

Phase 1 Desk Study and
Preliminary Geoenvironmental Assessment

For a site at

103 Bigdale Drive, Kirby

Undertaken for

Advent Construction (NW) Ltd

Report Title:	103 Bigdale Drive, Kirby Phase 1 Desk Study and Preliminary Geoenvironmental Assessment
Report Reference:	10757G-WML-XX-ZZ-RP-G-0001
Client:	Advent Construction (NW) Ltd
Issue Date:	17th October 2022
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1.0 INTRODUCTION

Appointment

- 1.1 WML Consulting has been commissioned by Paddock Johnson Architects Limited on behalf of Advent Construction (NW) Ltd to undertake a Phase 1 Desk Study and Preliminary Geoenvironmental Assessment of a site at 103 Bigdale Drive, Kirkby, Merseyside.

Proposed Development

- 1.2 The proposed development is understood to comprise the construction of a new two storey apartment block comprising twenty apartment units.
- 1.3 External works will include the construction of new hardstanding for access and parking with localised soft landscaped amenity areas.
- 1.4 The proposed development plans by Paddock Johnson, referenced 22017-PJA-00ZZ-DR-A-1000-B, are included within Appendix 01.

Objective

- 1.5 The purpose of the desk study is to collate available geological and environmental data for the site and its environs in order to undertake a preliminary geotechnical and geoenvironmental appraisal and thus inform a site-specific conceptual model.
- 1.6 This enables a preliminary assessment of geo-environmental risks to be undertaken and provides information for the design of a geotechnical and geo-environmental ground investigation.
- 1.7 This follows current recommendations set out in the Environment Agency (EA) Model Procedures for Land Contamination Risk Management, April 2021.

Scope

- 1.8 The desk study has comprised a site walkover on 15th September 2022 and a review of the following information sources:
- British Geological Survey (BGS) 1:50,000 scale, Sheet 84 'Wigan' (Solid & Drift editions).
 - BGS Digital Geological Map of Great Britain (DiGMapGB-50; available as a web map service).
 - Coal Authority interactive map viewer (available as a Web Map Service).
 - The site and surrounding area's geological and environmental setting from data presented in the site specific GroundSure Environmental Insight Report (Appendix 03).
 - Historical Ordnance Survey maps as provided by GroundSure (Appendix 03).
 - Review of free public sector information through QGIS viewer licensed under the Open Government Licence v3.0.
 - UKradon Indicative Atlas of radon in England and Wales as provided by the UK Health Security Agency.
 - BRE Publication 211 (2015) "Radon: Guidance on Protective Measures for New Buildings".

2.0 SITE SETTING

Description	Comments
Site Address	103 Bigdale Drive Kirkby Merseyside L33 6UR
National Grid Reference	342084E, 399474N
Site Area	0.21 hectares
Site Location	The site is bounded by:- • North – Brook Hey Drive, beyond which is undeveloped land and low rise residential development. • South – Wingate Medical Centre. • East – Residential housing on Bigdale Drive. • West – Residential housing on Brook Hey Drive.
Site Description	At the time of the inspection in September 2022 the site had been cleared of structures and was disused. The site comprised an area of rough ground, with the southern part surfaced with asphalt in a poor state of repair. The central and northern sections comprised low lying shrubs. A localised area in the east of the site showed evidence of having been scraped by an excavator, and two small piles of asphalt pairings were present in this area, along with an empty and damaged metal drum. The drum appeared to have been fly tipped and was clean to the inside. The southern site boundary was defined by a steel palisade fence. All other boundaries were open. Access appears to be provided to the eastern and southern site boundaries to the residential structures along Brook Hey Walk to the west. Photographs of the site are provided in Appendix 02.
Topography	No topographic survey of the site has been available for review at the time of reporting. However, aerial imagery indicates that the site is generally level and commensurate with the surrounding land at around 31m Above Ordnance Datum (AOD).

3.0 ENVIRONMENTAL SETTING

3.1 The following sections on the environmental setting of the site are summarised from the GroundSure Enviro Insight Report and a review of the information sources outlined within Section 1.8.

Description	Comments	
Geology (1:10, 000, 1:50,000 scale Map Sheets and digital mapping)	Artificial Deposits	None recorded within the site.
	Superficial Deposits	Shirdley Hill Sand Formation comprising a loose sand locally with peat horizons.
	Solid Strata	Chester Formation, indicated to comprise sandstone.
	Geological Faults	None within 250m of the site.
	BGS Records	None within 250m of the site
Mining and Subsidence	In consideration of the indicated geology, risks to the development from subsidence relating to shallow, unrecorded abandoned mine workings are considered low and can be discounted. The risk from non-coal mining activity at the site is also considered low.	
Radon	The site is not in a Radon Affected Area as defined by the Health Protection Agency, as less than 1% of properties are above the Action Level of exposure. Therefore, no radon protection measures are necessary for new structures as described in publication BR211 by the Building Research Establishment.	
Hydrogeology	Superficial Aquifer	Secondary A Aquifer These comprise layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.
	Bedrock Aquifer	Principal These comprise geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale.
	Source Protection Zone (SPZ) within 500m	The site is within an EA Zone 3 'Total Catchment' Source Protection Zone.
	Groundwater Abstractions within 500m	None.

Description	Comments		
Hydrology	Surface Water Features within 250m	Kirkby Brook is present approximately 19m north of the site, confined within an underground culvert and therefore unlikely to be significantly influenced by ground conditions at the site.	
	Surface Water Abstractions within 500m	None.	
Landfill and Waste Management Activity	Active Landfills within 500m	None.	
	Historical (Environment Agency (EA)/Local Authority) Landfill within 250m	None.	
	Other Waste Sites within 250m	One waste exemption is listed at 189m south of the site, comprising the use of waste in construction but is not considered to pose a risk to the site.	
Industrial Land Use Information	There are 4no potentially contaminative industrial sites recorded within 250m of the subject site, comprising:-		
	Distance (m)	Direction	Activity
	24	W	Electricity substation
	57	S	Vehicle parts and accessories
	102	S	Electricity substation
	145	NE	Electricity substation
	Underground High Pressure Pipelines within 500m		None.
	Petrol Filling Stations within 250m		None.
Environmental Permits, Incidents and Registers	Permits Incidents/Registers		Distance (m)
	IPC Authorisations, Part A(1),		250
	Part A(2) Authorised Activities		250
	Part B IPPC Authorised Activities		250
	List 1 or List 2 Dangerous Substances Inventory Sites		250
	Radioactive Substance Authorisations		250
	Recorded Pollution Incidents		250
	Control of Major Accident Hazards (COMAH)		250

Description	Comments		
	Contaminated Land - Section 78R of the Environmental Protection Act 1990	250	None
Potential Flood Risk	Detailed assessment of flood risk is outside the scope of this report. However, reference to the EA website and the Groundsure report indicates that the risk of flooding from rivers and the sea (RoFRaS) is currently designated as 'low'. The site is indicated on BGS records to be within an area which is considered to have a moderate risk of groundwater flooding.		
Environmentally Sensitive Sites	Other than being located within a Nitrate Vulnerable Zone, there are no designated environmentally sensitive sites within 250m of the subject site. However, an ecological assessment of the site falls outside of the brief of this report and it is recommended that an ecological specialist be consulted where considered necessary.		
Archaeological Information	No archaeological information has been obtained for the purpose of this report. Where considered appropriate, reference should be made to an archaeological consultant in this respect.		

4.0 HISTORICAL SETTING

- 4.1 The historical development of the site has been determined by reference to archive Ordnance Survey (OS) map extracts obtained from the GroundSure EnviroInsight Report in Appendix 03.
- 4.2 The earliest map dated 1867 indicates the site to comprise undeveloped agricultural land, with a tree lined field boundary extending east to west through southern end of the site.
- 4.3 The site then remained relatively unchanged until sometime between 1978 and 1987 when it was developed as a centrally located public house, surrounded presumably by a mix of soft and hard standing. The site remained relatively unchanged until sometime between 2010 and 2013 when it was cleared and has since remained undeveloped.
- 4.4 In the surrounding areas several small pond features were located respectively, these appeared to have been infilled between 1908 (west) and 1962 (south)
- 4.5 The area surrounding the site historically initially comprised undeveloped agricultural land with field ponds 80 to 100m south and west respectively. These were infilled between 1908 and 1962 as the surrounding areas were developed into primarily residential housing with a school and medical centre.
- 4.6 Therefore, on the basis of the previous site use, no significant widespread sources of ground contamination are envisaged.
- 4.7 However, the potential for more localised contamination cannot be wholly discounted at this stage. This could include Asbestos Containing Materials (ACM) within near surface soils as a result of previous construction and demolition activity.

5.0 PRELIMINARY CONTAMINATION RISK ASSESSMENT

Introduction

- 5.1 The following paragraphs outline a Preliminary Risk Assessment (PRA) for the site as defined by DEFRA and the EA Model Procedures for Land Contamination Risk Management, April 2021.
- 5.2 The table in Paragraph 5.4 provides a Preliminary Conceptual Model (PCM) which defines the site in terms of a potential contamination linkage, that is, whether a pathway exists between a contamination source and a sensitive environmental receptor (Source-Pathway-Receptor relationship).
- 5.3 The table considers whether a contamination linkage is potentially present or not and provides a preliminary qualitative assessment of risk, based on the information currently available and in accordance with guidance provided in the CIRIA document C552 (2001) Contaminated Land Risk Assessment – A Guide to Good Practice. The risk evaluation process is described further in Appendix 04.
- 5.4 Where a possible linkage is identified, it does not necessarily mean that a significant risk exists, but indicates that further information is required through appropriate site investigation to substantiate the conceptual model.

Source	Pathway	Receptor	Probability of Linkage	Comment
The likelihood of significant ground contamination sources being present at the site due to its past use is considered low, although localised sources cannot be wholly discounted at this stage. The presence of ACM within existing structures and shallow soils cannot wholly be discounted at this stage.	Direct contact, ingestion of soil, dermal contact, dust exposure pathways.	Current Site Users	Low	The site is currently disused although freely accessible to the general public, and the presence of ground contamination sources is considered unlikely. Therefore, the risk to current site users from direct contact with contaminants is considered LOW .
		Site End Users	Low	The provision of new buildings and hard cover would continue to break the direct contamination linkage. An exposure route may remain within any proposed soft landscaped. However, the overall preliminary risk to site end users from direct contact with contaminated ground is considered LOW .
		Construction Workers	Low	Construction workers could potentially be exposed to contaminated soils during any groundworks at the site. However, any perceived contamination risks will be mitigated by adopting good site working practices including appropriate Health and Safety measures during the works, thus providing a LOW preliminary risk.

Source	Pathway	Receptor	Probability of Linkage	Comment
		Adjacent land users	Low	Contact via wind-blown dust/debris, particularly during the development phase is possible although the exposure time would be relatively short. The current risk is considered LOW , although this could increase during construction works. Appropriate health and safety measures, including dust suppression adopted during site development will ensure that the risk to adjacent site users remains low.
The presence of widespread and significant soluble and/or liquid and therefore mobile contaminants occurring at the site due to its past use is considered low.	Direct downward migration through leaching and/or mobile liquids.	Groundwater	Low	The site is indicated to be underlain by a superficial Secondary A Aquifer and bedrock Principal (Bedrock) Aquifer. However no significant source of contamination is anticipated to be present, thus providing a LOW preliminary risk to groundwater.
	Off-site migration in groundwater or surface water flow.	Surface water	Unlikely	There are no nearby surface water features likely to be influenced by the site, and no significant sources of mobile contaminants are anticipated beneath the site. Therefore the preliminary risk to surface water is considered VERY LOW .
		Groundwater and surface water abstractions	Unlikely	The site is within an EA SPZ3, and there are no water abstractions within 500m. However, as no significant sources of mobile contaminants are anticipated beneath the site the risk is therefore considered LOW .
		Adjacent Properties	Low	No significant sources of mobile contamination are anticipated beneath the site. Therefore, the preliminary risk to adjacent properties is considered LOW .
		Ecology	Unlikely	There are no designated ecologically sensitive sites within influencing distance of the subject site. The preliminary risk to the surrounding ecology from any contamination arising from the site is therefore considered VERY LOW .
The likelihood of volatile contaminants occurring at the site due to its past use is considered low.	Inhalation of harmful vapours (indoor and outdoor airspaces)	Current Site Users	Unlikely	Significant sources of volatile contaminants at the site are not anticipated and no structures are present in which build-up of volatile contaminants could occur. In addition, the transient use of the site will minimise the exposure time to any volatile contamination. Therefore the preliminary perceived risk to current site users is assessed as VERY LOW .

Source	Pathway	Receptor	Probability of Linkage	Comment
		Site End Users	Low	Significant sources of volatile contaminants at the site are not anticipated to be present on the basis of historic use of the site. The preliminary risk to end users of the redeveloped site is considered to be LOW .
		Construction Workers	Unlikely	In the unlikely event of construction workers coming into contact with possible volatile compounds, the exposure time will be relatively short. The chronic exposure risk to construction workers, assuming that appropriate health and safety measures will be adopted, is therefore considered LOW .
		Adjacent Properties	Unlikely	Significant sources of volatile contaminants arising from the site's past use are not anticipated. Therefore the preliminary risk to adjacent properties from volatile contaminants at the site is assessed as LOW .
There are no operational or historic landfills recorded within influencing distance of the site. Thicknesses of peat within the Shirdley Hill Sand are not anticipated to be significant such as would provide a source of ground gas. The presence of ground gas resulting from shallow unrecorded mine workings can be discounted.	Emissions from the ground beneath the site collecting in confined spaces and excavations	Construction/ services maintenance workers	Unlikely	The potential to generate significant volumes of toxic and/ or flammable/ explosive gas beneath or in proximity to the site is considered low. Assuming that appropriate health and safety measures will be adopted during construction, the preliminary risk is therefore considered LOW .
	Migration of gases on/off site and collecting in confined spaces on/off site.	Adjoining site users	Unlikely	The likelihood of significantly volumes of ground gas arising from the site to migrate to adjoining properties is considered low. Therefore, the preliminary risk to adjacent properties from the site is considered LOW .
		Current/future site users	Low	The potential to generate significant volumes of ground gas beneath or in proximity to the site is low. The potential risk to current and future site users is therefore considered LOW .
The site is within an area where less than 1% of properties are affected by naturally occurring radon gas.	Natural emissions from the ground collecting in confined spaces within buildings	Site end users	No linkage envisaged	The site is not located in an area where radon protection measures are required. Therefore, the potential risk to site end users is considered VERY LOW .

Source	Pathway	Receptor	Probability of Linkage	Comment
Chemicals which could prove aggressive to construction materials may be present on site.	Direct contact	Construction concrete, plastic water pipes.	Unlikely	Any risks to construction materials identified after site investigation and assessment will be mitigated as part of the structural design. The perceived risk is therefore considered LOW .

Preliminary Risk Assessment

- 5.5 Under the proposed development scenario, potential pollution linkages are considered low or unlikely with associated preliminary risks being assessed as very low or low.
- 5.6 The approach at the Phase 1 Desk Study stage must, however, be precautionary until such time as uncertainties in the conceptual model can be verified by appropriate site investigation.
- 5.7 Such uncertainties relate in the main to the potential for ACM and asbestos fibres to be present within existing structures and shallow soils resulting from historical demolition. The level of historical contamination as a result of the site's brownfield status should also be established.
- 5.8 The fly tipped drum appeared to be clean to the inside and had not caused any impact to the ground surface.

6.0 PRELIMINARY DEVELOPMENT CONSIDERATIONS

Development Consideration	Summary
Public Right of Way	Prior to development commencing, the extent of the public footpath along the eastern and southern boundaries of the site should be agreed with the Local Authority and delineated on site so that it can be isolated from and maintained during the works activities. This may require a stopping up notice should the footpath need to be diverted.
Ground Obstructions	Foundations, ground floor slabs and other buried concrete obstructions associated with historical structures will need to be removed within areas that impinge upon the proposed development.
Foundations and Floor Slabs	In consideration of the potential for loose Shirdley Hill sand and localised thick made ground anticipated to parts of the central site area, it cannot be discounted that new structures may need to be supported on deep trench fill foundations or more locally piled.
Drainage and Soakaways	On the basis of the anticipated granular nature of the strata a soakaway drainage solution may be suitable for the redeveloped site subject to confirmation of ground conditions and groundwater levels.
Existing Services	The locations of all existing services will need to be accurately determine across the full footprint of the development area. It cannot be ruled out that services may need to be diverted to accommodate the proposed development.

7.0 SUMMARY AND RECOMMENDATIONS

Development Considerations	Comments
Shallow Coal Mining	Low risk.
Flood Risk	Very low risk.
Ground Obstructions	Foundations, ground floor slabs and other buried concrete obstructions associated with historic structures will need to be removed.
Foundations	These may require deep trench fill or possibly piles.
Ground Contamination	Low preliminary risk to be confirmed by ground investigation and chemical analysis.
Hazardous Ground Gas	Low preliminary risk.
Radon	No radon protection measures are required.
Soakaway Drainage	May be suitable, subject to confirmation by ground investigation.

Site Investigation

- 7.1 Site investigations will be necessary to provide information on the physical and chemical ground conditions. This will enable assumptions made in the preliminary site conceptual model to be confirmed or modified so as to assess the actual environmental risks posed by the site.
- 7.2 The investigation will comprise sampling and chemical analysis of the near surface soil and will include analysis for the identification of ACM and asbestos fibres, if present. Depending on the proposed development options and ground conditions encountered, investigations may also need to include monitoring for ground gas.
- 7.3 Ground investigations will also provide parameters for the design of foundations, floor slabs and external pavements.
- 7.4 Site investigations will be undertaken in accordance with British Standard Institution (BSI), Code of Practice for Ground Investigations – BS5930:2015 and Investigation of Potentially Contaminated Sites – Code of Practice. BS 10175:2011 + A2: 2017.

APPENDIX 01

Drawings

103 Bigdale Drive, Kirby L33 6UR





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REV:	DATE:	DESCRIPTION:	BY:
A	30.3.22	Areas Increased	PO
B	21.07.22	Entrance to apartment relocated.	RD

- Ground Floor Apartment 50sqm
Apartment Type 1
10no. units
- First Floor Apartment 56sqm (5+51)
Apartment Type 2
10no. units

Net Internal Area 1060sqm
(Excludes Party Wall Area)

Total GIFA 1137sqm
(includes Masonry Party Wall area)

APPENDIX 02

Site Photographs



Photograph 1
View west along the southern boundary of the site.



Photograph 2
View north-west across the site from the south-eastern corner.



Photograph 3
View north along eastern site boundary showing presence of asphalt stockpile.



Photograph 4
View north-west showing along the southern boundary.



Photograph 5
View north-west towards the western site boundary with Brook Hey Walk.



Photograph 6
View north-east across site from western site boundary.

APPENDIX 03

GroundSure Enviro & GeoInsight Report

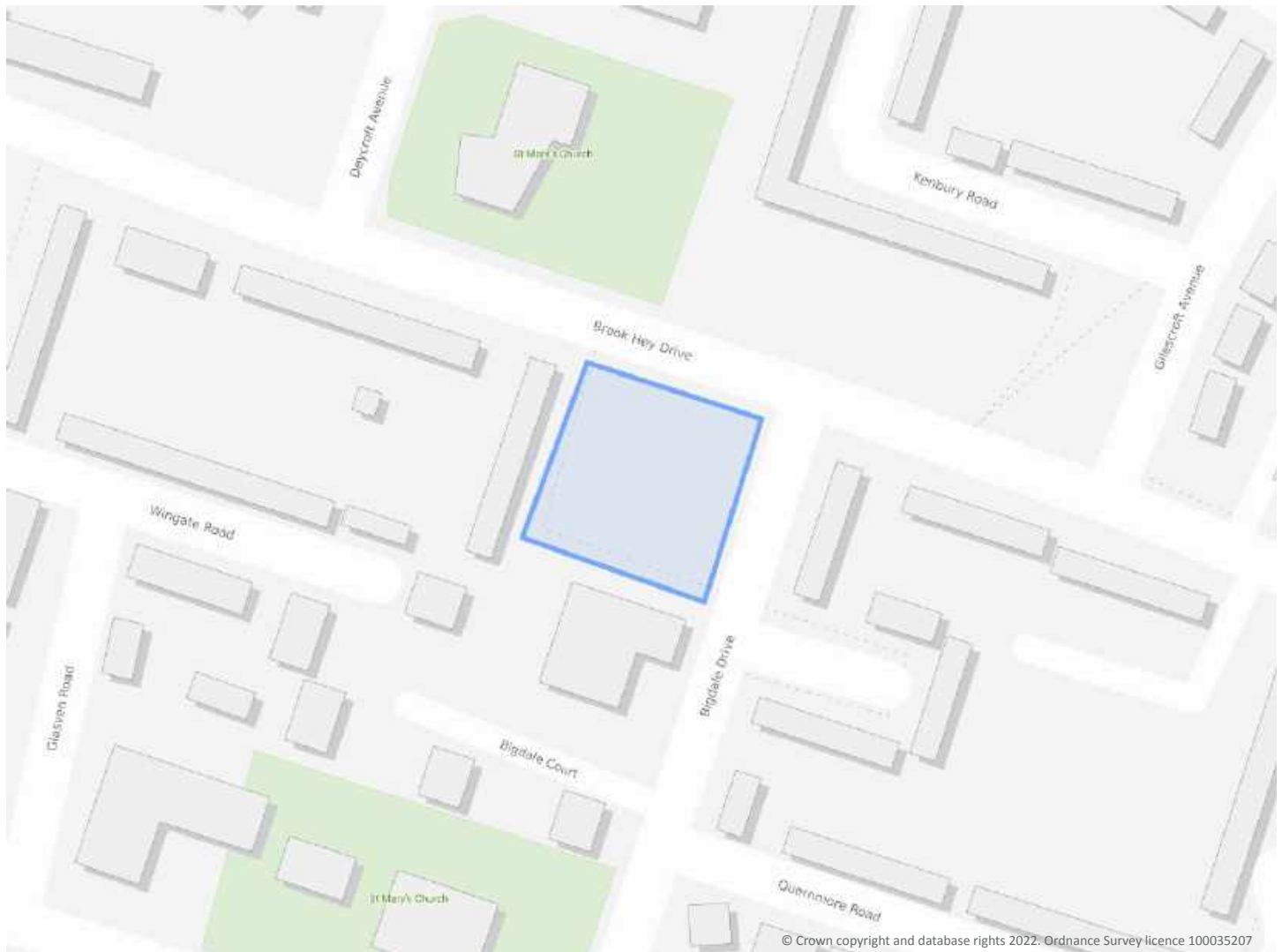
103 LAND NEXT TO BIGDALE DRIVE, BIGDALE DRIVE, NORTHWOOD, KIRKBY, L33 6UP

Order Details

Date: 09/09/2022
Your ref: 10757G
Our Ref: HMD-424-9043501

Site Details

Location: 342084 399474
Area: 0.21 ha
Authority: [Knowsley Metropolitan Borough Council](#)



Summary of findings

p. 2

Aerial image

p. 8

OS MasterMap site plan

p.12

groundsure.com/insightuserguide

Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
13	1.1	Historical industrial land uses	0	0	0	10	-
14	1.2	Historical tanks	0	0	0	3	-
14	1.3	Historical energy features	0	2	3	10	-
15	1.4	Historical petrol stations	0	0	0	0	-
16	1.5	Historical garages	0	0	0	1	-
16	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
17	2.1	Historical industrial land uses	0	0	0	12	-
18	2.2	Historical tanks	0	0	0	3	-
18	2.3	Historical energy features	0	3	5	29	-
20	2.4	Historical petrol stations	0	0	0	0	-
20	2.5	Historical garages	0	0	0	4	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
21	3.1	Active or recent landfill	0	0	0	0	-
21	3.2	Historical landfill (BGS records)	0	0	0	0	-
22	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
22	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
22	3.5	Historical waste sites	0	0	0	0	-
22	3.6	Licensed waste sites	0	0	0	0	-
22	3.7	Waste exemptions	0	0	1	1	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
24	4.1	Recent industrial land uses	0	1	3	-	-
25	4.2	Current or recent petrol stations	0	0	0	1	-
25	4.3	Electricity cables	0	0	0	0	-
25	4.4	Gas pipelines	0	0	0	0	-
25	4.5	Sites determined as Contaminated Land	0	0	0	0	-



26	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
26	4.7	Regulated explosive sites	0	0	0	0	-
26	4.8	Hazardous substance storage/usage	0	0	0	0	-
26	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
26	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
27	4.11	Licensed pollutant release (Part A(2)/B)	0	0	0	0	-
27	4.12	Radioactive Substance Authorisations	0	0	0	0	-
27	4.13	Licensed Discharges to controlled waters	0	0	0	0	-
27	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
27	4.15	Pollutant release to public sewer	0	0	0	0	-
28	4.16	List 1 Dangerous Substances	0	0	0	0	-
28	4.17	List 2 Dangerous Substances	0	0	0	0	-
28	4.18	<u>Pollution Incidents (EA/NRW)</u>	0	0	0	3	-
29	4.19	Pollution inventory substances	0	0	0	0	-
29	4.20	Pollution inventory waste transfers	0	0	0	0	-
29	4.21	Pollution inventory radioactive waste	0	0	0	0	-
Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
30	5.1	<u>Superficial aquifer</u>	Identified (within 500m)				
32	5.2	<u>Bedrock aquifer</u>	Identified (within 500m)				
34	5.3	<u>Groundwater vulnerability</u>	Identified (within 50m)				
35	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
35	5.5	Groundwater vulnerability- local information	None (within 0m)				
36	5.6	<u>Groundwater abstractions</u>	0	0	0	0	38
45	5.7	<u>Surface water abstractions</u>	0	0	0	0	4
46	5.8	<u>Potable abstractions</u>	0	0	0	0	3
47	5.9	<u>Source Protection Zones</u>	1	0	0	0	-
47	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-
Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
48	6.1	<u>Water Network (OS MasterMap)</u>	0	1	0	-	-

