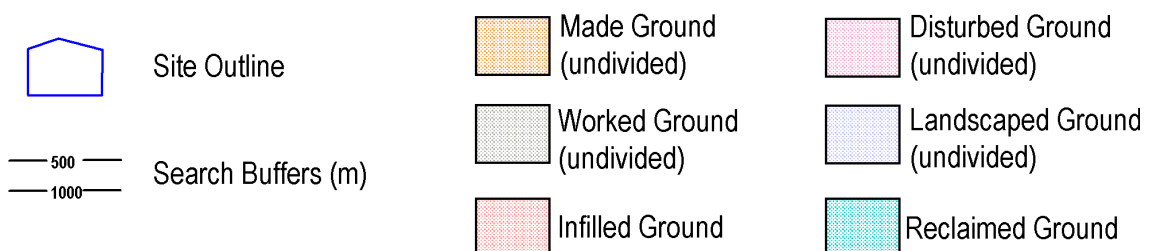
1 Geology (1:10,000 scale).

1.1 Artificial Ground map (1:10,000 scale)



Artificial Ground Legend

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1. Geology 1:10,000 scale

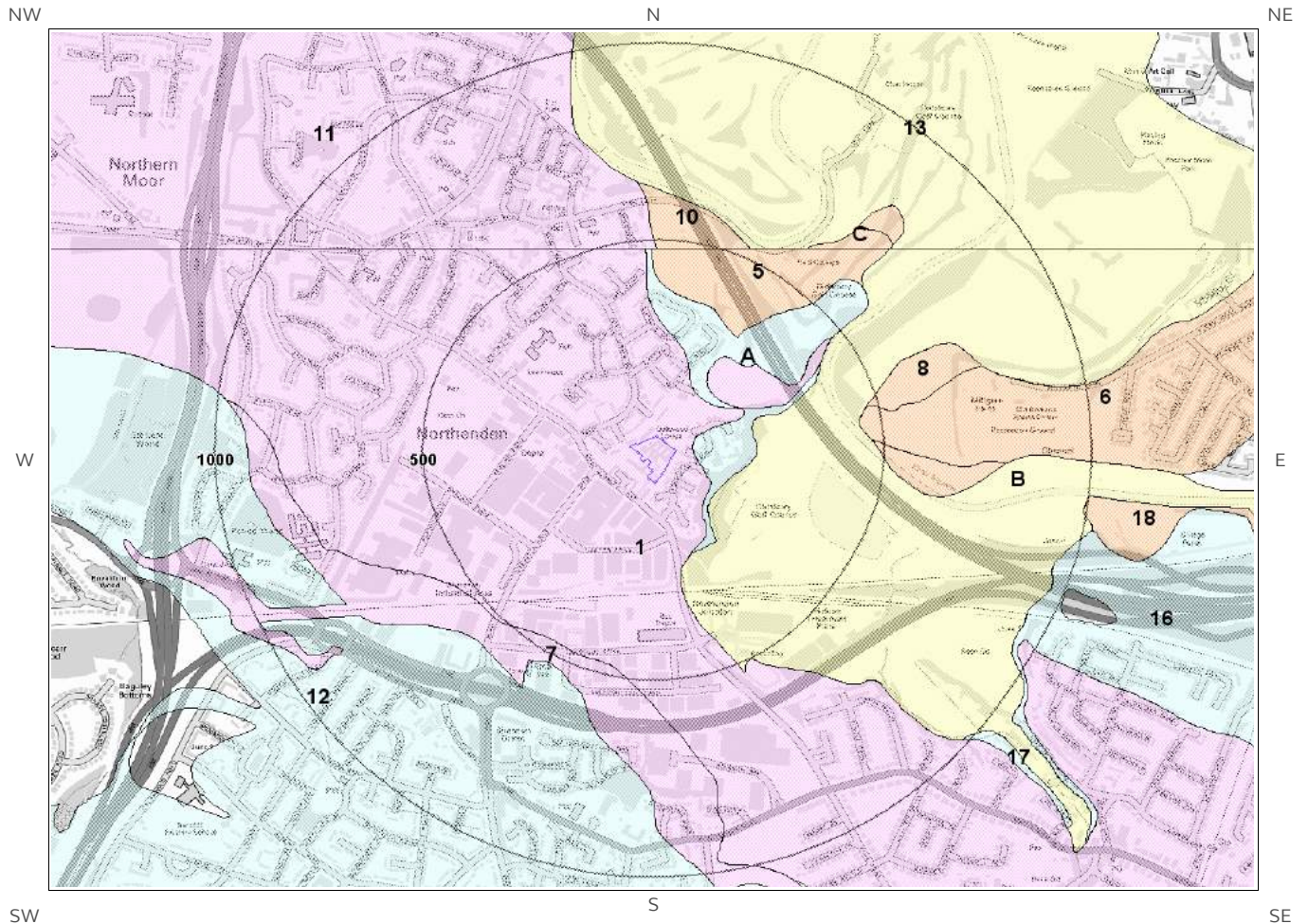
1.1 Artificial Ground

The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping.

Are there any records of Artificial/ Made Ground within 500m of the study site boundary at 1:10,000 scale? Yes

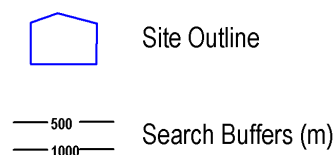
ID	Distance	Direction	LEX Code	Description	Rock Description
1	488.0	N	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit

1.2 Superficial Deposits and Landslips map (1:10,000 scale)



Artificial Ground Legend

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1.2 Superficial Deposits and Landslips

The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping

1.2.1 Superficial Deposits/ Drift Geology

Are there any records of Superficial Deposits/ Drift Geology within 500m of the study site boundary at 1:10,000 scale? Yes

ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	GFSDD-XSV	Glaciofluvial Sheet Deposits, Devensian - Sand And Gravel	Sand And Gravel
2A	40.0	E	TILLD-DMTN	Till, Devensian - Diamicton	Diamicton
3B	133.0	SE	ALV-XCZSV	Alluvium - Clay, Silt, Sand And Gravel	Clay, Silt, Sand And Gravel
4A	165.0	NE	GFDUD-XSV	Glaciofluvial Deposits, Devensian - Sand And Gravel	Sand And Gravel
5	315.0	NE	RTD2-XSV	River Terrace Deposits, 2 - Sand And Gravel	Sand And Gravel
6	447.0	E	RTD2-XSV	River Terrace Deposits, 2 - Sand And Gravel	Sand And Gravel
7	467.0	SW	GFDUD-XSV	Glaciofluvial Deposits, Devensian - Sand And Gravel	Sand And Gravel
8	472.0	E	RTD1-XSV	River Terrace Deposits, 1 - Sand And Gravel	Sand And Gravel
9B	473.0	E	RTD1-XSV	River Terrace Deposits, 1 - Sand And Gravel	Sand And Gravel
10	478.0	N	RTD2-XSV	River Terrace Deposits, 2 - Sand And Gravel	Sand And Gravel
11	478.0	N	GFSDD-XSV	Glaciofluvial Sheet Deposits, Devensian - Sand And Gravel	Sand And Gravel

1.2.2 Landslip

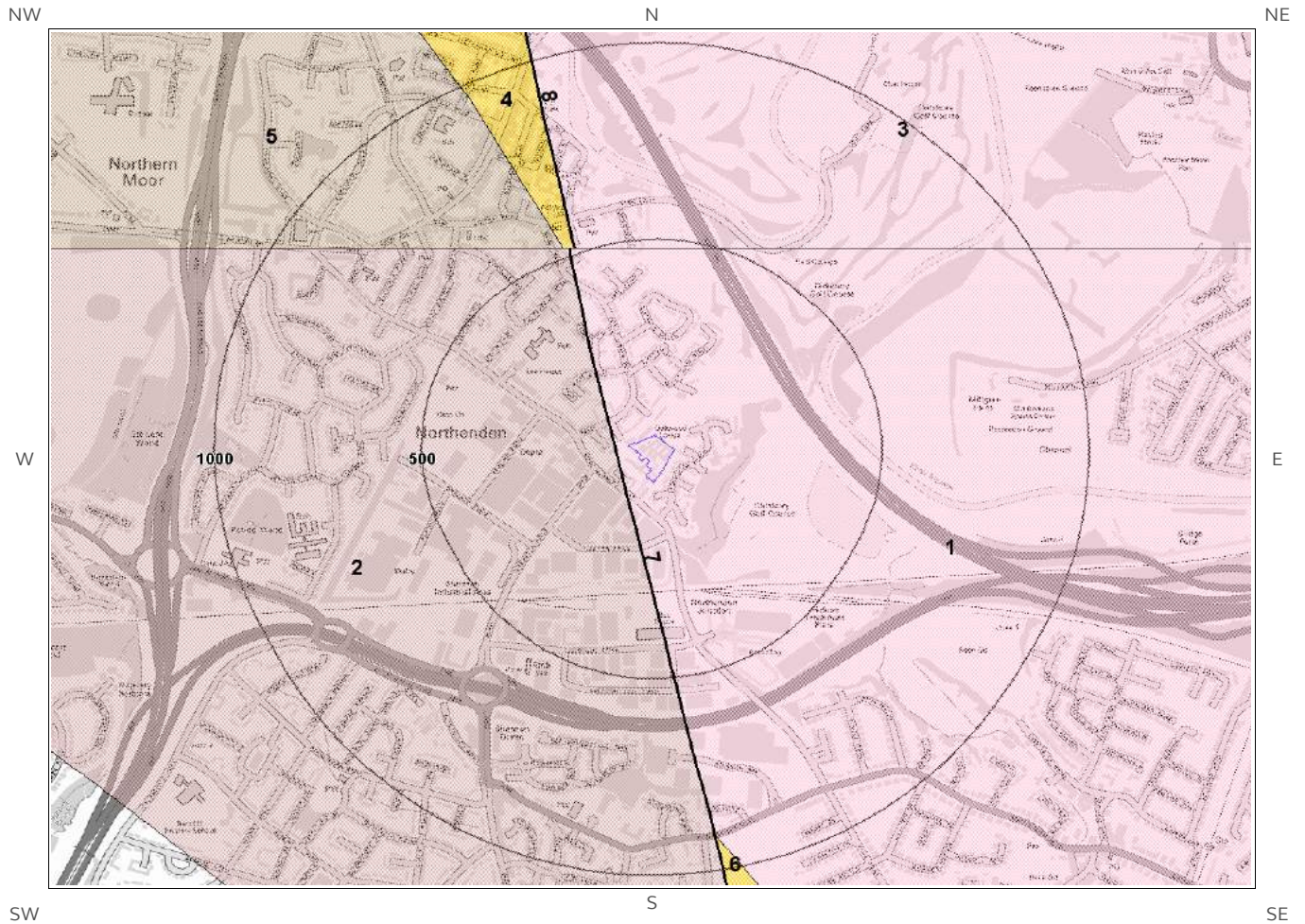
Are there any records of Landslip within 500m of the study site boundary at 1:10,000 scale? No

Database searched and no data found.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:10,000 scale

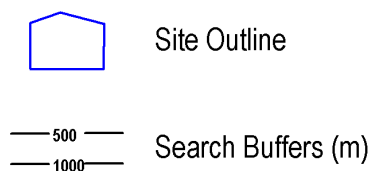
This Geology shows the main components as discrete layers, these are: Artificial / Made Ground, Superficial / Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

1.3 Bedrock and linear features map (1:10,000 scale)



Bedrock and linear features Legend

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1.3 Bedrock and linear features

The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping.

1.3.1 Bedrock/ Solid Geology

Records of Bedrock/Solid Geology within 500m of the study site boundary at 1:10,000 scale.

ID	Distance (m)	Direction	LEX Code	Description	Rock Age
1	0.0	On Site	WLSF-SDST	Wilmslow Sandstone Formation - Sandstone	Early Triassic Epoch
2	34.0	W	TPSF-SISD	Tarporley Siltstone Formation - Siltstone And Sandstone	Anisian Age - Olenekian Age
3	478.0	N	WLSF-SDST	Wilmslow Sandstone Formation - Sandstone	Early Triassic Epoch

1.3.2 Linear features

Are there any records of linear features within 500m of the study site boundary at 1:10,000 scale? Yes

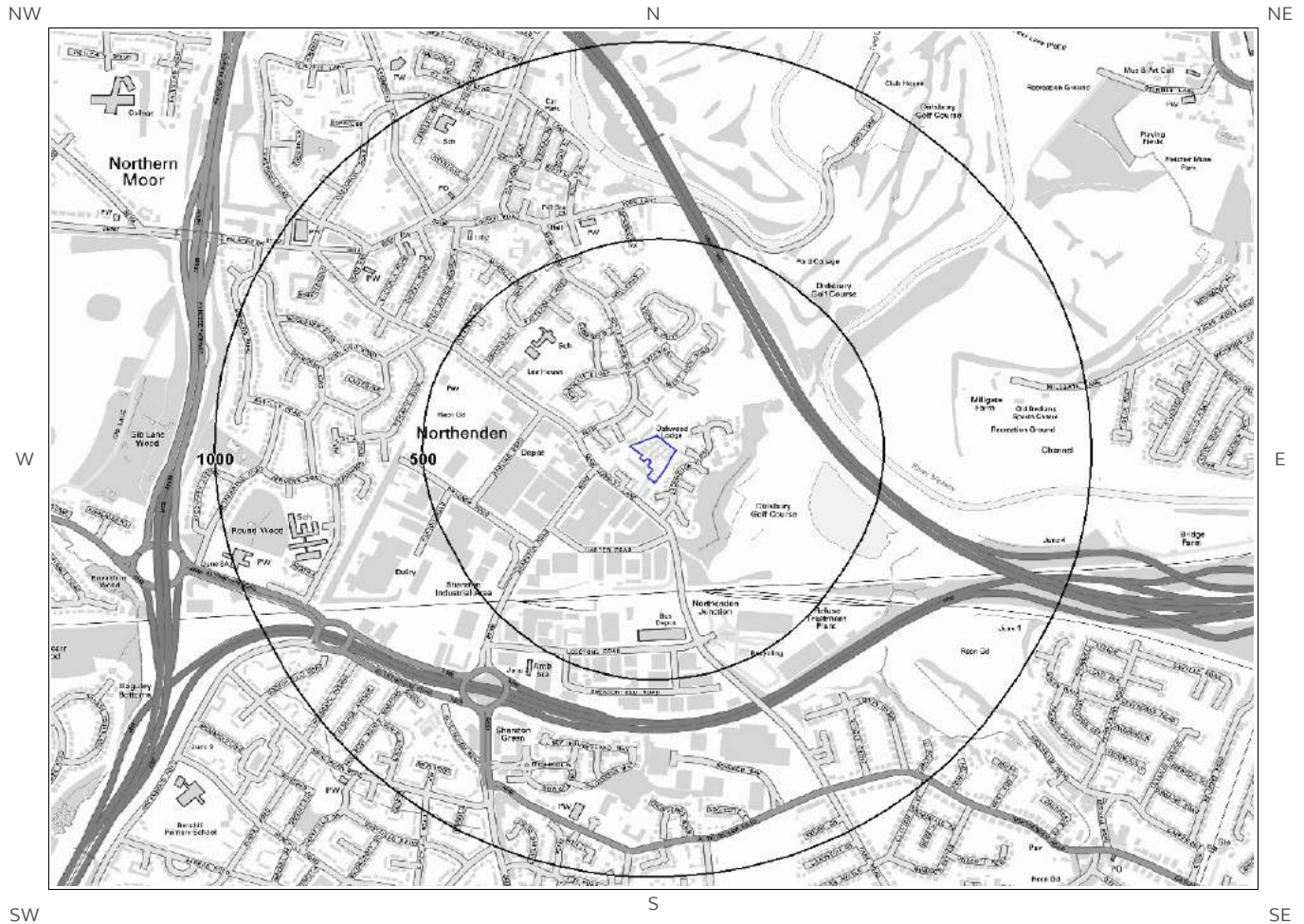
ID	Distance (m)	Direction	Category Description	Feature Description
7	34.0	W	FAULT	Normal fault, inferred; crossmarks on downthrow side

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of great Britain at 1:10,000 scale.

