

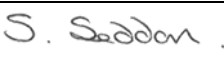
Phase 1 Desk Study and
Preliminary Geo-Environmental Assessment

For a site referred to as

Amberley Drive, Wythenshawe

Undertaken on behalf of

Wythenshawe Community Housing Group

Report Title:	Amberley Drive, Wythenshawe Phase 1 Desk Study and Preliminary Geo-Environmental Assessment
Report Reference:	8538/G/01A
Client:	Wythenshawe Community Housing Group
Issue Date:	14th December 2018
Drafted By:	T P Booth 
Reviewed By:	S C Seddon 
Authorised By:	P G Davies 

This document has been prepared for the titled project (or named part thereof) and should not be relied upon or used for any other project without an independent check being carried out as to its suitability and prior written authorization being obtained from WML Consulting. WML accepts no responsibility or liability for the consequences of the use of this document, wholly or in part, for any other purpose than that for which it was commissioned. Any persons so using or relying upon this document for such other purpose do so at their own risk.

This report was prepared for the sole use of the Client and shall not be relied upon or transferred to any other party without the express written authorisation of WML. It may contain material subject to copyright or obtained subject to license; unauthorised copying of this report will be in breach of copyright/license.

The findings and opinions provided in this document are given in good faith and are subject to the limitations imposed by employing site assessment methods and techniques, appropriate to the time of investigation and within the limitations and constraints defined within this document. The findings and opinions are relevant to the dates when the assessment was undertaken, but should not necessarily be relied upon to represent conditions at a substantially later date.

The findings and opinions conveyed in this report are based on information obtained from a variety of sources as detailed and which WML assumes to be reliable, but has not been independently confirmed. Therefore, WML cannot and does not guarantee the authenticity or reliability of third party information it has relied upon.

Where opinions expressed in this report are based on current available guidelines and legislation, no liability can be accepted by WML for the effects of any future changes to such guidelines and legislation.

The limitations of liability of WML for the contents of this document have been agreed with the Client, as set out in the terms and conditions of offer and related contract documentation.

Revision Status / History

Rev	Date	Issue / Purpose/ Comment	Prepared	Checked	Authorised
-	14/12/2018	Final	TPB	SCS	PGD
A	27/03/2025	Updated layout and site area	-	-	TPB

WML Consulting Ltd
No. 8 Oak Green,
Earl Road,
Stanley Green Business Park,
Cheadle Hulme,
Cheshire
SK8 6QL

Tel: 0161 482 0600
Email: info@wmlconsulting.com
www.wmlconsulting.com

CONTENTS

1.0	INTRODUCTION	1
	Appointment	1
	Proposed Development	1
	Objective.....	1
	Scope	1
2.0	SITE SETTING.....	2
3.0	ENVIRONMENTAL SETTING	4
4.0	HISTORICAL SETTING.....	7
5.0	Historical Investigations.....	8
6.0	PRELIMINARY CONTAMINATION RISK ASSESSMENT	9
	Introduction	9
	Preliminary Risk Assessment.....	11
7.0	PRELIMINARY GEOTECHNICAL CONSIDERATIONS.....	12
8.0	SUMMARY AND RECOMMENDATIONS	13
	Site Investigation.....	13

APPENDICES

Appendix 01	-	Drawings
Appendix 02	-	Site Photographs
Appendix 03	-	GroundSure Environmental Insight Report
Appendix 04	-	Qualitative Risk Assessment Guidance

1.0 INTRODUCTION

Appointment

- 1.1 WML Consulting has been commissioned by Paddock Johnson Partnership Architects, on behalf of Wythenshawe Community Housing Group, to undertake a Phase 1 Desk Study and Preliminary Geo-environmental Assessment of a site located at Amberley Drive in the Newell Green district of Wythenshawe.

Proposed Development

- 1.2 It is understood that the proposed development will comprise the construction of 8no low-rise residential properties with associated access roads, external areas of hardstanding for parking together with private gardens.
- 1.3 Since the issue of the original Phase 1 the proposed development plan has changed with the latest provided in Appendix 01 and forms the southern section of the larger site.

Objective

- 1.4 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 geo-environmental appraisal and thus inform a site-specific conceptual model.
- 1.5 This enables a preliminary assessment of geo-environmental risks to be undertaken and provides information for the design of an appropriate Phase 2 ground investigation in accordance with the former Environment Agency (2004) Model Procedures for the Management of Land Contamination, CLR11, this has since been updated to Model Procedures for Land Contamination Risk Management, updated July 2023.

Scope

- 1.6 The desk study has comprised a site reconnaissance visit on 15th November 2018 and a review of the following information sources:
- British Geological Survey (BGS) 1:50,000 scale, Sheet 98 'Stockport' (Solid & Drift edition).
 - BGS Digital Geological Map of Great Britain (DiGMapGB-50; available as a web map service).
 - Coal Authority (CA) 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).
 - UKradon Indicative Atlas of Radon in England and Wales as provided by Public Health England.
 - BRE Publication 211 (2023) "Radon: Guidance on Protective Measures for New Buildings".

2.0 SITE SETTING

- 2.1 It should be noted that since the issue of the Phase 1 report the development area has changed. Therefore the information within this report relates to the larger re-line boundary within the Groundsure Report unless otherwise specified.

Description	Comments
Site Address	Land off:- Amberley Drive Wythenshawe M23 2RW
National Grid Reference	381162E, 387950N
Site Area	1.05 hectares (larger Phase 1 site area).
Site Location	The larger site is bounded by:- North, east & south– Residential properties off Greenbrown Road. West – Amberley Drive and further residential properties. The site location is indicated on the plan in Appendix 01.
Site Description	The larger site is undeveloped and predominantly surfaced with managed grass in use as a public open space. The south-eastern and north-western sections of the site comprise linear strips of mature deciduous trees and very dense vegetation along the line of Mill Brook, which extends roughly north-west to south-east through the site. Further sporadic mature deciduous trees are located across the managed grassland in the north-eastern section. The northern section of the site is accessed through a metal security gate from the end of the recently constructed properties on Amberley Drive, where an asphalt access track extends over a small culverted section of Mill Brook. The southern area of the site is openly accessible from Amberley Drive, which forms the western site boundary. A metal security fence extends north-east to south-west across the central section of the site. Mill Brook is also noted to be culverted just beyond the northern apex of the site, from where the culvert appears to extend beneath Portslade Walk to the north-west. The surrounding land is mainly developed for residential use with localised areas of public open space with Wythenshawe Hospital some 200m to the west. Photographs of the site and immediately surrounding area are provided in Appendix 02.
Topography	No topographic survey had been undertaken at the time of the Phase 1 study. The site falls gently towards Mill Brook which is contained within a linear depression generally running south-east to north-west through the centre of the site. The north-eastern part of the site also rises gently towards the eastern site

Description	Comments
	boundary. The topography of the surrounding area reflects the subject site with an overall gentle increase in elevation from north-west to south-east.

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 1.5.

Description	Comments	
Geology (1:50, 000 scale Map Sheet and digital mapping)	Superficial Deposits	Drift deposits are indicated to be absent beneath the majority of the site. However, the north-western section is indicated to be underlain by Devensian Glacial Till which generally comprises clay with occasional sand and silt horizons. Although not indicated on the BGS plans, Alluvial deposits with the potential to comprise organic or otherwise incompetent soils, associated with Mill Brook, could occur locally along the line of the watercourse.
	Solid Strata	The superficial deposits, where present, are indicated to be underlain by strata of the Triassic Bollin Mudstone, which generally comprise laminated reddish-brown and greenish-grey mudstone with siltstones.
	Geological Faults / Features	None
Radon	The property is not located within a radon affected area as defined by the UK Health Security 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.	
Coal Mining and Subsidence	In consideration of the underlying geology, risks of subsidence from coal mining can be discounted. Risks of subsidence from natural dissolution is also considered to be low and can be discounted.	
Hydrogeology	Superficial Aquifer	Secondary (Undifferentiated) Aquifer (north-eastern section) – This is 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
	Bedrock Aquifer	Secondary B Aquifer – These include 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.

Description	Comments		
	Source Protection Zone (SPZ) within 250m.	None	
	Groundwater Abstractions within 1Km	None	
Hydrology	Surface Water Features within 500m	Mill Brook extends roughly north-west to south-east through the centre of the site.	
	Surface Water Abstractions within 500m	None	
Landfill and Waste Management Activity	Active Landfill within 1km	None	
	Historical (EA/LA) Landfill within 1km	None	
	Other Waste Sites within 250m	None	
Industrial Land Use Information	Potentially Contaminative Industrial sites within 250m	2no electricity sub-stations – 18m south-west and 90m north-west. Accident & Emergency Hospital – 233m west.	
	Underground HP Pipelines within 500m	None	
	Petrol Filling Stations within 500m	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
	Contaminated Land - Section 78R of the Environmental Protection Act 1990		250
Potential Flood Risks	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 'very low' for the site. The site is indicated on BGS records to be within an area which is considered to have a potential susceptibility to groundwater flooding. The BGS		

Description	Comments
	confidence rating for this assessment is considered 'Moderate'.
Environmentally Sensitive Sites	There are no designated environmentally sensitive sites within 250m of the study site.
Archaeological Information	No archaeological information has been obtained for the purpose of this report. Where considered necessary, an archaeological specialist should be consulted 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 maps dated 1876 indicate the site to comprise undeveloped woodland and agricultural land bordering Mill Brook, which extended roughly north-west to south-east through the central section. Greenbrow Lane extended roughly north-west to south-east across the north-eastern section of the site.
- 4.3 The surrounding area originally comprised undeveloped rural / agricultural land with occasional small field ponds, woodlands and localised residential structures.
- 4.4 By 1960 a section of Mill Brook was culverted at the northern apex of the site. This coincided with the construction of a small bridge providing access across Mill Brook in the central section of the site. Although the site has since remained undeveloped public open space, by this time the area immediately surrounding the site had been developed for residential housing.
- 4.5 In consideration of the past use of the site and surrounding area, no significant sources of ground contamination are therefore envisaged.

5.0 Historical Investigations

- 5.1 WML have previously undertaken a Phase 1 Desk Study and Phase 2 investigation which included the south-western section of the subject site and an area of former public open space to the west of the subject site area. These culminated in the following WML Consulting report:
- Phase 1 Desk Study and Preliminary Geo-environmental Assessment, Reference 5838/G/01, dated November 2013.
 - Phase 2 Geo-environmental Investigation and Assessment, Reference 5838/G/02, dated March 2014.
- 5.2 Within the subject site the investigation comprised the formation of 2no window sample probeholes together with chemical and geotechnical testing.
- 5.3 This included the installation of a standpipe, which was subsequently monitored on 6no occasions between 3rd February and 23 April 2014 for groundwater and gas.
- 5.4 The ground conditions encountered comprised topsoil underlain by weathered strata of the Bollin Mudstone. The upper horizons were completely weathered to a firm to stiff reddish brown / brown friable clay. This graded into a stiff grey / reddish brown clay with partings of very weak mudstone
- 5.5 All of the exploratory holes were noted to be dry during formation with perched standing groundwater recorded locally at depths of between 0.45m and 1.18mbgl.
- 5.6 No elevated concentrations of contaminants of concern (CoC's) were encountered when compared against generic screening levels relating to a residential end use.
- 5.7 No detectable concentration of methane or elevated concentrations of carbon dioxide were recorded together with no detectable gas flows, indicating a 'Very Low Gas Risk' in accordance with BS8485:2015, *Code of practice for the design of protective measures for methane and carbon dioxide ground gas for new buildings*, with no specific gas protection measures required.
- 5.8 The report concluded that risks to human health and the environment from ground contamination and ground gas were negligible.

6.0 PRELIMINARY CONTAMINATION RISK ASSESSMENT

Introduction

- 6.1 The following paragraphs outline a Preliminary Risk Assessment (PRA) for the site as defined by DEFRA and the EA Model Procedures updated in 2023 to the Model Procedures for Land Contamination Risk Management.
- 6.2 The table in Paragraph 6.4 provides a Preliminary Conceptual Model (PCM) which defines the site in terms of a potential pollution linkage, that is, whether a pathway exists between a contamination source and a sensitive environmental receptor (Source-Pathway-Receptor relationship).
- 6.3 The table considers whether a pollution 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 05.
- 6.4 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	Linkage potential	Comment
The site has remained undeveloped with the likelihood of significant ground contamination sources being present considered low. This has been confirmed to a degree by previous ground investigation.	Direct contact, ingestion of soil, dermal contact, dust exposure pathways.	Current Site Users	No linkage envisaged	No significant sources of contamination are anticipated with site use being currently transient. Therefore the risk to current site users is considered VERY LOW .
		Site End Users	Unlikely	No significant contamination is anticipated with no direct pollution linkage anticipated. Therefore the risk to future site users is considered LOW .
		Construction Workers	Unlikely	In the unlikely event of construction workers being exposed to contaminated soils during earthworks and foundation construction, any perceived risks will be mitigated by adopting good site working practices including appropriate Health and Safety measures during the works, thus providing a VERY LOW preliminary risk.
		Adjacent land users	Unlikely	Contact via wind-blown dust/debris, particularly during the development phase is possible although the exposure time would be relatively short with no contamination envisaged. The current risk is considered VERY LOW although this could increase during construction works. Appropriate health and safety measures adopted during site development will ensure that the risk remains very low.