49	6.2	Surface water features	0	0	0	-	-
49	6.3	<u>WFD Surface water body catchments</u>	1	-	-	-	-
49	6.4	<u>WFD Surface water bodies</u>	0	0	0	-	-
50	6.5	<u>WFD Groundwater bodies</u>	1	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
51	7.1	Risk of flooding from rivers and the sea	None (within 50m)				
51	7.2	Historical Flood Events	0	0	0	-	-
51	7.3	Flood Defences	0	0	0	-	-
52	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
52	7.5	Flood Storage Areas	0	0	0	-	-
53	7.6	Flood Zone 2	None (within 50m)				
53	7.7	Flood Zone 3	None (within 50m)				
Page	Section	Surface water flooding					
54	8.1	<u>Surface water flooding</u>	1 in 30 year, 0.1m - 0.3m (within 50m)				
Page	Section	Groundwater flooding					
56	9.1	<u>Groundwater flooding</u>	Moderate (within 50m)				
Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
57	10.1	Sites of Special Scientific Interest (SSSI)	0	0	0	0	0
58	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
58	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
58	10.4	Special Protection Areas (SPA)	0	0	0	0	0
58	10.5	National Nature Reserves (NNR)	0	0	0	0	0
59	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
59	10.7	Designated Ancient Woodland	0	0	0	0	0
59	10.8	Biosphere Reserves	0	0	0	0	0
59	10.9	Forest Parks	0	0	0	0	0
60	10.10	Marine Conservation Zones	0	0	0	0	0
60	10.11	<u>Green Belt</u>	0	0	0	0	2
60	10.12	Proposed Ramsar sites	0	0	0	0	0



60	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
61	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
61	10.15	Nitrate Sensitive Areas	0	0	0	0	0
61	10.16	<u>Nitrate Vulnerable Zones</u>	1	0	0	0	1
62	10.17	SSSI Impact Risk Zones	0	-	-	-	-
62	10.18	SSSI Units	0	0	0	0	0
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
63	11.1	World Heritage Sites	0	0	0	-	-
63	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
63	11.3	National Parks	0	0	0	-	-
63	11.4	Listed Buildings	0	0	0	-	-
64	11.5	Conservation Areas	0	0	0	-	-
64	11.6	Scheduled Ancient Monuments	0	0	0	-	-
64	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
65	12.1	<u>Agricultural Land Classification</u>	Urban (within 250m)				
66	12.2	Open Access Land	0	0	0	-	-
66	12.3	Tree Felling Licences	0	0	0	-	-
66	12.4	Environmental Stewardship Schemes	0	0	0	-	-
66	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
67	13.1	<u>Priority Habitat Inventory</u>	0	0	1	-	-
68	13.2	Habitat Networks	0	0	0	-	-
68	13.3	Open Mosaic Habitat	0	0	0	-	-
68	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
69	14.1	<u>10k Availability</u>	Identified (within 500m)				
70	14.2	Artificial and made ground (10k)	0	0	0	0	-
71	14.3	Superficial geology (10k)	0	0	0	0	-

71	14.4	Landslip (10k)	0	0	0	0	-
72	14.5	Bedrock geology (10k)	0	0	0	0	-
72	14.6	Bedrock faults and other linear features (10k)	0	0	0	0	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
73	15.1	<u>50k Availability</u>	Identified (within 500m)				
74	15.2	Artificial and made ground (50k)	0	0	0	0	-
74	15.3	Artificial ground permeability (50k)	0	0	-	-	-
75	15.4	<u>Superficial geology (50k)</u>	1	0	0	1	-
76	15.5	<u>Superficial permeability (50k)</u>	Identified (within 50m)				
76	15.6	Landslip (50k)	0	0	0	0	-
76	15.7	Landslip permeability (50k)	None (within 50m)				
77	15.8	<u>Bedrock geology (50k)</u>	1	0	1	0	-
78	15.9	<u>Bedrock permeability (50k)</u>	Identified (within 50m)				
78	15.10	Bedrock faults and other linear features (50k)	0	0	0	0	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
79	16.1	<u>BGS Boreholes</u>	0	0	7	-	-
Page	Section	Natural ground subsidence					
81	17.1	<u>Shrink swell clays</u>	Negligible (within 50m)				
82	17.2	<u>Running sands</u>	Low (within 50m)				
83	17.3	<u>Compressible deposits</u>	Negligible (within 50m)				
84	17.4	<u>Collapsible deposits</u>	Very low (within 50m)				
85	17.5	<u>Landslides</u>	Very low (within 50m)				
86	17.6	<u>Ground dissolution of soluble rocks</u>	Negligible (within 50m)				
Page	Section	Mining, ground workings and natural cavities	On site	0-50m	50-250m	250-500m	500-2000m
87	18.1	Natural cavities	0	0	0	0	-
88	18.2	<u>BritPits</u>	0	0	0	1	-
88	18.3	<u>Surface ground workings</u>	0	0	3	-	-
88	18.4	<u>Underground workings</u>	0	0	0	3	1
89	18.5	Historical Mineral Planning Areas	0	0	0	0	-



89	18.6	Non-coal mining	0	0	0	0	0
89	18.7	Mining cavities	0	0	0	0	0
90	18.8	JPB mining areas	None (within 0m)				
90	18.9	Coal mining	None (within 0m)				
90	18.10	Brine areas	None (within 0m)				
90	18.11	Gypsum areas	None (within 0m)				
90	18.12	Tin mining	None (within 0m)				
91	18.13	Clay mining	None (within 0m)				
Page	Section	Radon					
92	19.1	<u>Radon</u>	Less than 1% (within 0m)				
Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
93	20.1	<u>BGS Estimated Background Soil Chemistry</u>	2	0	-	-	-
93	20.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
93	20.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-
Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
94	21.1	Underground railways (London)	0	0	0	-	-
94	21.2	Underground railways (Non-London)	0	0	0	-	-
94	21.3	Railway tunnels	0	0	0	-	-
94	21.4	Historical railway and tunnel features	0	0	0	-	-
94	21.5	Royal Mail tunnels	0	0	0	-	-
95	21.6	Historical railways	0	0	0	-	-
95	21.7	Railways	0	0	0	-	-
95	21.8	Crossrail 1	0	0	0	0	-
95	21.9	Crossrail 2	0	0	0	0	-
95	21.10	HS2	0	0	0	0	-



Recent aerial photograph



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Capture Date: 22/04/2019

Site Area: 0.21ha



Recent site history - 2015 aerial photograph



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Capture Date: 11/06/2015

Site Area: 0.21ha



Recent site history - 2001 aerial photograph



Capture Date: 01/05/2001

Site Area: 0.21ha



Recent site history - 2000 aerial photograph

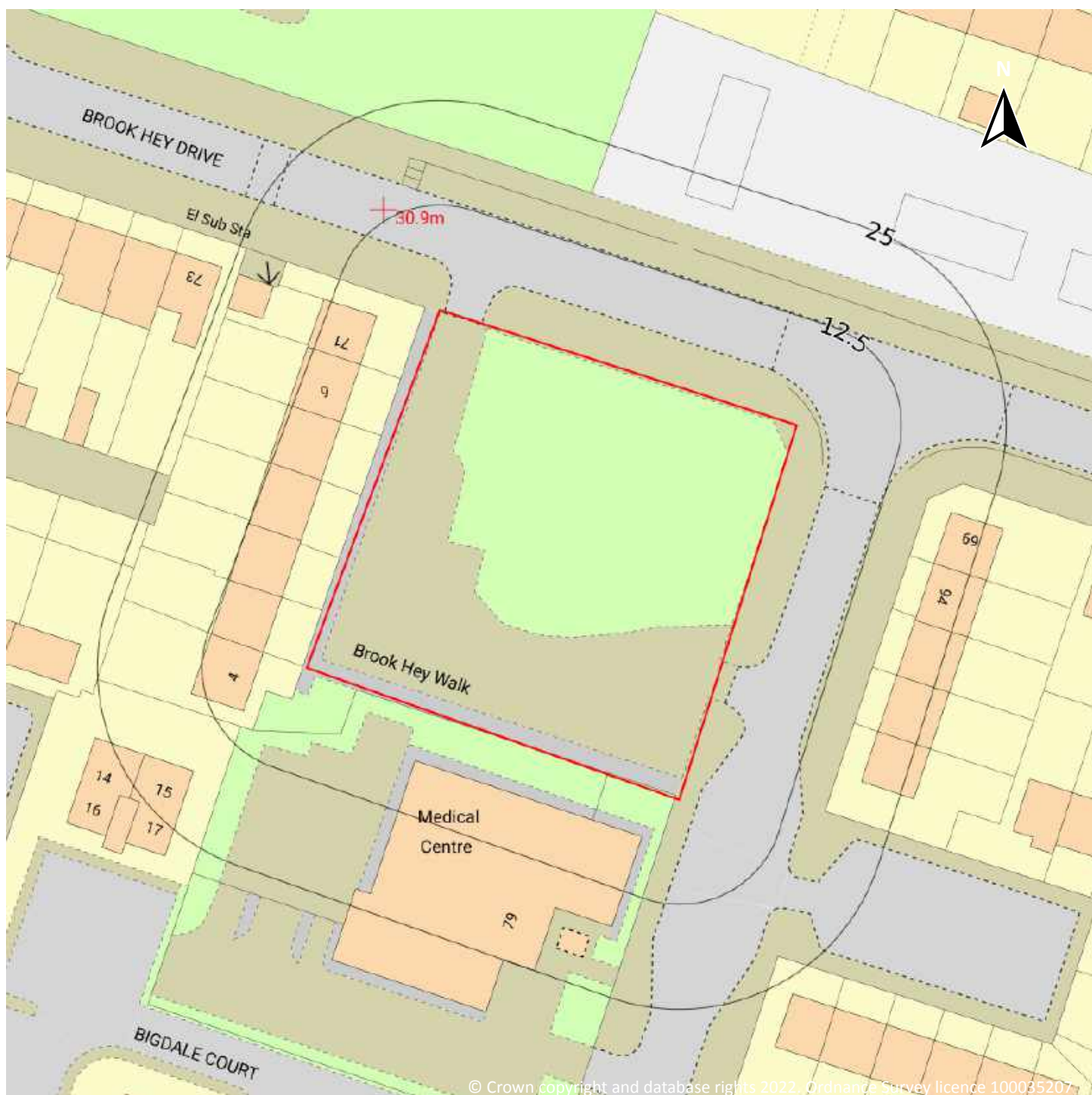


Aerial photography supplied by Getmapping PLC. © Copyright Getmapping PLC 2022. All Rights Reserved.

Capture Date: 21/07/2000

Site Area: 0.21ha

OS MasterMap site plan



Site Area: 0.21ha



1 Past land use



- Site Outline
- Search buffers in metres (m)
- Historical industrial land uses
- Historical tanks
- Historical energy features
- Historical garages

1.1 Historical industrial land uses

Records within 500m

10

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 13**

ID	Location	Land use	Dates present	Group ID
F	433m SW	Unspecified Quarry	1955	816613



ID	Location	Land use	Dates present	Group ID
9	435m NE	Railway Sidings	1955	954750
F	441m SW	Delf	1907 - 1928	952333
10	444m NE	Railway Sidings	1955 - 1976	2367747
F	462m SW	Delf	1890	916005
G	487m W	Unspecified Quarry	1955	816612
G	494m W	Sand Pit	1928	797463
11	494m NW	Cuttings	1928 - 1955	2366159
H	496m NW	Cuttings	1955	888935
H	497m NW	Cuttings	1890 - 1907	895013

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m

3

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 ungrouped 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 13**

ID	Location	Land use	Dates present	Group ID
D	369m NW	Tanks	1962	147528
D	372m NW	Tanks	1961	140650
D	376m NW	Tanks	1972	136745

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m

15

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 ungrouped 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 13**

ID	Location	Land use	Dates present	Group ID
A	19m W	Electricity Substation	1995 - 1996	77337
A	32m W	Electricity Substation	1985	61334
1	94m S	Electricity Substation	1985 - 1996	73848
B	147m NE	Electricity Substation	1995 - 1996	77903
B	148m NE	Electricity Substation	1985	65966
2	300m E	Electricity Substation	1985 - 1996	68330
3	305m N	Electricity Substation	1985 - 1996	80144
C	317m W	Electricity Substation	1968 - 1984	81510
C	317m W	Electricity Substation	1994 - 1996	68991
4	345m W	Electricity Substation	1996	61333
5	366m NE	Electricity Substation	1985 - 1996	68859
6	389m SE	Electricity Substation	1985 - 1996	83638
E	425m N	Electricity Substation	1972 - 1995	69630
E	427m N	Electricity Substation	1987	83892
8	428m SW	Electricity Substation	1968 - 1996	77084

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 ungrouped 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

1

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 ungrouped 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 13**

ID	Location	Land use	Dates present	Group ID
7	390m S	Garage	1994 - 1996	25840

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
- Historical garages

2.1 Historical industrial land uses

Records within 500m

12

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 17**

ID	Location	Land Use	Date	Group ID
M	433m SW	Unspecified Quarry	1955	816613
N	435m NE	Railway Sidings	1955	954750
M	441m SW	Delf	1907	952333

ID	Location	Land Use	Date	Group ID
M	442m SW	Delf	1928	952333
N	444m NE	Railway Sidings	1966	2367747
N	446m NE	Railway Sidings	1976	2367747
M	462m SW	Delf	1890	916005
O	487m W	Unspecified Quarry	1955	816612
O	494m W	Sand Pit	1928	797463
2	494m NW	Cuttings	1928	2366159
P	496m NW	Cuttings	1955	888935
P	497m NW	Cuttings	1907	895013

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m

3

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 17**

ID	Location	Land Use	Date	Group ID
H	369m NW	Tanks	1962	147528
H	372m NW	Tanks	1961	140650
H	376m NW	Tanks	1972	136745

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m

37

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 17**



ID	Location	Land Use	Date	Group ID
A	19m W	Electricity Substation	1995	77337
A	19m W	Electricity Substation	1996	77337
A	32m W	Electricity Substation	1985	61334
B	94m S	Electricity Substation	1996	73848
B	95m S	Electricity Substation	1985	73848
C	147m NE	Electricity Substation	1995	77903
C	147m NE	Electricity Substation	1996	77903
C	148m NE	Electricity Substation	1985	65966
D	300m E	Electricity Substation	1985	68330
D	301m E	Electricity Substation	1996	68330
E	305m N	Electricity Substation	1995	80144
E	305m N	Electricity Substation	1996	80144
E	306m N	Electricity Substation	1985	80144
F	317m W	Electricity Substation	1968	81510
F	317m W	Electricity Substation	1994	68991
F	317m W	Electricity Substation	1995	68991
F	317m W	Electricity Substation	1996	68991
F	317m W	Electricity Substation	1994	68991
F	318m W	Electricity Substation	1984	81510
1	345m W	Electricity Substation	1996	61333
G	366m NE	Electricity Substation	1995	68859
G	366m NE	Electricity Substation	1996	68859
G	367m NE	Electricity Substation	1985	68859
I	389m SE	Electricity Substation	1985	83638
I	391m SE	Electricity Substation	1996	83638
K	425m N	Electricity Substation	1995	69630
K	425m N	Electricity Substation	1994	69630
K	425m N	Electricity Substation	1994	69630

ID	Location	Land Use	Date	Group ID
K	425m N	Electricity Substation	1995	69630
K	426m N	Electricity Substation	1972	69630
K	427m N	Electricity Substation	1987	83892
L	428m SW	Electricity Substation	1994	77084
L	428m SW	Electricity Substation	1995	77084
L	428m SW	Electricity Substation	1996	77084
L	428m SW	Electricity Substation	1994	77084
L	428m SW	Electricity Substation	1968	77084
L	429m SW	Electricity Substation	1984	77084

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

4

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'.

Features are displayed on the Past land use - un-grouped map on **page 17**

ID	Location	Land Use	Date	Group ID
J	390m S	Garage	1994	25840
J	390m S	Garage	1995	25840
J	390m S	Garage	1996	25840
J	390m S	Garage	1994	25840

This data is sourced from Ordnance Survey / Groundsure.



3 Waste and landfill



— Site Outline
Search buffers in metres (m)
● Waste exemptions

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**2**

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 21**

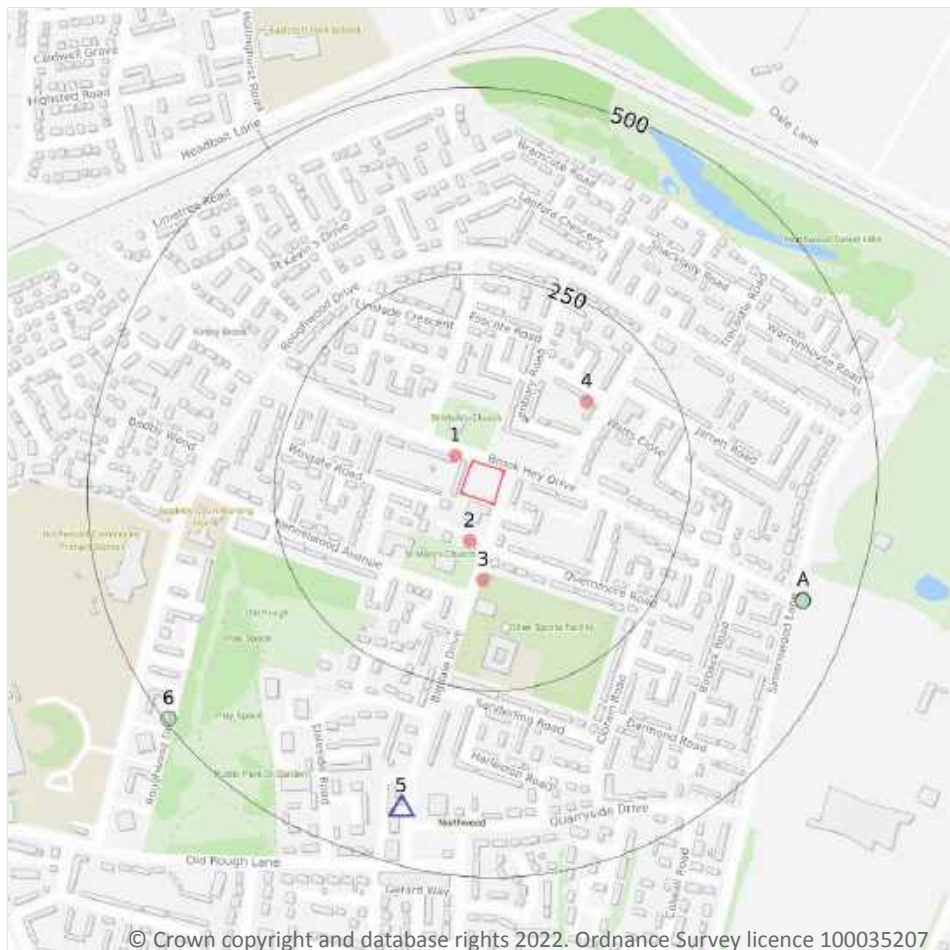
ID	Location	Site	Reference	Category	Sub-Category	Description
1	189m S	-	WEX214067	Using waste exemption	Not on a farm	Use of waste in construction

ID	Location	Site	Reference	Category	Sub-Category	Description
2	480m NW	-	WEX299896	Using waste exemption	Not on a Farm	Use of waste in construction

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



4 Current industrial land use



- Site Outline
- Search buffers in metres (m)
- Recent industrial land uses
- △ Current or recent petrol stations
- Pollution Incidents (EA/NRW)

4.1 Recent industrial land uses

Records within 250m

4

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 24**

ID	Location	Company	Address	Activity	Category
1	24m W	Electricity Sub Station	Merseyside, L33	Electrical Features	Infrastructure and Facilities
2	57m S	O K Tyres	4 Bigdale Court, Bigdale Drive, Northwood, Kirkby, Merseyside, L33 6YN	Vehicle Parts and Accessories	Motoring
3	102m S	Electricity Sub Station	Merseyside, L33	Electrical Features	Infrastructure and Facilities



ID	Location	Company	Address	Activity	Category
4	145m NE	Electricity Sub Station	Merseyside, L33	Electrical Features	Infrastructure and Facilities

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m	1
----------------------------	----------

Open, closed, under development and obsolete petrol stations.

Features are displayed on the Current industrial land use map on **page 24**

ID	Location	Company	Address	LPG	Status
5	423m S	ESSAR	Bigdale Drive, Kirkby, Liverpool, Merseyside, L33 6XG	No	Open

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**0**

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

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

3

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

Features are displayed on the Current industrial land use map on **page 24**

ID	Location	Details	
A	433m E	Incident Date: 22/10/2002 Incident Identification: 116200 Pollutant: Oils and Fuel Pollutant Description: Unidentified Oil	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
A	434m E	Incident Date: 01/11/2002 Incident Identification: 118176 Pollutant: Oils and Fuel Pollutant Description: Unidentified Oil	Water Impact: Category 3 (Minor) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
6	494m SW	Incident Date: 28/07/2003 Incident Identification: 177342 Pollutant: Specific Waste Materials Pollutant Description: Commercial Waste	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)

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.

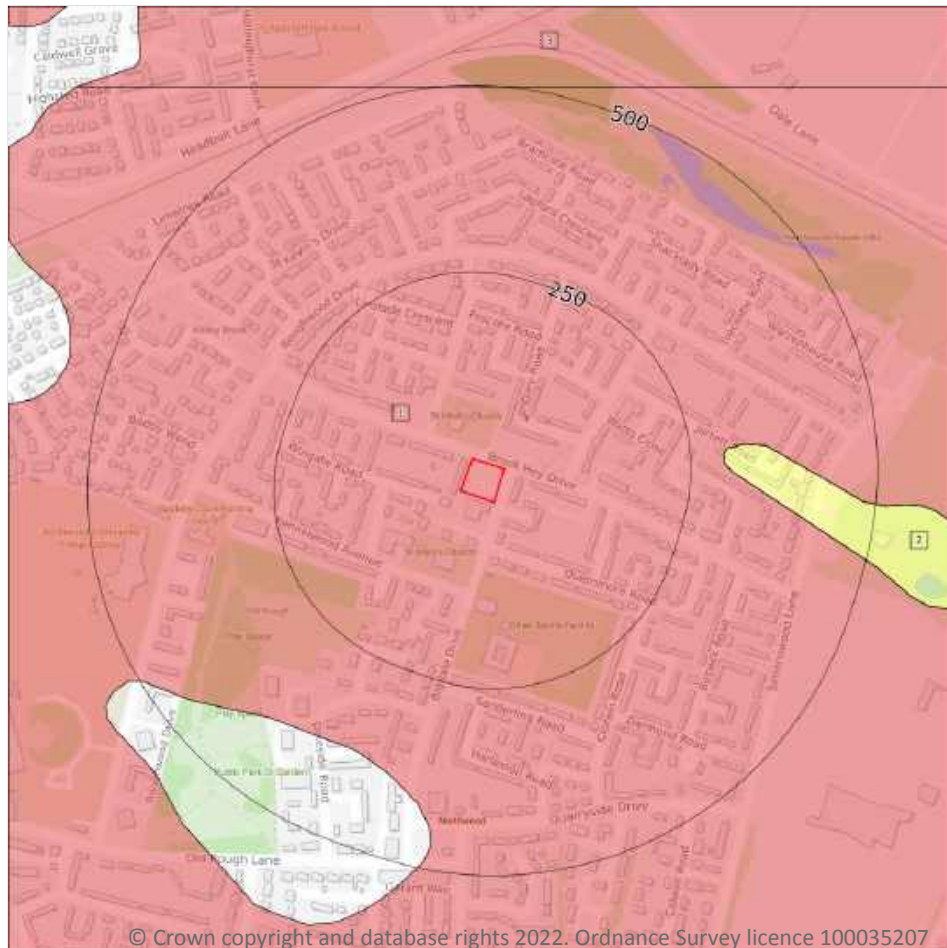
4.21 Pollution inventory radioactive waste

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



- Site Outline
- Search buffers in metres (m)
- Principal
 - Secondary A
 - Secondary B
 - Secondary Undifferentiated
 - Unproductive
 - Unknown

5.1 Superficial aquifer

Records within 500m

3

Aquifer status of groundwater held within superficial geology.