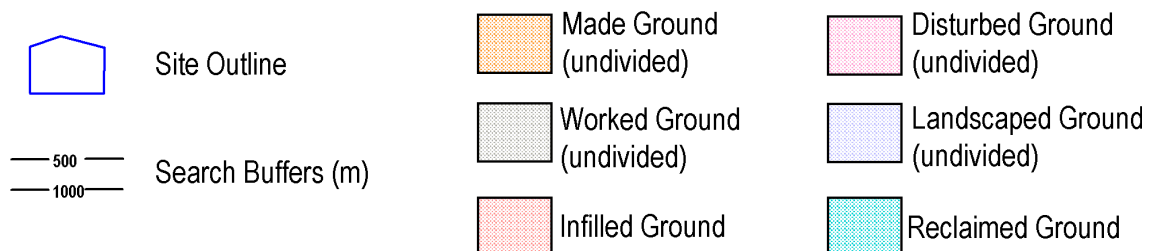
This Geology shows the main components as discrete layers, these are: Bedrock/ Solid Geology and linear features such as faults. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

2 Geology 1:50,000 Scale

2.1 Artificial Ground map



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2. Geology 1:50,000 scale

2.1 Artificial Ground

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 098

2.1.1 Artificial/ Made Ground

Are there any records of Artificial/ Made Ground within 500m of the study site boundary? No

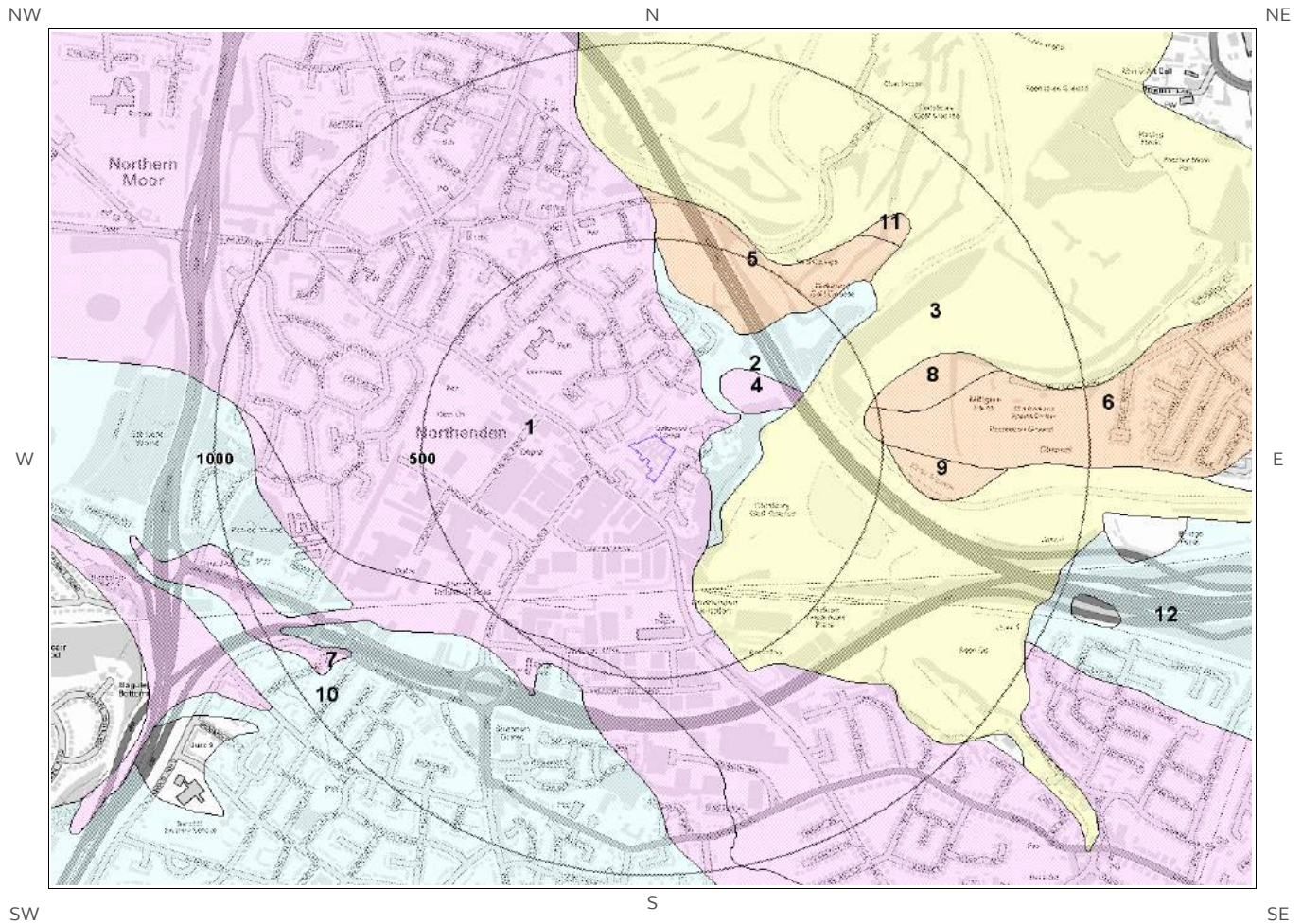
Database searched and no data found.

2.1.2 Permeability of Artificial Ground

Are there any records relating to permeability of artificial ground within the study site boundary? No

Database searched and no data found.

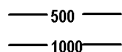
2.2 Superficial Deposits and Landslips map (1:50,000 scale)



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Site Outline



Search Buffers (m)

2.2 Superficial Deposits and Landslips

2.2.1 Superficial Deposits/ Drift Geology

Are there any records of Superficial Deposits/ Drift Geology within 500m of the study site boundary? Yes

ID	Distance	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	GFSDD-XSV	GLACIOFLUVIAL SHEET DEPOSITS, DEVENSIAN	SAND AND GRAVEL
2	60.0	E	TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON
3	169.0	SE	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL
4	180.0	NE	GFDUD-XSV	GLACIOFLUVIAL DEPOSITS, DEVENSIAN	SAND AND GRAVEL
5	325.0	NE	RTDU-XSV	RIVER TERRACE DEPOSITS (UNDIFFERENTIATED)	SAND AND GRAVEL
6	460.0	E	RTDU-XSV	RIVER TERRACE DEPOSITS (UNDIFFERENTIATED)	SAND AND GRAVEL
7	465.0	S	GFDUD-XSV	GLACIOFLUVIAL DEPOSITS, DEVENSIAN	SAND AND GRAVEL
8	480.0	E	RTDU-XSV	RIVER TERRACE DEPOSITS (UNDIFFERENTIATED)	SAND AND GRAVEL

2.2.2 Permeability of Superficial Ground

Are there any records relating to permeability of superficial ground within the study site boundary? Yes

Distance (m)	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Intergranular	Very High	High

2.2.3 Landslip

Are there any records of Landslip within 500m of the study site boundary?

No

Database searched and no data found.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:50,000 scale.

This Geology shows the main components as discrete layers, there are: Artificial/ Made Ground, Superficial/ Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

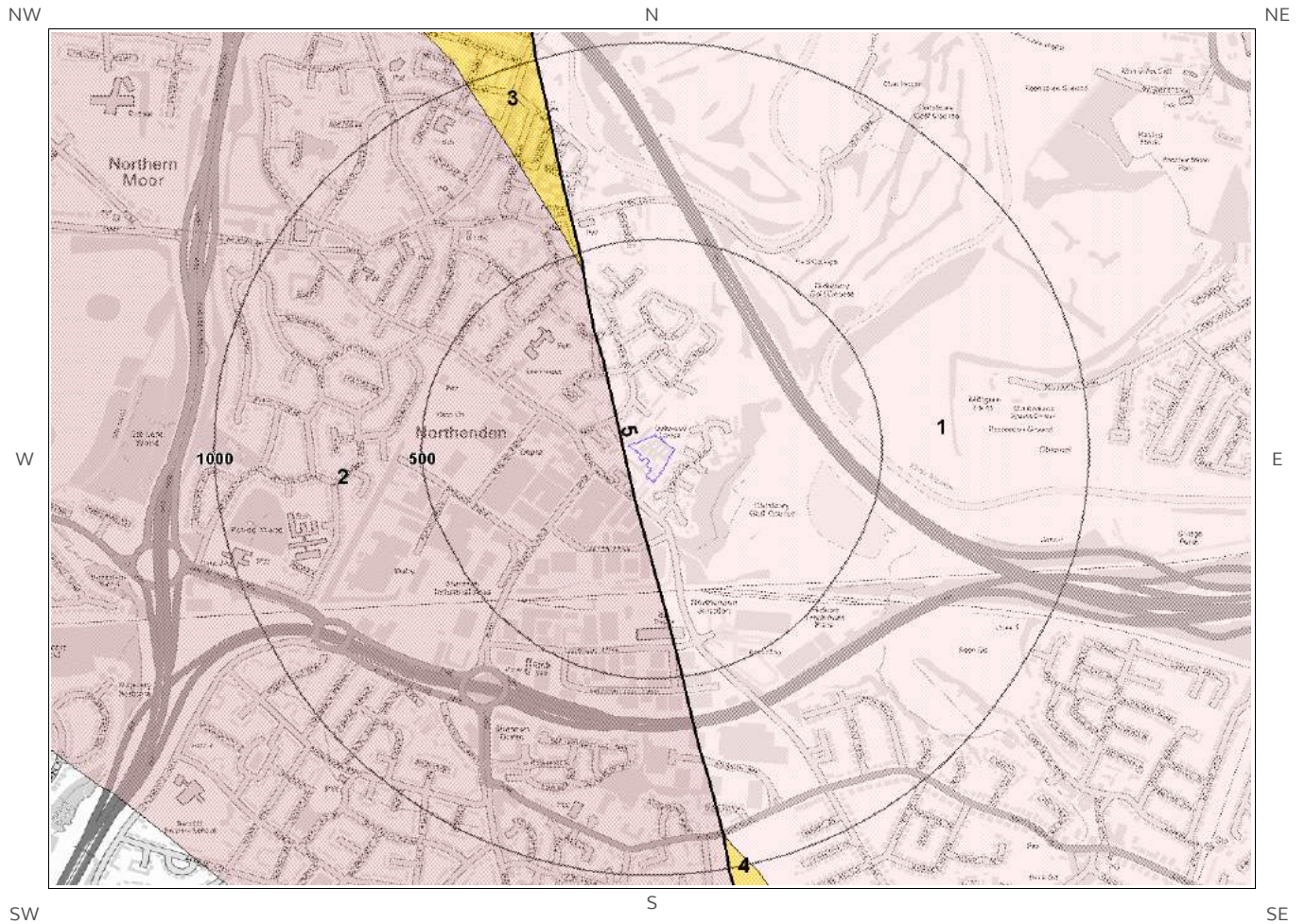
2.2.4 Landslip Permeability

Are there any records relating to permeability of landslips within the study site boundary?

No

Database searched and no data found.

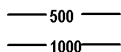
2.3 Bedrock and linear features map (1:50,000 scale)



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Site Outline



Search Buffers (m)

2.3 Bedrock, Solid Geology & linear features

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 098

2.3.1 Bedrock/Solid Geology

Records of Bedrock/Solid Geology within 500m of the study site boundary:

ID	Distance	Direction	LEX Code	Rock Description	Rock Age
1	0.0	On Site	WLSF-SDST	WILMSLOW SANDSTONE FORMATION - SANDSTONE	-
2	15.0	W	TPSF-SIMS	TARPORLEY SILTSTONE FORMATION - SILTSTONE, MUDSTONE AND SANDSTONE	OLENEKIAN
3	448.0	N	HEY-PESST	HELSEBY SANDSTONE FORMATION - SANDSTONE, PEBBLY (GRAVELLY)	ANISIAN

2.3.2 Permeability of Bedrock Ground

Are there any records relating to permeability of bedrock ground within the study site boundary? Yes

Distance	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Intergranular	High	High
15.0	W	Fracture	Moderate	Low

2.3.3 Linear features

Are there any records of linear features within 500m of the study site boundary? Yes

ID	Distance	Direction	Category Description	Feature Description
5	15.0	W	FAULT	Fault, inferred

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:50,000 scale.

This Geology shows the main components as discrete layers, these are: Bedrock/Solid Geology and linear features such as faults. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nation wide coverage.

3 Radon Data

3.1 Radon Affected Areas

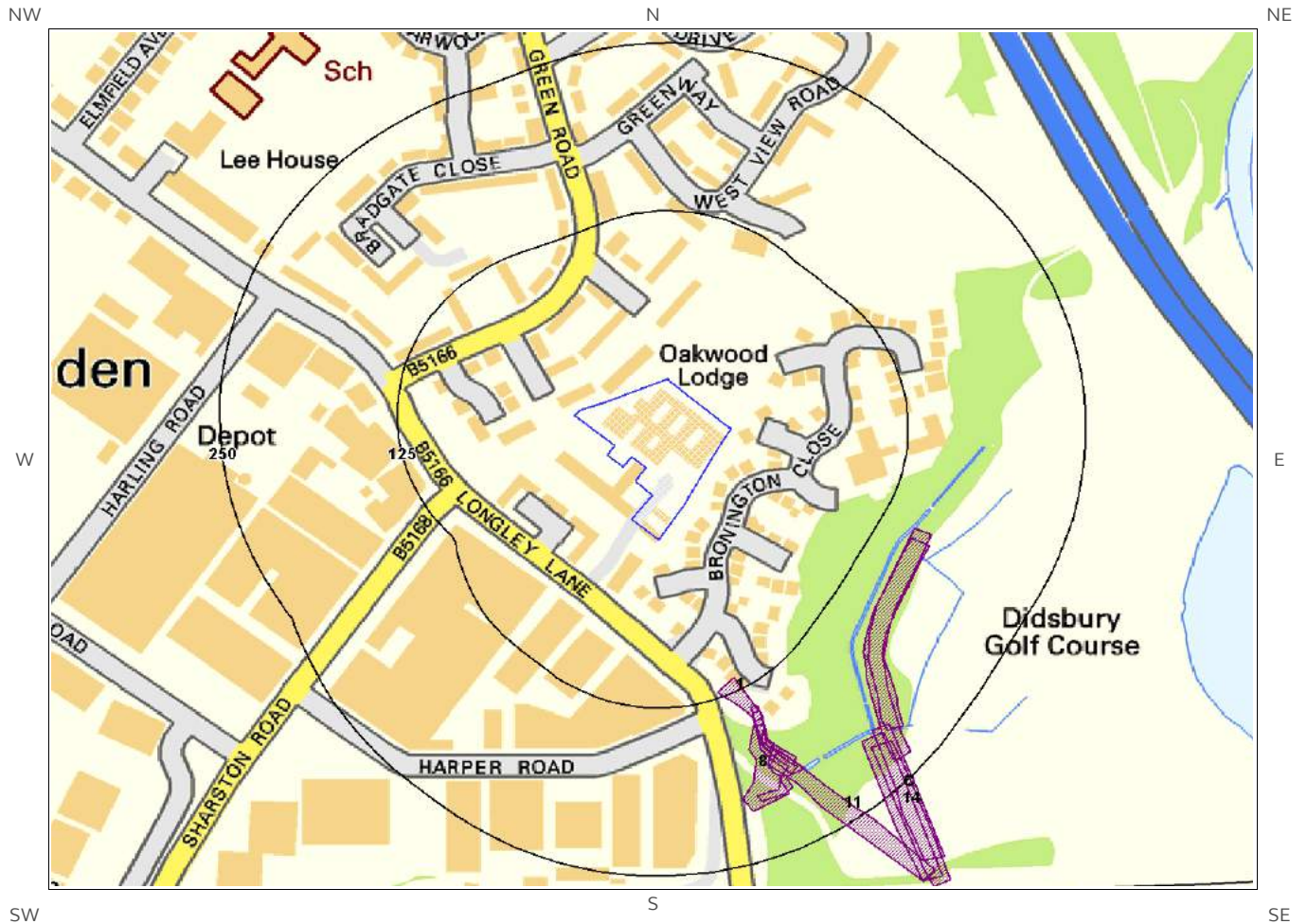
Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

The radon data in this report is supplied by the BGS/Public Health England and is the definitive map of Radon Affected Areas in Great Britain and Northern Ireland. The dataset was created using long-term radon measurements in over 479,000 homes across Great Britain and 23,000 homes across Northern Ireland, combined with geological data. The dataset is considered accurate to 50m to allow for the margin of error in geological lines, and the findings of this report supercede any answer given in the less accurate Indicative Atlas of Radon in Great Britain, which simplifies the data to give the highest risk within any given 1km grid square. As such, the radon atlas is considered indicative, whereas the data given in this report is considered definitive.

3.2 Radon Protection

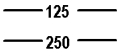
Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment? No radon protective measures are necessary.

4 Ground Workings map



Ground Workings Legend

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- | | | | |
|---|--------------------|---|----------------------------------|
|  | Site Outline |  | Historic Surface Ground Workings |
|  | Search Buffers (m) |  | Historic Underground Workings |
| | |  | Current Ground Workings |

4 Ground Workings

4.1 Historical Surface Ground Working Features derived from Historical Mapping

This dataset is based on Groundsure's unique Historical Land Use Database derived from 1:10,560 and 1:10,000 scale historical mapping

Are there any Historical Surface Ground Working Features within 250m of the study site boundary? Yes

ID	Distance (m)	Direction	NGR	Use	Date
1	115.0	SE	383468 389283	Pond	1954
2A	140.0	SE	383494 389243	Unspecified Ground Workings	1967
3A	145.0	SE	383483 389251	Unspecified Ground Workings	1975
4	149.0	SE	383566 389336	Unspecified Heap	1995
5B	151.0	SE	383561 389321	Unspecified Heap	1975
6B	151.0	SE	383561 389321	Unspecified Heap	1989
7B	151.0	SE	383561 389321	Unspecified Heap	1967
8	154.0	SE	383485 389232	Unspecified Ground Workings	1954
9A	155.0	SE	383489 389250	Unspecified Ground Workings	1989
10A	155.0	SE	383489 389250	Unspecified Ground Workings	1995
11	177.0	SE	383547 389197	Unspecified Heap	1954
12C	207.0	SE	383586 389214	Unspecified Heap	1954
13C	207.0	SE	383581 389204	Unspecified Heap	1916
14	215.0	SE	383587 389198	Unspecified Heap	1923

4.2 Historical Underground Working Features derived from Historical Mapping

This data is derived from the Groundsure unique Historical Land Use Database. It contains data derived from 1:10,000 and 1:10,560 historical Ordnance Survey Mapping and includes some natural topographical features (Shake Holes for example) as well as manmade features that may have implications for ground stability. Underground and mining features have been identified from surface features such as shafts. The distance that these extend underground is not shown.

Are there any Historical Underground Working Features within 1000m of the study site boundary? No

Database searched and no data found.