Source	Pathway	Receptor	Linkage potential	Comment
The likelihood of 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	Unlikely	The site is underlain by a Secondary B (Bedrock) Aquifer which is not considered to be a sensitive receptor. Also, no significant mobile contamination sources are considered to exist at the site. Therefore, the risk to groundwater is considered to be LOW .
	Off-site migration in groundwater or surface water flow.	Surface water	Unlikely	Mill Brook crosses the site and is considered a sensitive receptor; however, the site has remained undeveloped and is unlikely to provide any significant sources of mobile contamination. The preliminary risk to surface water is therefore considered LOW .
		Groundwater/surface water abstractions	No linkage envisaged	The site is not within an Environment Agency Source Protection Zone with no nearby groundwater or surface water abstractions or potable water extraction. The risk to groundwater/surface water abstractions is therefore considered VERY LOW .
		Adjacent Properties	Unlikely	In consideration of the site history, no significant sources of mobile contaminants are anticipated to exist. The preliminary perceived risk to adjacent properties is therefore assessed as VERY LOW .
		Ecology	No linkage envisaged	There are no recorded ecologically sensitive sites within influencing distance of the subject site. The risk to ecology is therefore considered VERY LOW .
The likelihood of significant 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	No linkage envisaged	Site occupancy is transient in nature with no significant exposure scenario. Therefore the preliminary perceived risk to current site users is assessed as VERY LOW .
		Site End Users	Unlikely	No significant volatile contamination sources are anticipated. The preliminary risk from inhalation of indoor/outdoor vapours is therefore assessed as LOW .
		Construction Workers	Unlikely	In consideration of the undeveloped nature of the site the risk to construction workers, assuming that appropriate health and safety measures will be adopted, is considered VERY LOW .
		Adjacent Properties	Unlikely	Sources of volatile contaminants at the site are not anticipated. Therefore the perceived risk to adjacent properties and users is assessed as VERY LOW .

Source	Pathway	Receptor	Linkage potential	Comment
The presence of appreciable thicknesses of made ground with the potential to produce significant volumes of hazardous ground gas at the site is unlikely. There are no current or closed landfills within influencing distance of the site. Organic alluvial deposits with the potential to generate ground gas could occur in proximity to Mill Brook but are unlikely to be significant. Previous gas monitoring has not recorded elevated concentrations of ground gas to be present.	Emissions from the ground beneath the site collecting in confined spaces and excavations	Construction/ services maintenance workers	No linkage envisaged	The potential to generate significant volumes of toxic and/ or flammable/ explosive gas beneath the site is considered low. Assuming that appropriate health and safety measures will be adopted during construction, the preliminary risk to construction workers is considered VERY LOW .
	Migration of gases on/off site and collecting in confined spaces on/off site.	Adjoining site users	No linkage envisaged	The potential for significant volumes of toxic and/or flammable/ explosive gasses to be generated beneath the site is considered low. The potential risk to adjoining site users from site sources of ground gas is therefore considered VERY LOW .
		Current/future site users	No linkage envisaged	No significant sources of ground gas are envisaged with intervening relatively impermeable mudstone bedrock greatly reducing the potential for lateral migration. A plausible pollution linkage is therefore not envisaged with the preliminary risk considered VERY LOW .
The site is not in an area which is 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. No further action is necessary regarding radon protection as the risk is VERY LOW .
Chemicals which could prove aggressive to construction materials are unlikely to 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 VERY LOW .

Preliminary Risk Assessment

- 6.5 Under the proposed development scenario, potential pollution linkages are on the whole considered unlikely with associated preliminary risks assessed as very low to low.
- 6.6 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.

7.0 PRELIMINARY GEOTECHNICAL CONSIDERATIONS

Consideration	Summary
Ground Obstructions	The site has remained undeveloped therefore no significant ground obstructions such as buried structures are envisaged.
Earthworks	No significant reprofiling anticipated although a degree of cut may be required in the east of the site. This may necessitate the construction of retaining walls along the eastern boundary.
Foundations and Floor Slabs	Traditional style spread foundations on competent glacial till or Bollin Mudstone strata will likely be suitable for the support of new structures, depending upon the extent of any alluvial deposits associated with Mill Brook. This will need to be confirmed by appropriate site investigations. Due to the potentially cohesive nature of the underlying soils, new foundations in proximity to existing or removed trees will need to be design in accordance with NHBC Chapter 4.2 Building near Trees.
Soakaways	In consideration of the potential cohesive nature of the underlying strata, soakaways are unlikely to be a feasible drainage option for the site.

8.0 SUMMARY AND RECOMMENDATIONS

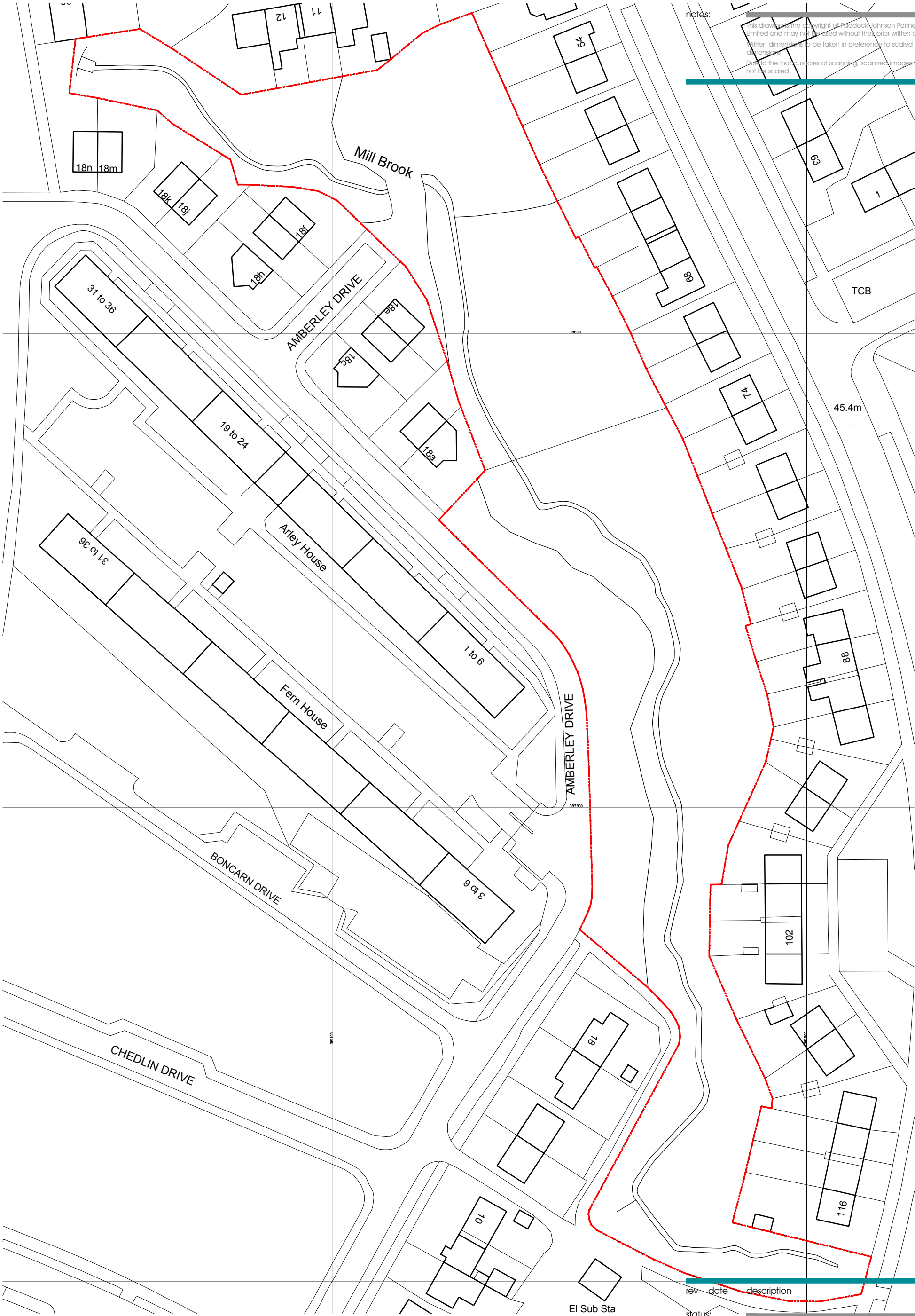
Development Considerations	Comments
Shallow Coal Mining	Very low risk.
Earthworks	No significant reprofiling anticipated although a degree of cut may be required in the east of the site. This may necessitate the construction of retaining walls along the eastern boundary.
Foundations	Traditional style spread foundations may be suitable for the support of new structures. However, foundations may probably need to be extended to greater depths if alluvial deposits are encountered in proximity to Mill Brook. This will need to be confirmed by appropriate site investigations.
Ground Contamination	Preliminary low risk which can be managed as part of the development construction. No specific environmental remediation envisaged.
Hazardous Ground Gas	None envisaged, but may be subject to confirmatory monitoring if natural organic / degradable materials are encountered during ground investigations.
Radon	No radon protection measures are required.
Soakaway Drainage	Not envisaged to be a suitable option due to the anticipated relatively impermeable underlying soils.

Site Investigation

- 8.1 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.
- 8.2 The investigation may also need to include the installation of ground gas monitoring standpipes with subsequent monitoring for hazardous ground gas concentrations and flow should organic alluvial deposits be encountered.
- 8.3 In addition, appropriate investigation will be required to establish geotechnical parameters for the design of foundations, floor slabs and pavement construction.
- 8.4 Site investigations should be undertaken in accordance with BS5930:2015, Code of Practice for Ground Investigations and BS 10175:2011, Investigation of Potentially Contaminated Sites, Code of Practice.

APPENDIX 01

Drawings



notes:

This drawing is the copyright of Paddock Johnson Partnership Limited and may not be used without their prior written consent. Written dimensions to be taken in preference to scaled dimensions. Due to the inaccuracies of scanning, scanned images should not be scaled.

rev	date	description	by

PRELIMINARY

paddock johnson partnership
architects

Studio 2, The Lyceum, Bath Street, Port Sunlight, Wirral CH62 4WJ
t: +44(0)151 643 1234 f: +44(0)151 643 1666
e: enquiry@paddockjohnson.com w: www.paddockjohnson.com

status:

client:

Wythenshawe CHG

project:

New Housing
Amberley Drive

number:

18073-001

title:

Existing Site Plan

scale:

1:750

sheet:

A3

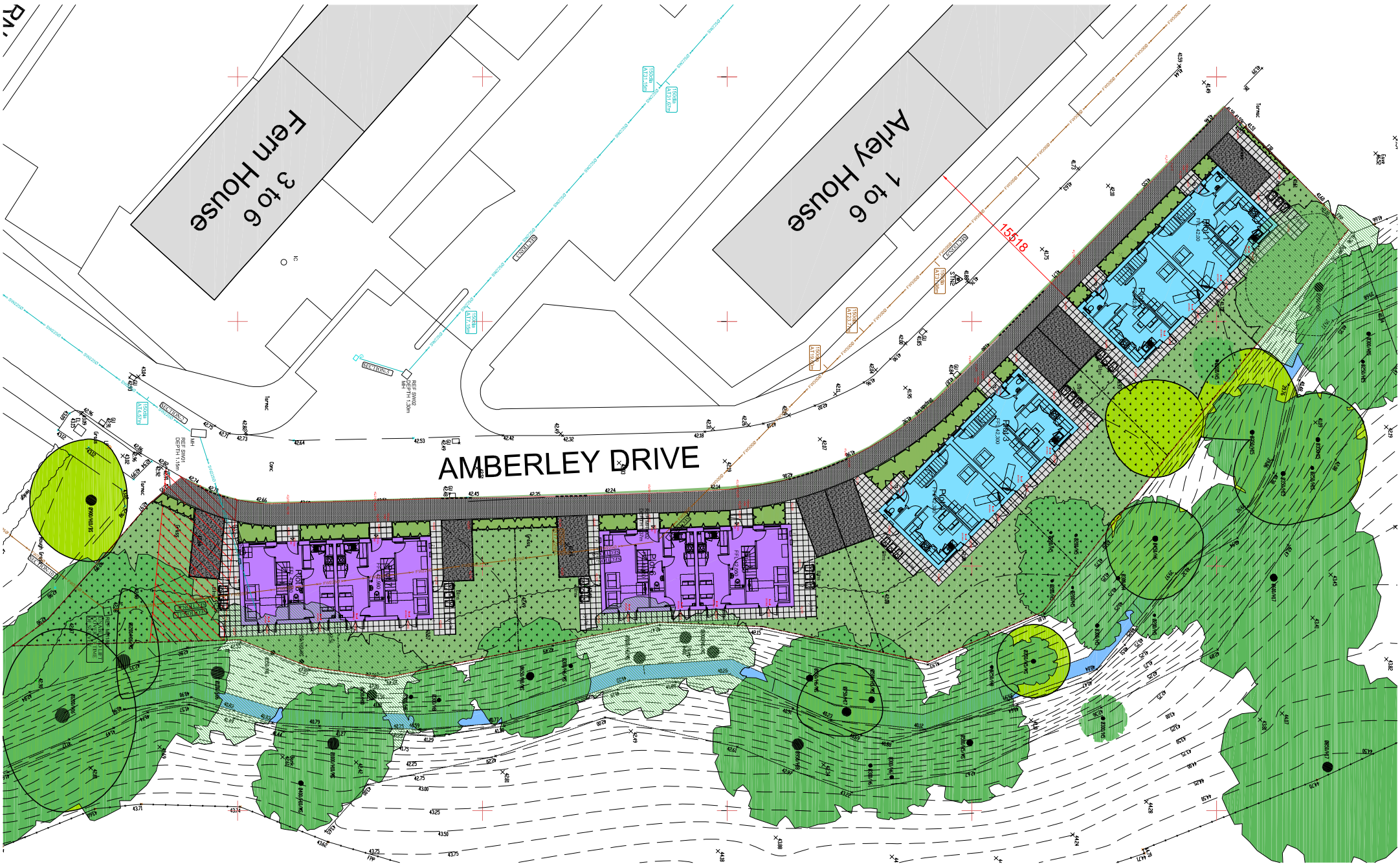
date:

22 Jun 2018

by:

SD

checked:



Adopted Bitmac Pavement

Bitmac Parking Space with
50mm pin kerb edging

PCC Paving

Grass

Existing Tree retained

Existing Tree retained

Existing Tree/Undergrowth
removed/cut back

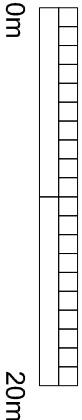
1800mm high Close-Boarded
Treated Timber Fencing

New Planting

Dropped Kerb

Drainage Outfall Easement

Existing Brook



4 no. 3B/5P Wide Semi-Detached Houses @ 96.1 sqm	384.4sqm
4 no. 2B/4P Wide Semi-Detached Houses @ 89.0 sqm	356.0sqm
Total 8 no. Houses	740.4sqm

APPENDIX 02

Site Photographs



Photograph 1
View north-east along the access track running over Mill Brook in the northern part of the site.