Features are displayed on the Hydrogeology map on **page 30**

ID	Location	Designation	Description
1	On site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
2	295m E	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

ID	Location	Designation	Description
3	499m N	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

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

2

Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on **page 32**

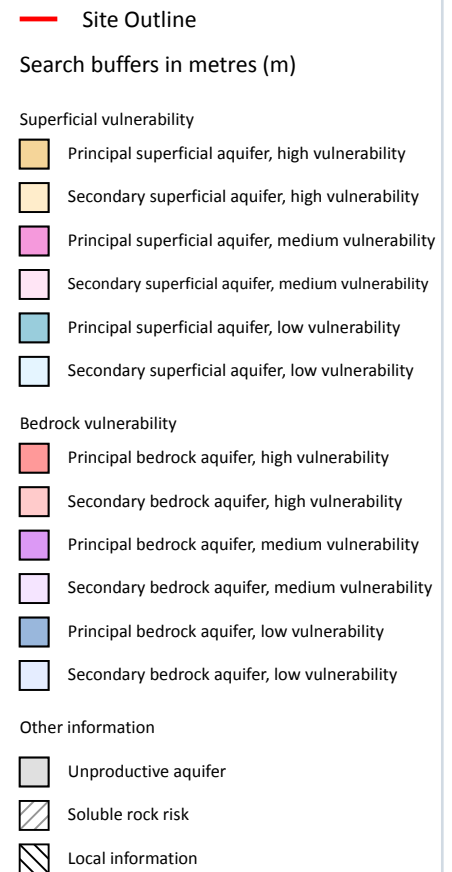
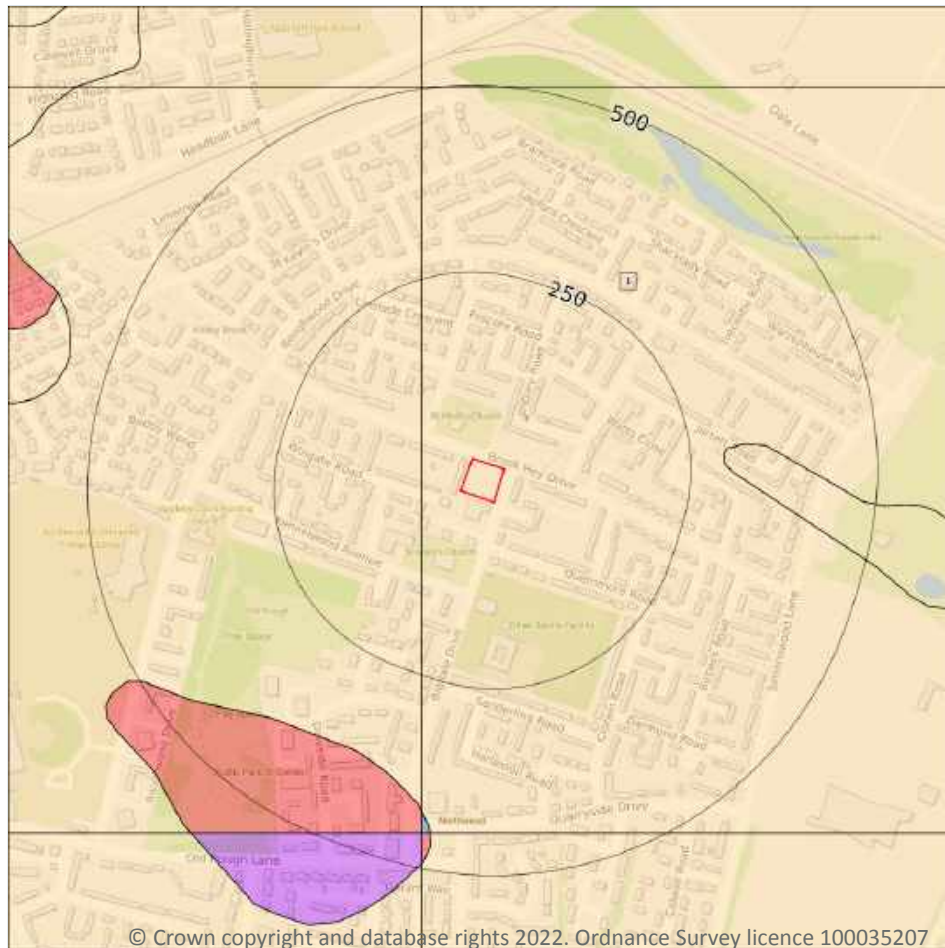
ID	Location	Designation	Description
1	On site	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers
2	499m N	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers



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



Groundwater vulnerability



5.3 Groundwater vulnerability

Records within 50m

1

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 34**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	On site	Summary Classification: Secondary superficial aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: 300-550mm/year	Vulnerability: High Aquifer type: Secondary Thickness: 3-10m Patchiness value: >90% Recharge potential: High	Vulnerability: Low Aquifer type: Principal Flow mechanism: Mixed

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
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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
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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
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

38

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.

Features are displayed on the Abstractions and Source Protection Zones map on **page 36**

ID	Location	Details	
-	694m SE	Status: Active Licence No: 2569031131 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: BOREHOLE AT KIRKBY 2 Data Type: Point Name: Liverpool Football Club & Athletic Grounds Limited Easting: 342734 Northing: 399168	Annual Volume (m ³): 150,000 Max Daily Volume (m ³): 792 Original Application No: NPS/WR/027992 Original Start Date: 28/09/1999 Expiry Date: - Issue No: 3 Version Start Date: 19/11/2019 Version End Date: -
-	695m W	Status: Historical Licence No: 2569031018 Details: Potable Water Supply - Direct Direct Source: Ground Water - North West Region Point: "WELL,BOREHOLE AND WELL WITH BOREHOLEAT KIRKBY PUMPING STATIO" Data Type: Point Name: UNITED UTILITIES WATER PLC Easting: 341400 Northing: 399700	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 16/03/1966 Expiry Date: - Issue No: 100 Version Start Date: 16/01/1995 Version End Date: -
-	695m W	Status: Historical Licence No: 2569031018 Details: Potable Water Supply - Direct Direct Source: Ground Water - North West Region Point: WELL,BOREHOLE AND WELL WITH BOREHOLEAT KIRKBY PUMPING STATIO Data Type: Point Name: UNITED UTILITIES WATER LTD Easting: 341400 Northing: 399700	Annual Volume (m ³): 2,488,990 Max Daily Volume (m ³): 6819.15 Original Application No: - Original Start Date: 16/03/1966 Expiry Date: - Issue No: 100 Version Start Date: 16/01/1995 Version End Date: -
-	891m E	Status: Historical Licence No: 2569031146 Details: Non-Evaporative Cooling Direct Source: Ground Water - North West Region Point: SONAE BOREHOLE, KNOWSLEY, MERSEYSIDE Data Type: Point Name: Sonae (UK) Limited Easting: 342984 Northing: 399310	Annual Volume (m ³): 129600 Max Daily Volume (m ³): 356.53 Original Application No: - Original Start Date: 17/10/2008 Expiry Date: 31/03/2016 Issue No: 1 Version Start Date: 17/10/2008 Version End Date: -
-	891m E	Status: Historical Licence No: 2569031146 Details: Process Water Direct Source: Ground Water - North West Region Point: SONAE BOREHOLE, KNOWSLEY, MERSEYSIDE Data Type: Point Name: Sonae (UK) Limited Easting: 342984 Northing: 399310	Annual Volume (m ³): 129600 Max Daily Volume (m ³): 356.53 Original Application No: - Original Start Date: 17/10/2008 Expiry Date: 31/03/2016 Issue No: 1 Version Start Date: 17/10/2008 Version End Date: -



ID	Location	Details	
-	891m E	Status: Historical Licence No: 2569031146 Details: Dust Suppression Direct Source: Ground Water - North West Region Point: SONAE BOREHOLE, KNOWSLEY, MERSEYSIDE Data Type: Point Name: Sonae (UK) Limited Easting: 342984 Northing: 399310	Annual Volume (m ³): 129600 Max Daily Volume (m ³): 356.53 Original Application No: - Original Start Date: 17/10/2008 Expiry Date: 31/03/2016 Issue No: 1 Version Start Date: 17/10/2008 Version End Date: -
-	902m SE	Status: Historical Licence No: 2569031131 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: BOREHOLE AT KIRKBY Data Type: Point Name: Liverpool Football Club & Athletic Grounds Limited Easting: 342445 Northing: 398610	Annual Volume (m ³): 150000 Max Daily Volume (m ³): 432 Original Application No: - Original Start Date: 28/09/1999 Expiry Date: - Issue No: 2 Version Start Date: 23/10/2014 Version End Date: -
-	902m SE	Status: Historical Licence No: 2569031131 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: BOREHOLE AT KIRKBY Data Type: Point Name: Liverpool Football Club & Athletic Grounds Limited Easting: 342445 Northing: 398610	Annual Volume (m ³): 150,000 Max Daily Volume (m ³): 792 Original Application No: - Original Start Date: 28/09/1999 Expiry Date: - Issue No: 3 Version Start Date: 19/11/2019 Version End Date: -
-	902m SE	Status: Historical Licence No: 2569031131 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: BOREHOLE AT KIRKBY Data Type: Point Name: Liverpool Football Club & Athletic Grounds Limited Easting: 342445 Northing: 398610	Annual Volume (m ³): 150,000 Max Daily Volume (m ³): 792 Original Application No: - Original Start Date: 28/09/1999 Expiry Date: - Issue No: 3 Version Start Date: 19/11/2019 Version End Date: -



ID	Location	Details	
-	902m SE	Status: Active Licence No: 2569031131 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: BOREHOLE AT KIRKBY Data Type: Point Name: Liverpool Football Club & Athletic Grounds Limited Easting: 342445 Northing: 398610	Annual Volume (m ³): 150,000 Max Daily Volume (m ³): 792 Original Application No: NPS/WR/027992 Original Start Date: 28/09/1999 Expiry Date: - Issue No: 3 Version Start Date: 19/11/2019 Version End Date: -
-	902m SE	Status: Active Licence No: 2569031131 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: BOREHOLE AT KIRKBY Data Type: Point Name: Liverpool Football Club & Athletic Grounds Limited Easting: 342445 Northing: 398610	Annual Volume (m ³): 150,000 Max Daily Volume (m ³): 792 Original Application No: NPS/WR/027992 Original Start Date: 28/09/1999 Expiry Date: - Issue No: 3 Version Start Date: 19/11/2019 Version End Date: -
-	932m S	Status: Historical Licence No: 2569031131 Details: General use relating to Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: "BOREHOLE ""A"" AT KIRKBY" Data Type: Point Name: LIVERPOOL FOOTBALL CLUB SOCCER ACADEMY Easting: 342450 Northing: 398580	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: - Expiry Date: - Issue No: 1 Version Start Date: 28/09/1999 Version End Date: -
-	932m S	Status: Historical Licence No: 2569031131 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: "BOREHOLE ""A"" AT KIRKBY" Data Type: Point Name: LIVERPOOL FOOTBALL CLUB SOCCER ACADEMY Easting: 342450 Northing: 398580	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: - Expiry Date: - Issue No: 1 Version Start Date: 28/09/1999 Version End Date: -

ID	Location	Details	
-	932m S	Status: Historical Licence No: 2569031131 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: BOREHOLE "A"AT KIRKBY Data Type: Point Name: LIVERPOOL FOOTBALL CLUB SOCCER ACADEMY Easting: 342450 Northing: 398580	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: - Expiry Date: - Issue No: 1 Version Start Date: 28/09/1999 Version End Date: -
-	932m S	Status: Historical Licence No: 2569031131 Details: General use relating to Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE "A"AT KIRKBY Data Type: Point Name: LIVERPOOL FOOTBALL CLUB SOCCER ACADEMY Easting: 342450 Northing: 398580	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: - Expiry Date: - Issue No: 1 Version Start Date: 28/09/1999 Version End Date: -
-	932m S	Status: Historical Licence No: 2569031131 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE A AT KIRKBY Data Type: Point Name: LIVERPOOL FOOTBALL CLUB SOCCER ACADEMY Easting: 342450 Northing: 398580	Annual Volume (m ³): 150000 Max Daily Volume (m ³): 600 Original Application No: - Original Start Date: 28/09/1999 Expiry Date: - Issue No: 1 Version Start Date: 28/09/1999 Version End Date: -
-	932m S	Status: Historical Licence No: 2569031131 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: BOREHOLE A AT KIRKBY Data Type: Point Name: LIVERPOOL FOOTBALL CLUB SOCCER ACADEMY Easting: 342450 Northing: 398580	Annual Volume (m ³): 150000 Max Daily Volume (m ³): 600 Original Application No: - Original Start Date: 28/09/1999 Expiry Date: - Issue No: 1 Version Start Date: 28/09/1999 Version End Date: -
-	945m SE	Status: Historical Licence No: 2569031131 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: "BOREHOLE ""B""AT KIRKBY" Data Type: Point Name: LIVERPOOL FOOTBALL CLUB SOCCER ACADEMY Easting: 342460 Northing: 398570	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: - Expiry Date: - Issue No: 1 Version Start Date: 28/09/1999 Version End Date: -

ID	Location	Details	
-	945m SE	Status: Historical Licence No: 2569031131 Details: General use relating to Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: "BOREHOLE ""B""AT KIRKBY" Data Type: Point Name: LIVERPOOL FOOTBALL CLUB SOCCER ACADEMY Easting: 342460 Northing: 398570	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: - Expiry Date: - Issue No: 1 Version Start Date: 28/09/1999 Version End Date: -
-	945m SE	Status: Historical Licence No: 2569031131 Details: General use relating to Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE "B"AT KIRKBY Data Type: Point Name: LIVERPOOL FOOTBALL CLUB SOCCER ACADEMY Easting: 342460 Northing: 398570	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: - Expiry Date: - Issue No: 1 Version Start Date: 28/09/1999 Version End Date: -
-	945m SE	Status: Historical Licence No: 2569031131 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: BOREHOLE "B"AT KIRKBY Data Type: Point Name: LIVERPOOL FOOTBALL CLUB SOCCER ACADEMY Easting: 342460 Northing: 398570	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: - Expiry Date: - Issue No: 1 Version Start Date: 28/09/1999 Version End Date: -
-	945m SE	Status: Historical Licence No: 2569031131 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE B AT KIRKBY Data Type: Point Name: LIVERPOOL FOOTBALL CLUB SOCCER ACADEMY Easting: 342460 Northing: 398570	Annual Volume (m ³): 150000 Max Daily Volume (m ³): 600 Original Application No: - Original Start Date: 28/09/1999 Expiry Date: - Issue No: 1 Version Start Date: 28/09/1999 Version End Date: -
-	945m SE	Status: Historical Licence No: 2569031131 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: BOREHOLE B AT KIRKBY Data Type: Point Name: LIVERPOOL FOOTBALL CLUB SOCCER ACADEMY Easting: 342460 Northing: 398570	Annual Volume (m ³): 150000 Max Daily Volume (m ³): 600 Original Application No: - Original Start Date: 28/09/1999 Expiry Date: - Issue No: 1 Version Start Date: 28/09/1999 Version End Date: -



ID	Location	Details	
-	1500m SE	Status: Active Licence No: 2569031090 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Ground Water - North West Region Point: BOREHOLE AT KIRKBY INDUSTRIAL ESTATE Data Type: Point Name: Baker Hughes Limited Easting: 343400 Northing: 398700	Annual Volume (m ³): 250,030 Max Daily Volume (m ³): 818.28 Original Application No: NPS/WR/006045 Original Start Date: 20/01/1989 Expiry Date: - Issue No: 101 Version Start Date: 18/03/2011 Version End Date: -
-	1500m SE	Status: Active Licence No: 2569031090 Details: Boiler Feed Direct Source: Ground Water - North West Region Point: BOREHOLE AT KIRKBY INDUSTRIAL ESTATE Data Type: Point Name: Baker Hughes Limited Easting: 343400 Northing: 398700	Annual Volume (m ³): 250,030 Max Daily Volume (m ³): 818.28 Original Application No: NPS/WR/006045 Original Start Date: 20/01/1989 Expiry Date: - Issue No: 101 Version Start Date: 18/03/2011 Version End Date: -
-	1500m SE	Status: Active Licence No: 2569031090 Details: Process Water Direct Source: Ground Water - North West Region Point: BOREHOLE AT KIRKBY INDUSTRIAL ESTATE Data Type: Point Name: Baker Hughes Limited Easting: 343400 Northing: 398700	Annual Volume (m ³): 250,030 Max Daily Volume (m ³): 818.28 Original Application No: NPS/WR/006045 Original Start Date: 20/01/1989 Expiry Date: - Issue No: 101 Version Start Date: 18/03/2011 Version End Date: -
-	1820m E	Status: Historical Licence No: 2569031089 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT KIRKBY Data Type: Point Name: AMES GOLDSMITH UK LTD Easting: 343800 Northing: 398800	Annual Volume (m ³): 90920 Max Daily Volume (m ³): 340.95 Original Application No: - Original Start Date: 01/07/1988 Expiry Date: - Issue No: 101 Version Start Date: 10/11/2006 Version End Date: -
-	1820m E	Status: Active Licence No: 2569031089 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT KIRKBY Data Type: Point Name: AMES GOLDSMITH UK LTD Easting: 343800 Northing: 398800	Annual Volume (m ³): 90,920 Max Daily Volume (m ³): 340.95 Original Application No: NPS/WR/023235 Original Start Date: 01/07/1988 Expiry Date: - Issue No: 102 Version Start Date: 26/07/2016 Version End Date: -



ID	Location	Details	
-	1854m E	Status: Historical Licence No: 2569031011 Details: Process water Direct Source: Ground Water - North West Region Point: "BOREHOLE AT KIRKBY INDUSTRIAL ESTATE KIRKBY, MERSEYSIDE" Data Type: Point Name: PILKINGTON BROTHERS LTD Easting: 343900 Northing: 399000	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 28/01/1966 Expiry Date: - Issue No: 100 Version Start Date: 28/01/1966 Version End Date: -
-	1854m E	Status: Historical Licence No: 2569031011 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Ground Water - North West Region Point: "BOREHOLE AT KIRKBY INDUSTRIAL ESTATE KIRKBY, MERSEYSIDE" Data Type: Point Name: PILKINGTON BROTHERS LTD Easting: 343900 Northing: 399000	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 28/01/1966 Expiry Date: - Issue No: 100 Version Start Date: 28/01/1966 Version End Date: -
-	1854m E	Status: Historical Licence No: 2569031011 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT KIRKBY INDUSTRIAL ESTATE KIRKBY, MERSEYSIDE Data Type: Point Name: PILKINGTON BROTHERS LTD Easting: 343900 Northing: 399000	Annual Volume (m ³): 1,591,135 Max Daily Volume (m ³): 5237.11 Original Application No: - Original Start Date: 28/01/1966 Expiry Date: - Issue No: 100 Version Start Date: 28/01/1966 Version End Date: -
-	1854m E	Status: Historical Licence No: 2569031011 Details: Process Water Direct Source: Ground Water - North West Region Point: BOREHOLE AT KIRKBY INDUSTRIAL ESTATE KIRKBY, MERSEYSIDE Data Type: Point Name: PILKINGTON BROTHERS LTD Easting: 343900 Northing: 399000	Annual Volume (m ³): 1,591,135 Max Daily Volume (m ³): 5237.11 Original Application No: - Original Start Date: 28/01/1966 Expiry Date: - Issue No: 100 Version Start Date: 28/01/1966 Version End Date: -

ID	Location	Details	
-	1968m N	Status: Historical Licence No: 2569031128 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: "BOREHOLE AT BICKERSTAFFE, ORMSKIRK" Data Type: Point Name: NORTH WEST TURF Easting: 342350 Northing: 401450	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: - Expiry Date: 05-Oct-08 Issue No: 100 Version Start Date: 06/10/1998 Version End Date: -
-	1968m N	Status: Historical Licence No: 2569031128 Details: General Farming & Domestic Direct Source: Ground Water - North West Region Point: "BOREHOLE AT BICKERSTAFFE, ORMSKIRK" Data Type: Point Name: NORTH WEST TURF Easting: 342350 Northing: 401450	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: - Expiry Date: 05-Oct-08 Issue No: 100 Version Start Date: 06/10/1998 Version End Date: -
-	1968m N	Status: Historical Licence No: 2569031128 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: BOREHOLE AT BICKERSTAFFE, ORMSKIRK Data Type: Point Name: NORTH WEST TURF Easting: 342350 Northing: 401450	Annual Volume (m ³): 38545 Max Daily Volume (m ³): 654.48 Original Application No: - Original Start Date: 06/10/1998 Expiry Date: 05/10/2008 Issue No: 100 Version Start Date: 06/10/1998 Version End Date: -
-	1968m N	Status: Historical Licence No: 2569031128 Details: General Farming & Domestic Direct Source: Ground Water - North West Region Point: BOREHOLE AT BICKERSTAFFE, ORMSKIRK Data Type: Point Name: NORTH WEST TURF Easting: 342350 Northing: 401450	Annual Volume (m ³): 38545 Max Daily Volume (m ³): 654.48 Original Application No: - Original Start Date: 06/10/1998 Expiry Date: 05/10/2008 Issue No: 100 Version Start Date: 06/10/1998 Version End Date: -
-	1968m N	Status: Historical Licence No: NW/069/0031/002 Details: General Farming & Domestic Direct Source: Ground Water - North West Region Point: BOREHOLE AT BICKERSTAFFE, ORMSKIRK Data Type: Point Name: NORTH WEST TURF Easting: 342350 Northing: 401450	Annual Volume (m ³): 38545 Max Daily Volume (m ³): 1310 Original Application No: - Original Start Date: 27/05/2009 Expiry Date: 31/03/2016 Issue No: 1 Version Start Date: 01/04/2010 Version End Date: -



ID	Location	Details	
-	1968m N	Status: Historical Licence No: NW/069/0031/002 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: BOREHOLE AT BICKERSTAFFE, ORMSKIRK Data Type: Point Name: NORTH WEST TURF Easting: 342350 Northing: 401450	Annual Volume (m ³): 38545 Max Daily Volume (m ³): 1310 Original Application No: - Original Start Date: 27/05/2009 Expiry Date: 31/03/2016 Issue No: 1 Version Start Date: 01/04/2010 Version End Date: -

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

5.7 Surface water abstractions

Records within 2000m

4

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 36**

ID	Location	Details	
-	1373m W	Status: Historical Licence No: 2569031026 Details: Transfer between sources Direct Source: "Surface, Non-Tidal - North West Region" Point: "BANK BRK AT PREMISES, MILL DAM, MILLLANE, KIRKBY, MERSEYSIDE" Data Type: Point Name: METROPOLITAN BOROUGH OF KNOWSLEY Easting: 340700 Northing: 399700	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 14/01/1969 Expiry Date: - Issue No: 100 Version Start Date: 14/01/1969 Version End Date: -
-	1373m W	Status: Active Licence No: 2569031026 Details: Transfer Between Sources (Pre Water Act 2003) Direct Source: Surface, Non-Tidal - North West Region Point: BANK BRK AT PREMISES, MILL DAM, MILLLANE, KIRKBY, MERSEYSIDE Data Type: Point Name: METROPOLITAN BOROUGH OF KNOWSLEY Easting: 340700 Northing: 399700	Annual Volume (m ³): 454,600 Max Daily Volume (m ³): 2,409.38 Original Application No: 2270 Original Start Date: 14/01/1969 Expiry Date: - Issue No: 100 Version Start Date: 26/11/2018 Version End Date: -



ID	Location	Details	
-	1991m E	Status: Historical Licence No: 2569031068 Details: Spray Irrigation - Direct Direct Source: Surface, Non-Tidal - North West Region Point: UNNAMED TRIB OF SIMONSWOOD BRK AT KIRKBY Data Type: Line Name: BERRY BROS FARMS LTD Easting: 344100 Northing: 399400	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 14/06/1984 Expiry Date: - Issue No: 100 Version Start Date: 14/06/1984 Version End Date: -
-	1991m E	Status: Active Licence No: 2569031068 Details: Spray Irrigation - Direct Direct Source: Surface, Non-Tidal - North West Region Point: UNNAMED TRIBUTARY OF SIMONSWOOD BROOK AT KIRKBY Data Type: Line Name: BERRY BROS FARMS LTD Easting: 344100 Northing: 399400	Annual Volume (m ³): 45,460 Max Daily Volume (m ³): 1,000.12 Original Application No: 2668 Original Start Date: 14/06/1984 Expiry Date: - Issue No: 100 Version Start Date: 01/04/2021 Version End Date: -

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

5.8 Potable abstractions

Records within 2000m

3

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.

Features are displayed on the Abstractions and Source Protection Zones map on **page 36**

ID	Location	Details	
-	695m W	Status: Historical Licence No: 2569031018 Details: Potable Water Supply - Direct Direct Source: Ground Water - North West Region Point: "WELL,BOREHOLE AND WELL WITH BOREHOLEAT KIRKBY PUMPING STATIO" Data Type: Point Name: UNITED UTILITIES WATER PLC Easting: 341400 Northing: 399700	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 16/03/1966 Expiry Date: - Issue No: 100 Version Start Date: 16/01/1995 Version End Date: -



ID	Location	Details	
-	695m W	Status: Historical Licence No: 2569031018 Details: Potable Water Supply - Direct Direct Source: Ground Water - North West Region Point: WELL,BOREHOLE AND WELL WITH BOREHOLEAT KIRKBY PUMPING STATIO Data Type: Point Name: UNITED UTILITIES WATER LTD Easting: 341400 Northing: 399700	Annual Volume (m ³): 2,488,990 Max Daily Volume (m ³): 6819.15 Original Application No: - Original Start Date: 16/03/1966 Expiry Date: - Issue No: 100 Version Start Date: 16/01/1995 Version End Date: -
-	1500m SE	Status: Active Licence No: 2569031090 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Ground Water - North West Region Point: BOREHOLE AT KIRKBY INDUSTRIAL ESTATE Data Type: Point Name: Baker Hughes Limited Easting: 343400 Northing: 398700	Annual Volume (m ³): 250,030 Max Daily Volume (m ³): 818.28 Original Application No: NPS/WR/006045 Original Start Date: 20/01/1989 Expiry Date: - Issue No: 101 Version Start Date: 18/03/2011 Version End Date: -

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

5.9 Source Protection Zones

Records within 500m	1
----------------------------	----------

Source Protection Zones define the sensitivity of an area around a potable abstraction site to contamination. Features are displayed on the Abstractions and Source Protection Zones map on **page 36**

ID	Location	Type	Description
1	On site	3	Total catchment

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

1

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 48**

ID	Location	Type of water feature	Ground level	Permanence	Name
1	19m N	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	Kirkby Brook

This data is sourced from the Ordnance Survey.



6.2 Surface water features

Records within 250m

0

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.

This data is sourced from the Ordnance Survey.

6.3 WFD Surface water body catchments

Records on site

1

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 48**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
A	On site	River	Simonswood Brook	GB112069060630	Alt	Alt and Crossens

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

6.4 WFD Surface water bodies

Records identified

1

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 48**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
-	1152m W	River	Simonswood Brook	GB112069060630	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 48**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
A	On site	Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifers	<u>GB41201G101700</u>	Poor	Poor	Poor	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



— Site Outline

Search buffers in metres (m)

1 in 1000 return period

- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 250 return period

- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 100 return period

- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 30 return period

- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

8.1 Surface water flooding

Highest risk on site

1 in 100 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 54**

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	Between 0.1m and 0.3m
1 in 30 year	Negligible

This data is sourced from Ambiantal 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

Moderate

Highest risk within 50m

Moderate

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 56**

This data is sourced from Ambiantal Risk Analytics.

10 Environmental designations



— Site Outline
Search buffers in metres (m)
Green Belt

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m

0

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.

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**0**

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.

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 57**

ID	Location	Name	Local Authority name
1	620m NE	Merseyside and Greater Manchester	West Lancashire
-	1634m NW	Merseyside and Greater Manchester	Sefton

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**2**

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.

Location	Name	Type	NVZ ID	Status
On site	ALT NVZ	Surface Water	642	Existing
1981m E	ALT NVZ	Surface Water	642	Existing

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



SSSI Impact Zones and Units

10.17 SSSI Impact Risk Zones

Records on site

0

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.