4.3 Current Ground Workings

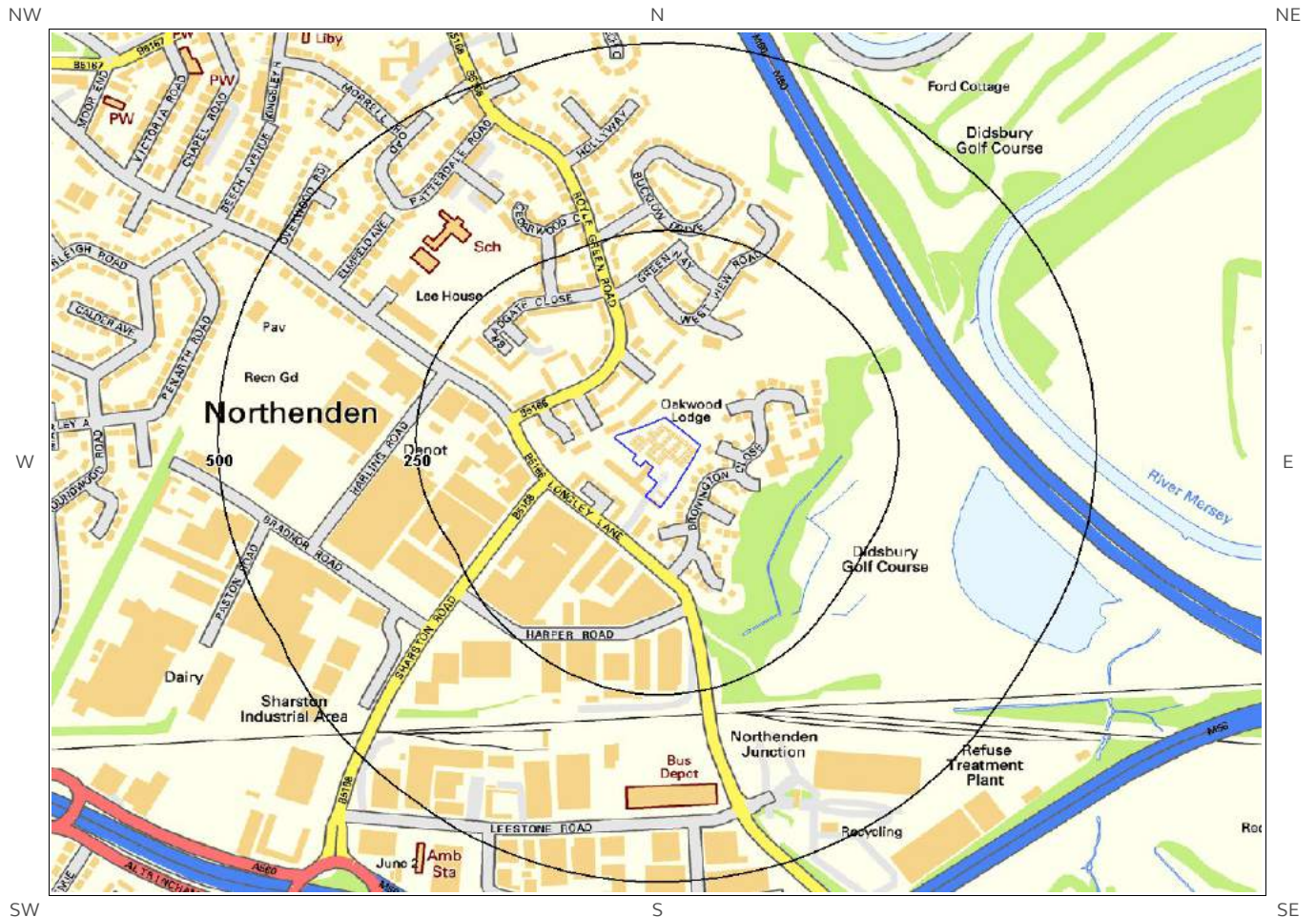
This dataset is derived from the BGS BRITPITS database covering active; inactive mines; quarries; oil wells; gas wells and mineral wharves; and rail deposits throughout the British Isles.

Are there any BGS Current Ground Workings within 1000m of the study site boundary? Yes

The following Current Ground Workings information is provided by British Geological Survey:

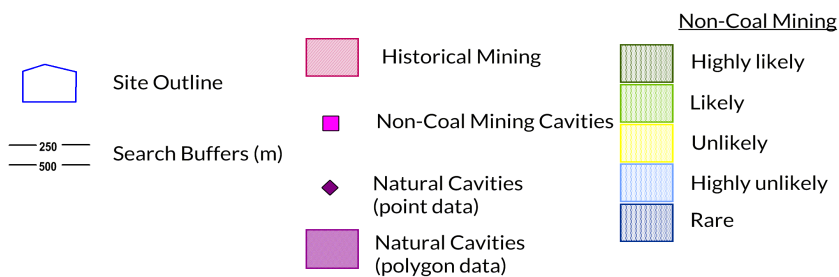
ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
Not shown	373.0	SW	383191 389100	Crushed Rock	Northenden Rail Depot	A site where mineral commodities are unloaded from rail trucks and stored	Inactive
Not shown	636.0	SE	383764 388873	Sand & Gravel	Sharston Gravel Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased

5 Mining, Extraction & Natural Cavities map



Mining, Extraction and Natural Cavities Legend

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5 Mining, Extraction & Natural Cavities

5.1 Historical Mining

This dataset is derived from Groundsure unique Historical Land-use Database that are indicative of mining or extraction activities.

Are there any Historical Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

5.2 Coal Mining

This dataset provides information as to whether the study site lies within a known coal mining affected area as defined by the coal authority.

Are there any Coal Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

5.3 Johnson Poole and Bloomer

This dataset provides information as to whether the study site lies within an area where JPB hold information relating to mining.

Are there any JPB Mining areas within 1000m of the study site boundary? Yes

The following information provided by JPB is not represented on mapping: Whilst outside of an area where The Coal Authority have information on coal mining activities, Johnson Poole & Bloomer (JPB) have information such as mining plans and maps held within their archive of mining activities that have occurred within 1km of this property. Further details and a quote for services can be obtained by emailing this report to enquiries.gs@jpb.co.uk.

5.4 Non-Coal Mining

This dataset provides information as to whether the study site lies within an area which may have been subject to non-coal historic mining.

Are there any Non-Coal Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

5.5 Non-Coal Mining Cavities

This dataset provides information from the Peter Brett Associates (PBA) mining cavities database (compiled for the national study entitled “Review of mining instability in Great Britain, 1990” PBA has also continued adding to this database) on mineral extraction by mining.

Are there any Non-Coal Mining cavities within 1000m of the study site boundary? No

Database searched and no data found.

5.6 Natural Cavities

This dataset provides information based on the Peter Brett Associates natural cavities database. The dataset is made up of points and polygons. Where polygons are used these represent an area in which it is expected the cavities could be found. It does not indicate that cavities are present everywhere within the polygon, and caution should be used in the interpretation of this data.

Are there any Natural Cavities within 1000m of the study site boundary? No

Database searched and no data found.

5.7 Brine Extraction

This data provides information from the Cheshire Brine Subsidence Compensation Board.

Are there any Brine Extraction areas within 1000m of the study site boundary? No

Database searched and no data found.

5.8 Gypsum Extraction

This dataset provides information on Gypsum extraction from British Gypsum records.

Are there any Gypsum Extraction areas within 1000m of the study site boundary? No

Database searched and no data found.

5.9 Cornwall and Devon Metalliferous Mining

This dataset provides information on metalliferous mining areas in Cornwall/Devon and is derived from records held by Mining Searches UK.

Are there any Cornwall and Devon Metalliferous Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

5.10 Clay Mining

This dataset provides information on Kaolin and Ball Clay mining from relevant mining records.

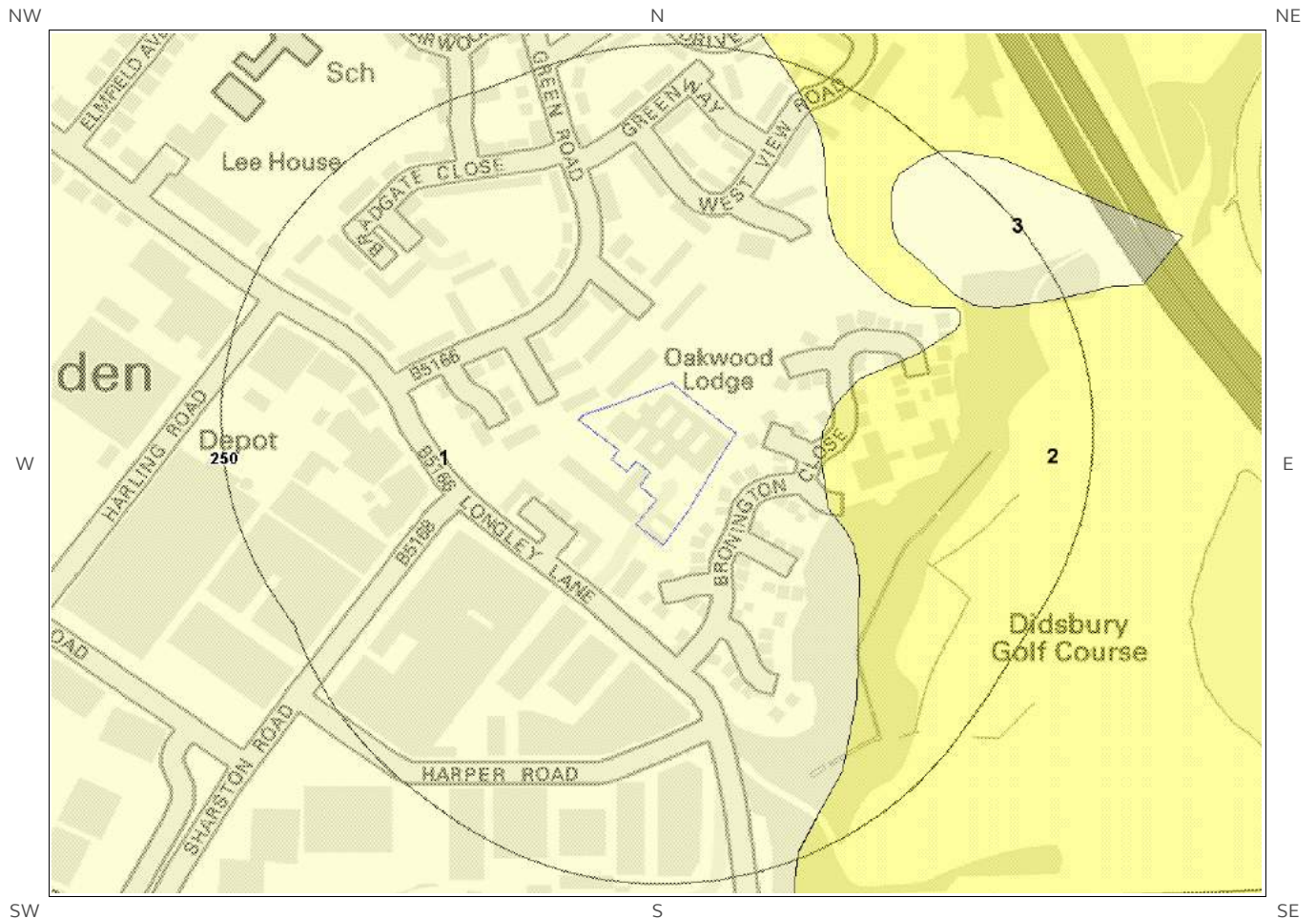
Are there any Clay Mining areas within 1000m of the study site boundary?

No

Database searched and no data found.

6 Natural Ground Subsidence

6.1 Shrink-Swell Clay map

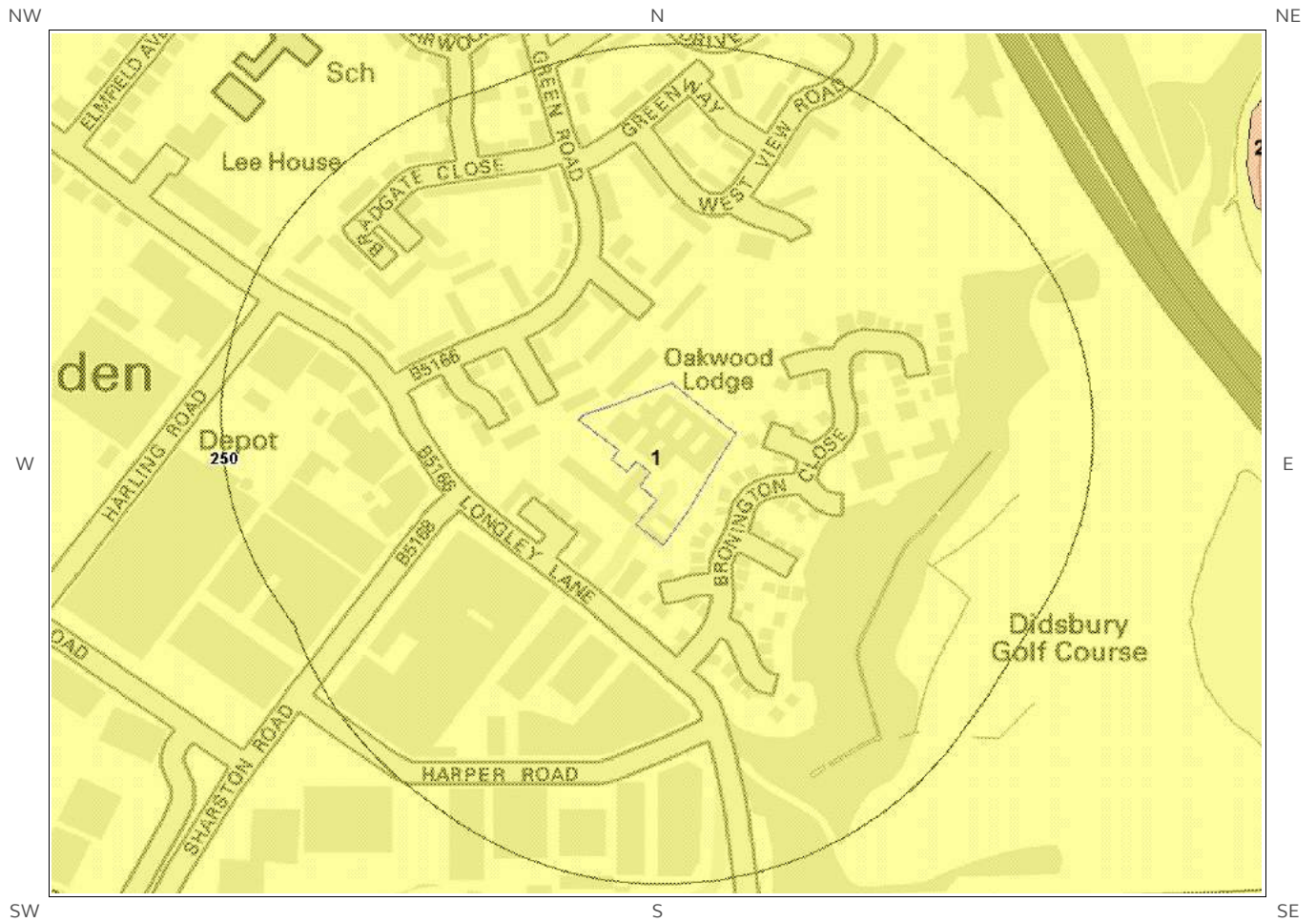


Shrink Swell Clay Legend

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6.2 Landslides map



Landslides Legend

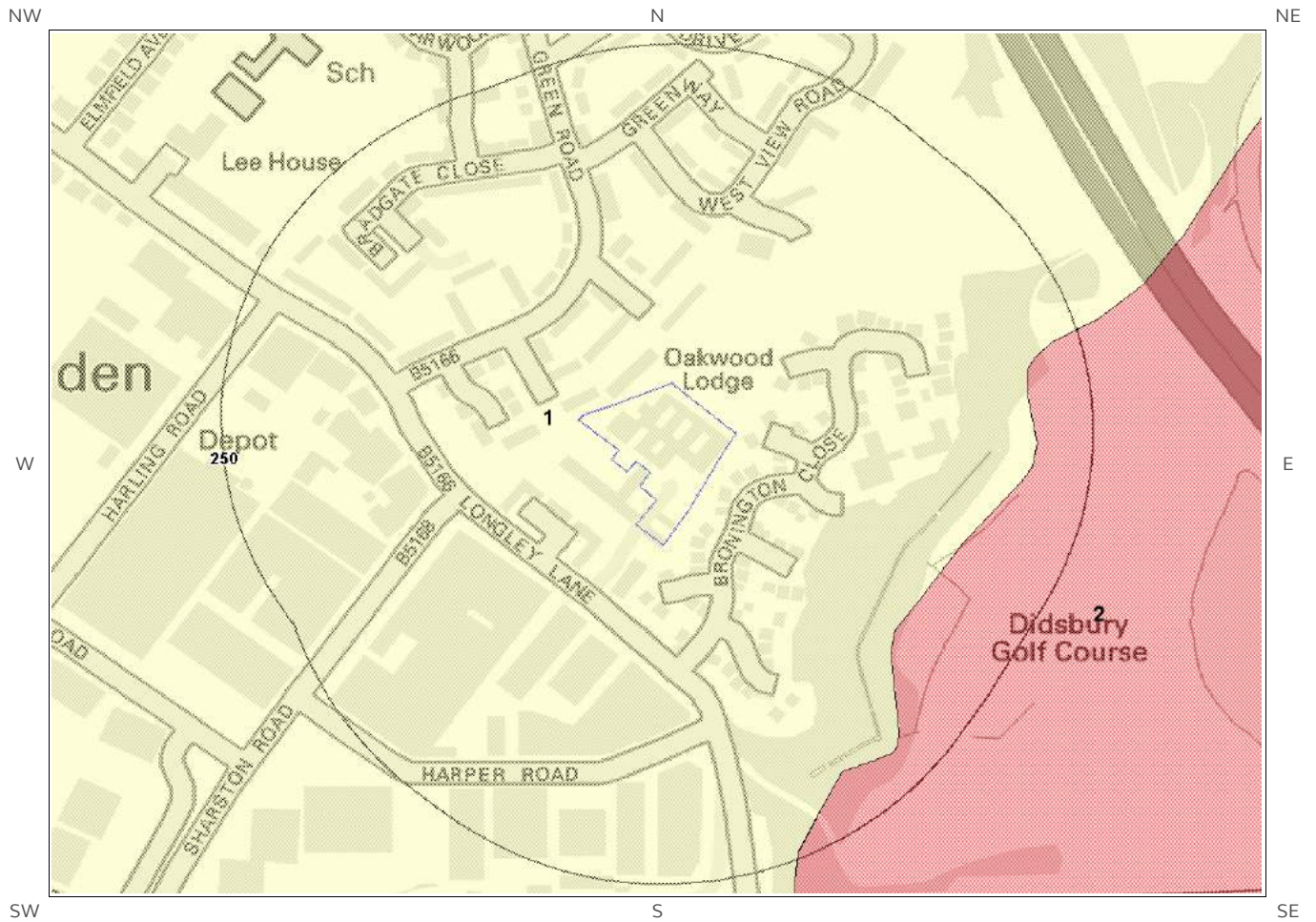
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6.3 Ground Dissolution of Soluble Rocks map