Photograph 2
View north towards mature deciduous trees along Mill Brook in the northern part of the site.



Photograph 3

View east across northern part of the site with neighbouring residential properties in the background.



Photograph 4

View north-west across the central part of the site with mature deciduous trees along the edge of Mill Brook in the left of the picture.



Photograph 5

View north across the central part of the site with neighbouring residential properties in the right of the picture and mature deciduous trees in the background.



Photograph 6

View south-east across southern part of the site with Amberley Drive in the right of the picture forming the western site boundary.



Photograph 7

View north-west across south-western part of the site with Amberley Drive in the left of the picture forming the western site boundary.



Photograph 8

View north-west along Mill Brook in the central part of the site with deciduous trees on either side.



Photograph 9

View north-west towards a metal fence running roughly north-east to south-west across the central part of the site with deciduous trees along Mill Brook in the background.



Photograph 10

View north across southern part of the site with Amberley Drive in the left of the picture forming the south-western site boundary.

APPENDIX 03

Groundsure Environmental Insight Report



WML Consulting

UNIT 8 WRIGHT MOTTERSHAW LYDON
CONSULTING LTD, STANLEY GREEN BUSINESS
PARK,
CHEADLE/CHEADLE HULME, SK8 6QL

Groundsure
Reference:

GS-5615194

Your Reference: 8538G

Report Date

14 Nov 2018

Report Delivery Method: Email - pdf

Enviro Insight

Address: AMBERLEY DRIVE, MANCHESTER, M23 2RW

Dear Sir/ Madam,

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

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

Yours faithfully,

Managing Director
Groundsure Limited

Enc.
Groundsure Enviroinsight

Address: AMBERLEY DRIVE, MANCHESTER, M23 2RW

Date: 14 Nov 2018

Reference: GS-5615194

Client: WML Consulting

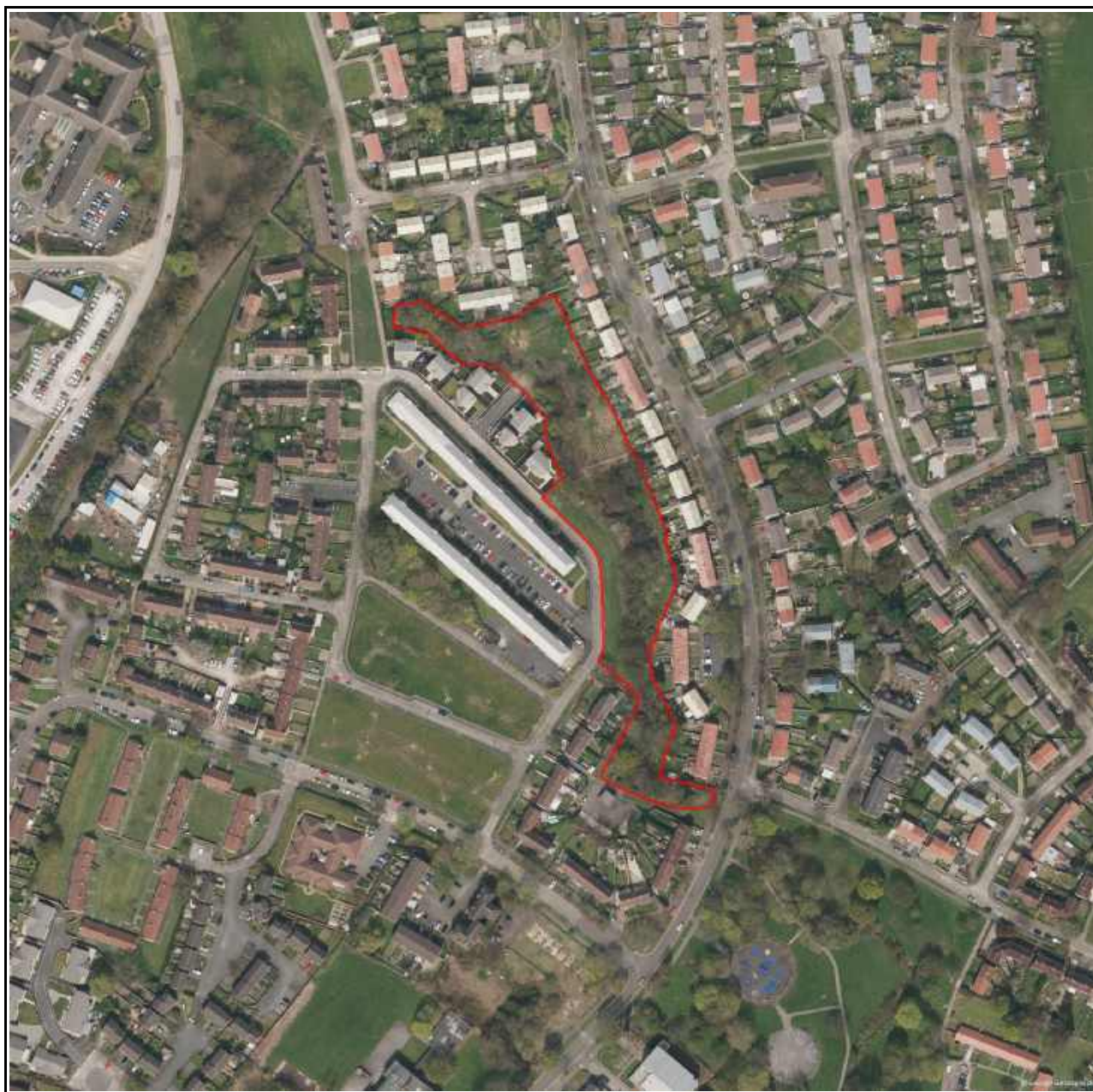
NW

N

NE

W

E



SW

S

SE

Aerial Photograph Capture date: 21-Apr-2016

Grid Reference: 381162,387950

Site Size: 1.05ha

Report Reference: GS-5615194

Client Reference: 8538G

Contents Page

Contents Page	3
Overview of Findings	6
Using this report	10
1. Historical Land Use	11
1. Historical Industrial Sites	12
1.1 Potentially Contaminative Uses identified from 1:10,000 scale Mapping	12
1.2 Additional Information – Historical Tank Database	13
1.3 Additional Information – Historical Energy Features Database	13
1.4 Additional Information – Historical Petrol and Fuel Site Database	14
1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database	14
1.6 Historical military sites	14
1.7 Potentially Infilled Land	14
2. Environmental Permits, Incidents and Registers Map	16
2. Environmental Permits, Incidents and Registers	17
2.1 Industrial Sites Holding Licences and/or Authorisations	17
2.1.1 Records of historic IPC Authorisations within 500m of the study site	17
2.1.2 Records of Part A(1) and IPPC Authorised Activities within 500m of the study site	17
2.1.3 Records of Red List Discharge Consents (potentially harmful discharges to controlled waters) within 500m of the study site	17
2.1.4 Records of List 1 Dangerous Substances Inventory Sites within 500m of the study site	17
2.1.5 Records of List 2 Dangerous Substance Inventory Sites within 500m of the study site	17
2.1.6 Records of Part A(2) and Part B Activities and Enforcements within 500m of the study site	18
2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations	18
2.1.8 Records of Licensed Discharge Consents within 500m of the study site	20
2.1.9 Records of Water Industry Referrals (potentially harmful discharges to the public sewer) within 500m of the study site	20
2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site	20
2.2 Dangerous or Hazardous Sites	20
2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents	20
2.3.1 Records of National Incidents Recording System, List 2 within 500m of the study site	20
2.3.2 Records of National Incidents Recording System, List 1 within 500m of the study site	20
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990	21
3. Landfill and Other Waste Sites Map	22
3. Landfill and Other Waste Sites	23
3.1 Landfill Sites	23
3.1.1 Records from Environment Agency/Natural Resources Wales landfill data within 1000m of the study site	23
3.1.2 Records of Environment Agency/Natural Resources Wales historic landfill sites within 1500m of the study site	23
3.1.3 Records of BGS/DoE non-operational landfill sites within 1500m of the study site	23
3.1.4 Records of Landfills from Local Authority and Historical Mapping Records within 1500m of the study site	23
3.2 Other Waste Sites	23
3.2.1 Records of waste treatment, transfer or disposal sites within 500m of the study site	23
3.2.2 Records of Environment Agency/Natural Resources Wales licensed waste sites within 1500m of the study site	24
4. Current Land Use Map	25
4. Current Land Uses	26
4.1 Current Industrial Data	26
4.2 Petrol and Fuel Sites	26
4.3 National Grid High Voltage Underground Electricity Transmission Cables	26
4.4 National Grid High Pressure Gas Transmission Pipelines	27

5. Geology	28
5.1 Artificial Ground and Made Ground.....	28
5.2 Superficial Ground and Drift Geology	28
5.3 Bedrock and Solid Geology	28
6 Hydrogeology and Hydrology	29
6a. Aquifer Within Superficial Geology	29
6b. Aquifer Within Bedrock Geology and Abstraction Licences	30
6c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licences	31
6d. Hydrogeology – Source Protection Zones within confined aquifer	32
6e. Hydrology – Watercourse Network and River Quality	33
6.Hydrogeology and Hydrology	34
6.1 Aquifer within Superficial Deposits.....	34
6.2 Aquifer within Bedrock Deposits.....	34
6.3 Groundwater Abstraction Licences.....	34
6.4 Surface Water Abstraction Licences.....	35
6.5 Potable Water Abstraction Licences.....	35
6.6 Source Protection Zones.....	35
6.7 Source Protection Zones within Confined Aquifer.....	35
6.8 Groundwater Vulnerability and Soil Leaching Potential.....	35
6.9 River Quality.....	36
6.9.1 Biological Quality:.....	36
6.9.2 Chemical Quality:.....	36
6.10 Ordnance Survey MasterMap Water Network.....	36
6.11 Surface Water Features.....	39
7a. Environment Agency/Natural Resources Wales Flood Map for Planning (from rivers and the sea)	40
7b. Environment Agency/Natural Resources Wales Risk of Flooding from Rivers and the Sea (RoFRaS)	41
Map	41
7 Flooding	42
7.1 River and Coastal Zone 2 Flooding.....	42
7.2 River and Coastal Zone 3 Flooding.....	42
7.3 Risk of Flooding from Rivers and the Sea (RoFRaS) Flood Rating.....	42
7.4 Flood Defences.....	42
7.5 Areas benefiting from Flood Defences.....	42
7.6 Areas benefiting from Flood Storage.....	43
7.7 Groundwater Flooding Susceptibility Areas.....	43
7.8 Groundwater Flooding Confidence Areas.....	43
8. Designated Environmentally Sensitive Sites Map	44
8. Designated Environmentally Sensitive Sites	45
8.1 Records of Sites of Special Scientific Interest (SSSI) within 2000m of the study site:.....	45
8.2 Records of National Nature Reserves (NNR) within 2000m of the study site:.....	45
8.3 Records of Special Areas of Conservation (SAC) within 2000m of the study site:.....	45
8.4 Records of Special Protection Areas (SPA) within 2000m of the study site:.....	45
8.5 Records of Ramsar sites within 2000m of the study site:.....	45
8.6 Records of Ancient Woodland within 2000m of the study site:	46
8.7 Records of Local Nature Reserves (LNR) within 2000m of the study site:.....	46
8.8 Records of World Heritage Sites within 2000m of the study site:.....	46
8.9 Records of Environmentally Sensitive Areas within 2000m of the study site:	46
8.10 Records of Areas of Outstanding Natural Beauty (AONB) within 2000m of the study site:	46
8.11 Records of National Parks (NP) within 2000m of the study site:	46
8.12 Records of Nitrate Sensitive Areas within 2000m of the study site:.....	47
8.13 Records of Nitrate Vulnerable Zones within 2000m of the study site:.....	47

8.14 Records of Green Belt land within 2000m of the study site:.....	47
9. Natural Hazards Findings.....	48
9.1 Detailed BGS GeoSure Data.....	48
9.1.1 Shrink Swell.....	48
9.1.2 Landslides.....	48
9.1.3 Soluble Rocks.....	48
9.1.4 Compressible Ground.....	49
9.1.5 Collapsible Rocks.....	49
9.1.6 Running Sand.....	49
9.2 Radon.....	50
9.2.1 Radon Affected Areas.....	50
9.2.2 Radon Protection.....	50
10. Mining.....	51
10.1 Coal Mining.....	51
10.2 Non-Coal Mining.....	51
10.3 Brine Affected Areas	51
Contact Details.....	52
Standard Terms and Conditions.....	54

Overview of Findings

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

Section 1: Historical Industrial Sites	On-site	0-50	51-250	251-500
1.1 Potentially Contaminative Uses identified from 1:10,000 scale mapping	0	0	11	33
1.2 Additional Information – Historical Tank Database	0	0	1	2
1.3 Additional Information – Historical Energy Features Database	0	3	2	10
1.4 Additional Information – Historical Petrol and Fuel Site Database	0	0	0	0
1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database	0	0	0	0
1.6 Historical military sites	0	0	0	0
1.7 Potentially Infilled Land	0	0	2	29
Section 2: Environmental Permits, Incidents and Registers	On-site	0-50m	51-250	251-500
2.1 Industrial Sites Holding Environmental Permits and/or Authorisations				
2.1.1 Records of historic IPC Authorisations	0	0	0	0
2.1.2 Records of Part A(1) and IPPC Authorised Activities	0	0	0	0
2.1.3 Records of Red List Discharge Consents	0	0	0	0
2.1.4 Records of List 1 Dangerous Substances Inventory sites	0	0	0	0
2.1.5 Records of List 2 Dangerous Substances Inventory sites	0	0	0	0
2.1.6 Records of Part A(2) and Part B Activities and Enforcements	0	0	0	1
2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations	0	0	0	8
2.1.8 Records of Licensed Discharge Consents	0	0	0	0
2.1.9 Records of Water Industry Referrals	0	0	0	0
2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site	0	0	0	0
2.2 Records of COMAH and NIHHS sites	0	0	0	0
2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents				
2.3.1 National Incidents Recording System, List 2	0	0	0	0
2.3.2 National Incidents Recording System, List 1	0	0	0	0
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990	0	0	0	0

Section 3: Landfill and Other Waste Sites	On-site	0-50m	51-250	251-500	501-1000	1000-1500
3.1 Landfill Sites						
3.1.1 Environment Agency/Natural Resources Wales Registered Landfill Sites	0	0	0	0	0	Not searched
3.1.2 Environment Agency/Natural Resources Wales Historic Landfill Sites	0	0	0	0	0	0
3.1.3 BGS/DoE Landfill Site Survey	0	0	0	0	0	0
3.1.4 Records of Landfills in Local Authority and Historical Mapping Records	0	0	0	0	0	0
3.2 Landfill and Other Waste Sites Findings						
3.2.1 Operational and Non-Operational Waste Treatment, Transfer and Disposal Sites	0	0	0	0	Not searched	Not searched
3.2.2 Environment Agency/Natural Resources Wales Licensed Waste Sites	0	0	0	1	0	1

Section 4: Current Land Use	On-site	0-50m	51-250	251-500
4.1 Current Industrial Sites Data	0	1	2	Not searched
4.2 Records of Petrol and Fuel Sites	0	0	0	0
4.3 National Grid Underground Electricity Cables	0	0	0	0
4.4 National Grid Gas Transmission Pipelines	0	0	0	0

Section 5: Geology	
5.1 Records of Artificial Ground and Made Ground present beneath the study site	None identified
5.2 Records of Superficial Ground and Drift Geology present beneath the study site	Identified
5.3 For records of Bedrock and Solid Geology beneath the study site see the detailed findings section.	