This data is sourced from Natural England.

10.18 SSSI Units

Records within 2000m

0

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.

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



11 Visual and cultural designations

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

0

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.



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

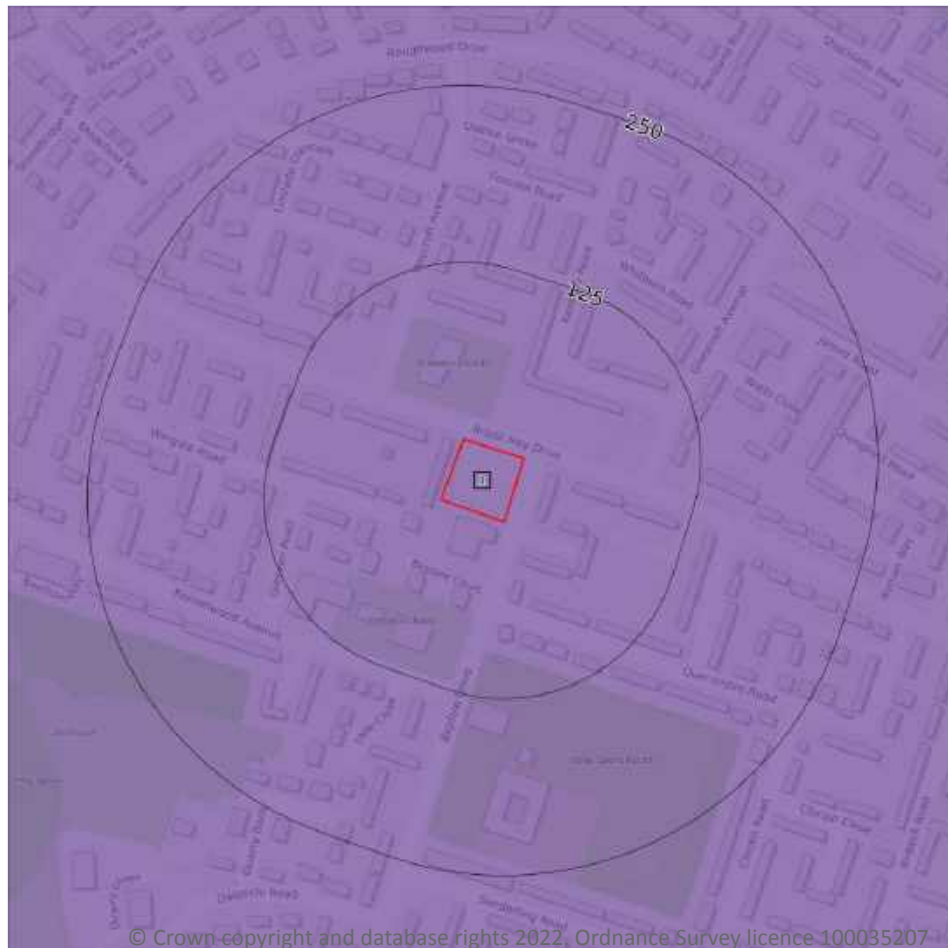
0

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



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- 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 65**

ID	Location	Classification	Description
1	On site	Urban	-

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**0**

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.

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

1

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 67**

ID	Location	Main Habitat	Other habitats
1	182m SW	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



— Site Outline
Search buffers in metres (m)

- Full coverage
- Partial coverage
- No coverage

14.1 10k Availability

Records within 500m

2

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 69**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	No coverage	No coverage	No coverage	No coverage	NoCov
2	499m N	No coverage	No coverage	No coverage	No coverage	NoCov

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

14.3 Superficial geology (10k)

Records within 500m

0

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.

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

14.5 Bedrock geology (10k)

Records within 500m

0

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.

This data is sourced from the British Geological Survey.

14.6 Bedrock faults and other linear features (10k)

Records within 500m

0

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.

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 73**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	No coverage	Full	Full	No coverage	EW084_wigan_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

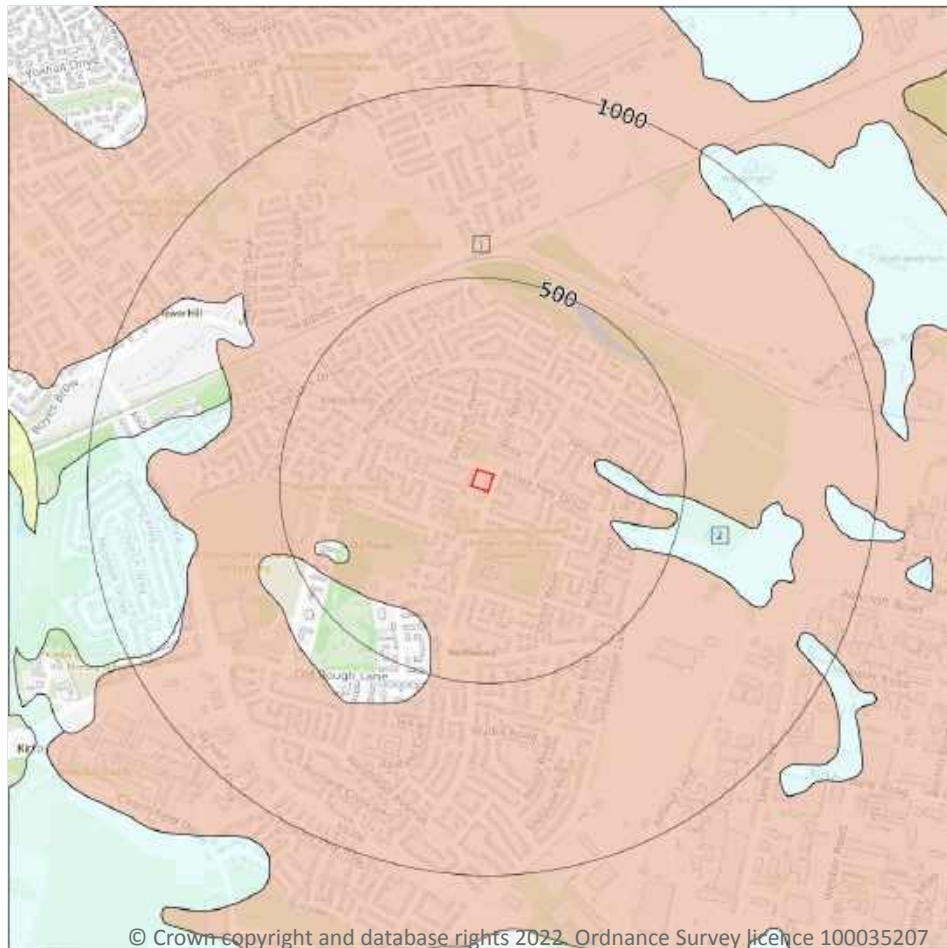
0

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

2

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 75**

ID	Location	LEX Code	Description	Rock description
1	On site	SSA-S	SHIRDLEY HILL SAND FORMATION	SAND
2	265m E	TILLD-DMTN	TILL, DEVANSIAN	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	Intergranular	High	High

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)

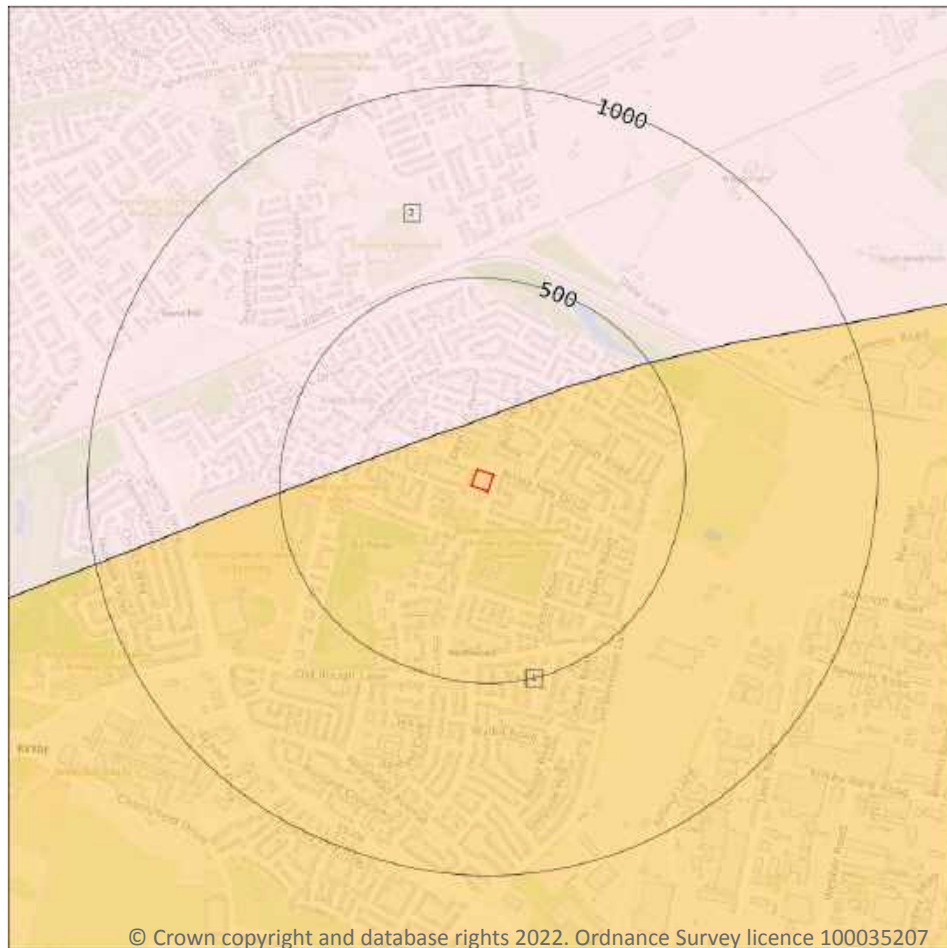
Records within 50m**0**

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



- 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 77**

ID	Location	LEX Code	Description	Rock age
1	On site	CHES-SDST	CHESTER FORMATION - SANDSTONE	OLENEKIAN
2	119m N	WLSF-SDST	WILMSLOW SANDSTONE FORMATION - SANDSTONE	-

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	Mixed	High	Moderate

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

Records within 500m**0**

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.

This data is sourced from the British Geological Survey.



16 Boreholes



— Site Outline
Search buffers in metres (m)

- Confidential
- 0 - 10m
- 10 - 30m
- 30m+
- Unknown

16.1 BGS Boreholes

Records within 250m

7

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 79**

ID	Location	Grid reference	Name	Length	Confidential	Web link
A	152m N	342066 399653	DEYCROFT AVENUE KIRKBY 1C	-	Y	N/A
A	160m N	342062 399661	DEYCROFT AVENUE KIRKBY 1	-	Y	N/A
A	163m N	342068 399664	DEYCROFT AVENUE KIRKBY 1A	-	Y	N/A

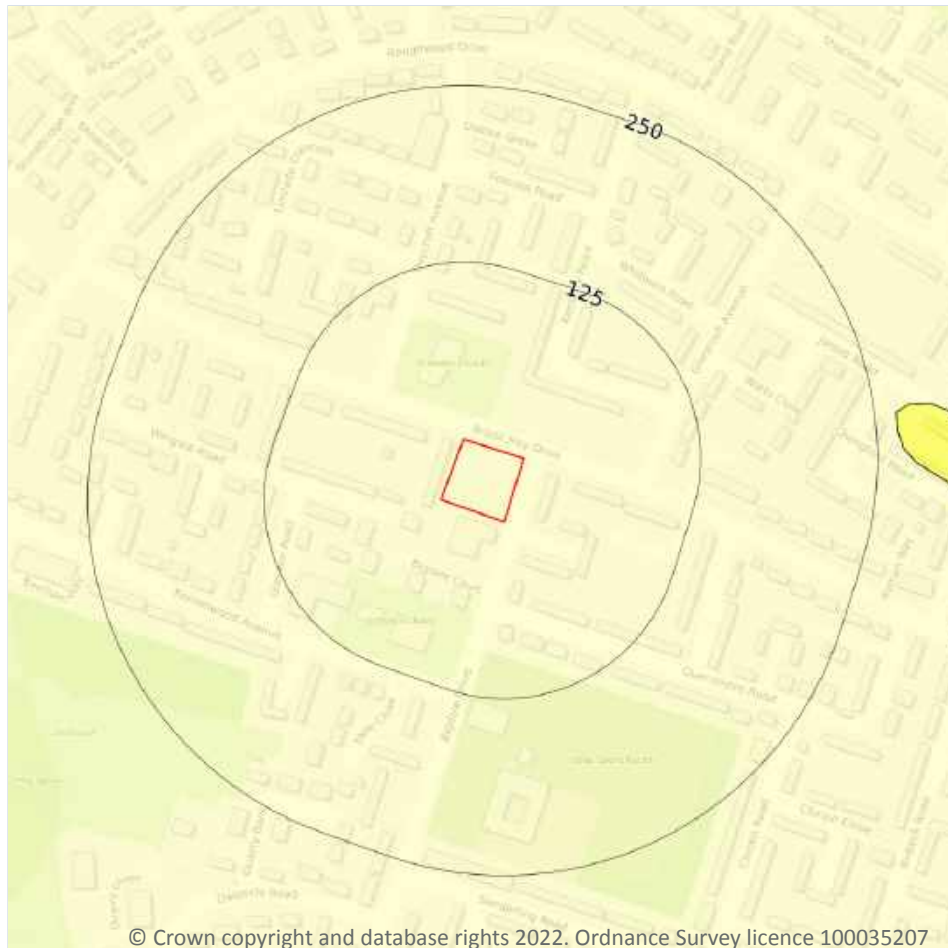


ID	Location	Grid reference	Name	Length	Confidential	Web link
A	164m N	342073 399665	DEYCROFT AVENUE KIRKBY 1B	-	Y	N/A
B	227m N	342088 399727	DEYCROFT AVENUE KIRKBY 2A	-	Y	N/A
1	230m N	342142 399719	DEYCROFT AVENUE KIRKBY 2B	-	Y	N/A
B	231m N	342103 399730	DEYCROFT AVENUE KIRKBY 2	-	Y	N/A

This data is sourced from the British Geological Survey.



17 Natural ground subsidence - Shrink swell clays



- Site Outline
- Search buffers in metres (m)
- ☐ No data
 - ☐ Negligible
 - ☐ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

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).

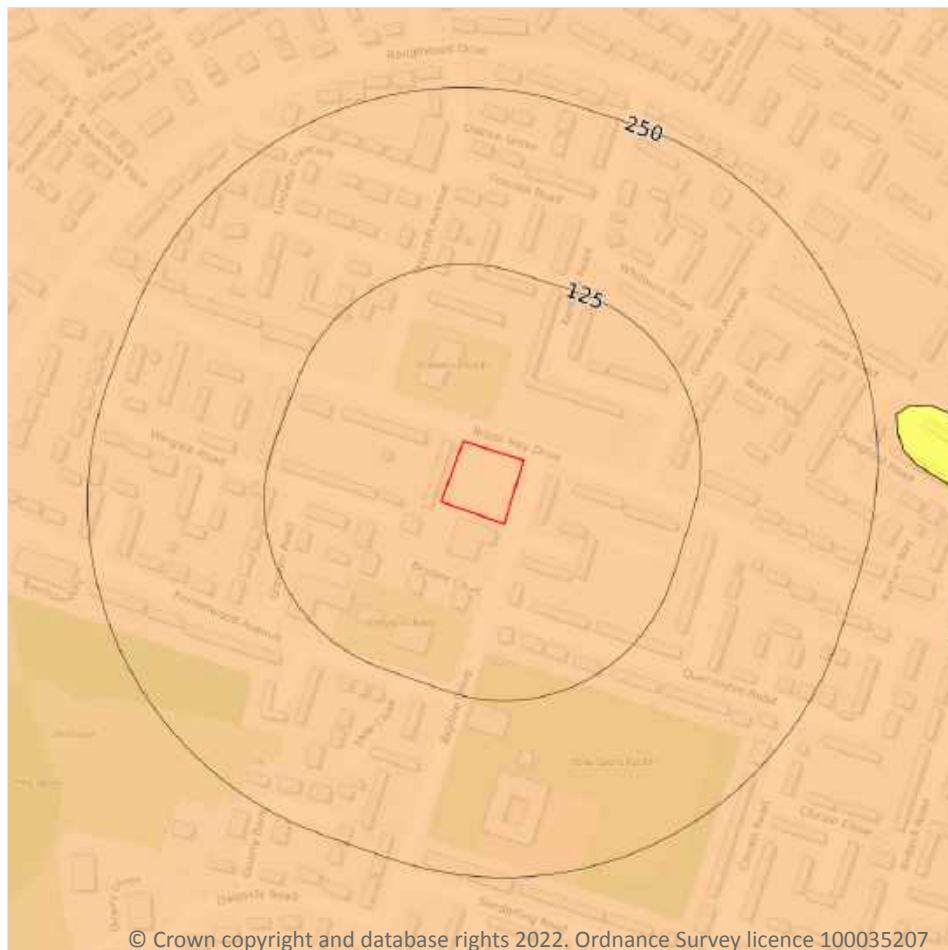
Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 81**

Location	Hazard rating	Details
On site	Negligible	Ground conditions predominantly non-plastic.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Running sands



- Site Outline
- Search buffers in metres (m)
- ☐ No data
 - ☐ Negligible
 - ☐ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

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.

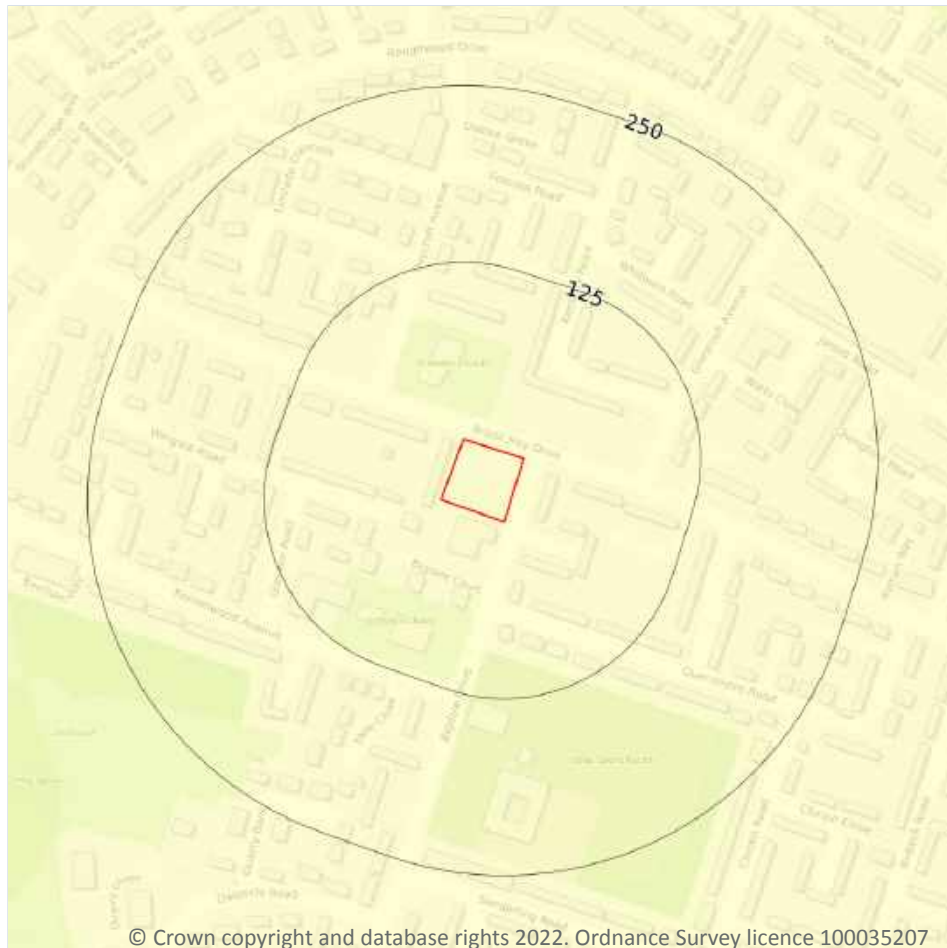
Features are displayed on the Natural ground subsidence - Running sands map on **page 82**

Location	Hazard rating	Details
On site	Low	Running sand conditions may be present. Constraints may apply to land uses involving excavation or the addition or removal of water.

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

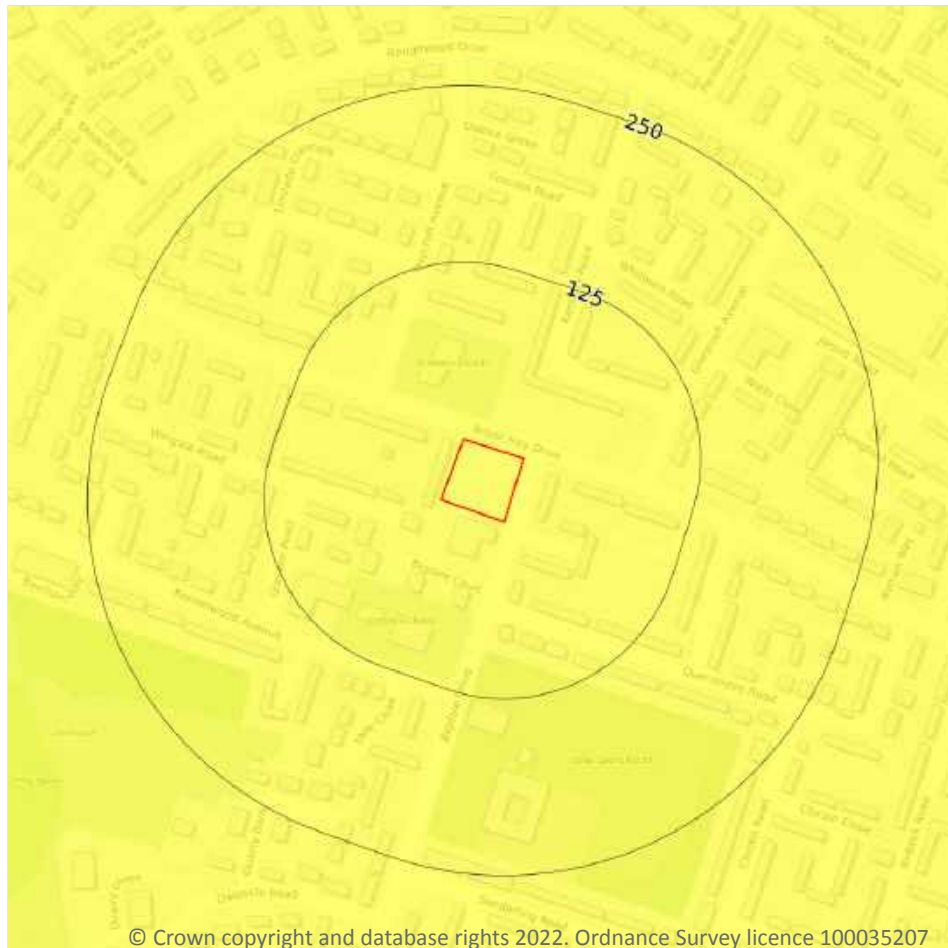
The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 83**

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.

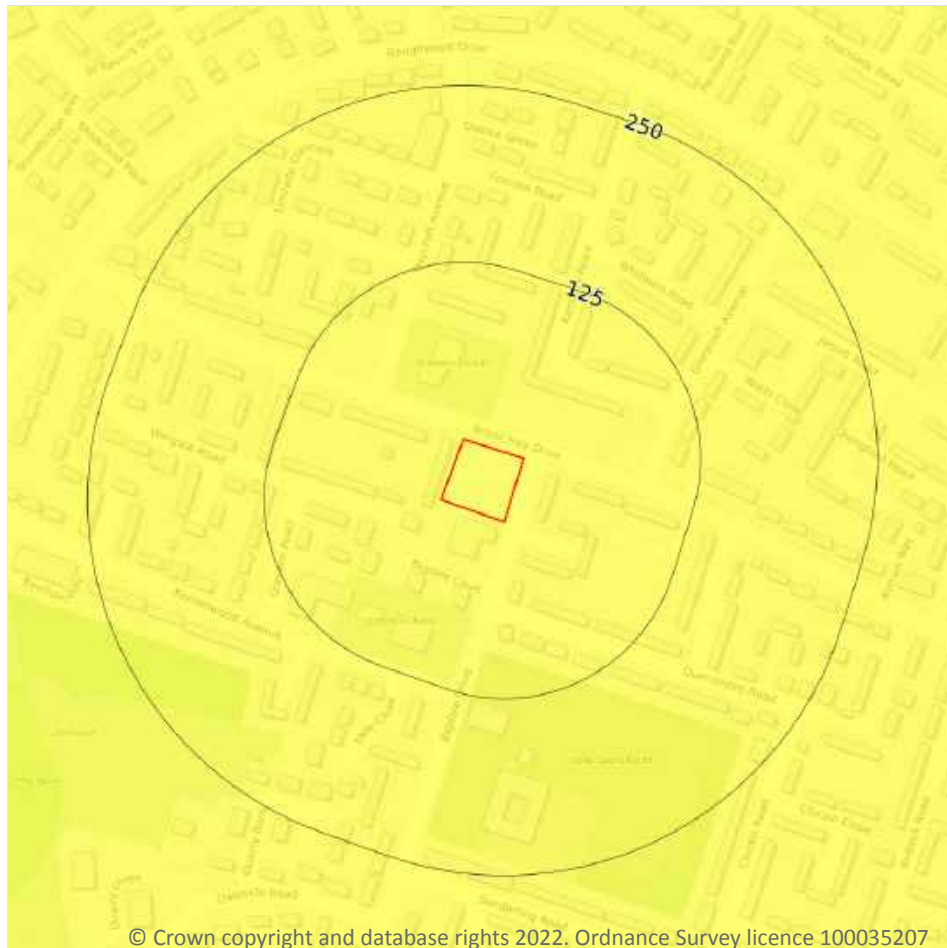
Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 84**

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.