6.4 Compressible Deposits map

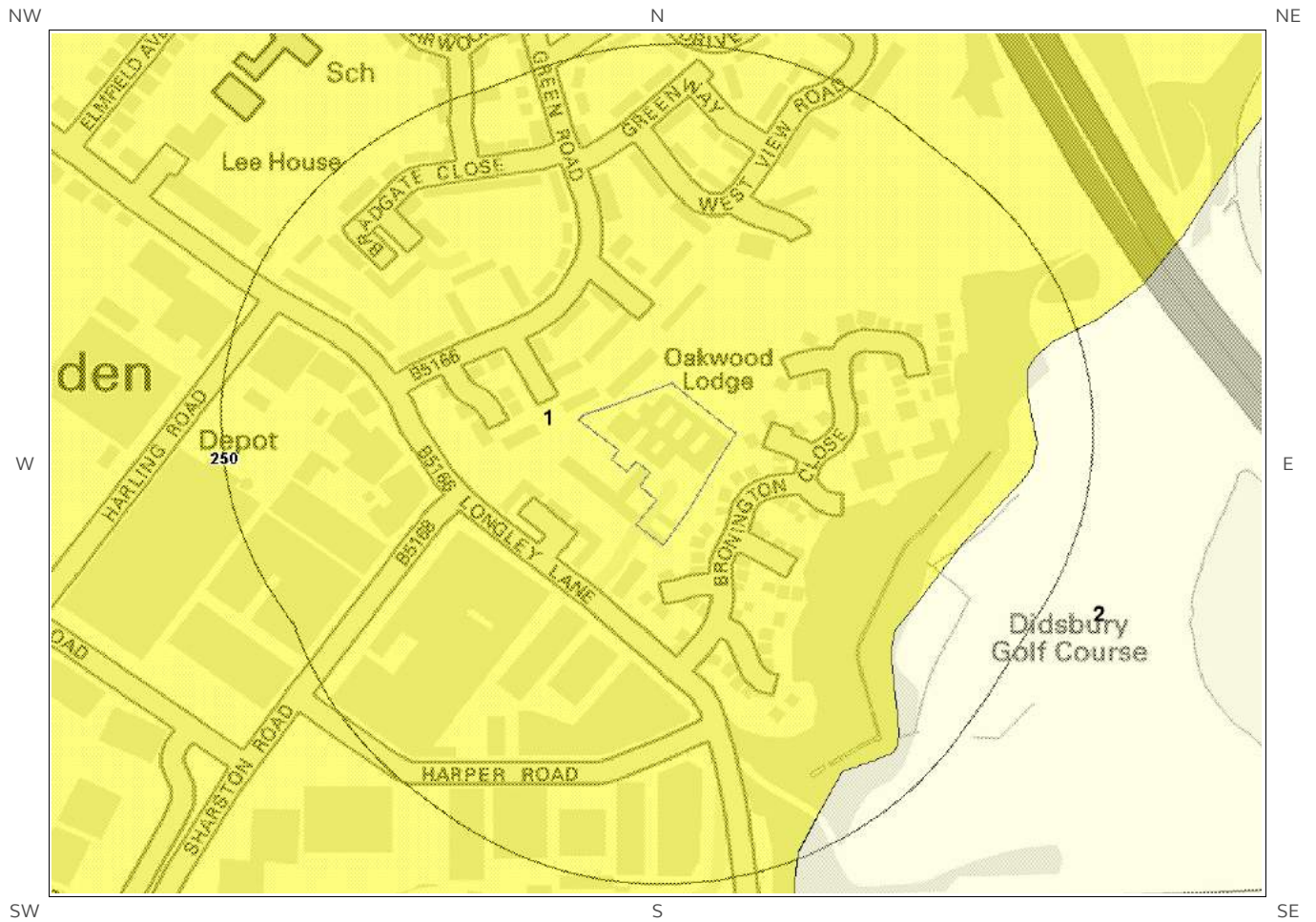


Compressible Deposits Legend

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6.5 Collapsible Deposits map

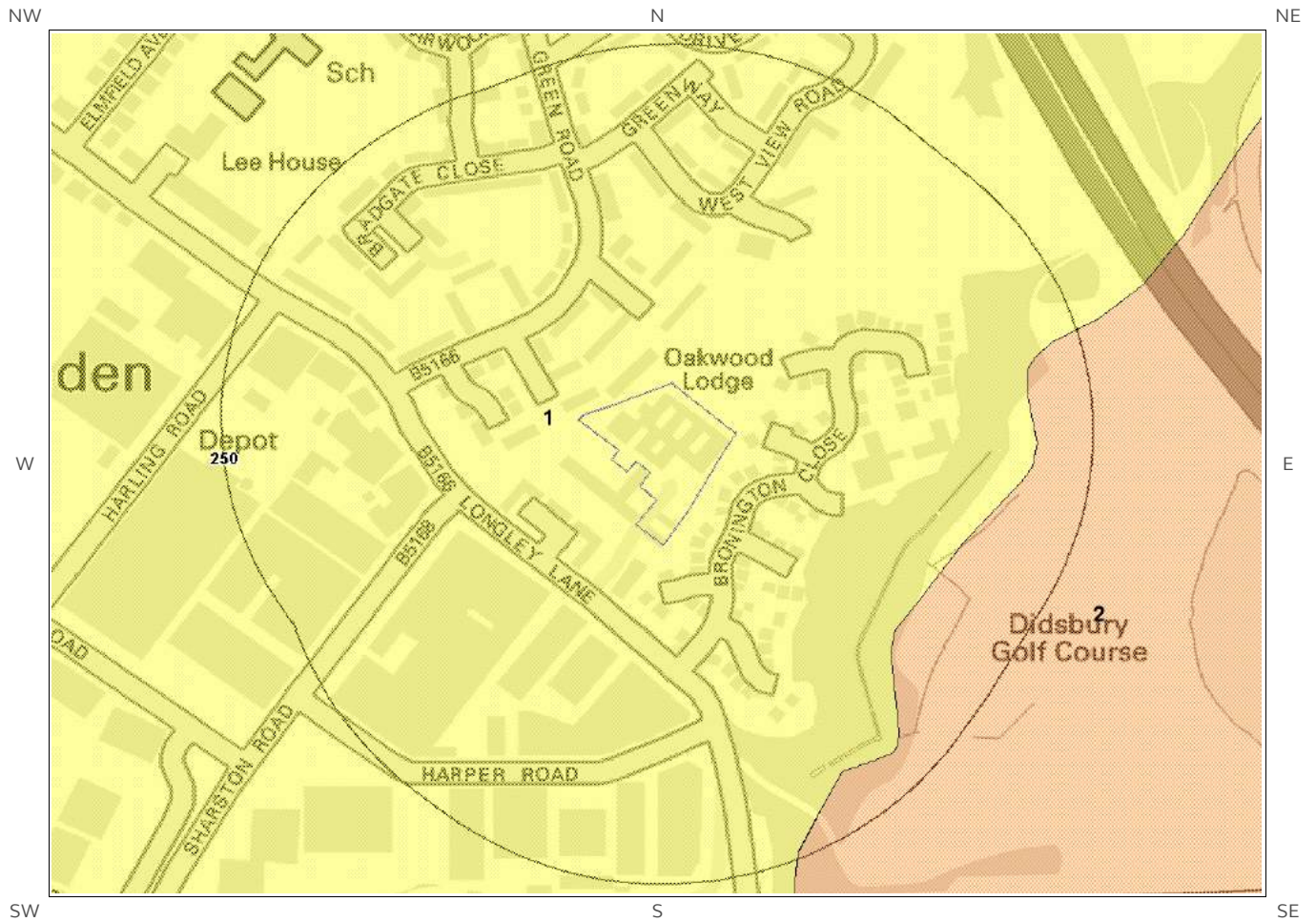


Collapsible Deposits Legend

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6.6 Running Sand map



Running Sand Legend

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6 Natural Ground Subsidence

The National Ground Subsidence rating is obtained through the 6 natural ground stability hazard datasets, which are supplied by the British Geological Survey (BGS).

The following GeoSure data represented on the mapping is derived from the BGS Digital Geological map of Great Britain at 1:50,000 scale.

What is the maximum hazard rating of natural subsidence within the study site** boundary? Very Low

6.1 Shrink-Swell Clays

The following Shrink Swell information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	Ground conditions predominantly non-plastic. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely likely due to potential problems with shrink-swell clays.

6.2 Landslides

The following Landslides information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Slope instability problems are unlikely to be present. No special actions required to avoid problems due to landslides. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with landslides.

6.3 Ground Dissolution of Soluble Rocks

The following Ground Dissolution information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	Soluble rocks are present, but unlikely to cause problems except under exceptional conditions. No special actions required to avoid problems due to soluble rocks. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with soluble rocks.

* This includes an automatically generated 50m buffer zone around the site

6.4 Compressible Deposits

The following Compressible Deposits information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	No indicators for compressible deposits identified. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.

6.5 Collapsible Deposits

The following Collapsible Rocks information provided by the British Geological Survey:

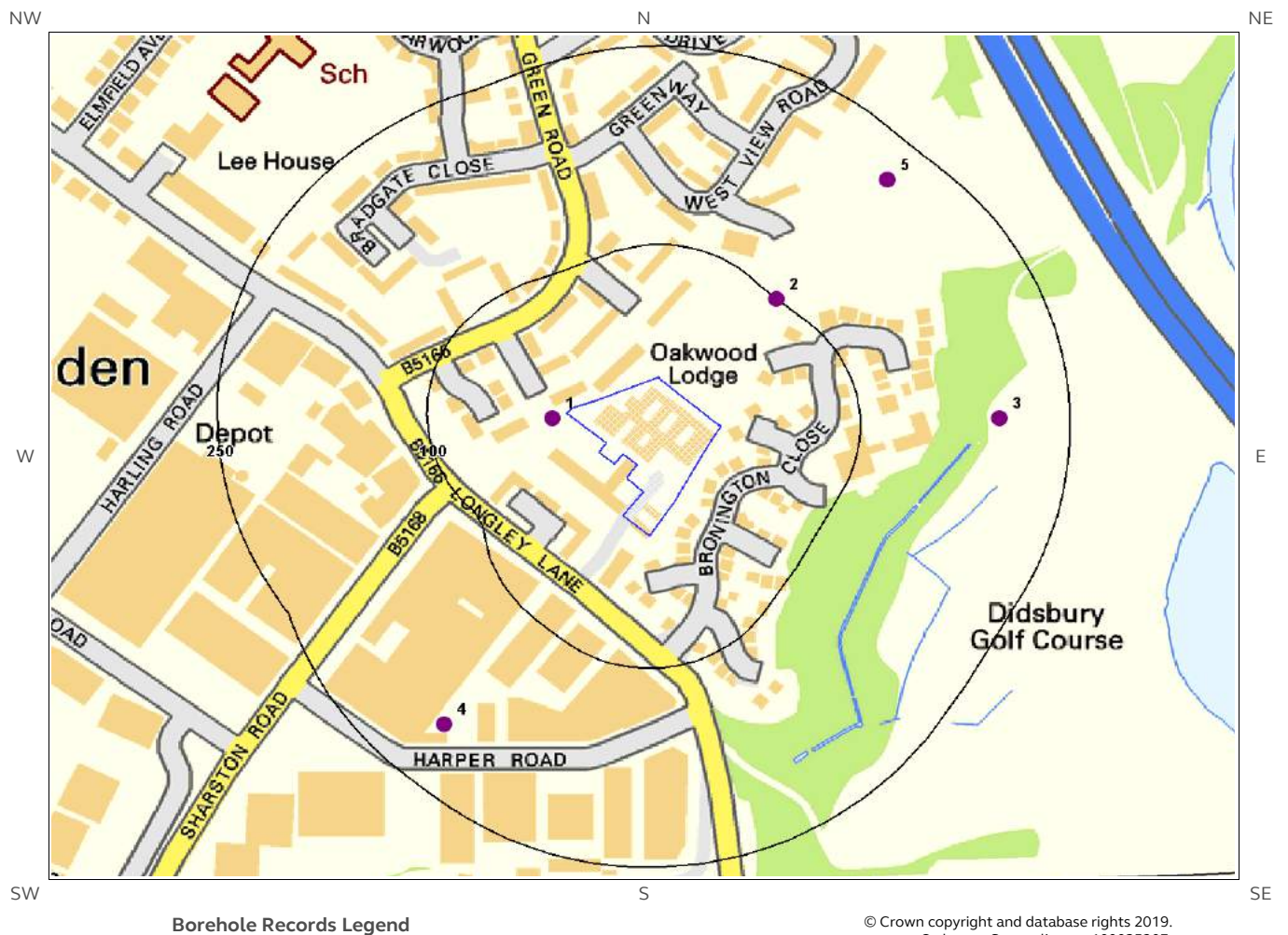
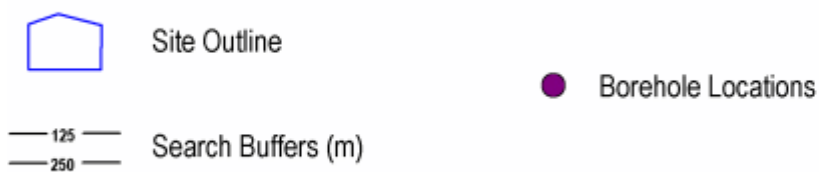
ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

6.6 Running Sands

The following Running Sands information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Very low potential for running sand problems if water table rises or if sandy strata are exposed to water. No special actions required, to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.

7 Borehole Records map



7 Borehole Records

The systematic analysis of data extracted from the BGS Borehole Records database provides the following information.

Records of boreholes within 250m of the study site boundary:

5

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
1	12.0	SW	383340 389490	SJ88NW38	15	SALE EASTERN/NORTHENDEN. 51
2	99.0	NE	383500 389580	SJ88NW37	11	SALE EASTERN/NORTHENDEN. 50
3	199.0	E	383660 389490	SJ88NW39	6	SALE EASTERN/NORTHENDEN. 52
4	203.0	SW	383263 389259	SJ88NW150	9	SHARSTON BYPASS. 132
5	219.0	NE	383580 389670	SJ88NW36	10	SALE EASTERN/NORTHENDEN. 49

The borehole records are available using the hyperlinks below: Please note that if the donor of the borehole record has requested the information be held as commercial-in-confidence, the additional data will be held separately by the BGS and a formal request must be made for its release.