Section 6: Hydrogeology and Hydrology				0-500m		
6.1 Records of Strata Classification in the Superficial Geology within 500m of the study site				Identified		
6.2 Records of Strata Classification in the Bedrock Geology within 500m of the study site				Identified		
	On-site	0-50m	51-250	251-500	501-1000	1000-2000
6.3 Groundwater Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	0
6.4 Surface Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	0
6.5 Potable Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	0
6.6 Source Protection Zones (within 500m of the study site)	0	0	0	0	Not searched	Not searched
6.7 Source Protection Zones within Confined Aquifer	0	0	0	0	Not searched	Not searched
6.8 Groundwater Vulnerability and Soil Leaching Potential (within 500m of the study site)	1	0	#250GWV #	#500GWV #	Not searched	Not searched

Section 6: Hydrogeology and Hydrology	0-500m					
	On-site	0-50m	51-250	251-500	501-1000	1000-1500
6.9 Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site	No	No	No	No	No	No
6.10 Ordnance Survey MasterMap Water Network entries within 500m of the site	14	2	16	0	Not searched	Not searched
6.11 Surface water features within 250m of the study site	No	No	No	Not searched	Not searched	Not searched

Section 7: Flooding	
7.1 Environment Agency Zone 2 floodplains within 250m of the study site	None identified
7.2 Environment Agency/Natural Resources Wales Zone 3 floodplains within 250m of the study site	None identified
7.3 Risk of flooding from Rivers and the Sea (RoFRaS) rating for the study site	Very Low
7.4 Flood Defences within 250m of the study site	None identified
7.5 Areas benefiting from Flood Defences within 250m of the study site	None identified
7.6 Areas used for Flood Storage within 250m of the study site	None identified
7.7 Maximum BGS Groundwater Flooding susceptibility within 50m of the study site	Potential at Surface
7.8 BGS confidence rating for the Groundwater Flooding susceptibility areas	Moderate

Section 8: Designated Environmentally Sensitive Sites						
	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.1 Records of Sites of Special Scientific Interest (SSSI)	0	0	0	0	0	0
8.2 Records of National Nature Reserves (NNR)	0	0	0	0	0	0
8.3 Records of Special Areas of Conservation (SAC)	0	0	0	0	0	0
8.4 Records of Special Protection Areas (SPA)	0	0	0	0	0	0
8.5 Records of Ramsar sites	0	0	0	0	0	0
8.6 Records of Ancient Woodlands	0	0	0	0	0	0
8.7 Records of Local Nature Reserves (LNR)	0	0	0	0	0	1
8.8 Records of World Heritage Sites	0	0	0	0	0	0
8.9 Records of Environmentally Sensitive Areas	0	0	0	0	0	0

Section 8: Designated Environmentally Sensitive Sites	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.10 Records of Areas of Outstanding Natural Beauty (AONB)	0	0	0	0	0	0
8.11 Records of National Parks	0	0	0	0	0	0
8.12 Records of Nitrate Sensitive Areas	0	0	0	0	0	0
8.13 Records of Nitrate Vulnerable Zones	0	0	0	0	0	0
8.14 Records of Green Belt land	0	0	0	1	1	1

Section 9: Natural Hazards	
9.1 Maximum risk of natural ground subsidence	Very Low
9.1.1 Maximum Shrink-Swell hazard rating identified on the study site	Very Low
9.1.2 Maximum Landslides hazard rating identified on the study site	Very Low
9.1.3 Maximum Soluble Rocks hazard rating identified on the study site	Negligible
9.1.4 Maximum Compressible Ground hazard rating identified on the study site	Negligible
9.1.5 Maximum Collapsible Rocks hazard rating identified on the study site	Very Low
9.1.6 Maximum Running Sand hazard rating identified on the study site	Very Low
9.2 Radon	
9.2.1 Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?	The site is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.
9.2.2 Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment?	No radon protective measures are necessary.

Section 10: Mining	
10.1 Coal mining areas within 75m of the study site	None identified
10.2 Non-Coal Mining areas within 50m of the study site boundary	None identified
10.3 Brine affected areas within 75m of the study site	None identified

Using this report

The following report is designed by Environmental Consultants for Environmental Professionals bringing together the most up-to-date market leading environmental data. This report is provided under and subject to the Terms & Conditions agreed between Groundsure and the Client. The document contains the following sections:

1. Historical Industrial Sites

Provides information on past land uses that may pose a risk to the study site in terms of potential contamination from activities or processes. Potentially Infilled Land features are also included. This search is conducted using radii of up to 500m.

2. Environmental Permits, Incidents and Registers

Provides information on Regulated Industrial Activities and Pollution Incidents as recorded by Regulatory Authorities, and sites determined as Contaminated Land. This search is conducted using radii up to 500m.

3. Landfills and Other Waste Sites

Provides information on landfills and other waste sites that may pose a risk to the study site. This search is conducted using radii up to 1500m.

4. Current Land Uses

Provides information on current land uses that may pose a risk to the study site in terms of potential contamination from activities or processes. These searches are conducted using radii of up to 500m. This includes information on potentially contaminative industrial sites, petrol stations and fuel sites as well as high pressure gas pipelines and underground electricity transmission lines.

5. Geology

Provides information on artificial and superficial deposits and bedrock beneath the study site.

6. Hydrogeology and Hydrology

Provides information on productive strata within the bedrock and superficial geological layers, abstraction licences, Source Protection Zones (SPZs) and river quality. These searches are conducted using radii of up to 2000m.

7. Flooding

Provides information on river and coastal flooding, flood defences, flood storage areas and groundwater flood areas. This search is conducted using radii of up to 250m.

8. Designated Environmentally Sensitive Sites

Provides information on the Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR), Special Areas of Conservation (SAC), Special Protection Areas (SPA), Ramsar sites, Local Nature Reserves (LNR), Areas of Outstanding Natural Beauty (AONB), National Parks (NP), Environmentally Sensitive Areas, Nitrate Sensitive Areas, Nitrate Vulnerable Zones and World Heritage Sites and Scheduled Ancient Woodland. These searches are conducted using radii of up to 2000m.

9. Natural Hazards

Provides information on a range of natural hazards that may pose a risk to the study site. These factors include natural ground subsidence and radon..

10. Mining

Provides information on areas of coal and non-coal mining and brine affected areas.

11. Contacts

This section of the report provides contact points for statutory bodies and data providers that may be able to provide further information on issues raised within this report. Alternatively, Groundsure provide a free Technical Helpline (08444 159000) for further information and guidance.

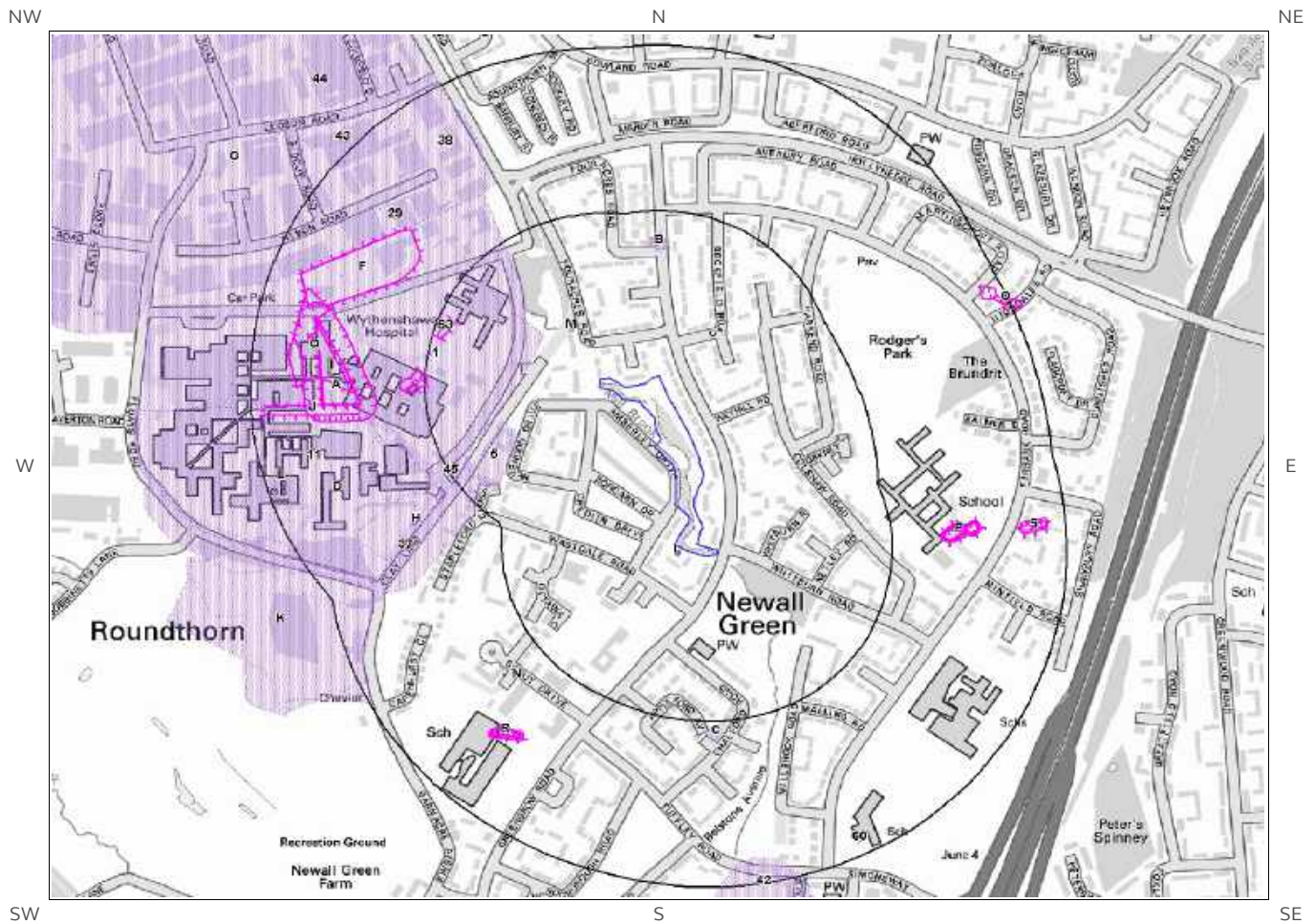
Note: Maps

Only certain features are placed on the maps within the report. All features represented on maps found within this search are given an identification number. This number identifies the feature on the mapping and correlates it to the additional information provided below. This identification number precedes all other information and takes the following format -Id: 1, Id: 2, etc. Where numerous features on the same map are in such close proximity that the numbers would obscure each other a letter identifier is used instead to represent the features. (e.g. Three features which overlap may be given the identifier "A" on the map and would be identified separately as features 1A, 3A, 10A on the data tables provided).

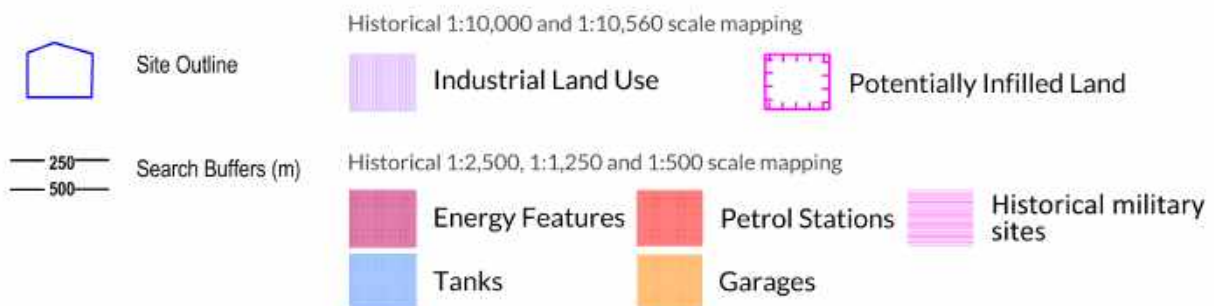
Where a feature is reported in the data tables to a distance greater than the map area, it is noted in the data table as "Not Shown".

All distances given in this report are in Metres (m). Directions are given as compass headings such as N: North, E: East, NE: North East from the nearest point of the study site boundary.

1. Historical Land Use



© Crown copyright and database rights 2018.
Ordnance Survey licence 100035207.