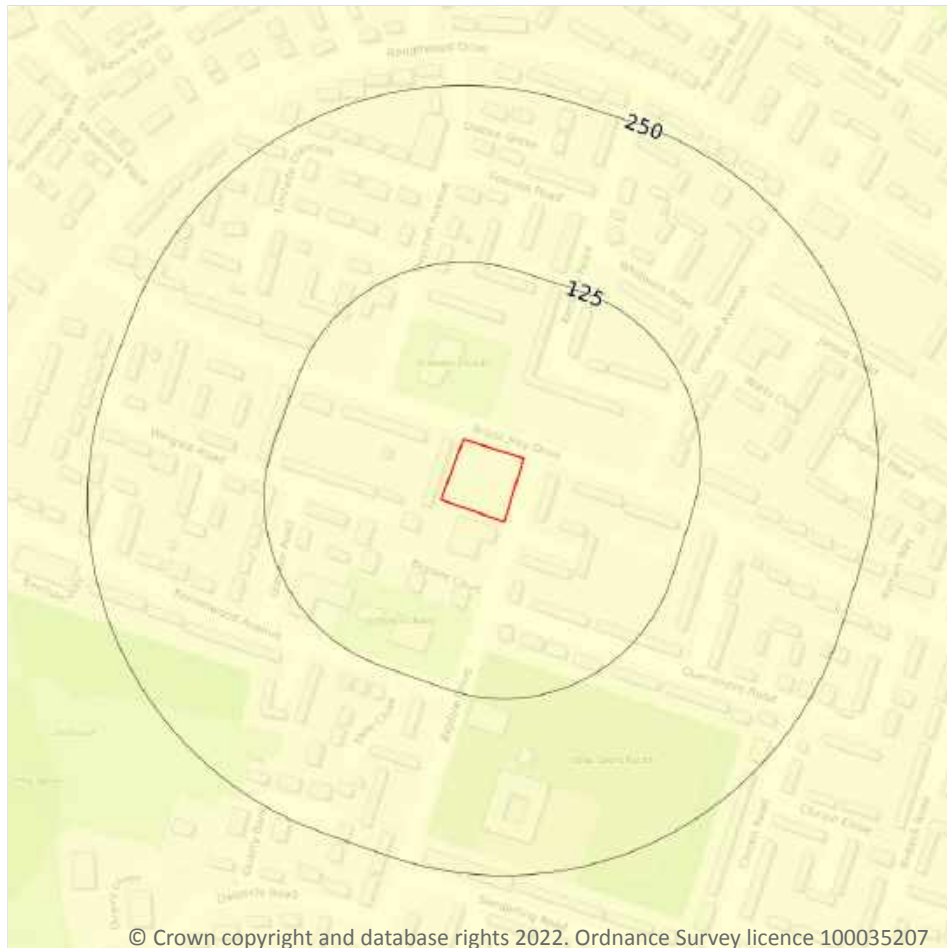
Features are displayed on the Natural ground subsidence - Landslides map on **page 85**

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



- Site Outline
- Search buffers in metres (m)
- ☐ No data
 - ☐ Negligible
 - ☐ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

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.

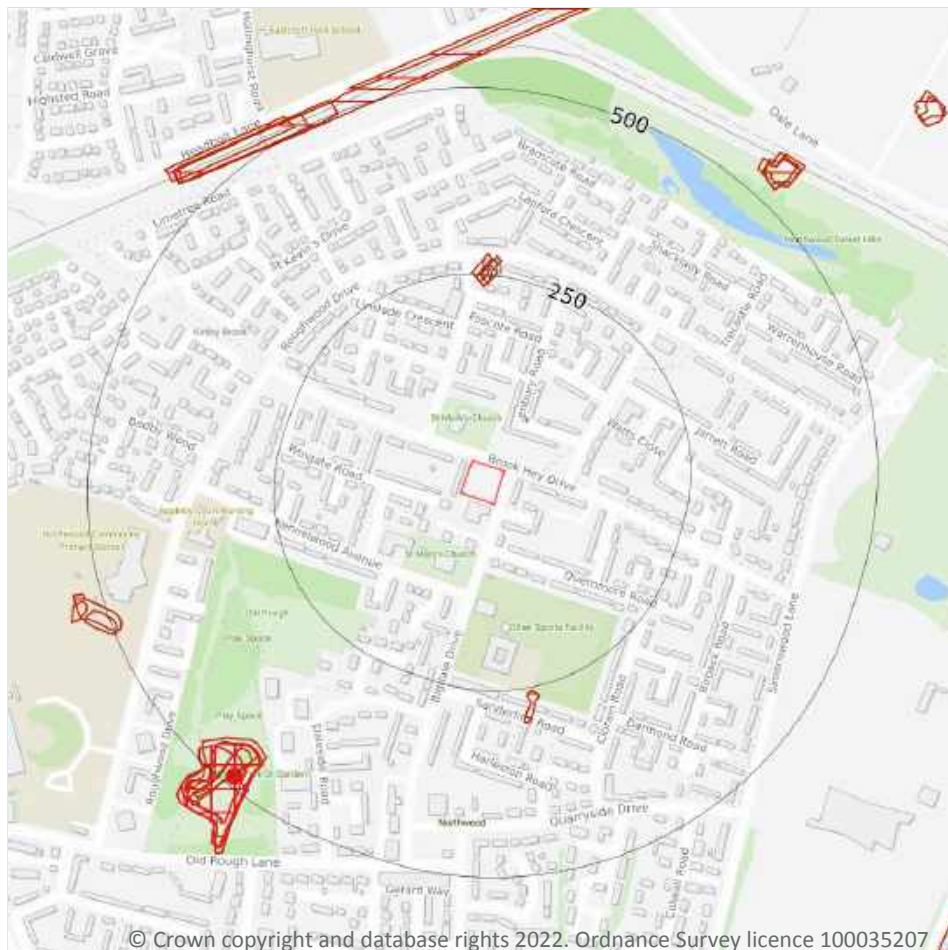
Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 86**

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, ground workings and natural cavities



- Site Outline
- Search buffers in metres (m)
- Natural cavities (Area)
- Natural cavities (Point)
- BritPits
- Surface ground workings
- Underground workings
- Historical Mineral Planning Areas
- Mining Cavities
- 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 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.

18.2 BritPits

Records within 500m

1

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.

Features are displayed on the Mining, ground workings and natural cavities map on **page 87**

ID	Location	Details	Description
B	486m SW	Name: Old Rough Delf Address: Northwood, KIRKBY, Lancashire Commodity: Sandstone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority

This data is sourced from the British Geological Survey.

18.3 Surface ground workings

Records within 250m

3

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, ground workings and natural cavities map on **page 87**

ID	Location	Land Use	Year of mapping	Mapping scale
A	234m N	Ponds	1928	1:10560
A	238m N	Ponds	1955	1:10560
A	241m N	Ponds	1890	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

18.4 Underground workings

Records within 1000m

4

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

Features are displayed on the Mining, ground workings and natural cavities map on **page 87**



ID	Location	Land Use	Year of mapping	Mapping scale
B	441m SW	Delf	1907	1:10560
B	442m SW	Delf	1928	1:10560
B	462m SW	Delf	1890	1:10560
-	840m NW	Delf	1928	1:10560

This data is sourced from Ordnance Survey/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 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.



18.8 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.

18.9 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.

18.10 Brine areas

Records on site	0
-----------------	---

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.

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

18.11 Gypsum areas

Records on site	0
-----------------	---

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.12 Tin mining

Records on site	0
-----------------	---

Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.



18.13 Clay mining

Records on site

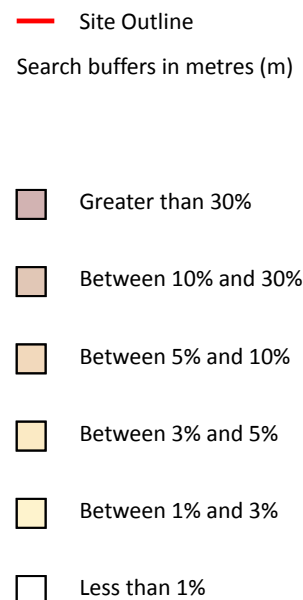
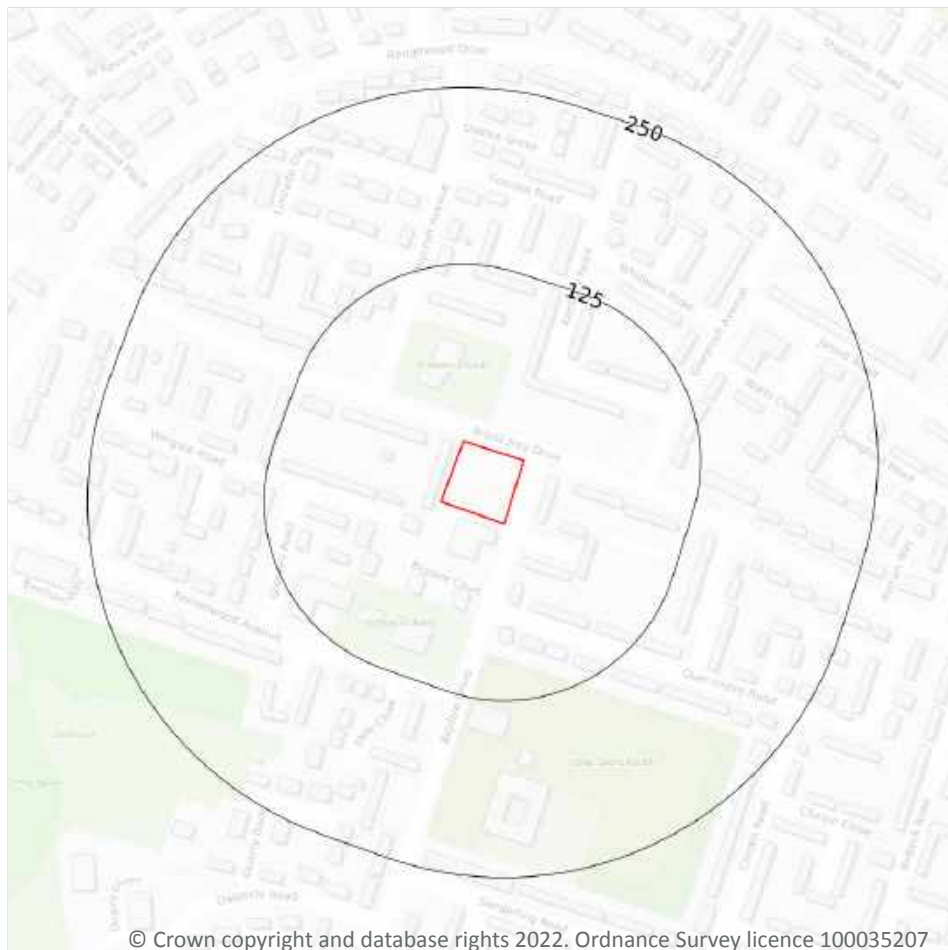
0

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 Radon



19.1 Radon

Records on site

1

Estimated percentage of dwellings exceeding the Radon Action Level. This data is the highest resolution radon dataset available for the UK and is produced to a 75m level of accuracy to allow for geological data accuracy and a 'residential property' buffer. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain. The data was derived from both geological assessments and long term measurements of radon in more than 479,000 households.

Features are displayed on the Radon map on **page 92**

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

This data is sourced from the British Geological Survey and Public Health England.



20 Soil chemistry

20.1 BGS Estimated Background Soil Chemistry

Records within 50m

2

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 km². 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 km²; 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 - 25 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	200 - 300 mg/kg	120 - 240 mg/kg	1.8 - 2.2 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg

This data is sourced from the British Geological Survey.

20.2 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 km²).

This data is sourced from the British Geological Survey.

20.3 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 km².

This data is sourced from the British Geological Survey.



21 Railway infrastructure and projects

21.1 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.

21.2 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.

21.3 Railway tunnels

Records within 250m**0**

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

21.4 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.

21.5 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.

21.6 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.

21.7 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.

21.8 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.

21.9 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.

21.10 HS2

Records within 500m

0

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.

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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Site Details:

103 LAND NEXT TO BIGDALE
DRIVE, BIGDALE DRIVE,
NORTHWOOD, KIRKBY, L33
6UP

Client Ref: 10757G
Report Ref: HMD-424-9043500
Grid Ref: 342081, 399472

Map Name: County Series

Map date: 1867

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1867
Revised 1867
Edition N/A
Copyright N/A
Levelled N/A

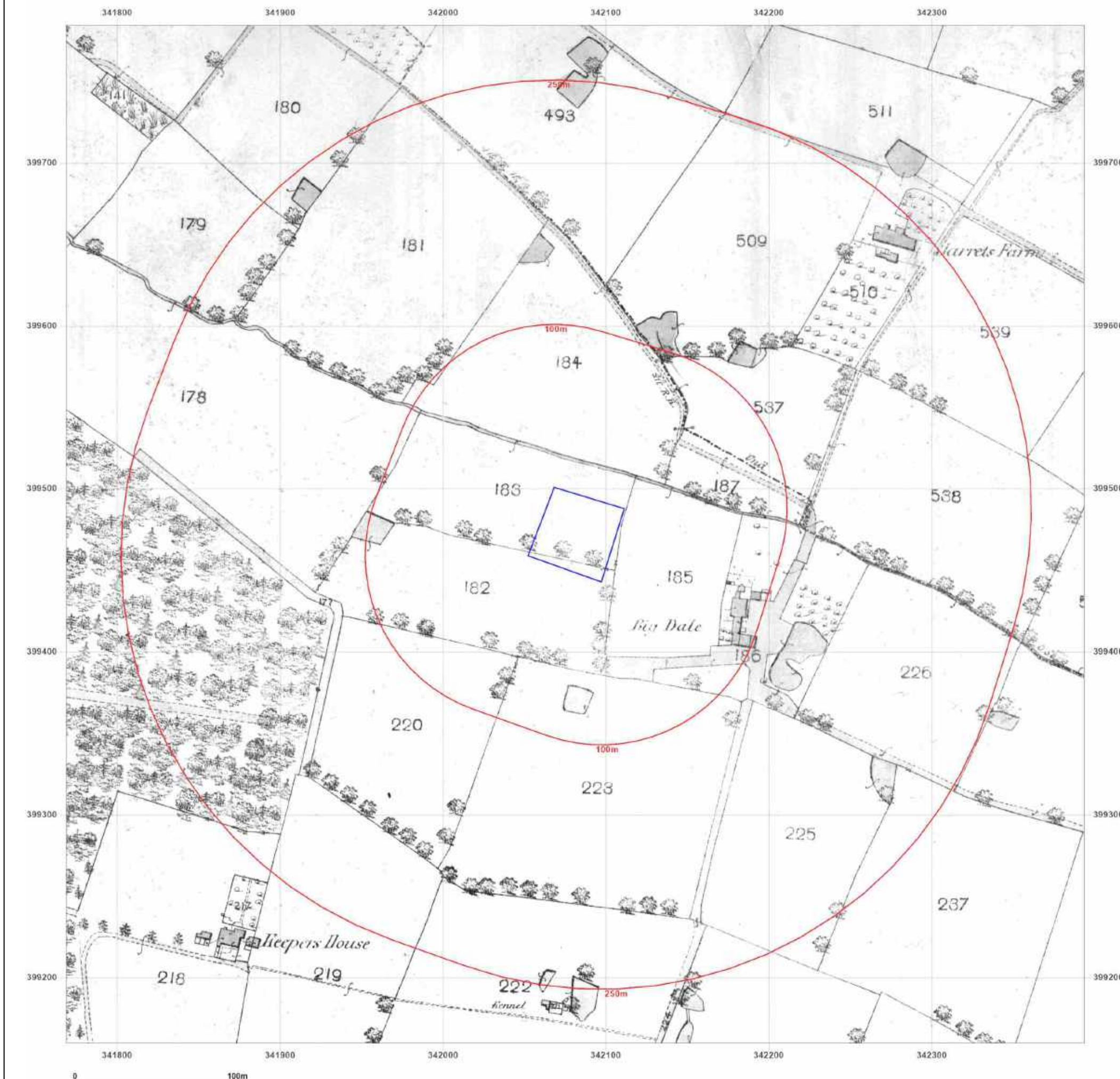


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Map legend available at:
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NORTHWOOD, KIRKBY, L33
6UP

Client Ref: 10757G
Report Ref: HMD-424-9043500
Grid Ref: 342081, 399472

Map Name: County Series

Map date: 1893

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1893
Revised 1893
Edition N/A
Copyright N/A
Levelled N/A

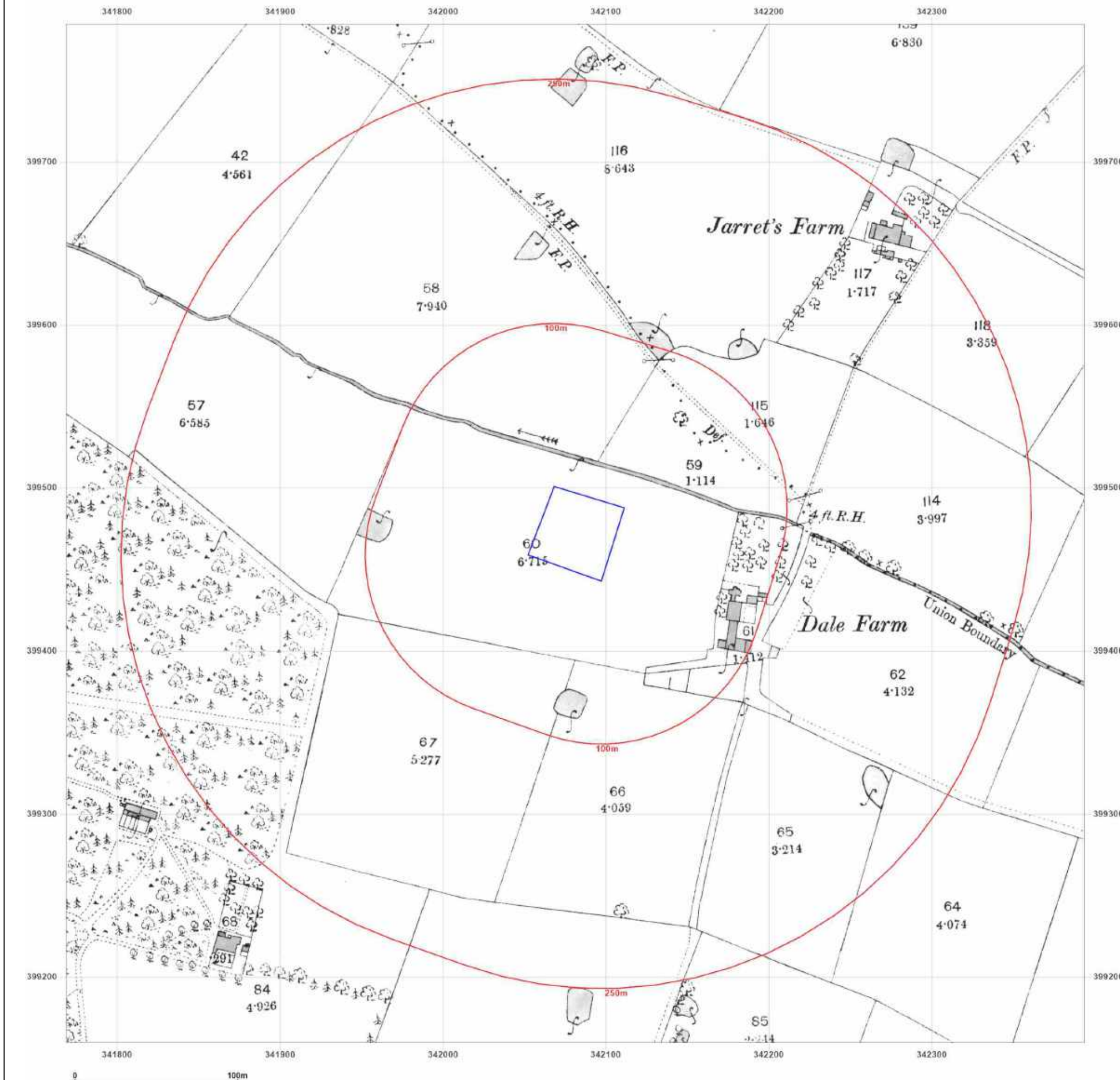


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6UP

Client Ref: 10757G
Report Ref: HMD-424-9043500
Grid Ref: 342081, 399472

Map Name: County Series

Map date: 1908

Scale: 1:2,500

Printed at: 1:2,500



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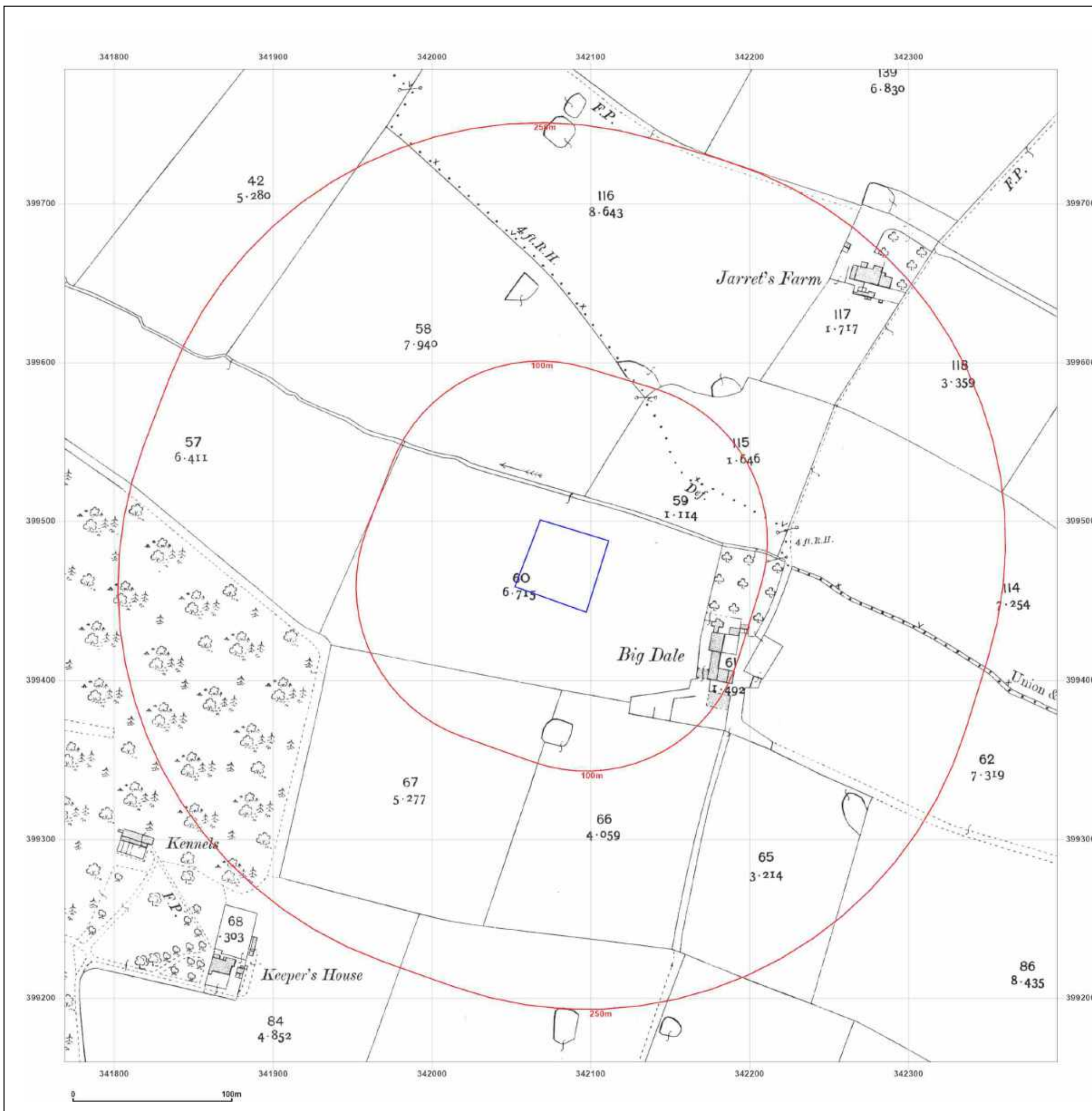


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Site Details:

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NORTHWOOD, KIRKBY, L33
6UP

Client Ref: 10757G
Report Ref: HMD-424-9043500
Grid Ref: 342081, 399472

Map Name: County Series

Map date: 1927

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1927
Revised 1927
Edition N/A
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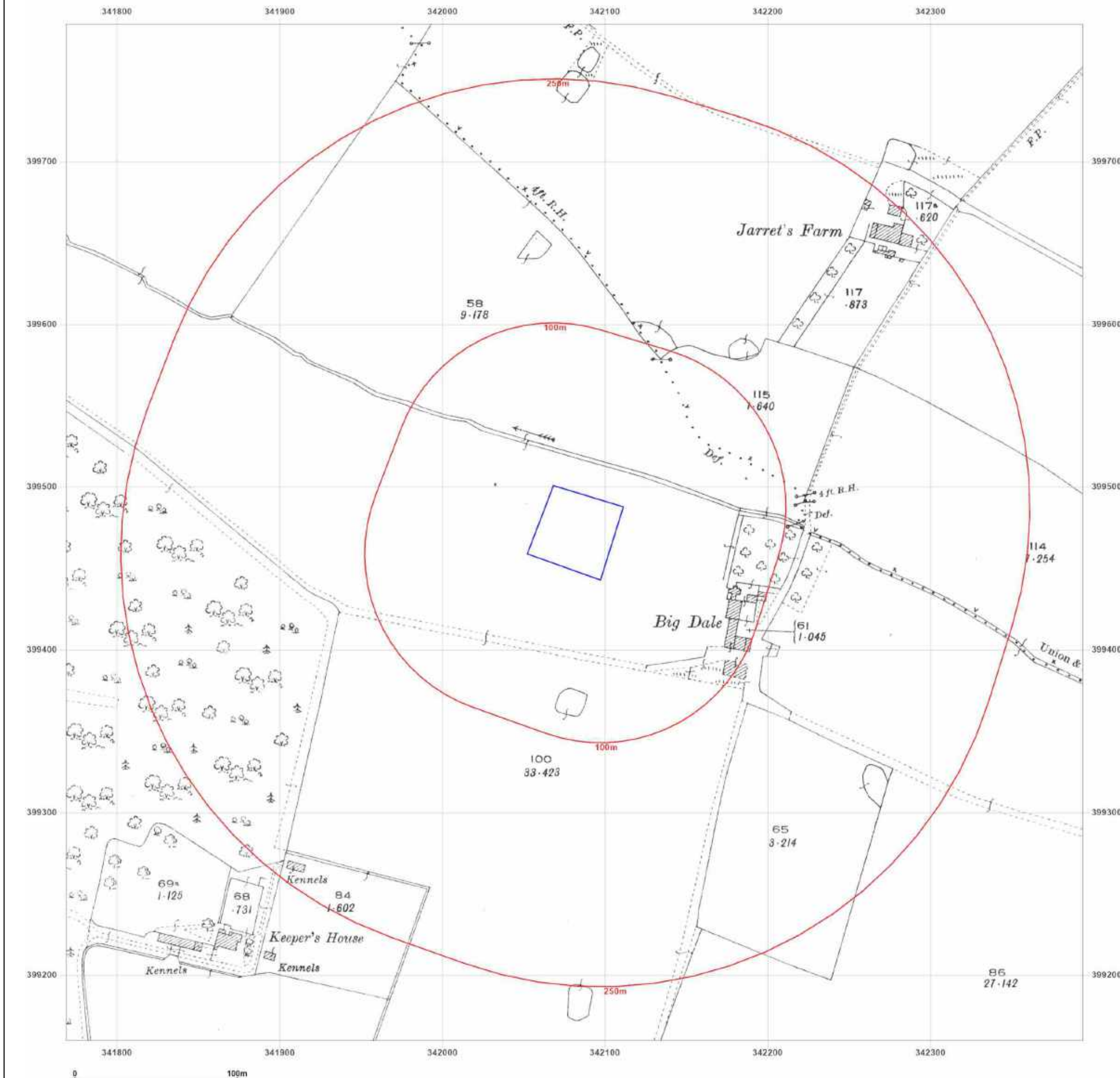


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Site Details:

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DRIVE, BIGDALE DRIVE,
NORTHWOOD, KIRKBY, L33
6UP

Client Ref: 10757G
Report Ref: HMD-424-9043500
Grid Ref: 342081, 399472

Map Name: National Grid

Map date: 1962

Scale: 1:1,250

Printed at: 1:2,000



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Surveyed 1961
Revised 1961
Edition N/A
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Site Details:

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6UP

Client Ref: 10757G
Report Ref: HMD-424-9043500
Grid Ref: 342081, 399472

Map Name: National Grid

Map date: 1968-1972

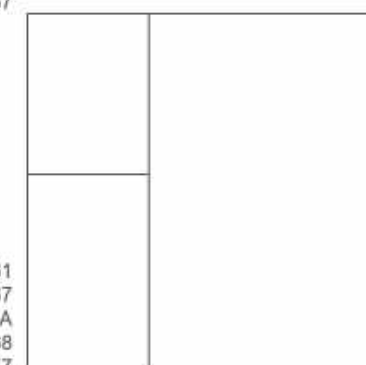
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Levelled 1957

Surveyed 1961
Revised 1967
Edition N/A
Copyright 1968
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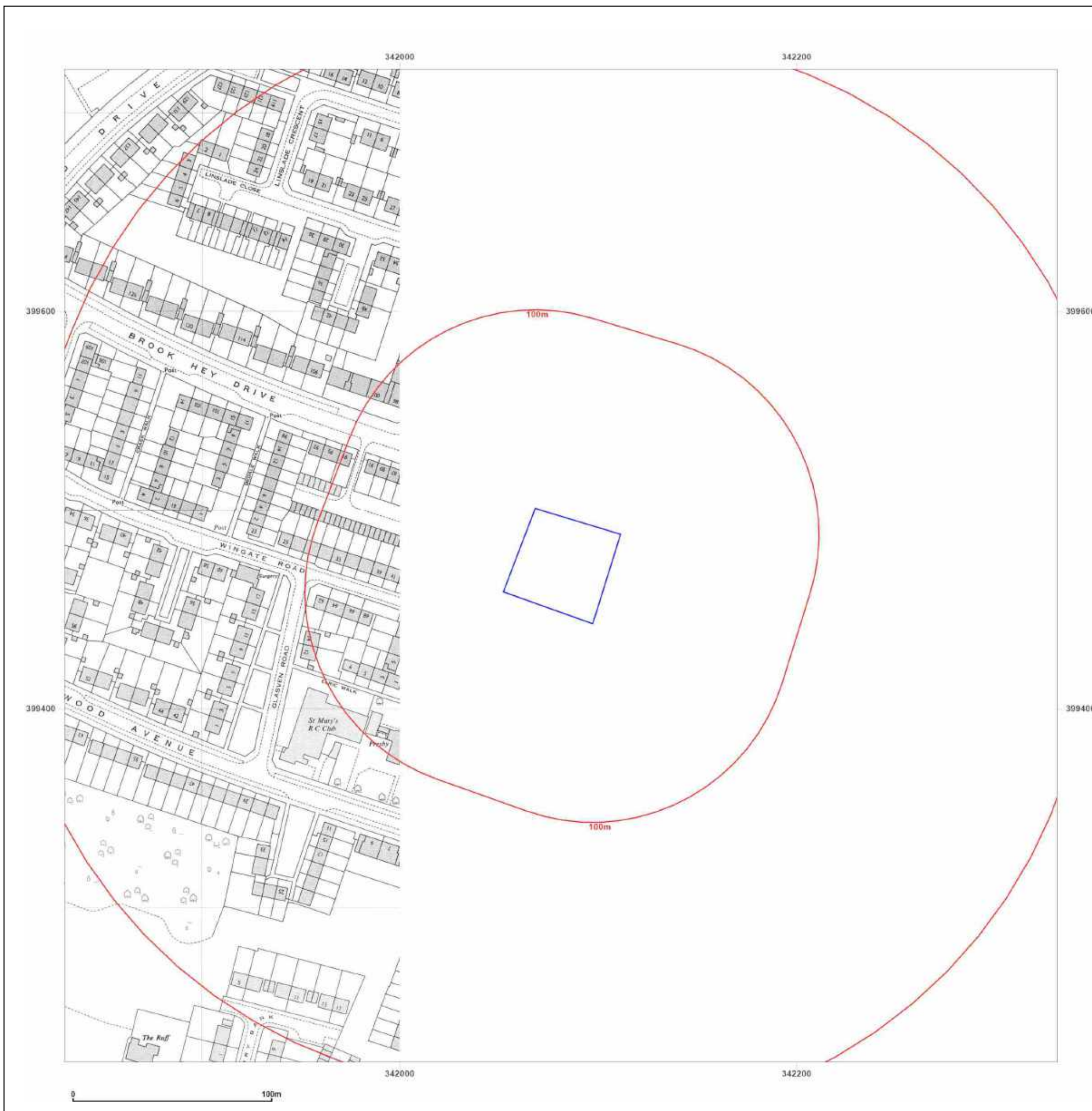


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6UP

Client Ref: 10757G
Report Ref: HMD-424-9043500
Grid Ref: 342081, 399472

Map Name: National Grid

Map date: 1984-1987

Scale: 1:1,250

Printed at: 1:2,000



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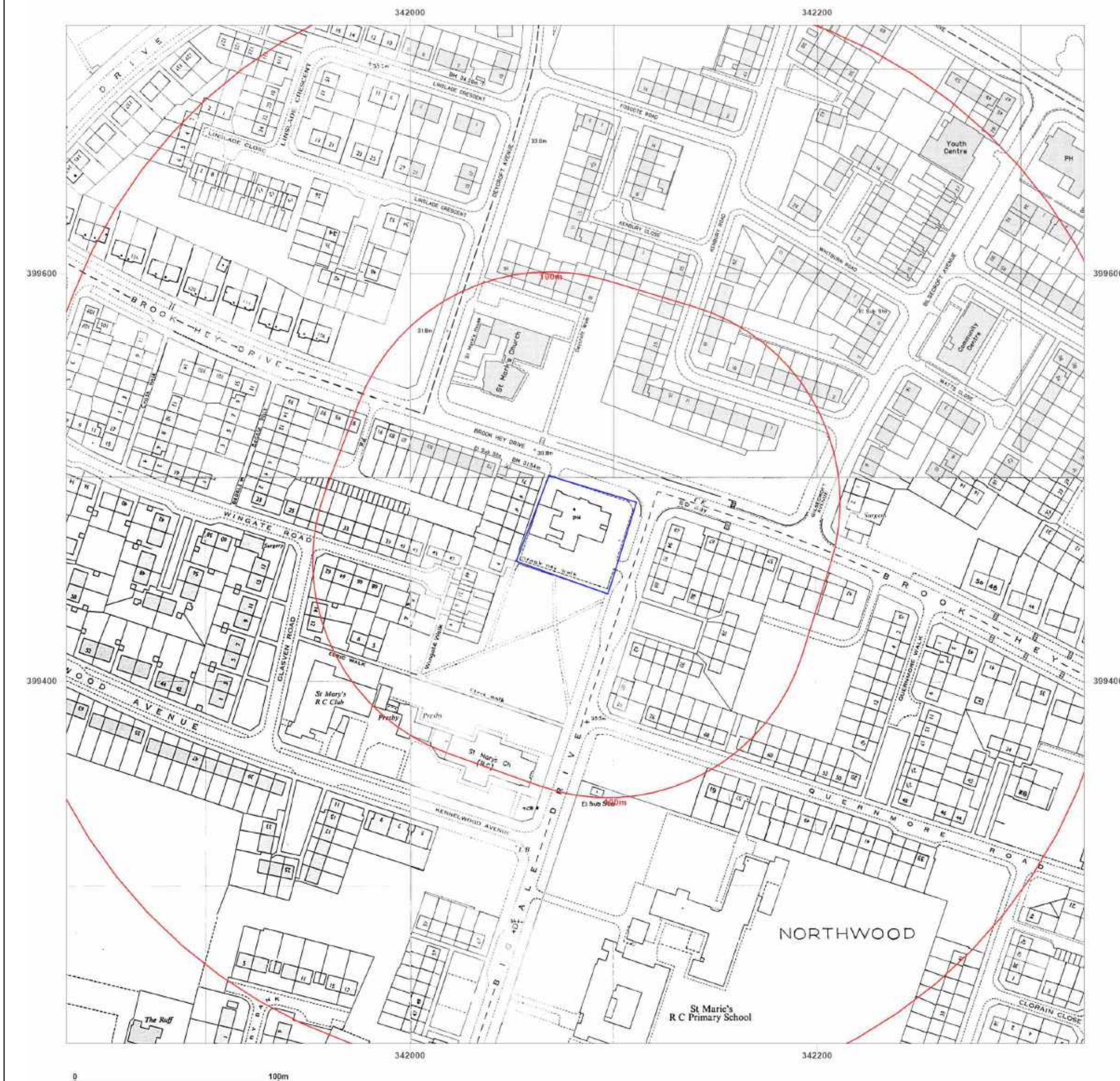


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6UP

Client Ref: 10757G
Report Ref: HMD-424-9043500
Grid Ref: 342081, 399472

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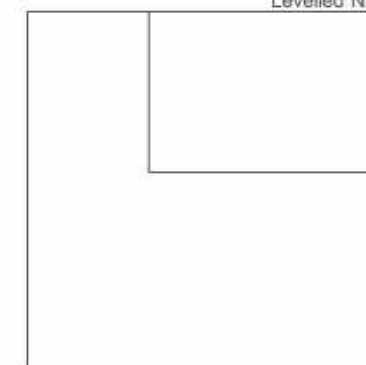
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6UP

Client Ref: 10757G
Report Ref: HMD-424-9043500
Grid Ref: 342081, 399472

Map Name: National Grid

Map date: 1993

Scale: 1:1,250

Printed at: 1:2,000



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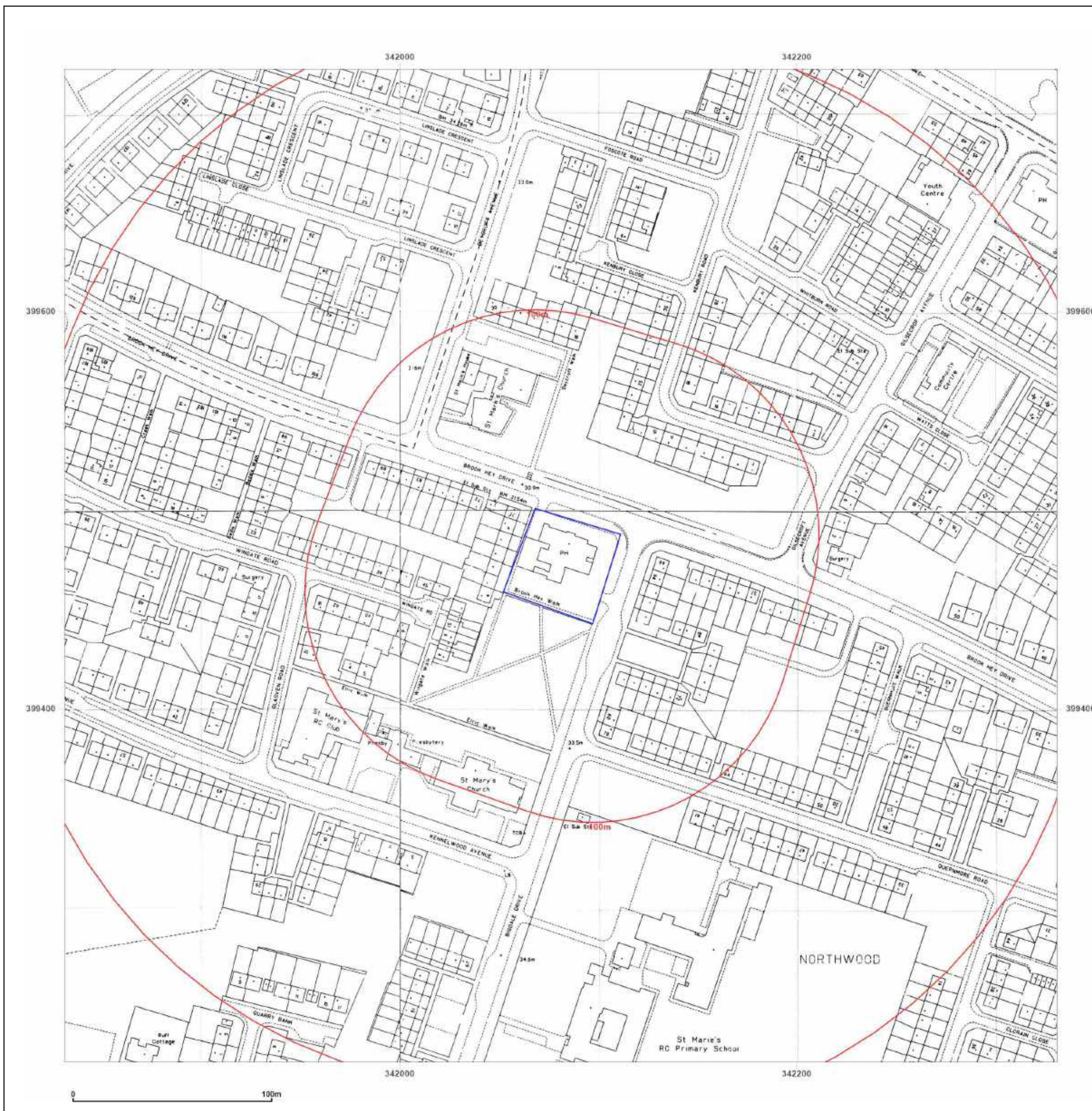


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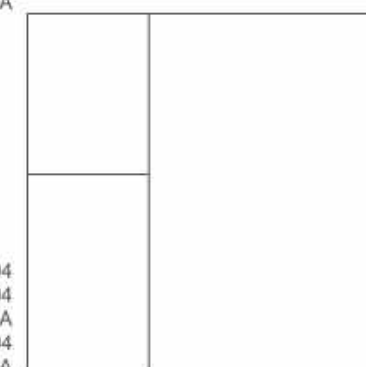
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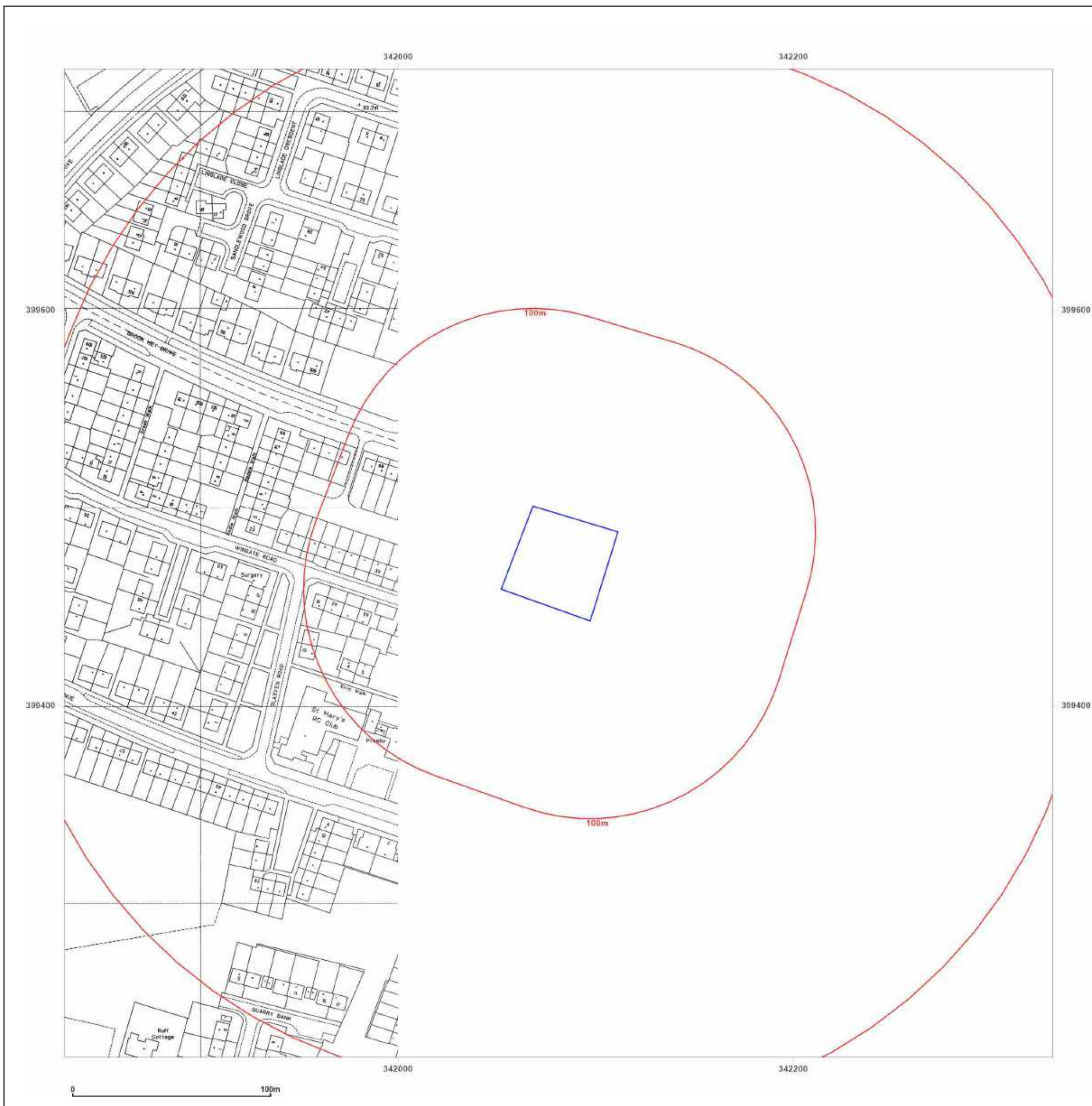


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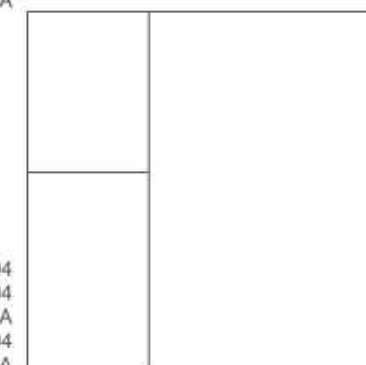
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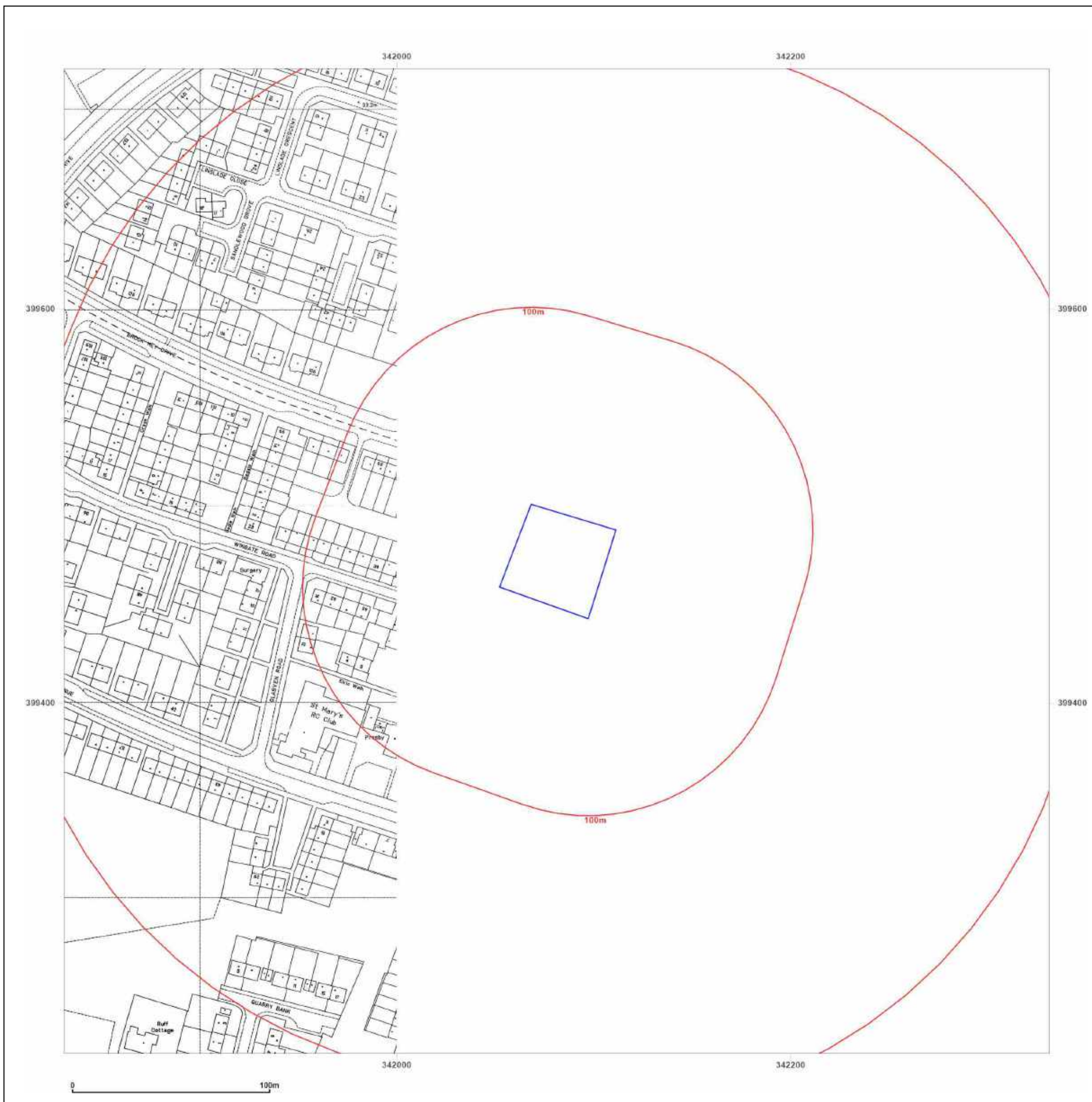