#1: scans.bgs.ac.uk/sobi_scans/boreholes/914719

#2: scans.bgs.ac.uk/sobi_scans/boreholes/914718

#3: scans.bgs.ac.uk/sobi_scans/boreholes/914720

#4: scans.bgs.ac.uk/sobi_scans/boreholes/914831

#5: scans.bgs.ac.uk/sobi_scans/boreholes/914717

8 Estimated Background Soil Chemistry

Records of background estimated soil chemistry within 250m of the study site boundary:

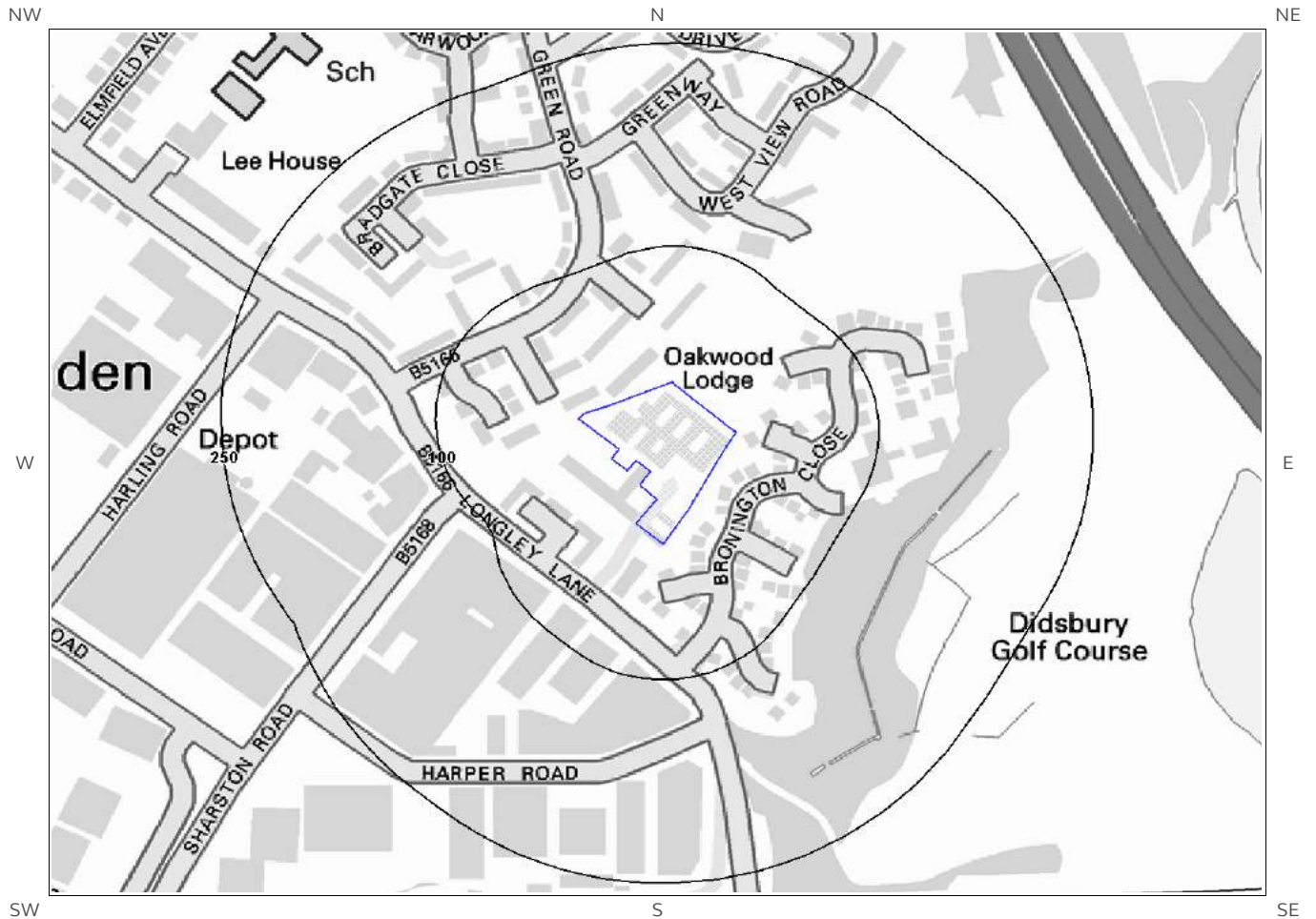
6

For further information on how this data is calculated and limitations upon its use, please see the Groundsure Geo Insight User Guide, available on request.

Distance (m)	Direction	Sample Type	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Nickel (Ni)	Lead (Pb)
0.0	On Site	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
15.0	W	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	<15 mg/kg	<100 mg/kg
17.0	W	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	<15 mg/kg	<100 mg/kg
39.0	E	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
42.0	E	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg

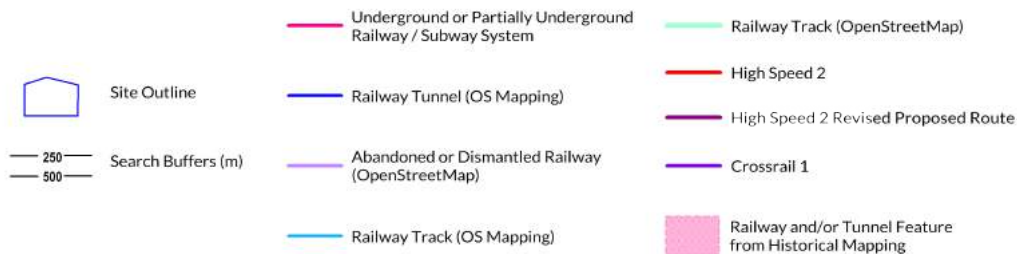
*As this data is based upon underlying 1:50,000 scale geological information, a 50m buffer has been added to the search radius.

9 Railways and Tunnels map



Railways and Tunnels Legend

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9 Railways and Tunnels

9.1 Tunnels

This data is derived from OpenStreetMap and provides information on the possible locations of underground railway systems in the UK - the London Underground, the Tyne & Wear Metro and the Glasgow Subway.

Have any underground railway lines been identified within the study site boundary? No

Have any underground railway lines been identified within 250m of the study site boundary? No

Database searched and no data found.

Any records that have been identified are represented on the Railways and Tunnels map.

This data is derived from Ordnance Survey mapping and provides information on the possible locations of railway tunnels forming part of the UK overground railway network.

Have any other railway tunnels been identified within the site boundary? No

Have any other railway tunnels been identified within 250m of the site boundary? No

Database searched and no data found.

Any records that have been identified are represented on the Railways and Tunnels map.

9.2 Historical Railway and Tunnel Features

This data is derived from Groundsure's unique Historical Land-use Database and contains features relating to tunnels, railway tracks or associated works that have been identified from historical Ordnance Survey mapping.

Have any historical railway or tunnel features been identified within the study site boundary? No

Have any historical railway or tunnel features been identified within 250m of the study site boundary? No

Database searched and no data found.

Any records that have been identified are represented on the Railways and Tunnels map.

9.3 Historical Railways

This data is derived from OpenStreetMap and provides information on the possible alignments of abandoned or dismantled railway lines in proximity to the study site.

Have any historical railway lines been identified within the study site boundary? No

Have any historical railway lines been identified within 250m of the study site boundary? No

Database searched and no data found.

Multiple sections of the same track may be listed in the detail above
Any records that have been identified are represented on the Railways and Tunnels map.

9.4 Active Railways

These datasets are derived from Ordnance Survey mapping and OpenStreetMap and provide information on the possible locations of active railway lines in proximity to the study site.

Have any active railway lines been identified within the study site boundary? No

Have any active railway lines been identified within 250m of the study site boundary? No

Database searched and no data found.

Multiple sections of the same track may be listed in the detail above
Any records that have been identified are represented on the Railways and Tunnels map.

9.5 Railway Projects

These datasets provide information on the location of large scale railway projects High Speed 2 and Crossrail 1 .

Is the study site within 5km of the route of the High Speed 2 rail project? Yes

Is the study site within 500m of the route of the Crossrail 1 rail project? No

Further information on proximity to these routes, the project construction status and associated works can be obtained through the purchase of a Groundsure HS2 and Crossrail 1 Report.

The route data has been digitised from publicly available maps by Groundsure. The route as provided relates to the Crossrail 1 project only, and does not include any details of the Crossrail 2 project, as final details of the route for Crossrail 2 are still under consultation.

Please note that this assessment takes account of both the original Phase 2b proposed route and the amended route proposed in 2016. As the Phase 2b route is still under consultation, Groundsure are providing information on both options until the final route is formally confirmed. Practitioners should take account of this uncertainty when advising clients.

Contact Details

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Telephone: 08444 159 000
info@groundsure.com



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Fax: 0115 936 3276.
Email: enquiries@bgs.ac.uk
Web: www.bgs.ac.uk

BGS Geological Hazards Reports and general geological enquiries



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NATURAL ENVIRONMENT RESEARCH COUNCIL

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www.coal.gov.uk



The Coal
Authority

Public Health England

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<https://www.gov.uk/government/organisations/public-health-england>
Email: enquiries@phe.gov.uk
Main switchboard: 020 7654 8000



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Hampshire RG27 8NW
Tel: 01252 845444
Website: <http://www1.getmapping.com/>



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Site Details:

LONGLEY LANE,
MANCHESTER, M22 4LA

Client Ref: 8928G_-_Oakwood
Report Ref: GS-6176287
Grid Ref: 383406, 389462

Map Name: County Series

Map date: 1872-1876

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1874
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Edition N/A
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Surveyed 1872
Revised 1872
Edition N/A
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Revised 1876
Edition N/A
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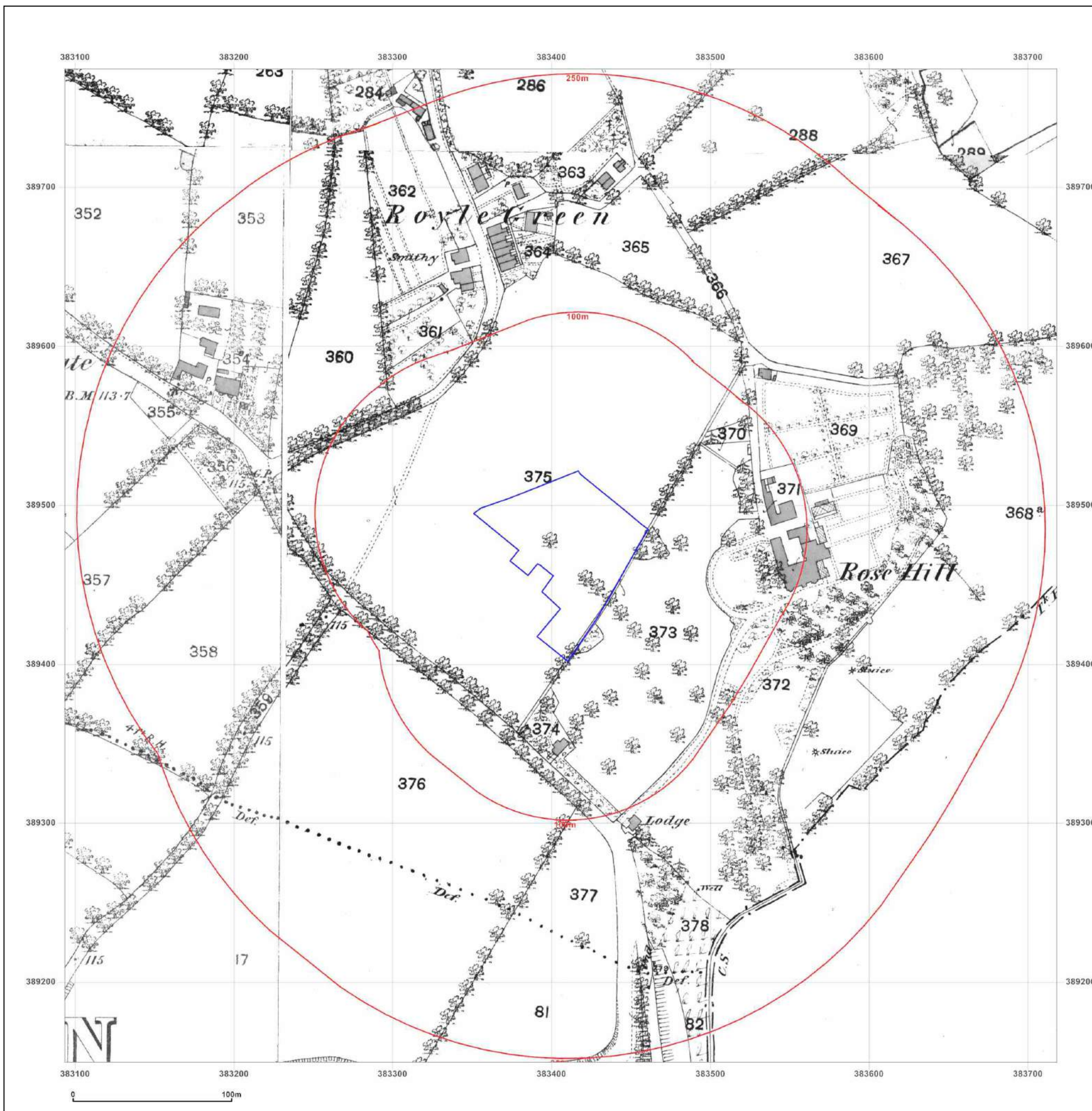


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Map legend available at:
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Site Details:

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Client Ref: 8928G_-_Oakwood
Report Ref: GS-6176287
Grid Ref: 383406, 389462

Map Name: County Series

Map date: 1881

Scale: 1:2,500

Printed at: 1:2,500



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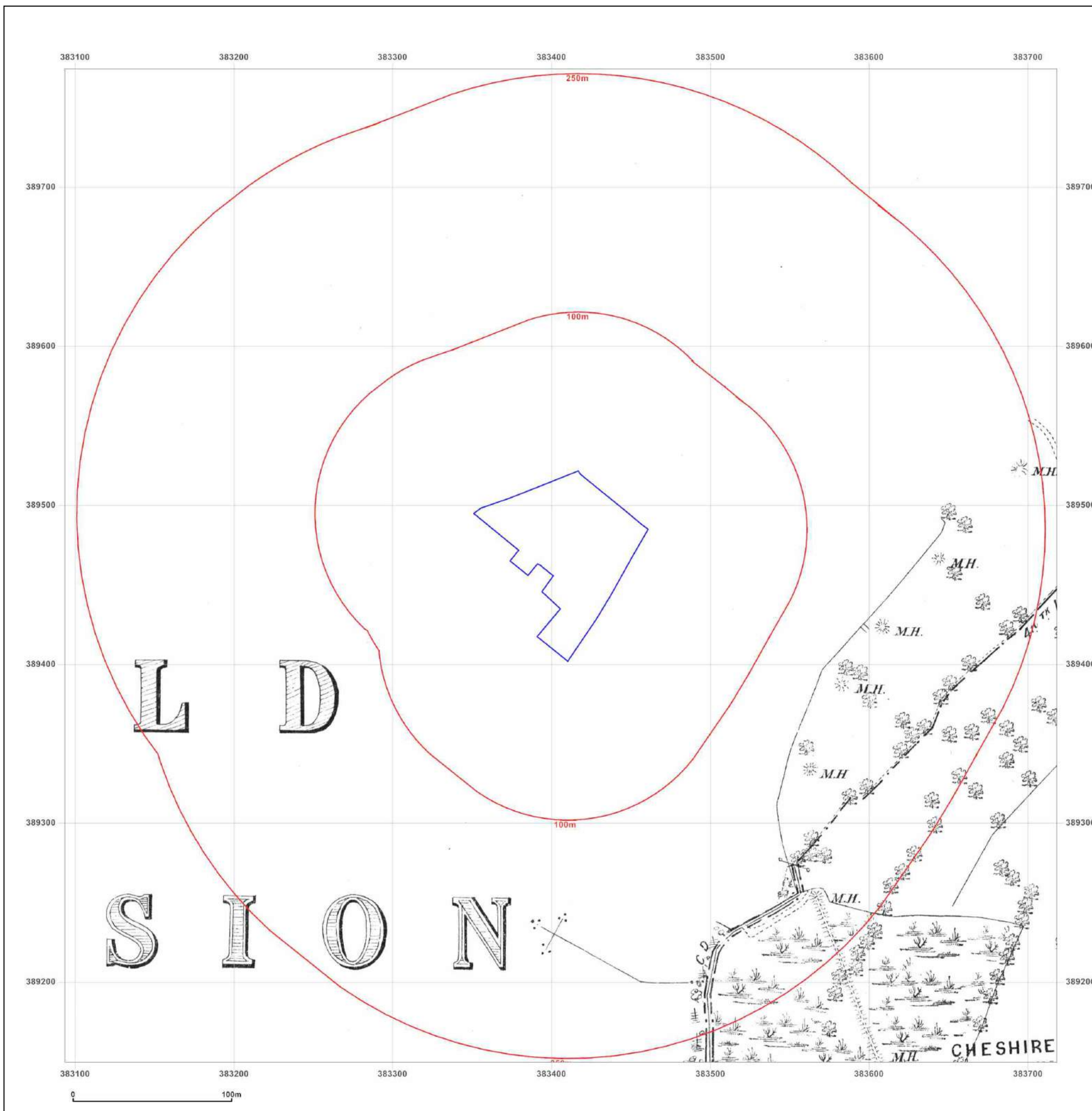


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MANCHESTER, M22 4LA

Client Ref: 8928G_-_Oakwood
Report Ref: GS-6176287
Grid Ref: 383406, 389462

Map Name: County Series

Map date: 1893

Scale: 1:2,500

Printed at: 1:2,500



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Revised N/A
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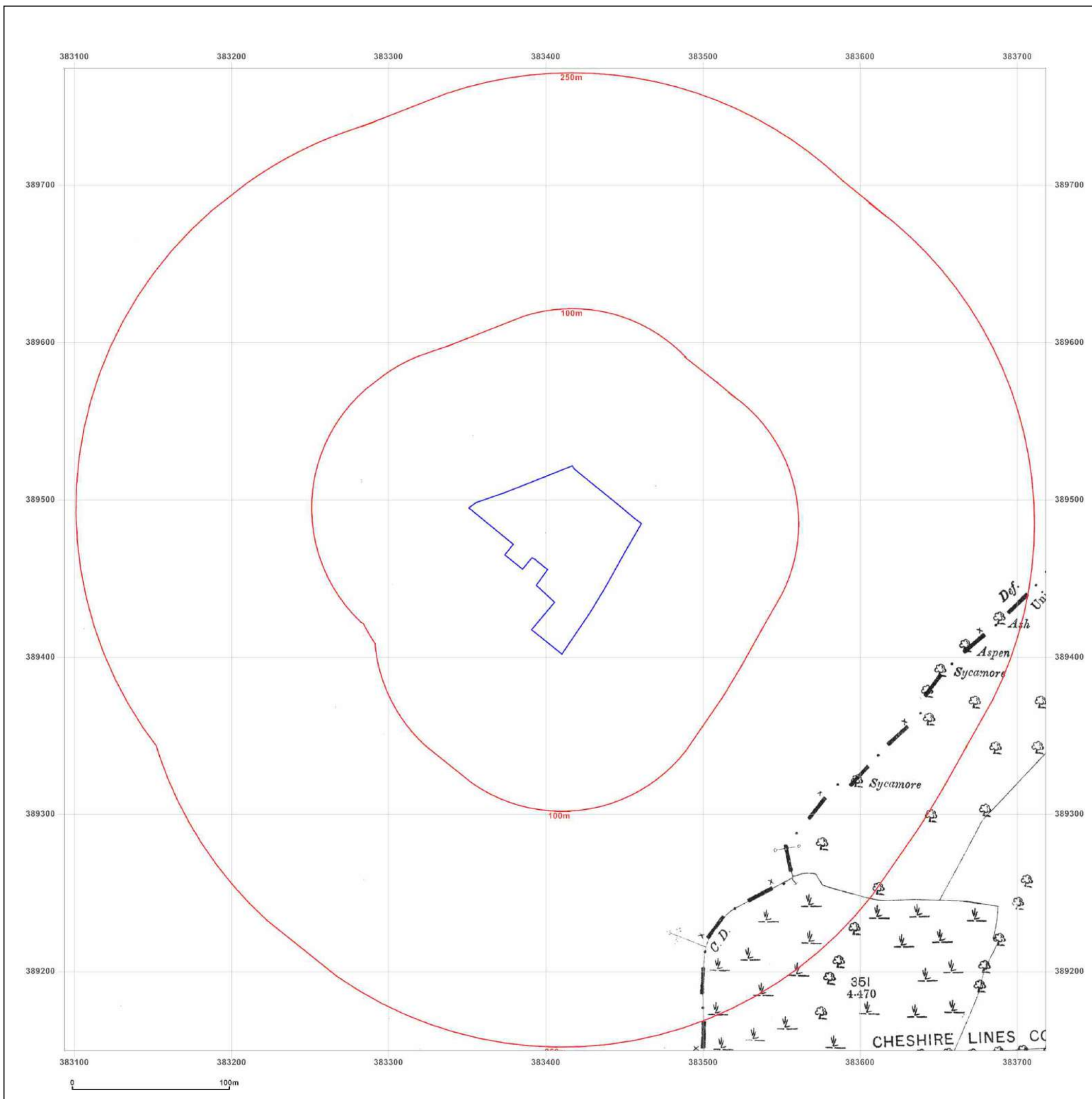