1. Historical Industrial Sites

1.1 Potentially Contaminative Uses identified from 1:10,000 scale Mapping

The systematic analysis of data extracted from standard 1:10,560 and 1:10,000 scale historical maps provides the following information:

Records of sites with a potentially contaminative past land use within 500m of the search boundary: 44

ID	Distance [m]	Direction	Use	Date
1	102	NW	Hospital	1967
2A	111	W	Hospital	1975
3A	111	W	Hospital	1989
4A	111	W	Hospital	1995
5	135	SW	Nursery	1967
6B	188	N	Smithy	1938
7B	189	N	Smithy	1897
8B	189	N	Smithy	1907
9B	191	N	Smithy	1907
10B	191	N	Smithy	1907
11	217	SW	Hospital	1967
12C	257	S	Police Station	1967
13C	257	S	Police Station	1975
14D	273	SW	Sanatorium	1907
15E	274	SW	Sanatorium	1938
16D	274	SW	Sanatorium	1907
17D	274	SW	Sanatorium	1907
18E	277	SW	Sanatorium	1954
19F	316	NW	Unspecified Heap	1975
20F	316	NW	Unspecified Heap	1995
21F	316	NW	Unspecified Heap	1989
22I	320	W	Sewage Works	1907
23G	327	NW	Industrial Estate	1995
24G	327	NW	Industrial Estate	1989
25H	330	SW	Unspecified Tank	1907
26H	331	SW	Unspecified Tank	1938
27H	332	SW	Unspecified Tank	1907
28H	332	SW	Unspecified Tank	1907
29	335	NW	Unspecified Warehouse	1975
30I	343	W	Corporation Sewage Works	1907
31I	343	W	Corporation Sewage Works	1907
32A	343	W	Sewage Works	1938
33A	343	W	Sewage Works	1938

34J	344	W	Unspecified Pit	1938
35J	344	W	Unspecified Pit	1938
36Q	357	W	Sewage Works	1954
37	363	SW	Unspecified Tank	1954
38	370	NW	Unspecified Depot	1975
39K	438	W	Hospital	1938
40K	442	W	Hospital	1975
41K	442	W	Hospital	1989
42	461	S	Unspecified Mill	1967
43	463	NW	Unspecified Works	1975
44	489	NW	Unspecified Works	1975

1.2 Additional Information – Historical Tank Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical tanks within 500m of the search boundary: 3

ID	Distance (m)	Direction	Use	Date
45	242	SW	Unspecified Tank	1971
46H	330	SW	Unspecified Tank	1910
47H	334	SW	Unspecified Tank	1898

1.3 Additional Information – Historical Energy Features Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical energy features within 500m of the search boundary: 15

ID	Distance (m)	Direction	Use	Date
48L	5	SW	Electricity Substation	1982
49L	6	SW	Electricity Substation	1993
50L	6	SW	Electricity Substation	1995
51M	84	NW	Electricity Substation	1987
52M	88	NW	Electricity Substation	1992
53N	302	SW	Electricity Substation	1992
54N	302	SW	Electricity Substation	1994
55N	302	SW	Electricity Substation	1996
56N	302	SW	Electricity Substation	1994
57N	302	SW	Electricity Substation	1994

58N	302	SW	Electricity Substation	1985
59N	312	SW	Electricity Substation	1984
60	474	SE	Electricity Substation	1995
61O	491	NE	Electricity Substation	1995
62O	491	NE	Electricity Substation	1974

1.4 Additional Information – Historical Petrol and Fuel Site Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical petrol stations and fuel sites within 500m of the search boundary: 0

Database searched and no data found.

1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical garage and motor vehicle repair sites within 500m of the search boundary: 0

Database searched and no data found.

1.6 Historical military sites

Certain military installations were not noted on historic mapping for security reasons. Whilst not all military land is necessarily of concern, Groundsure has researched and digitised a number of Ordnance Factories and other military industrial features (e.g. Ordnance Depots, Munitions Testing Grounds) which may be of contaminative concern. This research was drawn from a number of different sources, and should not be regarded as a definitive or exhaustive database of potentially contaminative military installations. The boundaries of sites within this database have been estimated from the best evidence available to Groundsure at the time of compilation.

Records of historical military sites within 500m of the search boundary: 0

Database searched and no data found.

1.7 Potentially Infilled Land

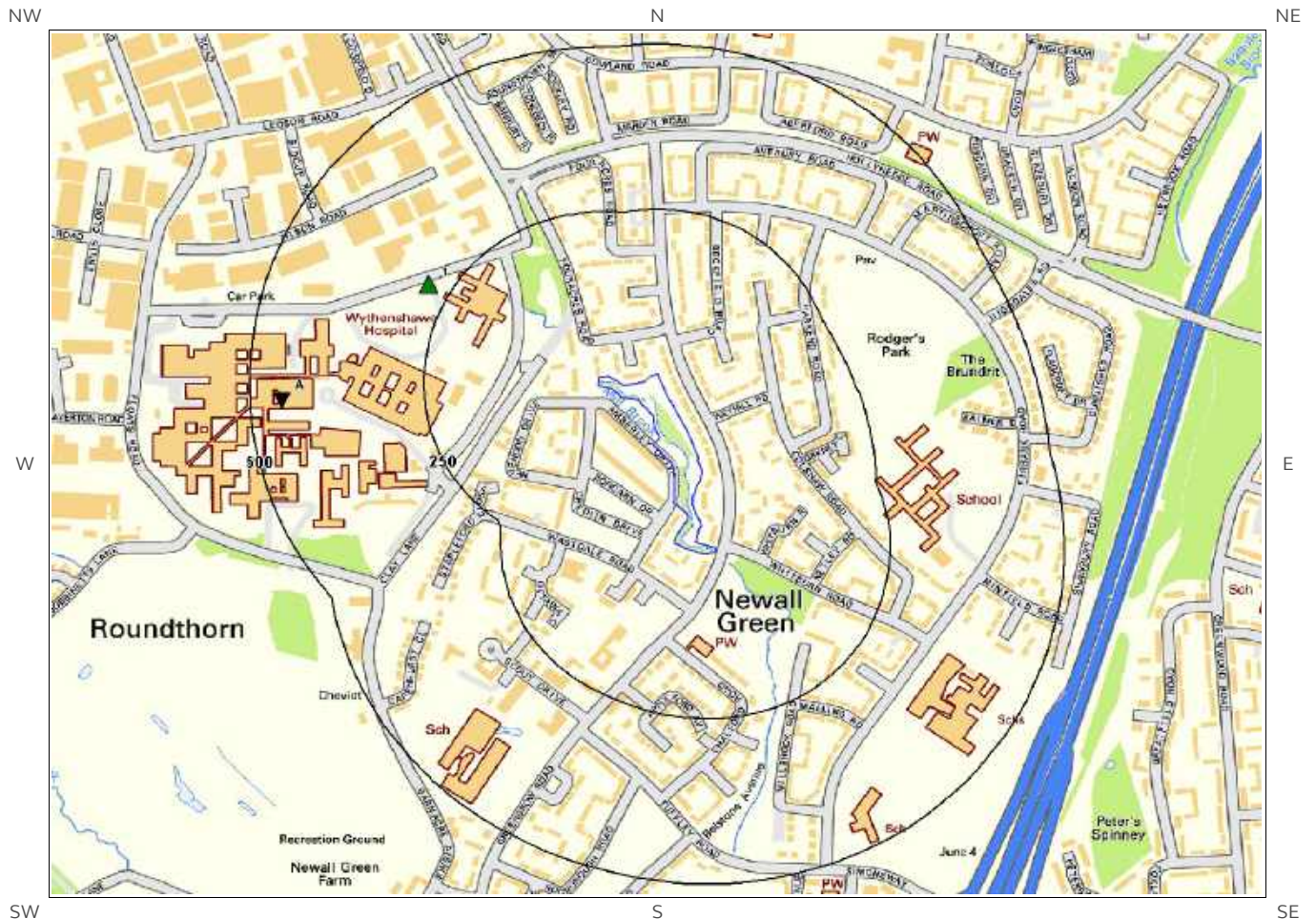
Records of Potentially Infilled Features from 1:10,000 scale mapping within 500m of the study site: 31

The following Historical Potentially Infilled Features derived from the Historical Mapping information is provided by Groundsure:

ID	Distance(m)	Direction	Use	Date
63	226	W	Pond	1907
64	247	W	Ponds	1938

65F	316	NW	Unspecified Heap	1995
66F	316	NW	Unspecified Heap	1989
67F	316	NW	Unspecified Heap	1975
68I	320	W	Sewage Works	1907
69P	321	E	Pond	1954
70P	323	E	Pond	1907
71P	323	E	Ponds	1897
72P	325	E	Pond	1938
73P	325	E	Pond	1907
74P	325	E	Pond	1907
75I	343	W	Corporation Sewage Works	1907
76I	343	W	Corporation Sewage Works	1907
77I	343	W	Sewage Works	1938
78I	343	W	Sewage Works	1938
79J	344	W	Unspecified Pit	1938
80J	344	W	Unspecified Pit	1938
81Q	357	W	Sewage Works	1954
82R	359	SW	Pond	1897
83R	359	SW	Pond	1907
84R	360	SW	Pond	1907
85R	360	SW	Pond	1907
86R	361	SW	Pond	1938
87R	362	SW	Pond	1954
88S	433	E	Pond	1907
89S	433	E	Pond	1907
90S	434	E	Pond	1897
91S	434	E	Pond	1907
92S	435	E	Pond	1938
93O	468	NE	Ponds	1938

2. Environmental Permits, Incidents and Registers Map



© Crown copyright and database rights 2018.
Ordnance Survey licence 100035207.



2. Environmental Permits, Incidents and Registers

2.1 Industrial Sites Holding Licences and/or Authorisations

Searches of information provided by the Environment Agency/Natural Resources Wales and Local Authorities reveal the following information:

2.1.1 Records of historic IPC Authorisations within 500m of the study site:

0

Database searched and no data found.

2.1.2 Records of Part A(1) and IPPC Authorised Activities within 500m of the study site:

0

Database searched and no data found.

2.1.3 Records of Red List Discharge Consents (potentially harmful discharges to controlled waters) within 500m of the study site:

0

Database searched and no data found.

2.1.4 Records of List 1 Dangerous Substances Inventory Sites within 500m of the study site:

0

Database searched and no data found.

2.1.5 Records of List 2 Dangerous Substance Inventory Sites within 500m of the study site:

0

Database searched and no data found.

2.1.6 Records of Part A(2) and Part B Activities and Enforcements within 500m of the study site:

1

The following Part A(2) and Part B Activities are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details
1	281	NW	380801 388200	Address: Wythenshaw Hospital, Southmoor Rd, M23 9LT Process: Combustion & Incineration Status: Historical Permit Permit Type: Part B Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified

2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations:

8

The following RAS Licence (3 or 4) records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Address	Operator	Type	Permission Number	Dates	Status
10A	455	W	380590 388030	University Hospital Of South Manchester Nhs Foundation Trust, Wythenshaw Hospital, south Moor Road, Manchester, Greater Manchester, M23 9LT	University Hospital Of South Manchester Nhs Foundation Trust	Keeping And Use Of Radioactive Materials (was Rsa60 Section 1).	BH5498	Date of Approval: 10/1 2/2001 Effective from: 10/12/2 001 Last date of update: 2015- 01-01	Supersede d By Variation
11A	455	W	380590 388030	University Hospital Of South Manchester Nhs Foundation Trust, Wythenshaw Hospital, Southmoor Road, Manchester, Greater Manchester, M23 9LT	University Hospital Of South Manchester Nhs Foundation Trust	Disposal Of Radioactive Waste (was Rsa60 Section 6).	AB9771	Date of Approval: 31/3 /1991 Effective from: 31/3/19 91 Last date of update: 2015- 01-01	Supersede d By Variation
12A	455	W	380590 388030	University Hospital Of South Manchester Nhs Foundation Trust, Wythenshaw Hospital, south Moor Road, Manchester, Greater Manchester, M23 9LT	University Hospital Of South Manchester Nhs Foundation Trust	Keeping And Use Of Radioactive Materials (was Rsa60 Section 1).	BH5498	Date of Approval: 28/2 /2007 Effective from: 28/2/20 07 Last date of update: 2015- 01-01	Effective

ID	Distance (m)	Direction	NGR	Address	Operator	Type	Permission Number	Dates	Status
13A	455	W	380590 388030	University Hospital Of South Manchester Nhs Foundation Trust, Wythenshawe Hospital, Southmoor Road, Manchester, Greater Manchester, M23 9LT	University Hospital Of South Manchester Nhs Foundation Trust	Disposal Of Radioactive Waste (was Rsa60 Section 6).	AB9771	Date of Approval:1/12 /2003 Effective from:1/1/200 4 Last date of update:2015- 01-01	Supersede d By Variation
14A	455	W	380590 388030	University Hospital Of South Manchester Nhs Foundation Trust, Wythenshawe Hospital, Southmoor Road, Manchester, Greater Manchester, M23 9LT	University Hospital Of South Manchester Nhs Foundation Trust	Disposal Of Radioactive Waste (was Rsa60 Section 6).	AB9771	Date of Approval:15/5 /1996 Effective from:15/5/19 96 Last date of update:2015- 01-01	Supersede d By Variation
15A	455	W	380590 388030	University Hospital Of South Manchester Nhs Foundation Trust, Wythenshawe Hospital, Southmoor Road, Manchester, Greater Manchester, M23 9LT	University Hospital Of South Manchester Nhs Foundation Trust	Disposal Of Radioactive Waste (was Rsa60 Section 6).	AB9771	Date of Approval:28/2 /2007 Effective from:28/3/20 07 Last date of update:2015- 01-01	Effective
16A	455	W	380590 388030	University Hospital Of South Manchester Nhs Foundation Trust, Wythenshawe Hospital, Southmoor Road, Manchester, Greater Manchester, M23 9LT	University Hospital Of South Manchester Nhs Foundation Trust	Disposal Of Radioactive Waste (was Rsa60 Section 6).	AB9771	Date of Approval:30/9 /1994 Effective from:30/10/1 994 Last date of update:2015- 01-01	Supersede d By Variation
17A	455	W	380590 388030	University Hospital Of South Manchester Nhs Foundation Trust, Wythenshawe Hospital, Southmoor Road, Manchester, Greater Manchester, M23 9LT	University Hospital Of South Manchester Nhs Foundation Trust	Disposal Of Radioactive Waste (was Rsa60 Section 6).	AB9771	Date of Approval:28/6 /2005 Effective from:25/7/20 05 Last date of update:2015- 01-01	Supersede d By Variation

2.1.8 Records of Licensed Discharge Consents within 500m of the study site:

0

Database searched and no data found.