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Grid Ref: 342081, 399472

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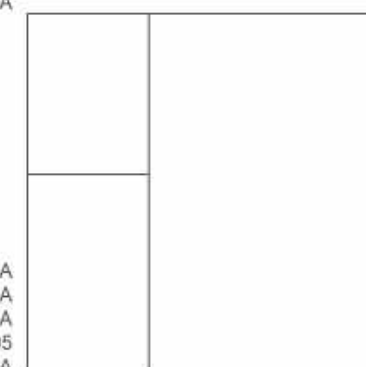
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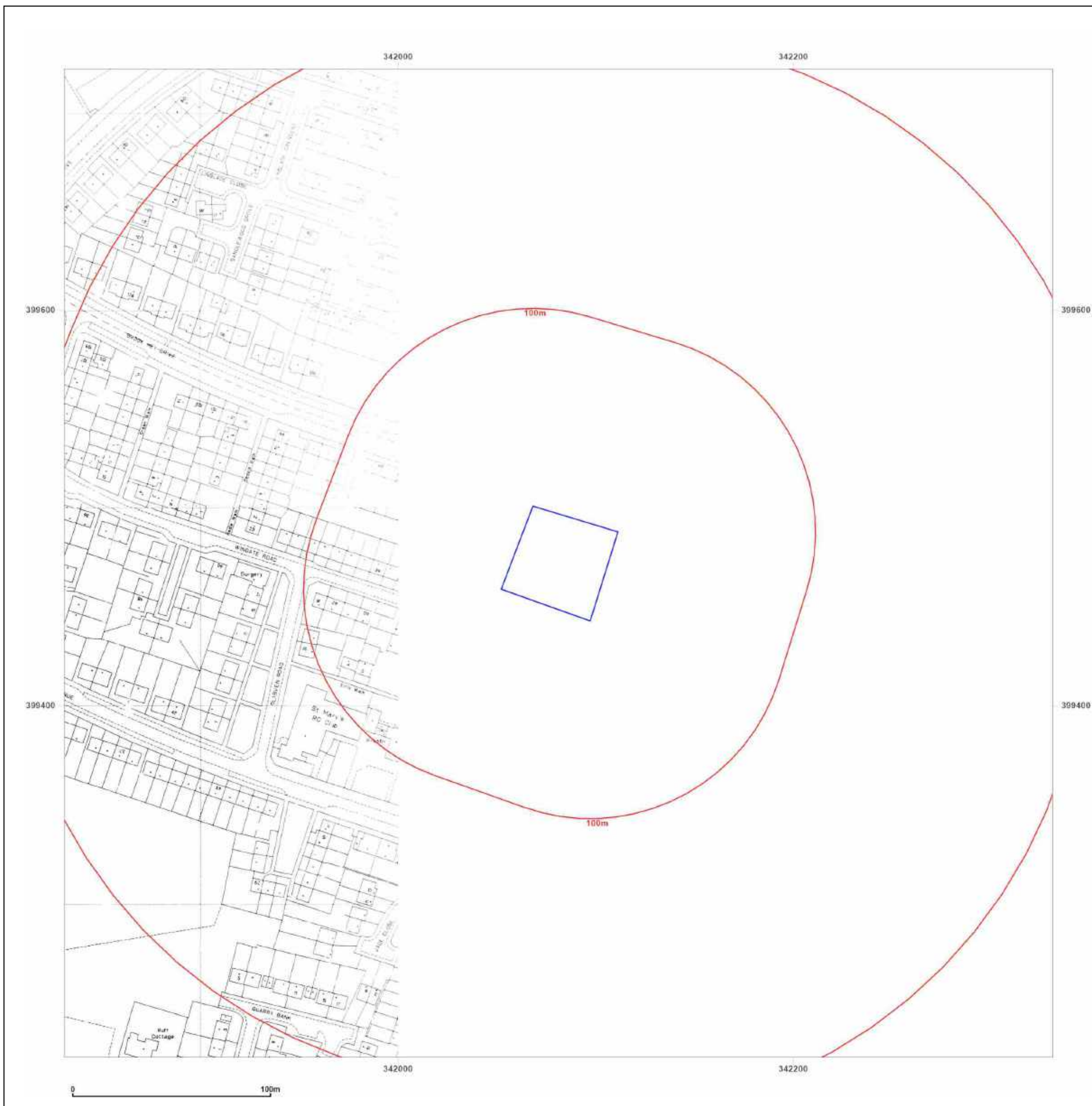


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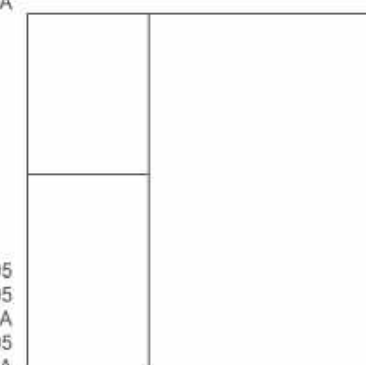
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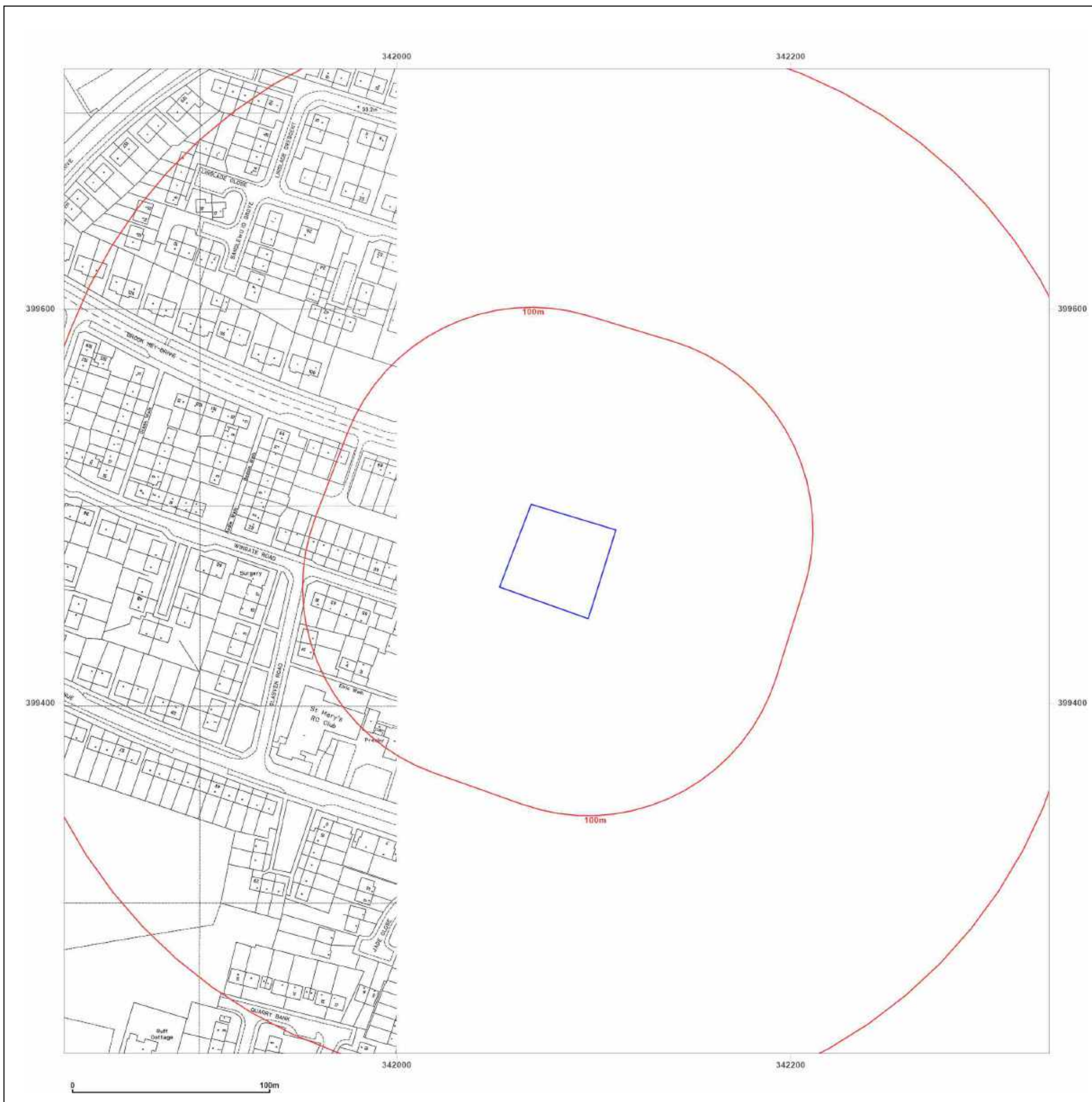


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6UP

Client Ref: 10757G
Report Ref: HMD-424-9043500
Grid Ref: 342081, 399472

Map Name: National Grid

Map date: 1994-1995

Scale: 1:1,250

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6UP

Client Ref: 10757G
Report Ref: HMD-424-9043500
Grid Ref: 342081, 399472

Map Name: National Grid

Map date: 1994-1995

Scale: 1:1,250

Printed at: 1:2,000



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Edition N/A
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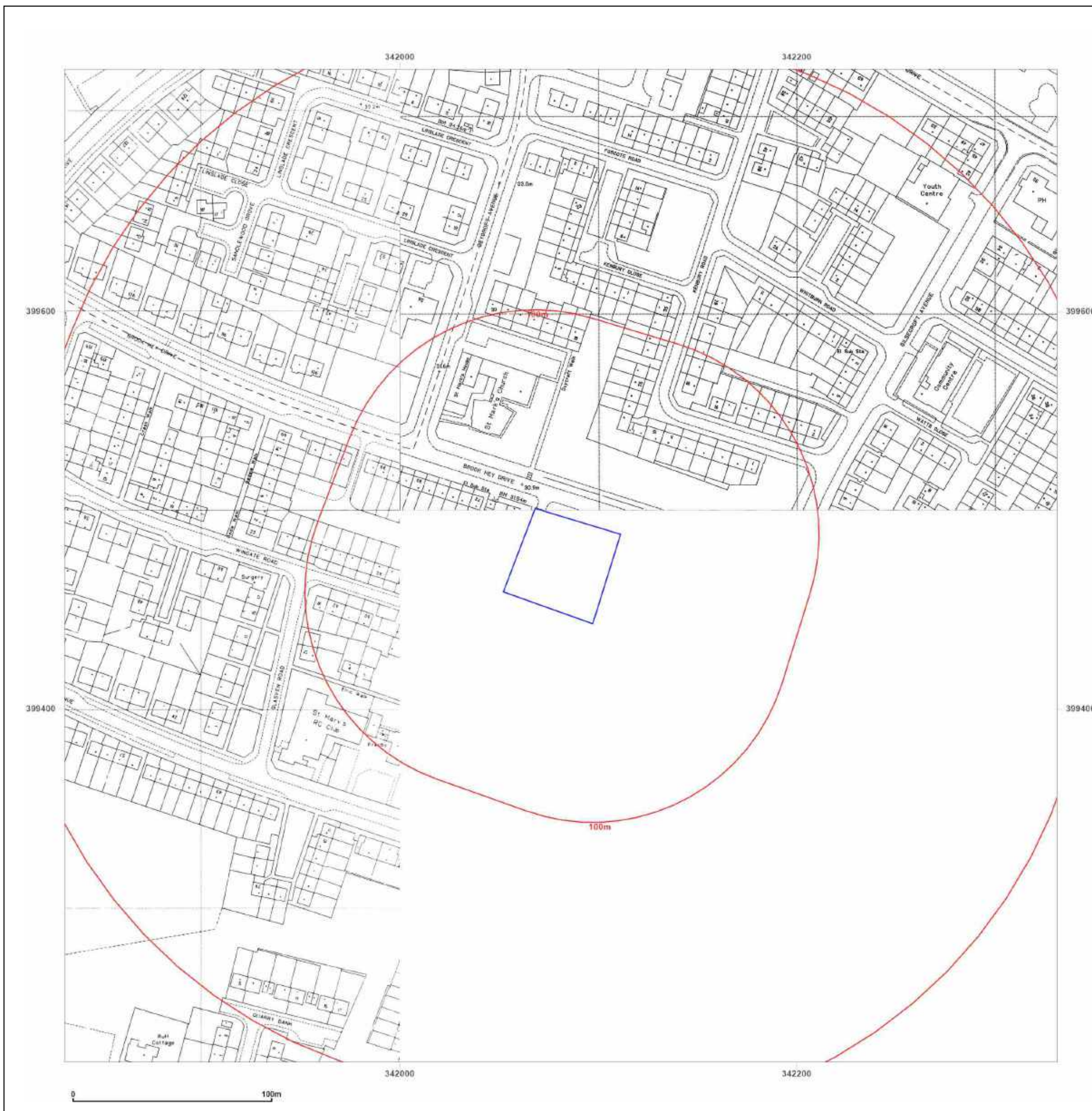


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Client Ref: 10757G
Report Ref: HMD-424-9043500
Grid Ref: 342081, 399472

Map Name: LandLine

Map date: 2003

Scale: 1:1,250

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2003



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Client Ref: 10757G
Report Ref: HMD-424-9043500
Grid Ref: 342081, 399472

Map Name: County Series

Map date: 1890-1892

Scale: 1:10,560

Printed at: 1:10,560



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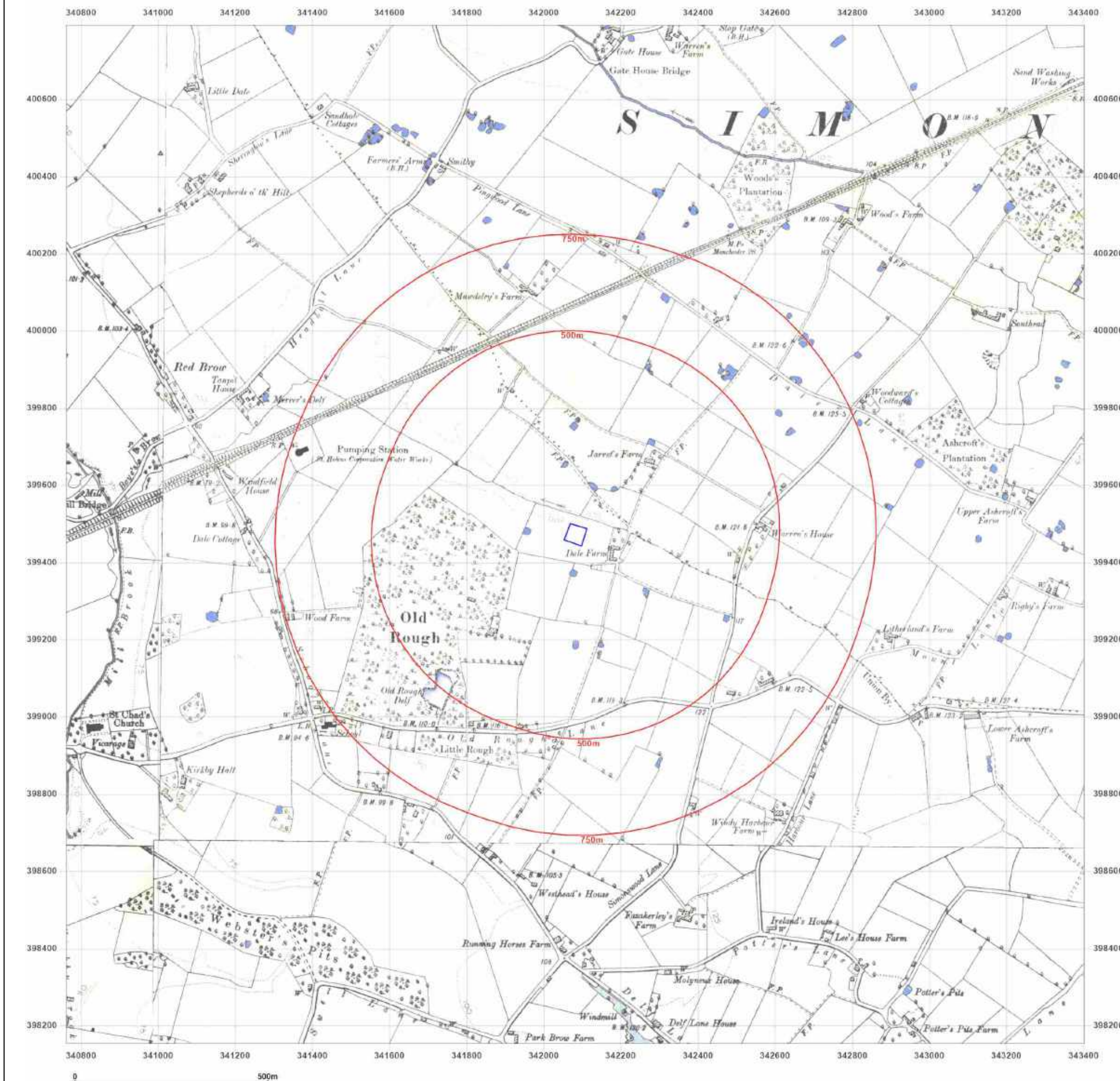


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Client Ref: 10757G
Report Ref: HMD-424-9043500
Grid Ref: 342081, 399472

Map Name: County Series

Map date: 1906-1907

Scale: 1:10,560

Printed at: 1:10,560



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Revised 1906
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Surveyed 1892
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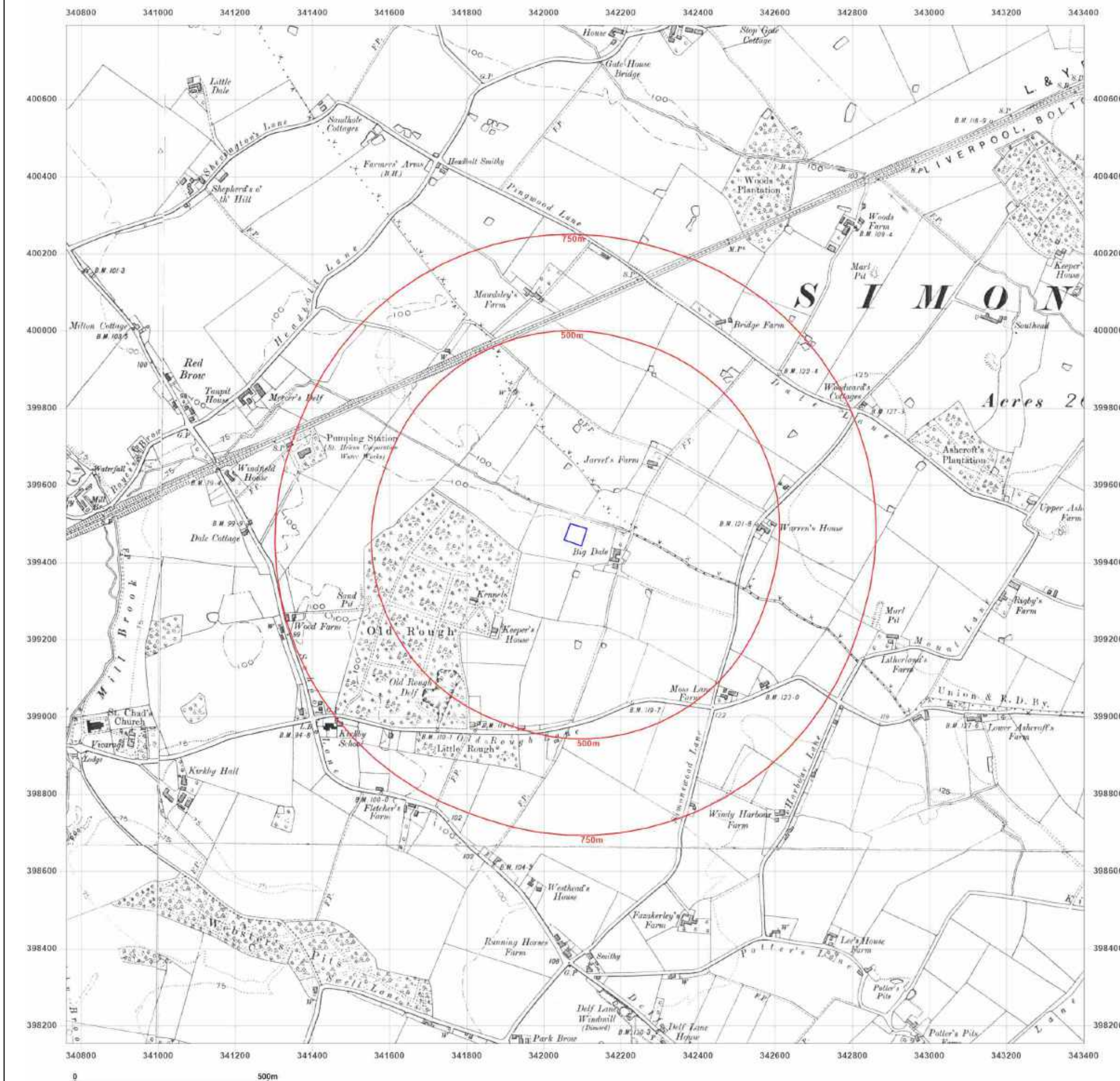


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6UP

Client Ref: 10757G
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Grid Ref: 342081, 399472

Map Name: County Series

Map date: 1925-1928

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Printed at: 1:10,560



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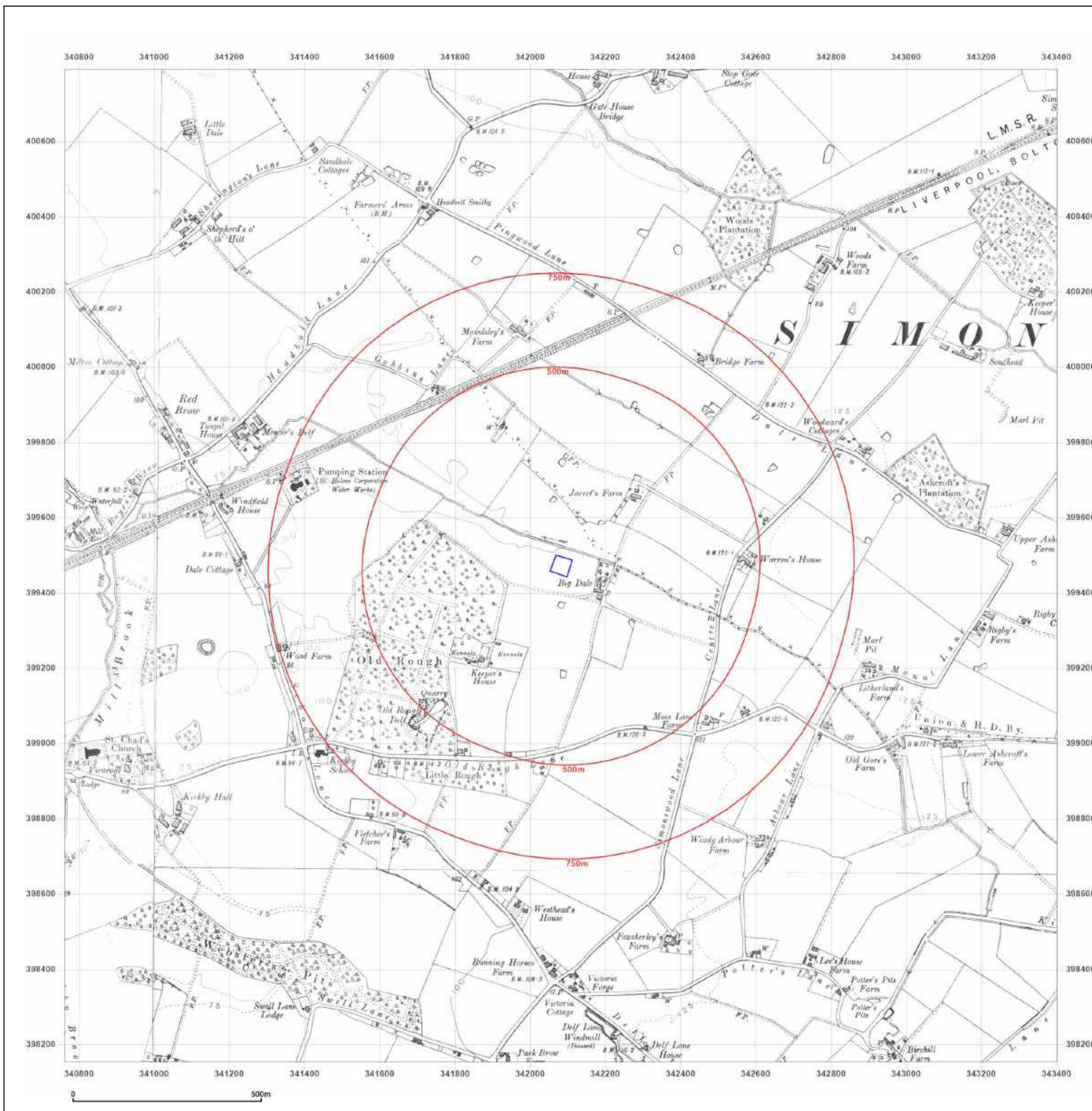


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Client Ref: 10757G
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Grid Ref: 342081, 399472

Map Name: Provisional

Map date: 1955-1956

Scale: 1:10,560

Printed at: 1:10,560



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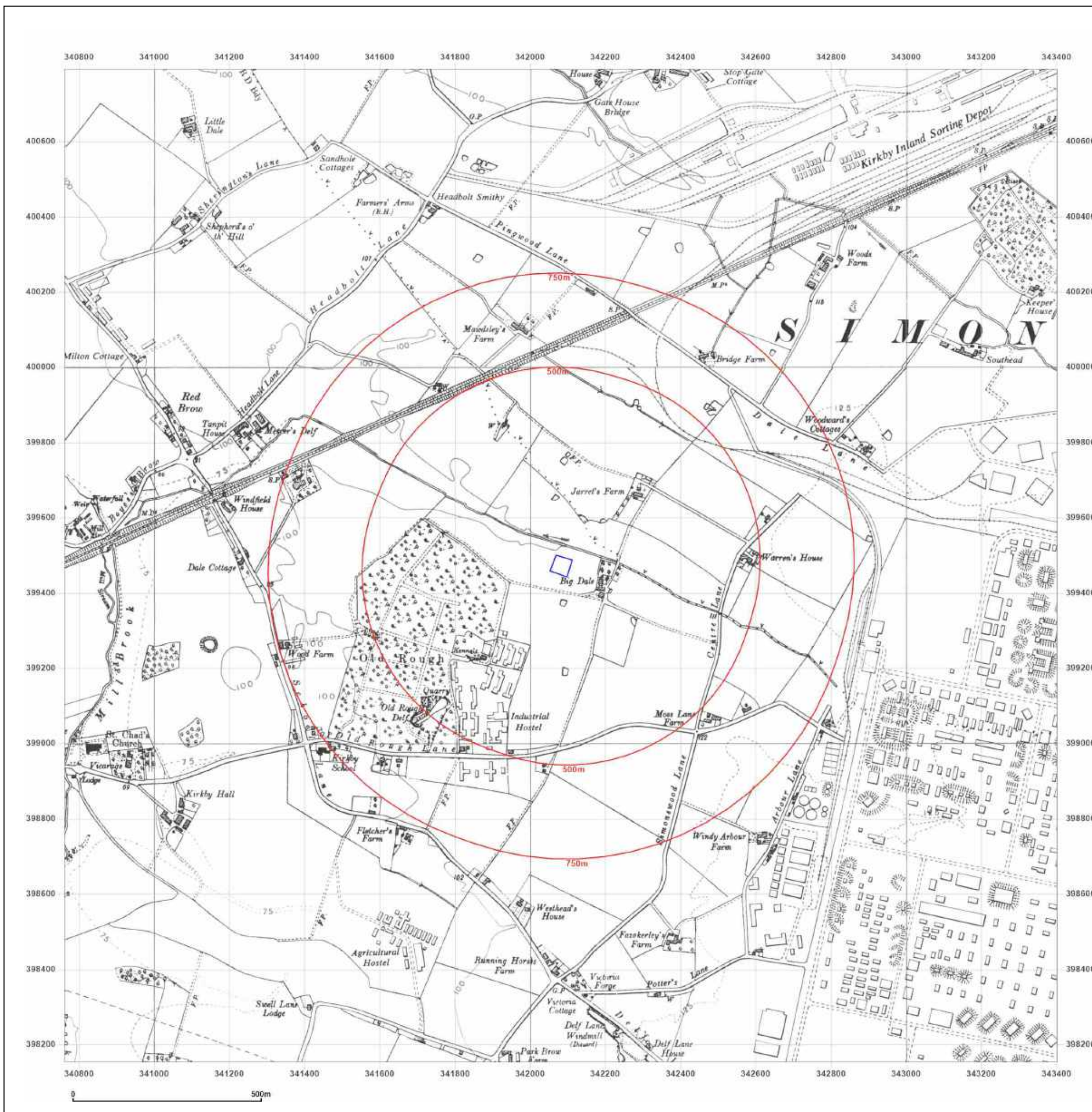