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Client Ref: 8928G_-_Oakwood
Report Ref: GS-6176287
Grid Ref: 383406, 389462

Map Name: County Series

Map date: 1898

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1877
Revised 1897
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Revised 1897
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Client Ref: 8928G_-_Oakwood
Report Ref: GS-6176287
Grid Ref: 383406, 389462

Map Name: County Series

Map date: 1907

Scale: 1:2,500

Printed at: 1:2,500



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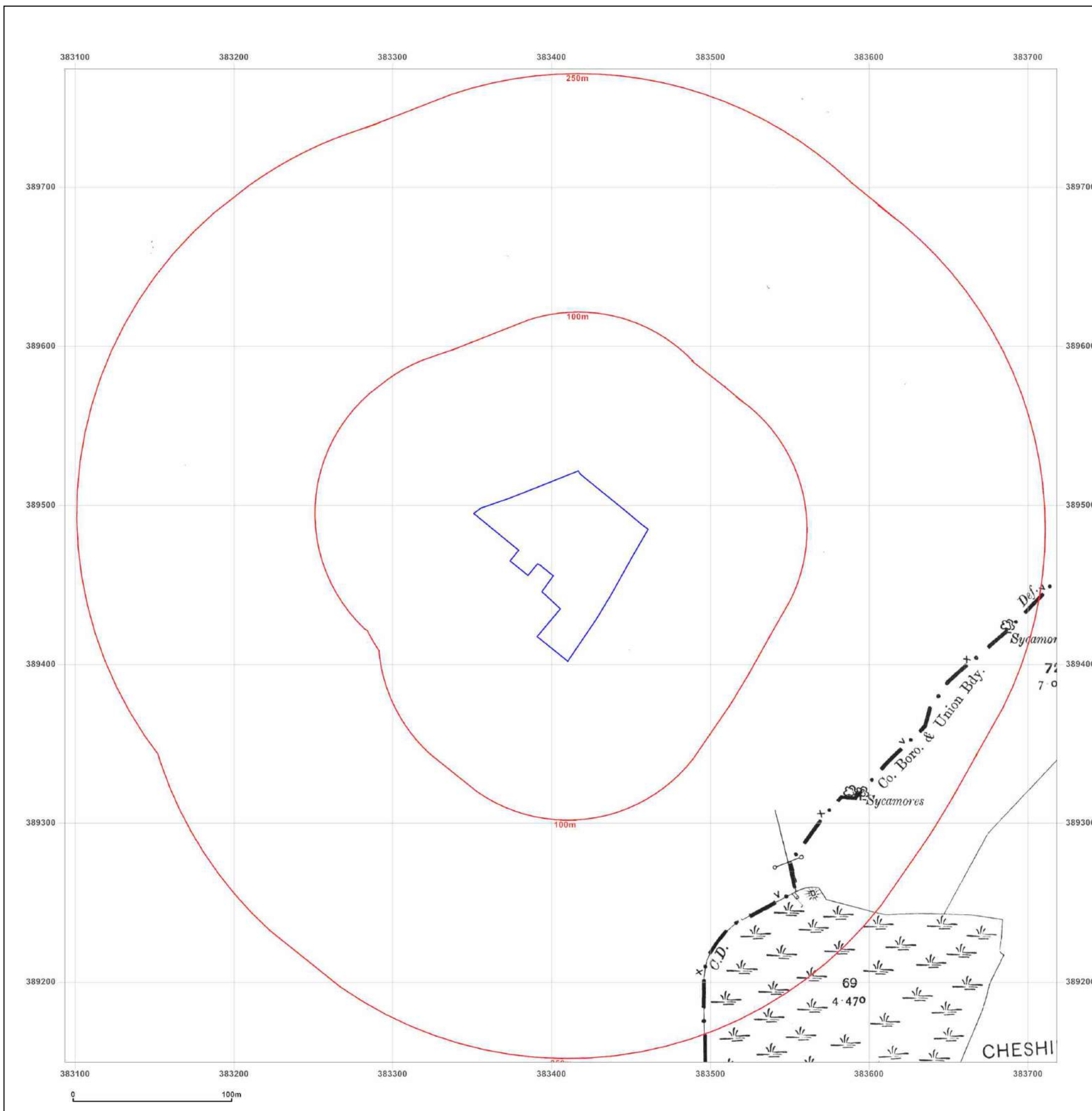


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Site Details:

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Client Ref: 8928G_-_Oakwood
Report Ref: GS-6176287
Grid Ref: 383406, 389462

Map Name: County Series

Map date: 1910

Scale: 1:2,500

Printed at: 1:2,500



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Edition 1910
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Surveyed 1910
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Surveyed 1910
Revised 1908
Edition 1910
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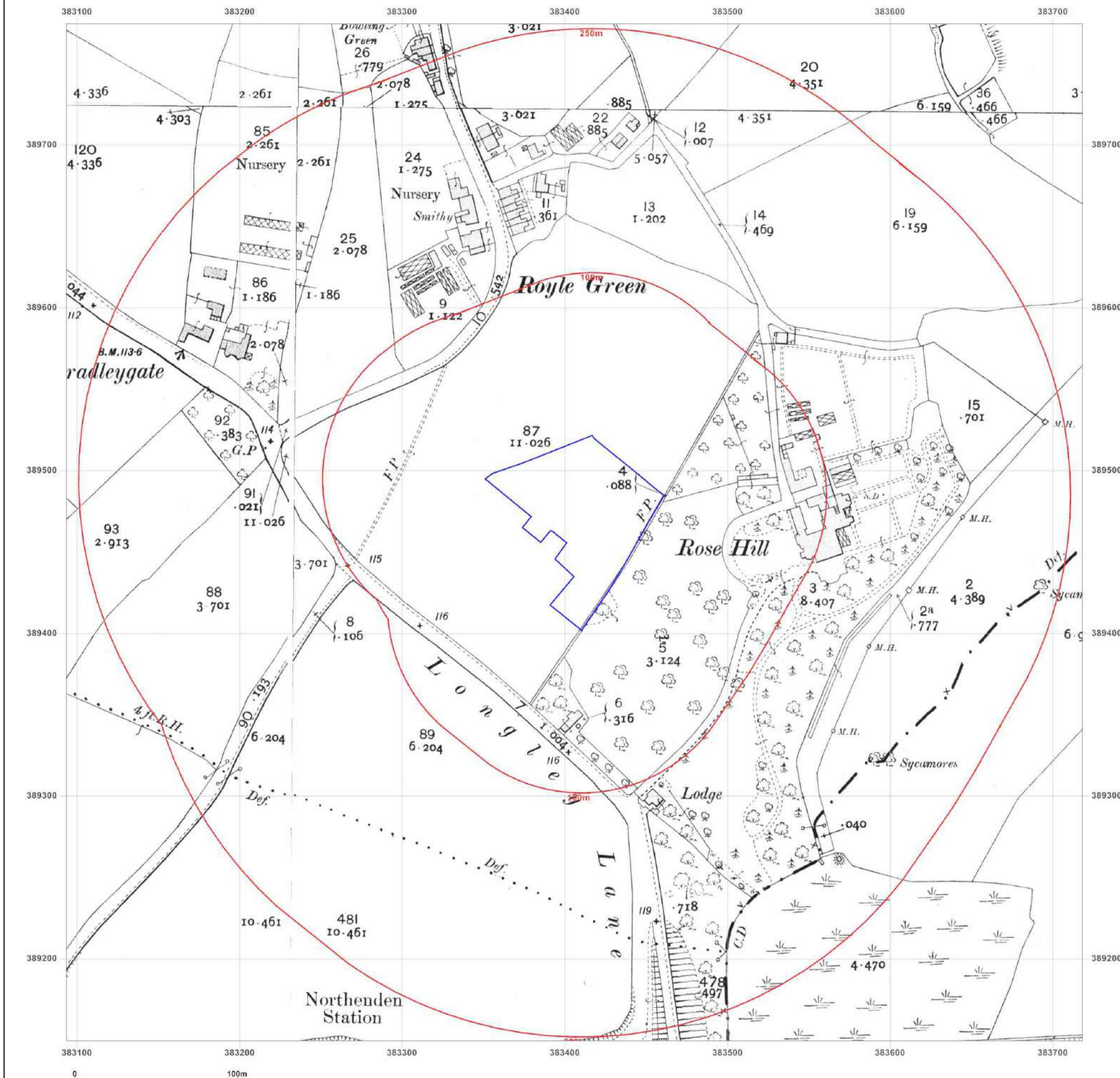


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Site Details:

LONGLEY LANE,
MANCHESTER, M22 4LA

Client Ref: 8928G_-_Oakwood
Report Ref: GS-6176287
Grid Ref: 383406, 389462

Map Name: County Series

Map date: 1922

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1922
Revised 1916
Edition 1922
Copyright N/A
Levelled 1915

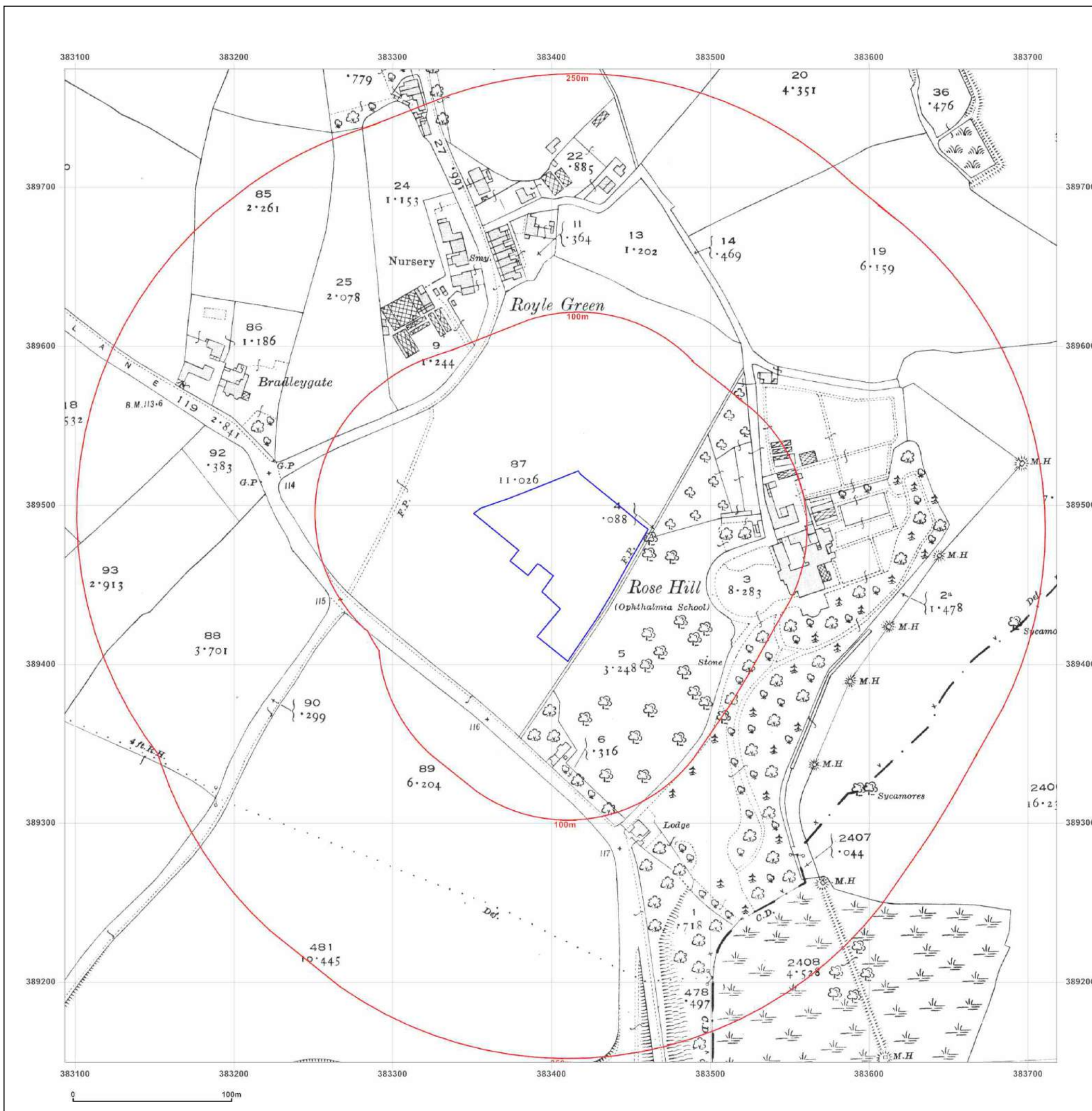


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Client Ref: 8928G_-_Oakwood
Report Ref: GS-6176287
Grid Ref: 383406, 389462

Map Name: County Series

Map date: 1934

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1873
Revised 1934
Edition N/A
Copyright N/A
Levelled 1927

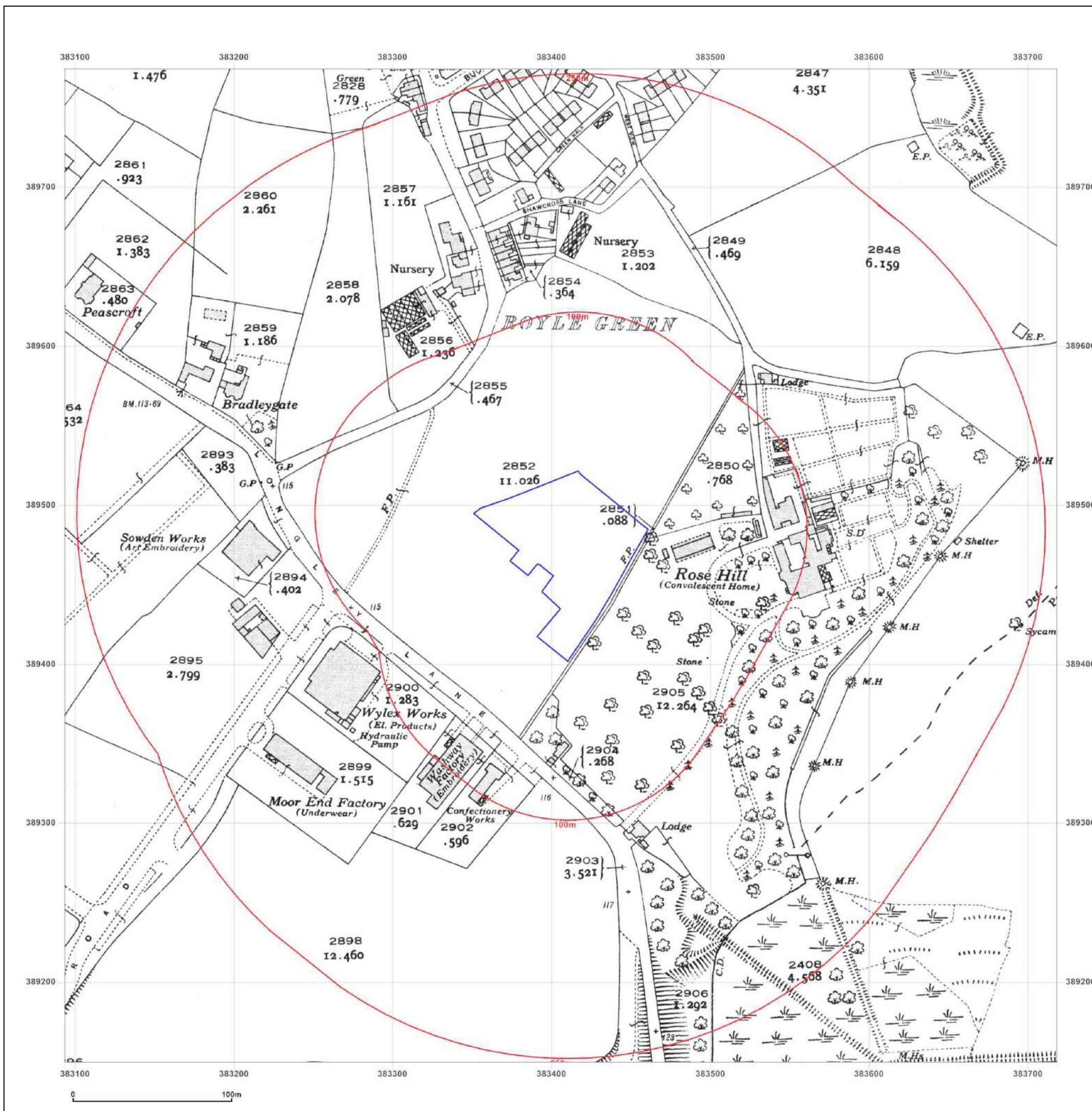


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Client Ref: 8928G_-_Oakwood
Report Ref: GS-6176287
Grid Ref: 383406, 389462