2.1.9 Records of Water Industry Referrals (potentially harmful discharges to the public sewer) within 500m of the study site:

0

Database searched and no data found.

2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site:

0

Database searched and no data found.

2.2 Dangerous or Hazardous Sites

Records of COMAH & NIHHS sites within 500m of the study site:

0

Database searched and no data found.

2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents

2.3.1 Records of National Incidents Recording System, List 2 within 500m of the study site:

0

Database searched and no data found.

2.3.2 Records of National Incidents Recording System, List 1 within 500m of the study site:

0

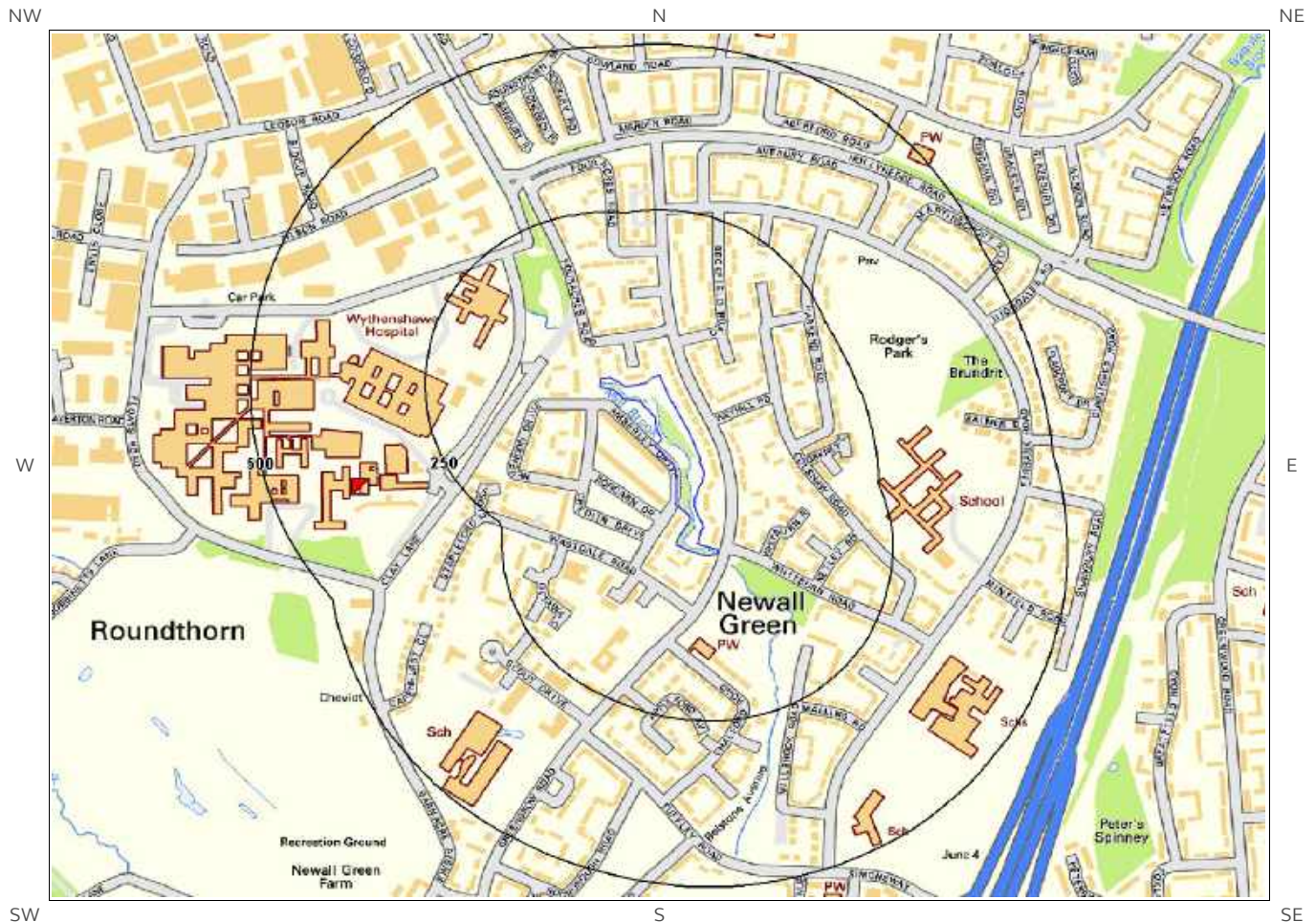
Database searched and no data found.

2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990

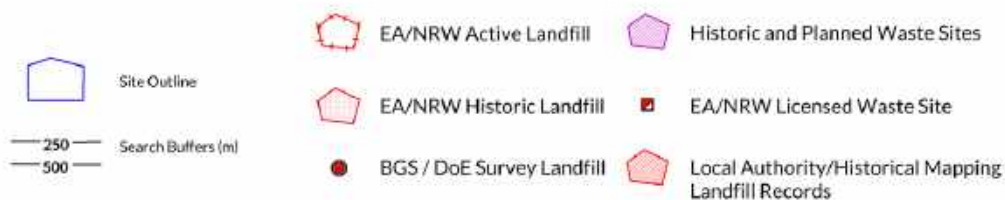
Records of sites determined as contaminated land under Section 78R of the Environmental Protection Act 1990 are there within 500m of the study site 0

Database searched and no data found.

3. Landfill and Other Waste Sites Map



© Crown copyright and database rights 2018.
Ordnance Survey licence 100035207.



3. Landfill and Other Waste Sites

3.1 Landfill Sites

3.1.1 Records from Environment Agency/Natural Resources Wales landfill data within 1000m of the study site:

0

Database searched and no data found.

3.1.2 Records of Environment Agency/Natural Resources Wales historic landfill sites within 1500m of the study site:

0

Database searched and no data found.

3.1.3 Records of BGS/DoE non-operational landfill sites within 1500m of the study site:

0

Database searched and no data found.

3.1.4 Records of Landfills from Local Authority and Historical Mapping Records within 1500m of the study site:

0

Database searched and no data found.

3.2 Other Waste Sites

3.2.1 Records of waste treatment, transfer or disposal sites within 500m of the study site:

0

Database searched and no data found.

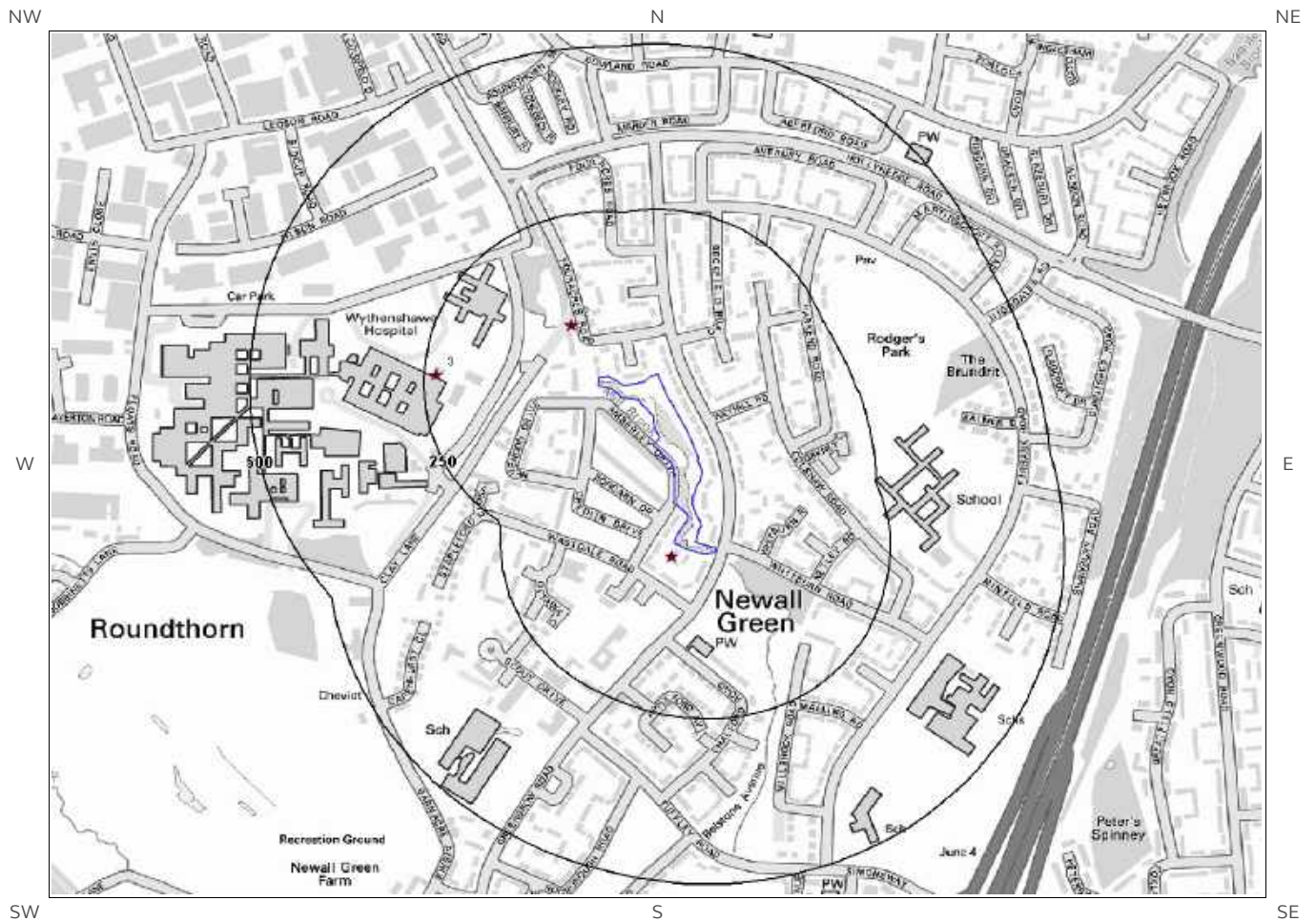
3.2.2 Records of Environment Agency/Natural Resources Wales licensed waste sites within 1500m of the study site:

2

The following waste treatment, transfer or disposal sites records are represented as points on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details
1	375	SW	380701 387901	Site Address: Southmoor Road, Wythenshawe, Manchester, M23 9LT Type: Clinical Waste Transfer Station Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: SMU001 EPR reference: EA/EPR/AP3892CC/S002 Operator: South Manchester University Hospitals N H S Trust Waste Management licence No: 53585 Annual Tonnage: 5000.0 Issue Date: 25/09/1996 Effective Date: - Modified: - Surrendered Date: 16/11/2004 Expiry Date: - Cancelled Date: - Status: Surrendered Site Name: Wythenshawe Hospital Clinical Waste Transfer Station Correspondence Address: -
Not shown	1016	NW	380184 388600	Site Address: Tatton House, 11, Caldey Road, Roundthorn Industrial Estate, Wythenshawe, Manchester, M23 9LF Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: AME001 EPR reference: EA/EPR/FB3308UP/A001 Operator: Amey L G Limited Waste Management licence No: 404187 Annual Tonnage: 24999.0 Issue Date: 14/02/2018 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Tatton House Correspondence Address: -

4. Current Land Use Map



© Crown copyright and database rights 2018.
Ordnance Survey licence 100035207.



4. Current Land Uses

4.1 Current Industrial Data

Records of potentially contaminative industrial sites within 250m of the study site: 3

The following records are represented as points on the Current Land Uses map.

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1	18	SW	Electricity Sub Station	381150 387793	Greater Manchester, M23	Electrical Features	Infrastructure and Facilities
2	90	NW	Electricity Sub Station	381005 388143	Greater Manchester, M23	Electrical Features	Infrastructure and Facilities
3	233	W	Wythenshawe Hospital	380812 388068	Wythenshawe Hospital, Southmoor Road, Manchester, Greater Manchester, M23 9LT	Accident and Emergency Hospitals	Health Practitioners and Establishments

4.2 Petrol and Fuel Sites

Records of petrol or fuel sites within 500m of the study site: 0

Database searched and no data found.

4.3 National Grid High Voltage Underground Electricity Transmission Cables

This dataset identifies the high voltage electricity transmission lines running between generating power plants and electricity substations. The dataset does not include the electricity distribution network (smaller, lower voltage cables distributing power from substations to the local user network). This information has been extracted from databases held by National Grid and is provided for information only with no guarantee as to its completeness or accuracy. National Grid do not offer any warranty as to the accuracy of the available data and are excluded from any liability for any such inaccuracies or errors.

Records of National Grid high voltage underground electricity transmission cables within 500m of the study site: 0

Database searched and no data found.

4.4 National Grid High Pressure Gas Transmission Pipelines

This dataset identifies high-pressure, large diameter pipelines which carry gas between gas terminals, power stations, compressors and storage facilities. The dataset does not include the Local Transmission System (LTS) which supplies gas directly into homes and businesses. This information has been extracted from databases held by National Grid and is provided for information only with no guarantee as to its completeness or accuracy. National Grid do not offer any warranty as to the accuracy of the available data and are excluded from any liability for any such inaccuracies or errors.

Records of National Grid high pressure gas transmission pipelines within 500m of the study site: 0

Database searched and no data found.

5. Geology

5.1 Artificial Ground and Made Ground

Database searched and no data found.

The database has been searched on site, including a 50m buffer.