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Client Ref: 10757G
Report Ref: HMD-424-9043500
Grid Ref: 342081, 399472

Map Name: Provisional

Map date: 1966

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Printed at: 1:10,560



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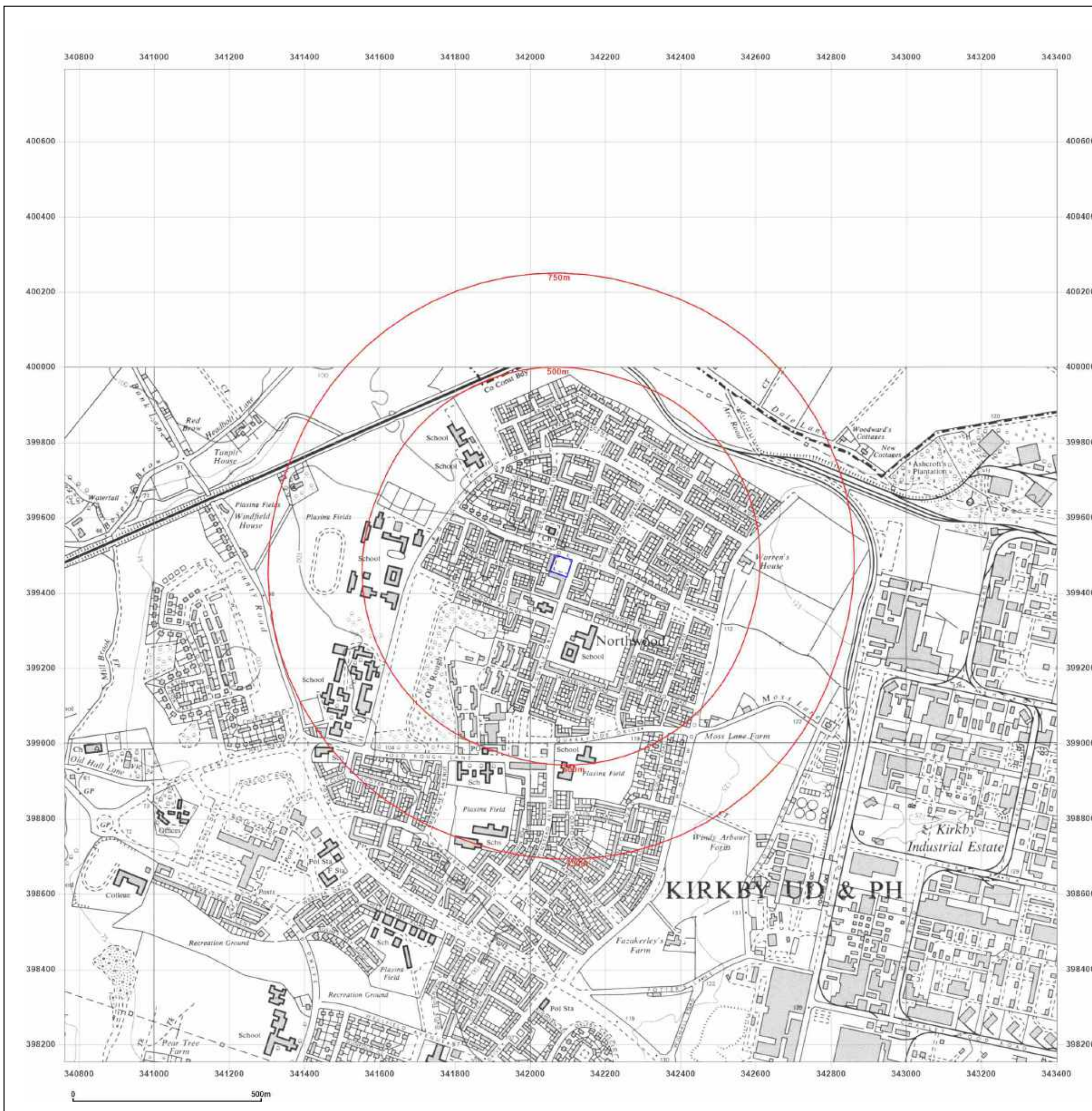


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Grid Ref: 342081, 399472

Map Name: National Grid

Map date: 1974-1978

Scale: 1:10,000

Printed at: 1:10,000



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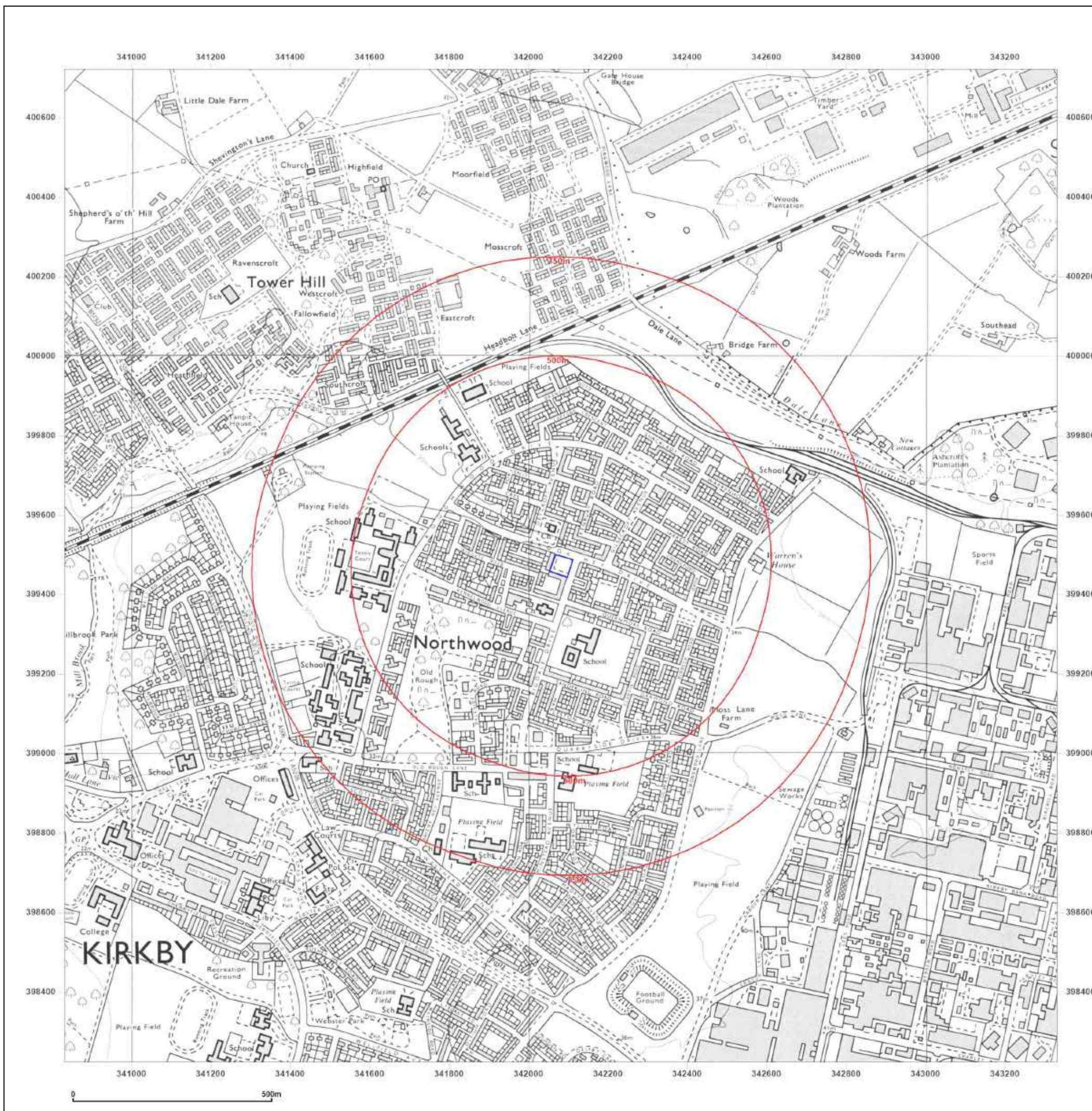


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6UP

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Grid Ref: 342081, 399472

Map Name: National Grid

Map date: 1987-1988

Scale: 1:10,000

Printed at: 1:10,000



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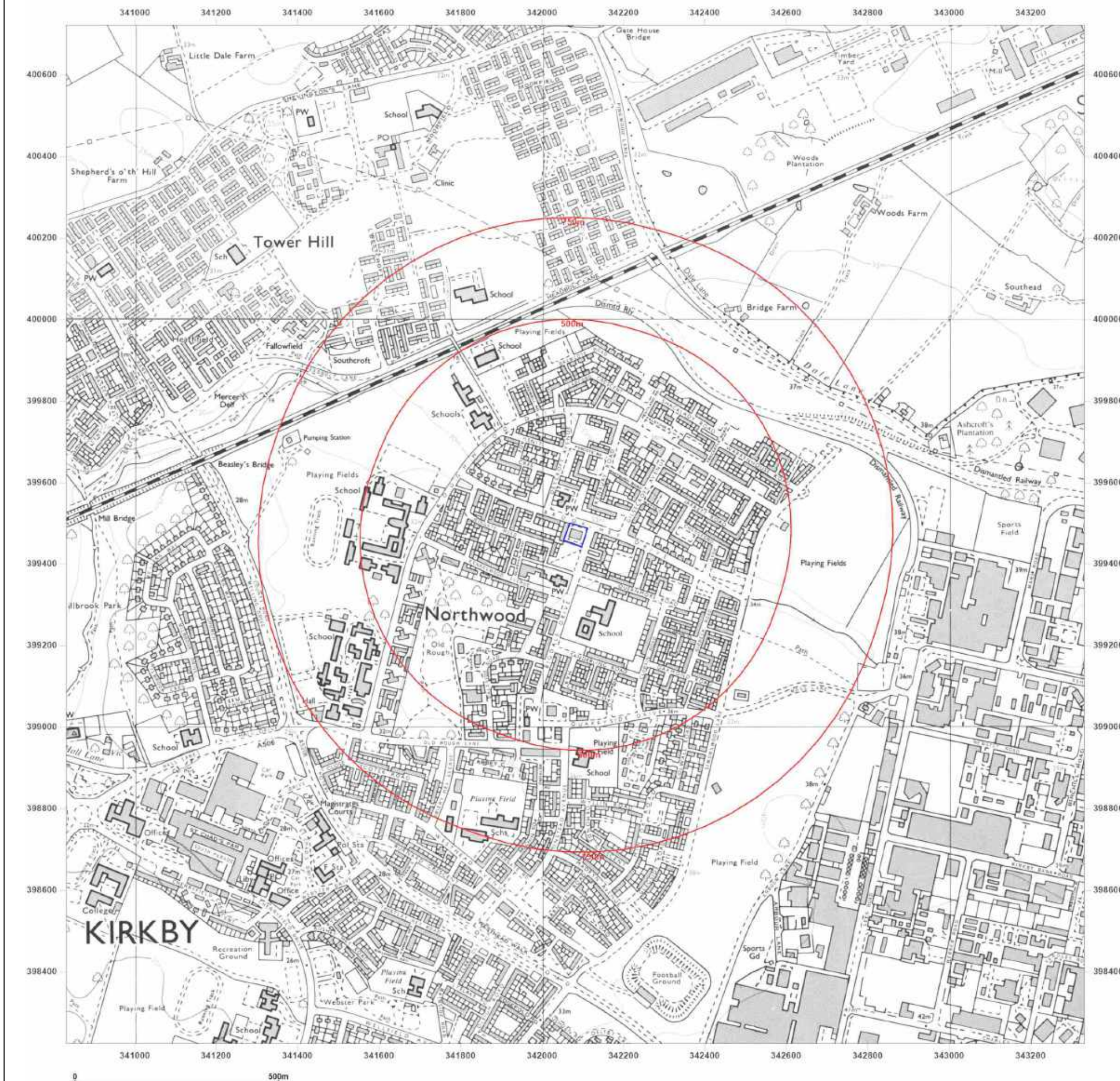


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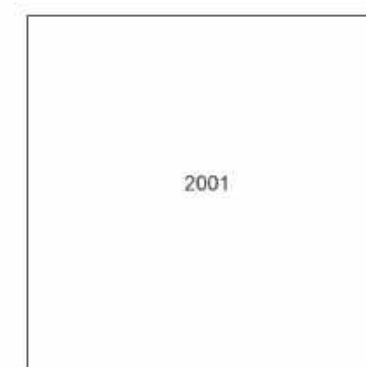
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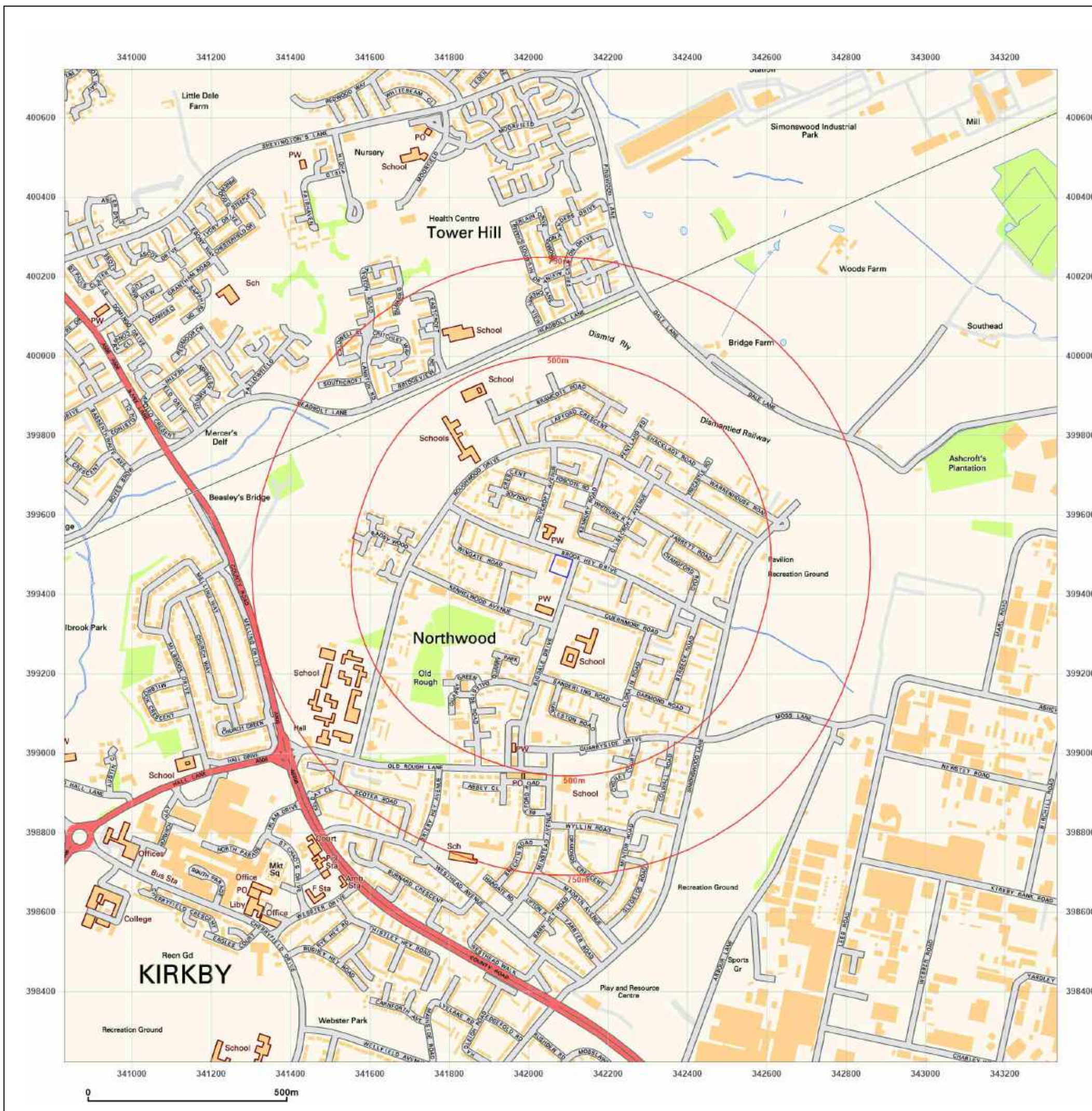


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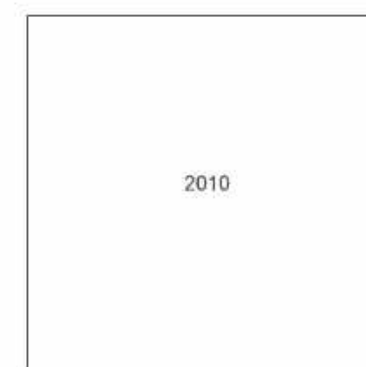
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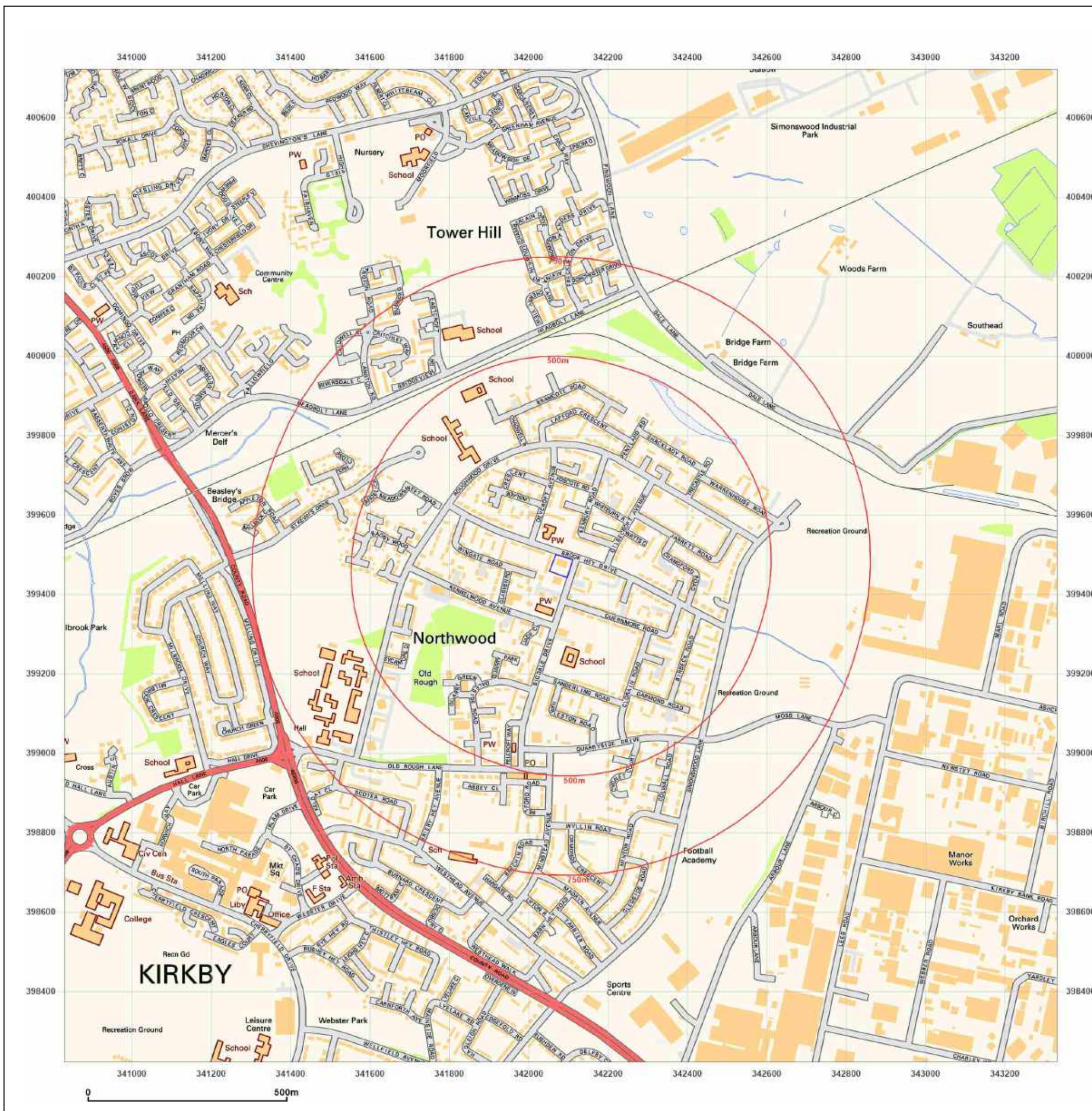


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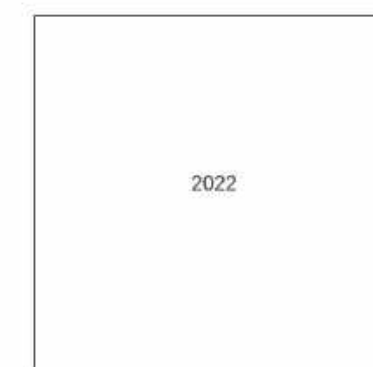
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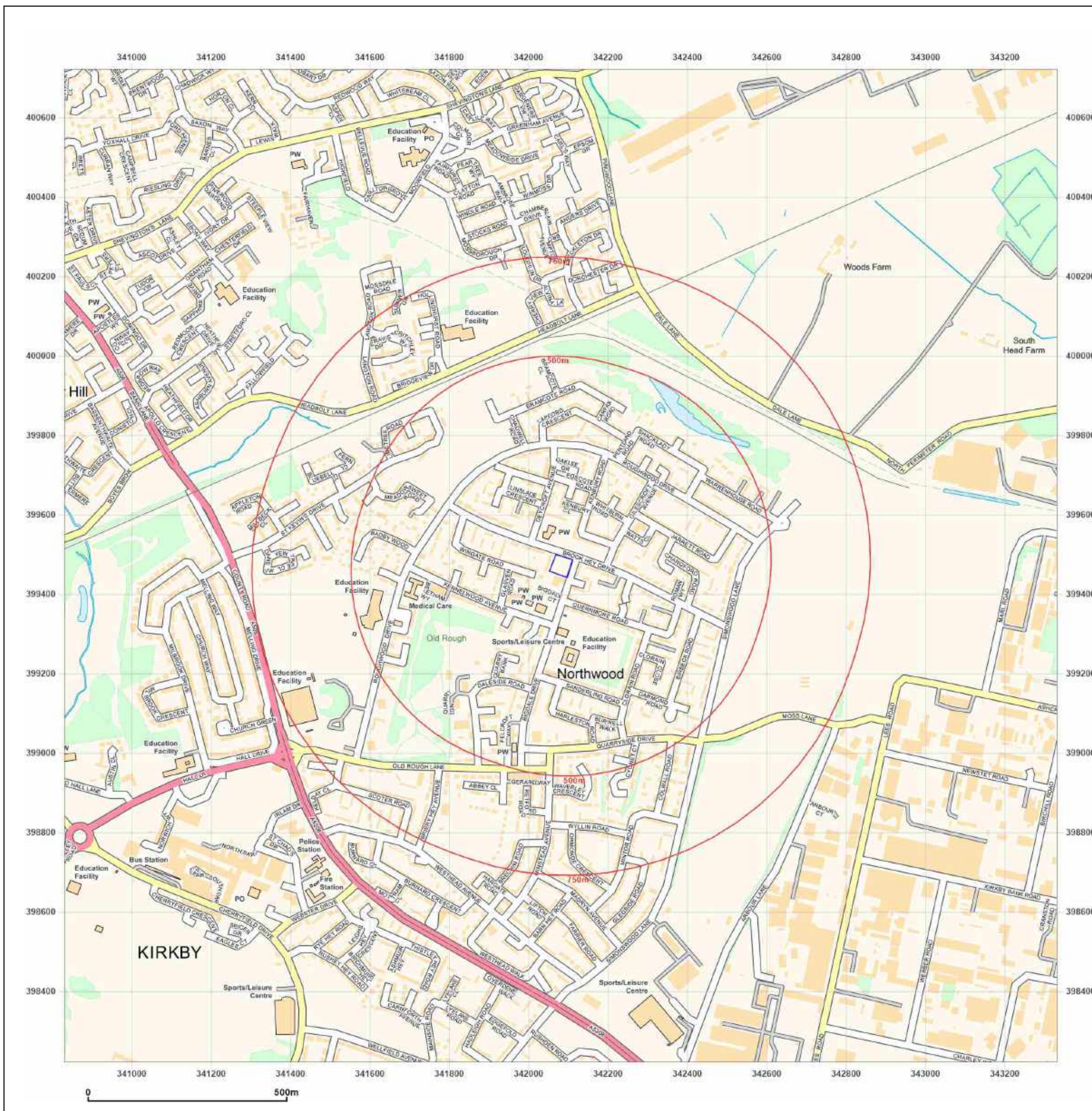


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APPENDIX 04

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	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. This risk (if realised) is likely to result in a substantial liability. <u>Required Actions</u> <i>Urgent investigation (if not undertaken already) and remediation are likely to be required.</i>
High	Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. <u>Required Actions</u> <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>
Moderate	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. <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>
Low	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.
Very Low	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.