Map Name: National Grid

Map date: 1956

Scale: 1:1,250

Printed at: 1:2,000



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Revised 1956
Edition N/A
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Levelled 1949

Surveyed 1956
Revised 1956
Edition N/A
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Revised 1956
Edition N/A
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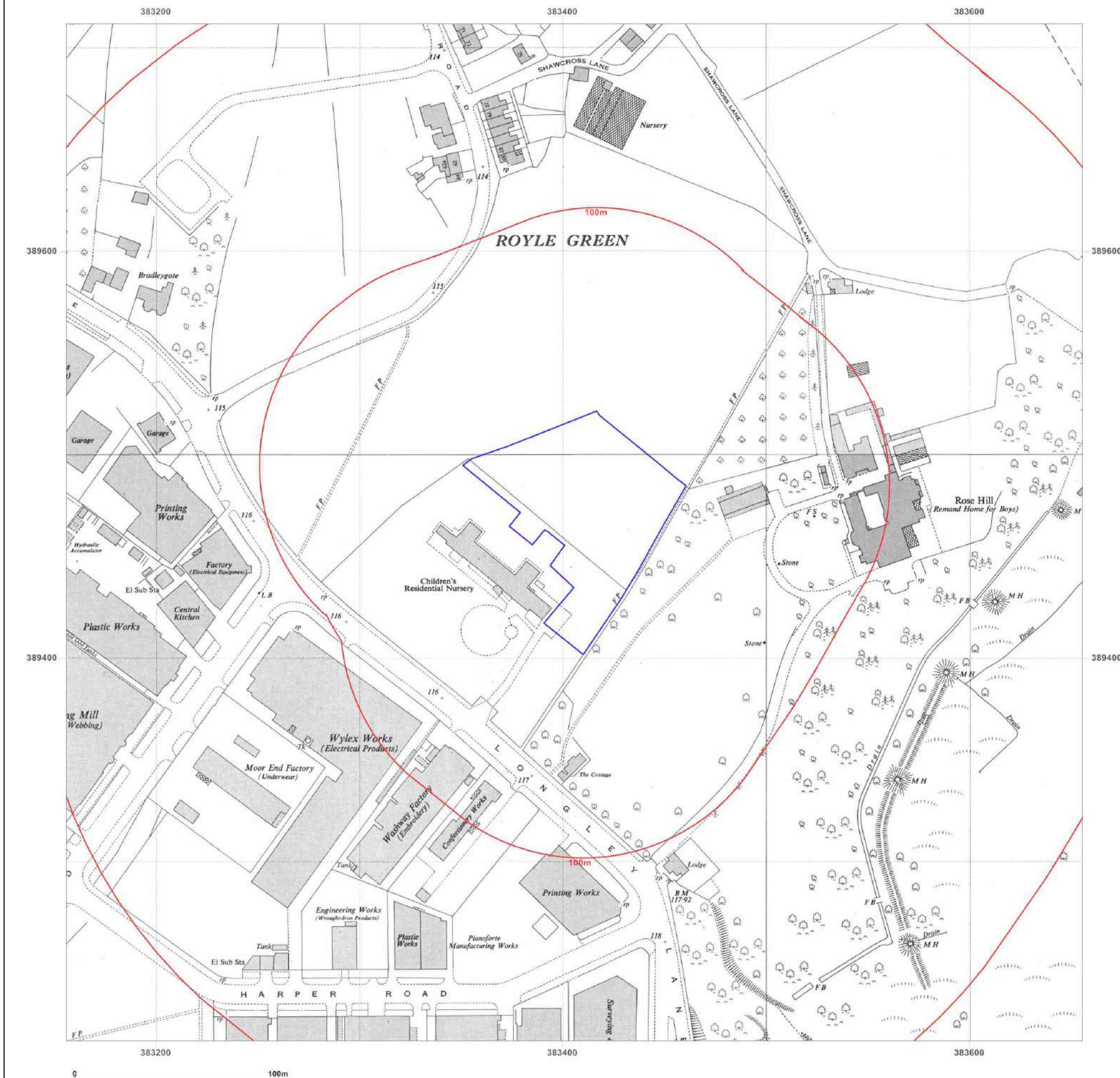


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Client Ref: 8928G_-_Oakwood
Report Ref: GS-6176287
Grid Ref: 383406, 389462

Map Name: National Grid

Map date: 1956

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1956
Revised 1956
Edition N/A
Copyright 1957
Levelled 1949

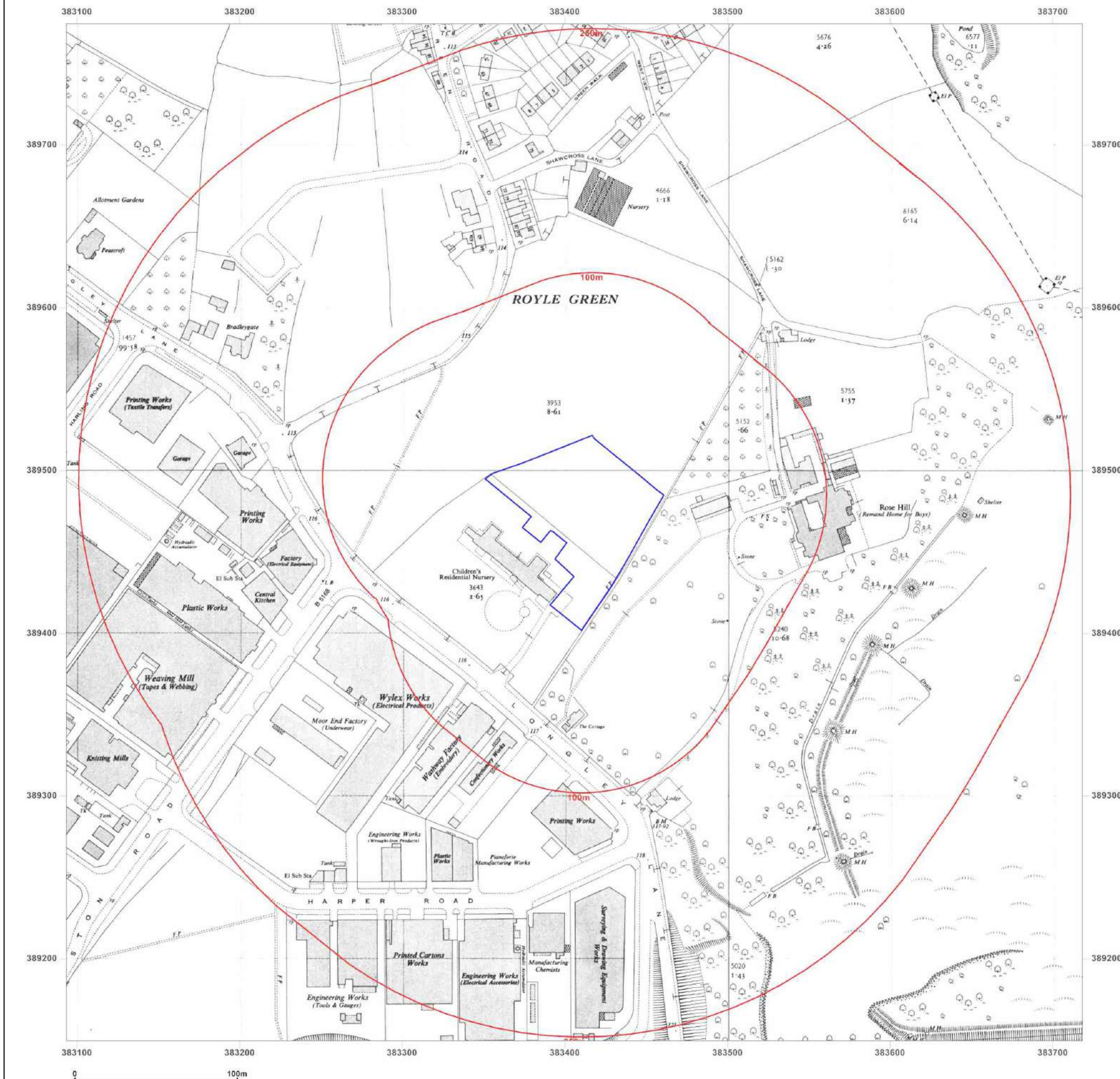


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Client Ref: 8928G_-_Oakwood
Report Ref: GS-6176287
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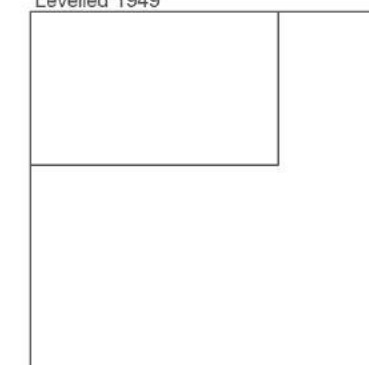
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Scale: 1:1,250

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Surveyed 1956
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Client Ref: 8928G_-_Oakwood
Report Ref: GS-6176287
Grid Ref: 383406, 389462

Map Name: National Grid

Map date: 1959

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1958
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Client Ref: 8928G_-_Oakwood
Report Ref: GS-6176287
Grid Ref: 383406, 389462

Map Name: National Grid

Map date: 1967

Scale: 1:1,250

Printed at: 1:2,000



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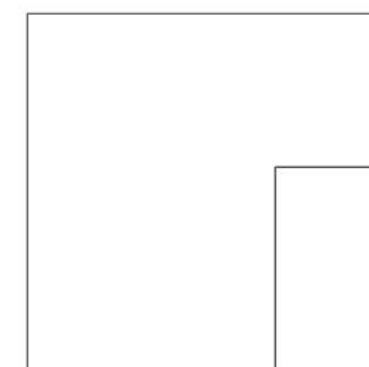
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Report Ref: GS-6176287
Grid Ref: 383406, 389462

Map Name: National Grid

Map date: 1978

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Printed at: 1:2,000



Surveyed N/A
Revised 1978
Edition N/A
Copyright 1978
Levelled 1958

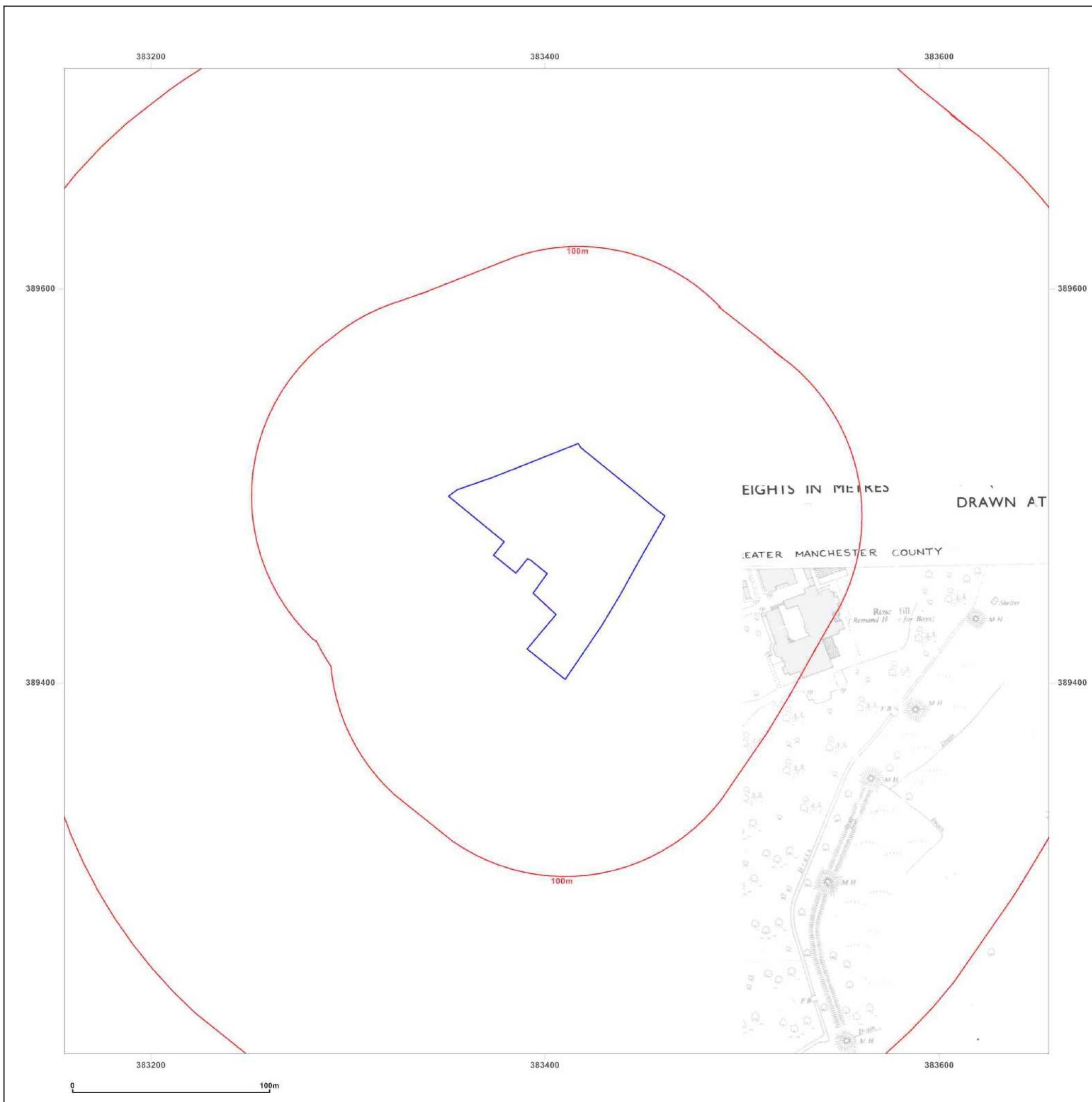


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Report Ref: GS-6176287
Grid Ref: 383406, 389462

Map Name: National Grid

Map date: 1983-1984

Scale: 1:1,250

Printed at: 1:2,000



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Edition N/A
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Revised 1983
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Report Ref: GS-6176287
Grid Ref: 383406, 389462

Map Name: National Grid

Map date: 1992

Scale: 1:1,250

Printed at: 1:2,000



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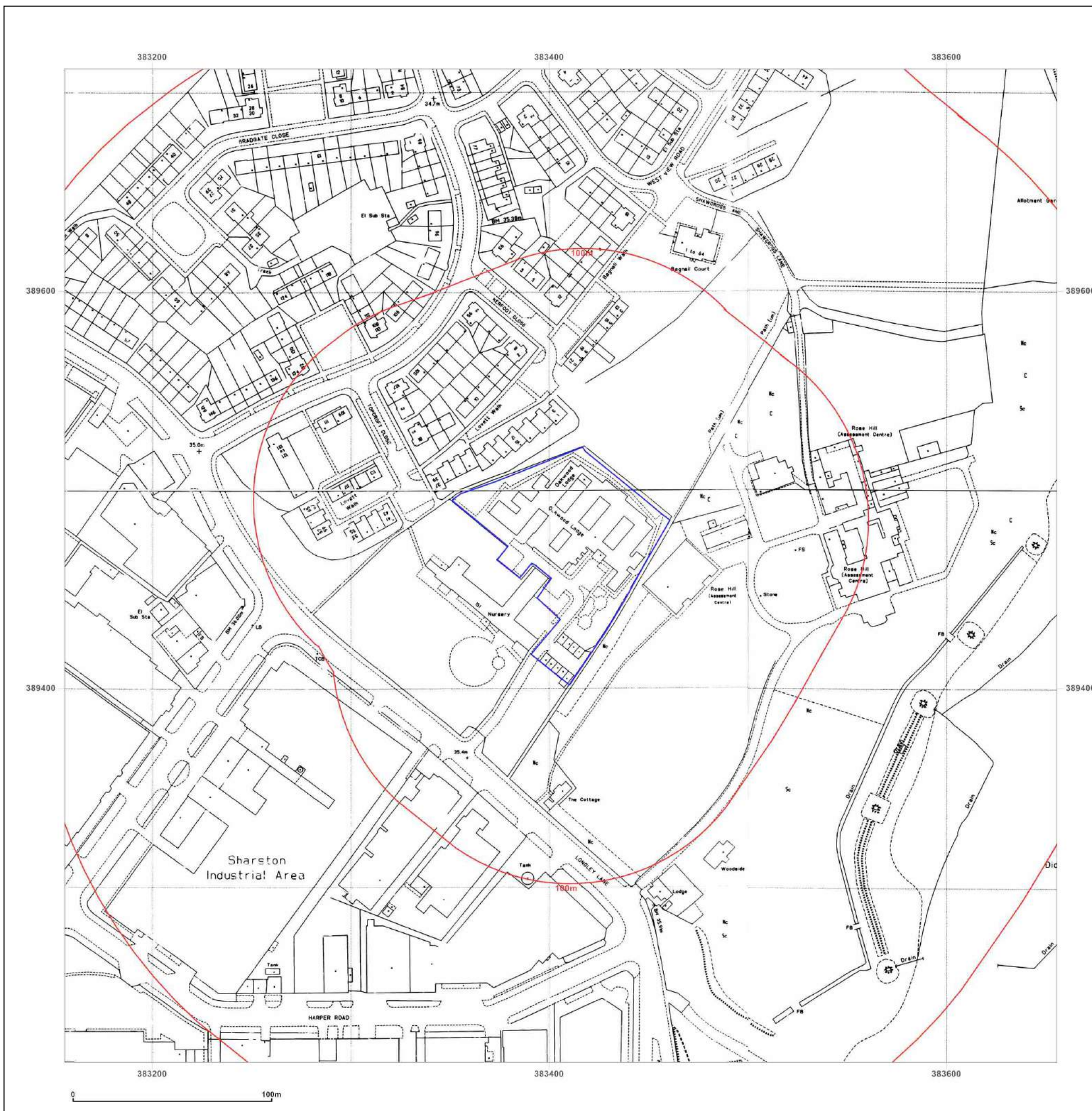