5.2 Superficial Ground and Drift Geology

The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON

5.3 Bedrock and Solid Geology

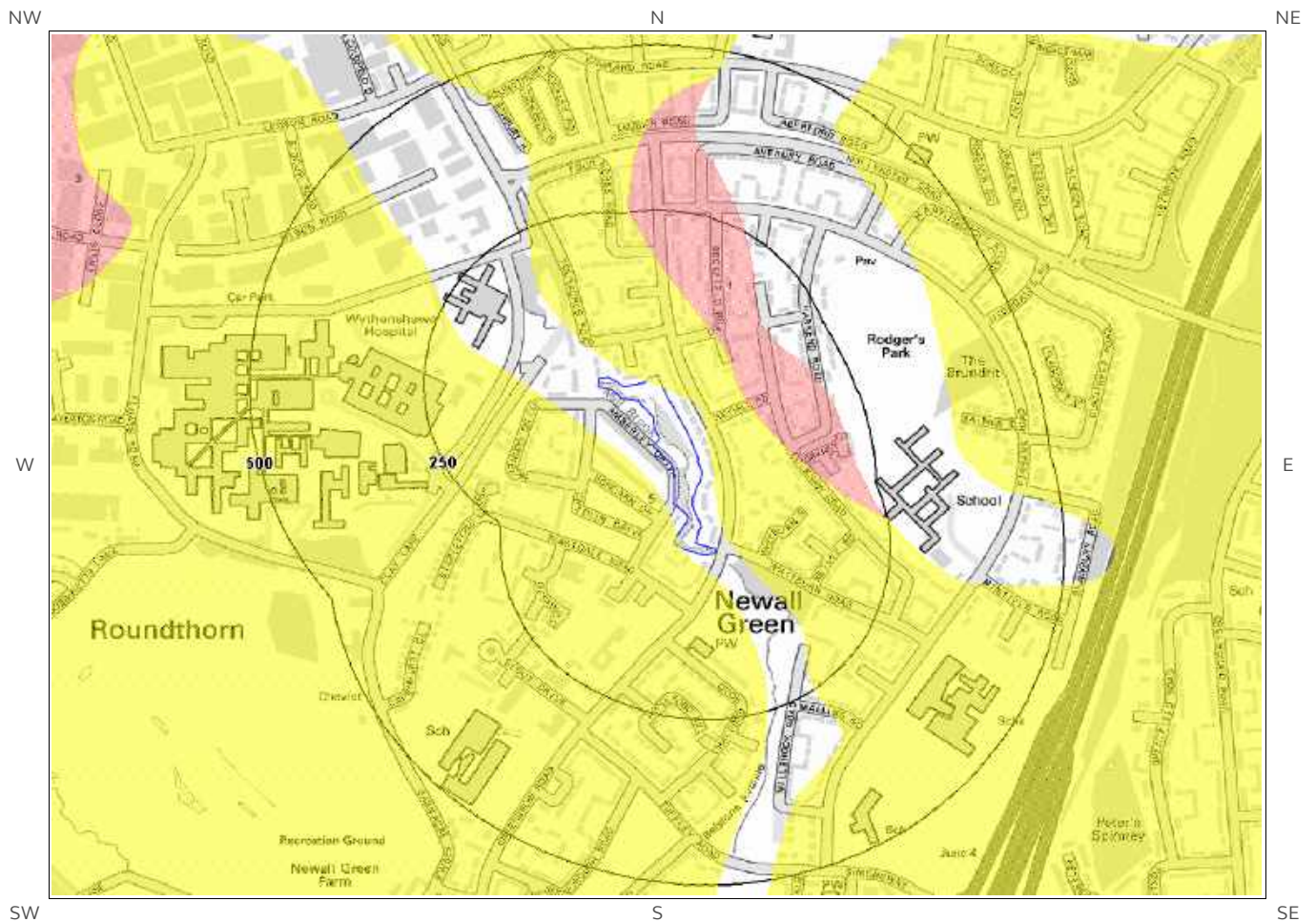
The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
BOM-MDST	BOLLIN MUDSTONE MEMBER	MUDSTONE

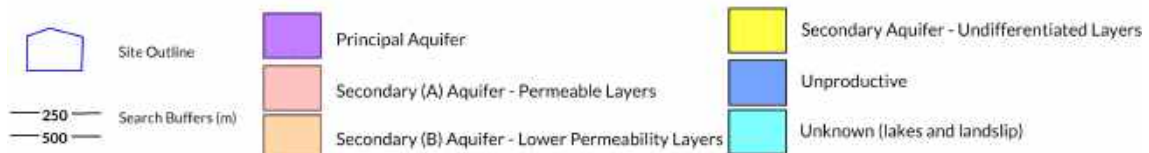
(Derived from the BGS 1:50,000 Digital Geological Map of Great Britain)

6 Hydrogeology and Hydrology

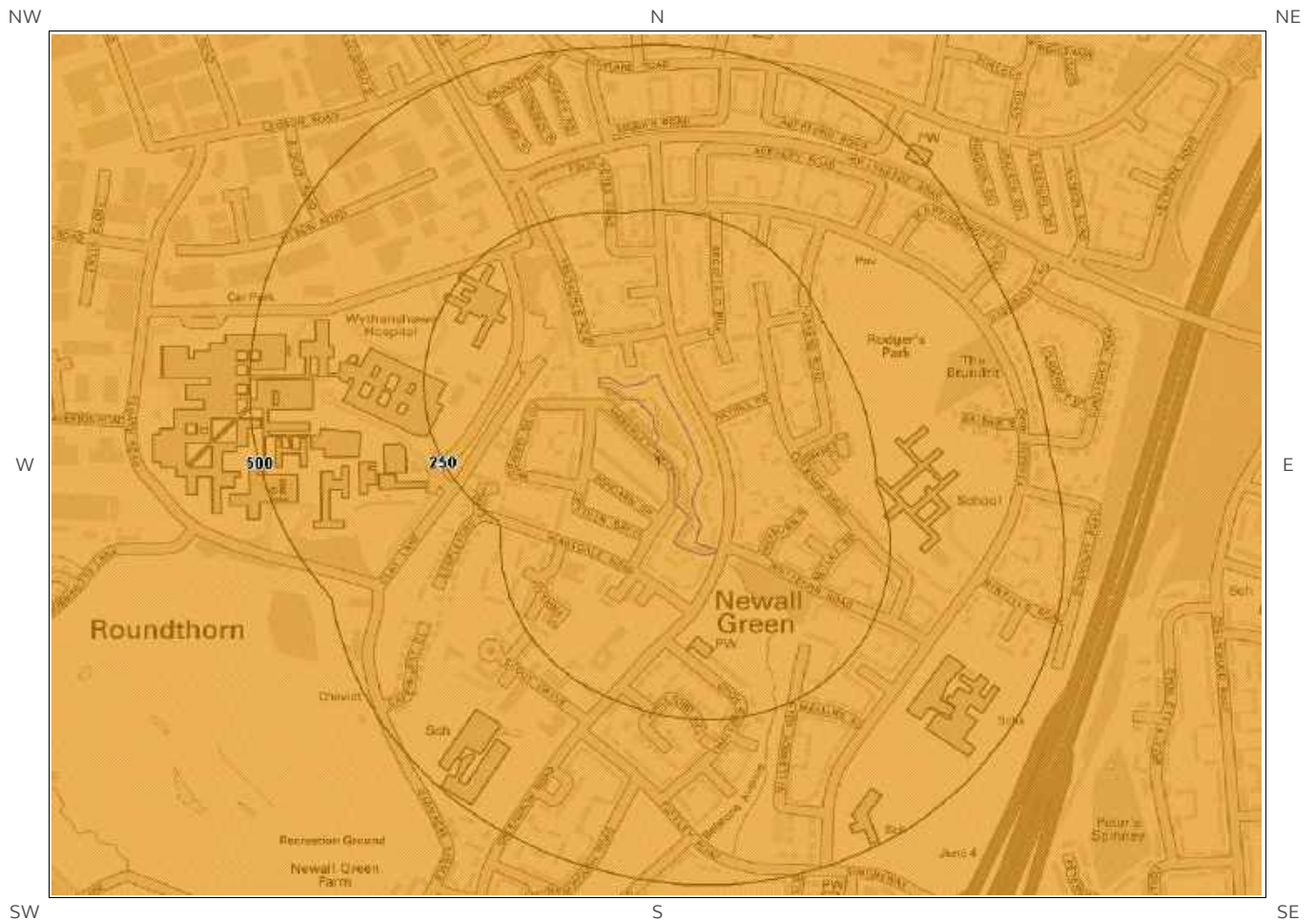
6a. Aquifer Within Superficial Geology



© Crown copyright and database rights 2018
Ordnance Survey licence 100035207.



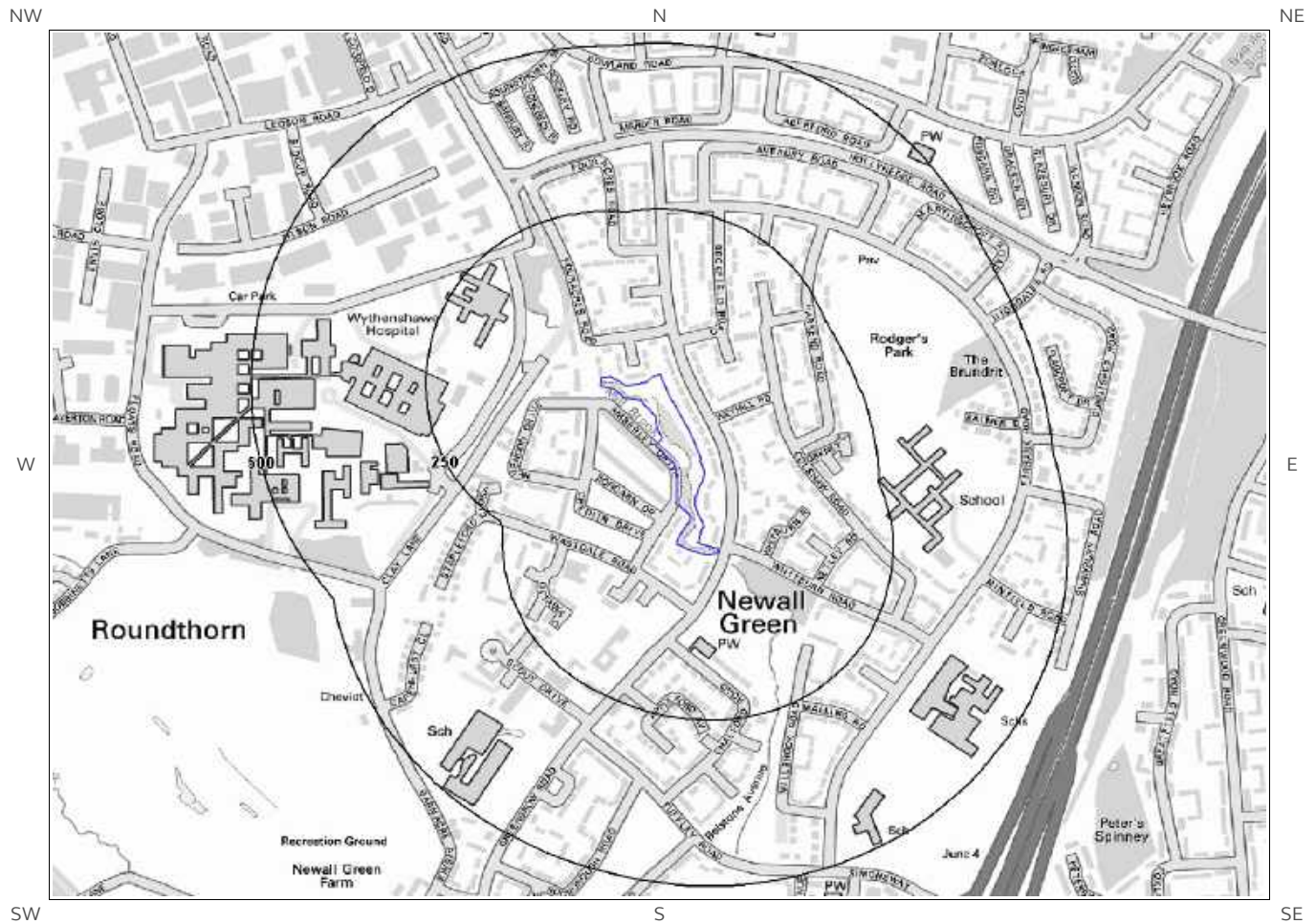
6b. Aquifer Within Bedrock Geology and Abstraction Licences



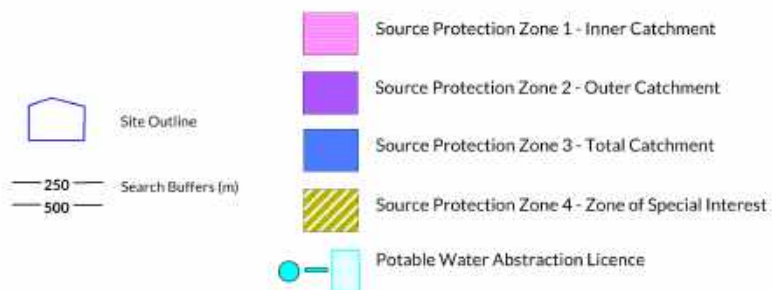
© Crown copyright and database rights 2018
Ordnance Survey licence 100035207.