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Client Ref: 8928G_-_Oakwood
Report Ref: GS-6176287
Grid Ref: 383406, 389462

Map Name: National Grid

Map date: 1992

Scale: 1:1,250

Printed at: 1:2,000



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Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1992
Revised 1992
Edition N/A
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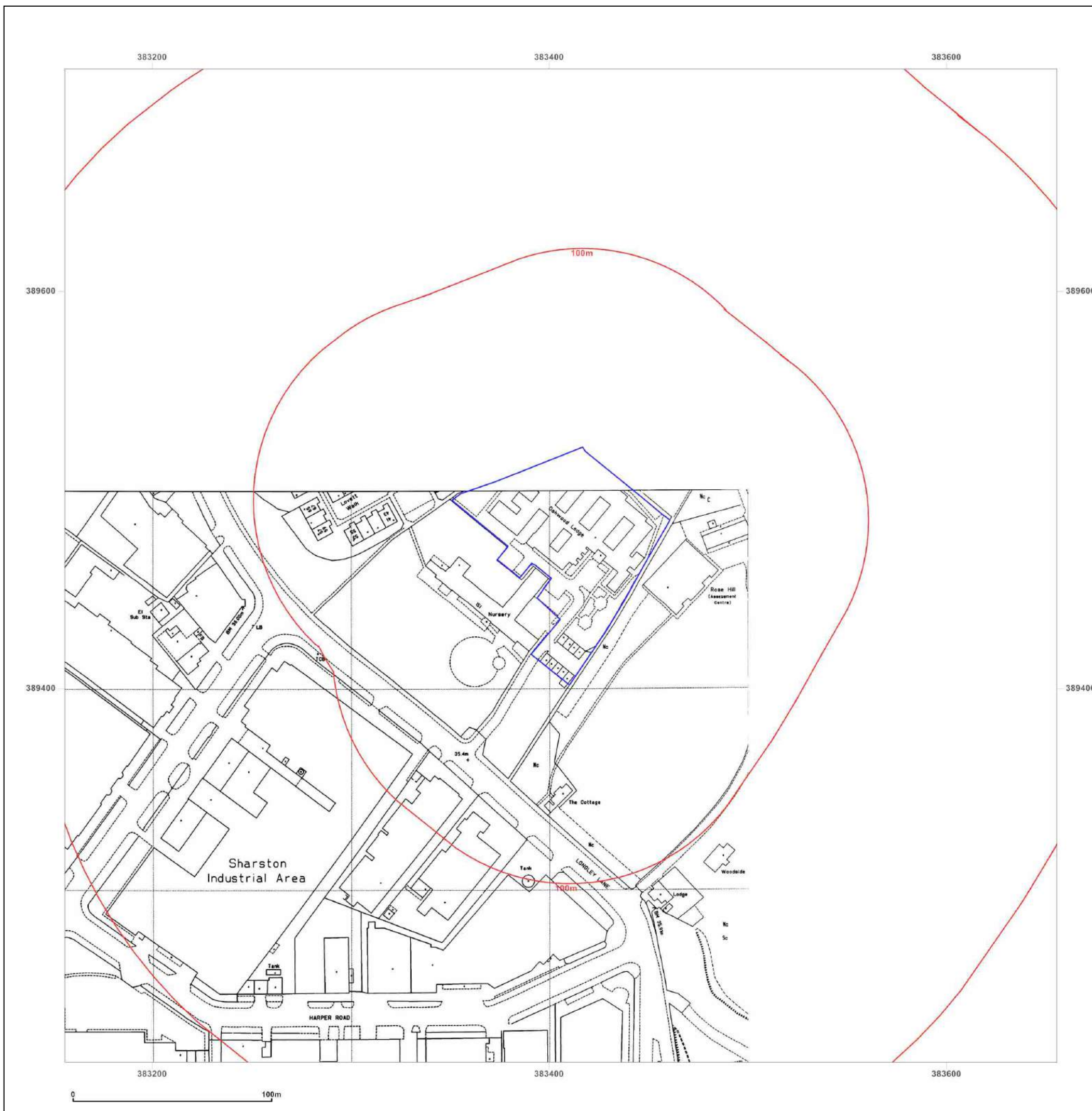


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Report Ref: GS-6176287
Grid Ref: 383406, 389462

Map Name: National Grid

Map date: 1995

Scale: 1:1,250

Printed at: 1:2,000



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Revised 1995
Edition N/A
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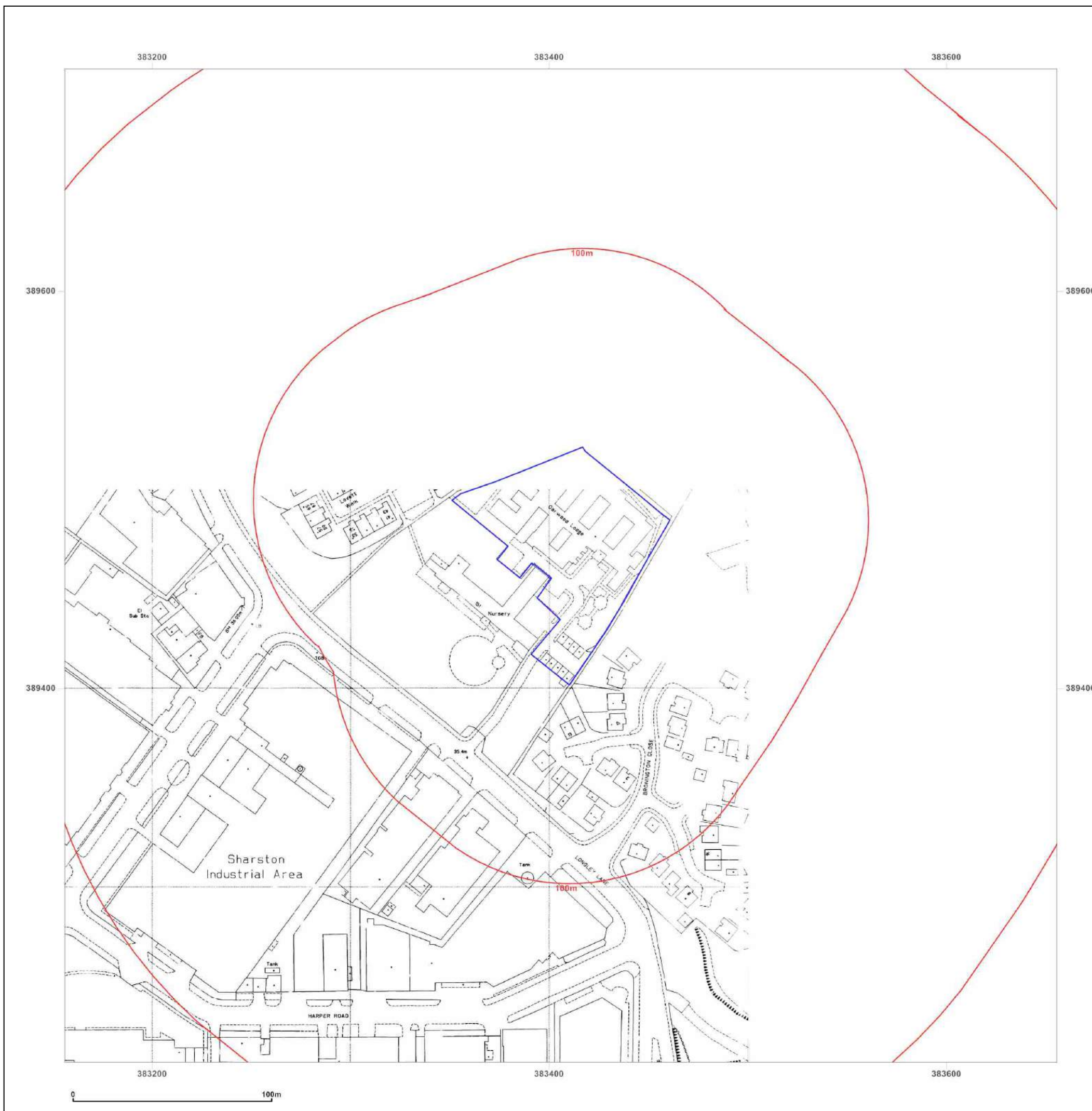


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Client Ref: 8928G_-_Oakwood
Report Ref: GS-6176287
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Revised 1995
Edition N/A
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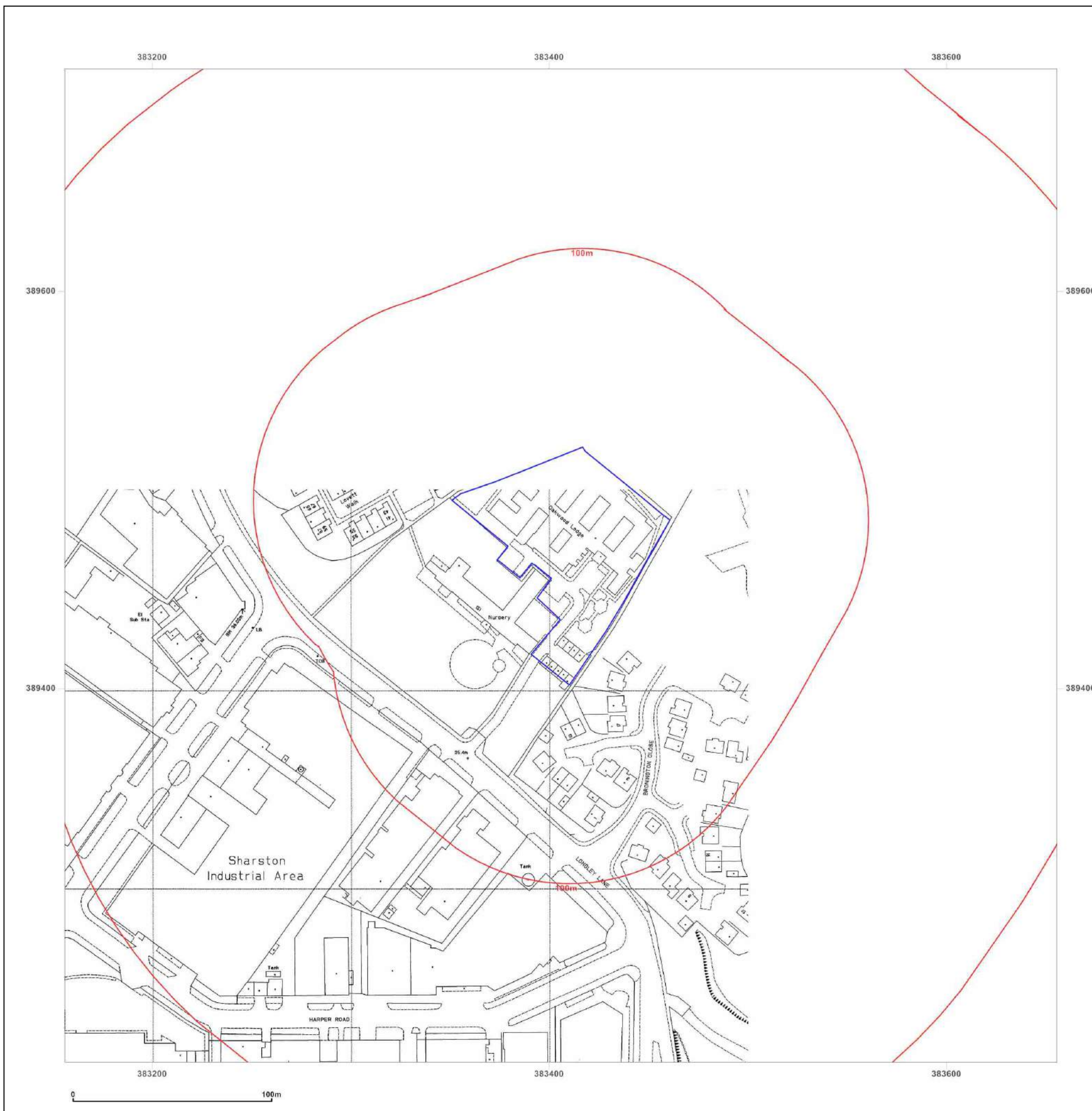


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APPENDIX 04

Qualitative Risk Assessment Guidance

Qualitative Risk Assessment Guidance

The Preliminary Contamination Risk Assessment methodology within the Phase 1 Desk Study Report is undertaken with reference to the following CIRIA guidance.

- Contaminated Land Risk Assessment - A Guide to Good Practice CIRIA C552:2001.

In practical terms, risk evaluation is undertaken in order to ascertain if potential risks are considered to be acceptable via classification following factors.

- The magnitude of the potential **consequences** (severity) of the risk occurring.
- The magnitude of the **probability** (likelihood) of the risks occurring.
- The potential consequences of contamination risks occurring at the Site should be classified in accordance with the following table which is adapted from Table 6.3 in the CIRIA guidance.

Table 1 Classification of Consequence

Classification	Definition
Severe	Short term (acute) risk to human health likely to result in 'significant harm' as defined by the <i>Environment Protection Act 1990</i> , Part IIA. Short term risk of (significant) pollution of sensitive water resource or ecosystem. Catastrophic damage to building/property. Short term risk to a particular ecosystem, or organism forming part of such an ecosystem.
Medium	Chronic damage to human health (significant harm). Pollution of sensitive water resources. A significant change in a particular ecosystem, or an organism forming part of such an ecosystem.
Mild	Pollution of non-sensitive water resources. Significant damage to crops, buildings, structures and services. Damage to sensitive buildings/structures/services or the environment.
Minor	Harm, although not necessarily significant harm, which may results in a financial loss, or expenditure to resolve. Non-permanent, easily preventable effects to human health. Easily repairable damage to buildings, structures and services.

The probability or likelihood of a risk occurring is then classified in accordance with Table 6.4 in the CIRIA Guidance which is also reproduced in Table 2 below.

Table 2 Classification of Probability

Classification / Likelihood	Definition
High	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	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 pollution linkage but circumstances are such that it is improbable that an event would occur even in the very long term.

These classifications are then compared to indicate the risk to each pollution linkage. For each likelihood scenario, it will be assumed that a pollution linkage exists between the source and any potential receptors. The classification is not applied if no active pollution linkage is perceived to exist.

Upon classification of both the consequences and probability, the two can be compared in Table 6.5 within the guidance, in order to produce a risk category rating. The risk categories range from 'Very High Risk' to 'Very Low Risk' and should be determined for each potential pollutant linkage as oppose to each receptor or hazard as indicated above.

The matrix table is reproduced in Table 3 below.

Table 3 Consequence Vs Probability Matrix

		Consequence			
		Severe	Medium	Mild	Minor
Probability	High Likelihood	Very High Risk	High Risk	Moderate Risk	Moderate / Low Risk
	Likely	High Risk	Moderate Risk	Moderate / Low Risk	Low Risk
	Low Likelihood	Moderate Risk	Moderate / Low Risk	Low Risk	Very Low Risk
	Unlikely	Moderate / Low Risk	Low Risk	Very Low Risk	Very Low Risk

The outcome of the Consequence vs Probability matrix should be compared to the risk definitions and likely actions required in Table 4 (Table 6.6 in CIRIA C552).

The outcome will then determine the overall risk category for the site and should form the basis for any proposed investigation work and remedial actions to be determined. The assessment is based on a qualitative approach at the initial Phase 1 Desk Study, and should be updated following the results of any subsequent ground investigation results.

Table 4 Definitions of Classified Risks and Likely Required Actions

Risk Category	Definition
Very High	<p>There is a high probability that severe harm could arise to a designated receptor from an identified hazard OR, there is evidence that severe harm to a designated receptor is currently happening.</p> <p>This risk (if realised) is likely to result in a substantial liability.</p> <p><u>Required Actions</u></p> <p><i>Urgent investigation (if not undertaken already) and remediation are likely to be required.</i></p>
High	<p>Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability.</p> <p><u>Required Actions</u></p> <p><i>Urgent investigation (if not undertaken already) is required and remedial works may be necessary in the short term and are likely over the longer term.</i></p>
Moderate	<p>It is possible that harm could arise to a designated receptor from an identified hazard. However, if it is either relatively unlikely that any such harm would be severe, or if any harm were to occur it is likely that the harm would be relatively mild.</p> <p><i>Investigation (if not already undertaken) is normally required to clarify the risk and to determine the potential liability. Some remedial works may be required in the longer term.</i></p>
Low	<p>It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild.</p>
Very Low	<p>There is a low possibility that harm could arise to a receptor. In the event of such harm being realised it is not likely to be severe.</p>