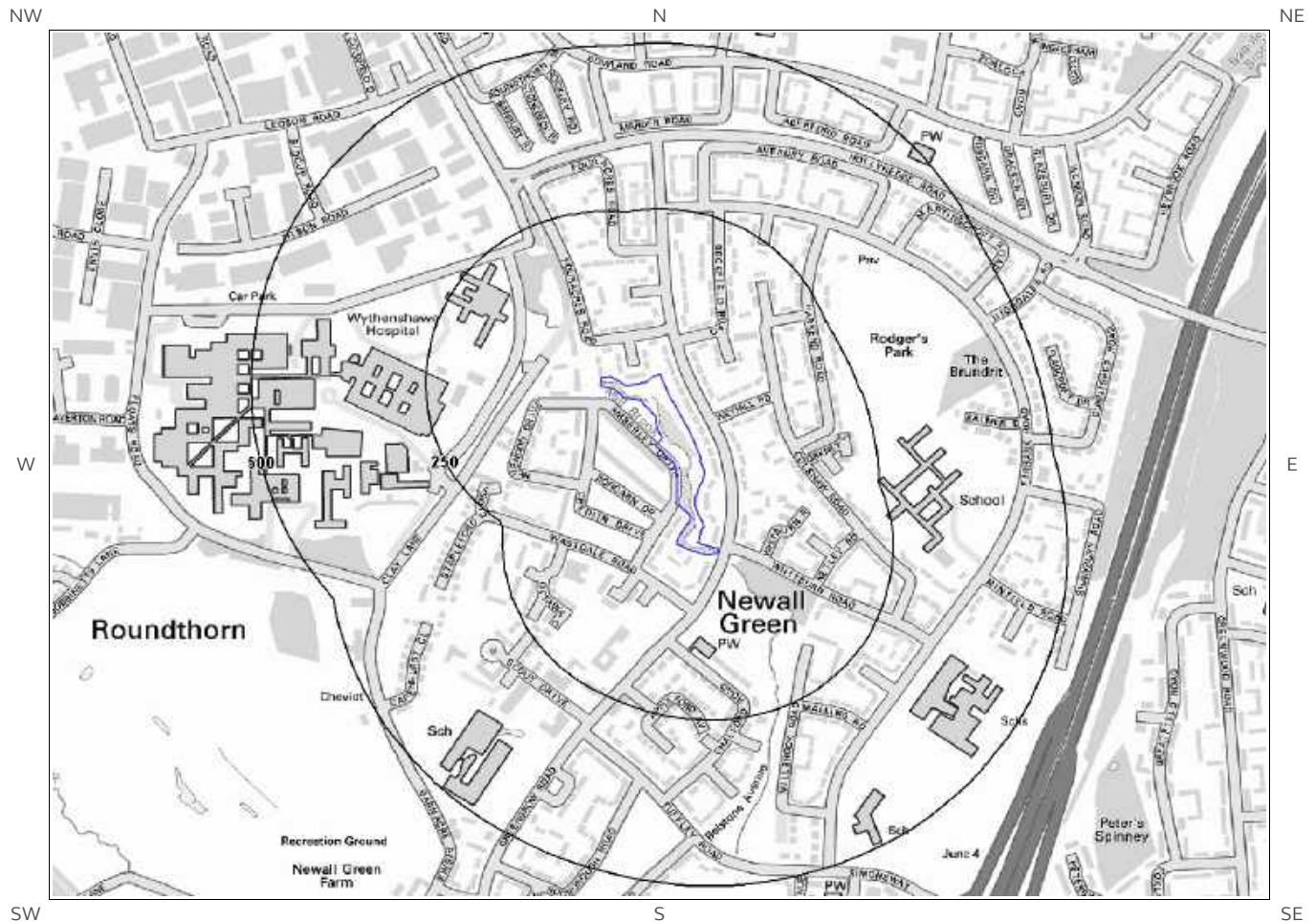
6c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licences



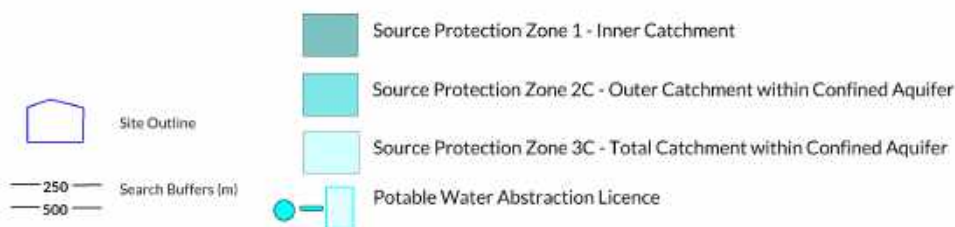
© Crown copyright and database rights 2018
Ordnance Survey licence 100035207.



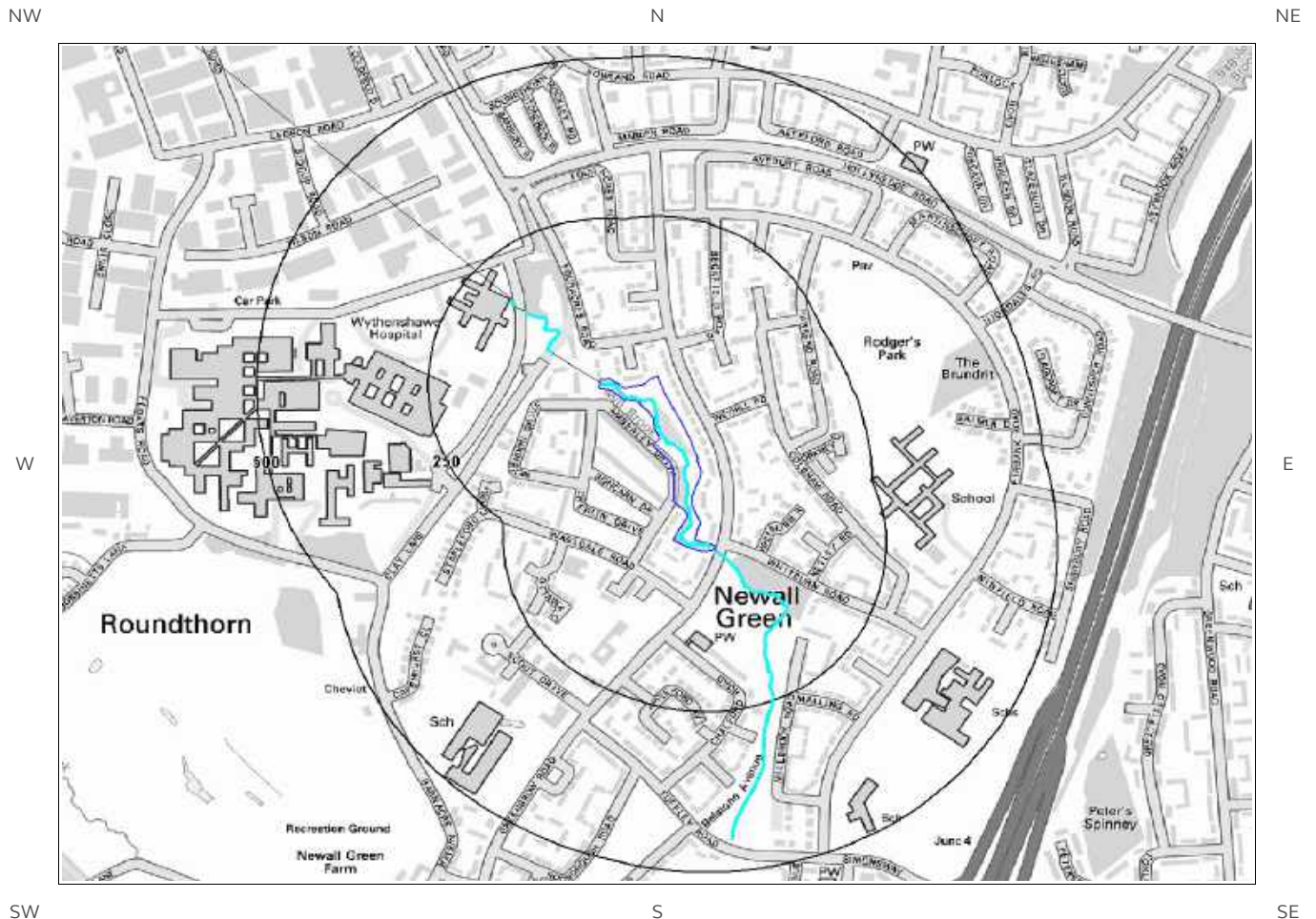
6d. Hydrogeology – Source Protection Zones within confined aquifer



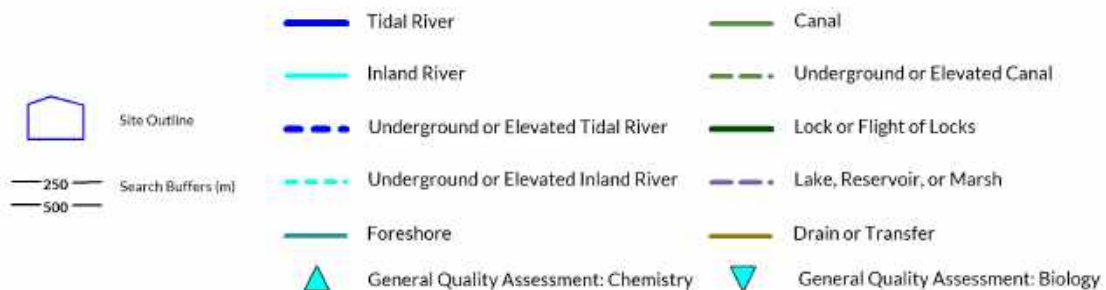
© Crown copyright and database rights 2018
Ordnance Survey licence 100035207.



6e. Hydrology – Watercourse Network and River Quality



© Crown copyright and database rights 2018.
Ordnance Survey licence 100035207.



6. Hydrogeology and Hydrology

6.1 Aquifer within Superficial Deposits

Records of strata classification within the superficial geology at or in proximity to the property Yes

From 1 April 2010, the Environment Agency/Natural Resources Wales's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive. For further details on the designation and interpretation of this information, please refer to the Groundsure Enviro Insight User Guide.

The following aquifer records are shown on the Aquifer within Superficial Geology Map (6a):

ID	Distance (m)	Direction	Designation	Description
5	0	On Site	Secondary (undifferentiated)	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
1	95	NE	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

6.2 Aquifer within Bedrock Deposits

Records of strata classification within the bedrock geology at or in proximity to the property Yes

From 1 April 2010, the Environment Agency/Natural Resources Wales's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive. For further details on the designation and interpretation of this information, please refer to the Groundsure Enviro Insight User Guide.

The following aquifer records are shown on the Aquifer within Bedrock Geology Map (6b):

ID	Distance (m)	Direction	Designation	Description
1	0	On Site	Secondary B	Predominantly lower permeability layers which may store/yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers

6.3 Groundwater Abstraction Licences

Groundwater Abstraction Licences within 2000m of the study site None identified

Database searched and no data found.

6.4 Surface Water Abstraction Licences

Surface Water Abstraction Licences within 2000m of the study site

None identified

Database searched and no data found.

6.5 Potable Water Abstraction Licences

Potable Water Abstraction Licences within 2000m of the study site

None identified

Database searched and no data found.

6.6 Source Protection Zones

Source Protection Zones within 500m of the study site

None identified

Database searched and no data found.

6.7 Source Protection Zones within Confined Aquifer

Source Protection Zones within the Confined Aquifer within 500m of the study site

None identified

Historically, Source Protection Zone maps have been focused on regulation of activities which occur at or near the ground surface, such as prevention of point source pollution and bacterial contamination of water supplies. Sources in confined aquifers were often considered to be protected from these surface pressures due to the presence of a low permeability confining layer (e.g. glacial till, clay). The increased interest in subsurface activities such as onshore oil and gas exploration, ground source heating and cooling requires protection zones for confined sources to be marked on SPZ maps where this has not already been done.

Database searched and no data found.

6.8 Groundwater Vulnerability and Soil Leaching Potential

Environment Agency/Natural Resources Wales information on groundwater vulnerability and soil leaching potential within 500m of the study site

Identified

Distance (m)	Direction	Classification	Soil Vulnerability Category	Description
0	On Site	Minor Aquifer/High Leaching Potential	HU	Soil information for urban areas and restored mineral workings. These soils are therefore assumed to be highly permeable in the absence of site-specific information.

6.9 River Quality

Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site None identified

6.9.1 Biological Quality:

Database searched and no data found.

6.9.2 Chemical Quality:

Database searched and no data found.

6.10 Ordnance Survey MasterMap Water Network

Ordnance Survey MasterMap Water Network entries within 500m of the study site

This watercourse information is provided by Ordnance Survey MasterMap Water Network. The data provides a detailed centre line following the curve of the waterway precisely, so all distances provided in the report should be understood as measurements to the centreline rather than a measurement to the nearest point of the watercourse. Underground watercourses are inferred from entry and exit points so caution is advised in using these to indicate precise locations of underground watercourses when planning site investigation and development.

The following Ordnance Survey MasterMap Water Network records are represented on the Hydrology Map (6e):

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
1	0 On Site	Mill Brook	Inland river not influenced by normal tidal action.	Catchment Area: Mersey Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 0.9
2	0 On Site	Mill Brook	Inland river not influenced by normal tidal action.	Catchment Area: Mersey Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
3	0 On Site	Mill Brook	Inland river not influenced by normal tidal action.	Catchment Area: Mersey Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.1
4	0 On Site	Mill Brook	Inland river not influenced by normal tidal action.	Catchment Area: Mersey Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
5	0 On Site	Mill Brook	Inland river not influenced by normal tidal action.	Catchment Area: Mersey Relationship to Ground Level: Not provided Permanence: Watercourse contains water year round (in normal

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
				conditions) Average Width in Watercourse Section (m): Not Provided
6	0 On Site	Mill Brook	Inland river not influenced by normal tidal action.	Catchment Area: Mersey Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.0
7	0 On Site	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Mersey Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
1	0 On Site	Mill Brook	Inland river not influenced by normal tidal action.	Catchment Area: Mersey Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 0.9
2	0 On Site	Mill Brook	Inland river not influenced by normal tidal action.	Catchment Area: Mersey Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
3	0 On Site	Mill Brook	Inland river not influenced by normal tidal action.	Catchment Area: Mersey Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.1
4	0 On Site	Mill Brook	Inland river not influenced by normal tidal action.	Catchment Area: Mersey Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
5	0 On Site	Mill Brook	Inland river not influenced by normal tidal action.	Catchment Area: Mersey Relationship to Ground Level: Not provided Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
6	0 On Site	Mill Brook	Inland river not influenced by normal tidal action.	Catchment Area: Mersey Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.0
7	0 On Site	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Mersey Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
8	24 SE	Mill Brook	Inland river not influenced by normal tidal action.	Catchment Area: Mersey Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 0.9
8	24 SE	Mill Brook	Inland river not influenced by normal tidal action.	Catchment Area: Mersey Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 0.9
9	80 NW	Mill Brook	Inland river not influenced by normal tidal action.	Catchment Area: Mersey Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 0.8

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
9	80 NW	Mill Brook	Inland river not influenced by normal tidal action.	Catchment Area: Mersey Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 0.8
10	83 NW	Mill Brook	Inland river not influenced by normal tidal action.	Catchment Area: Mersey Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
10	83 NW	Mill Brook	Inland river not influenced by normal tidal action.	Catchment Area: Mersey Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
11	88 NW	Mill Brook	Inland river not influenced by normal tidal action.	Catchment Area: Mersey Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.2
11	88 NW	Mill Brook	Inland river not influenced by normal tidal action.	Catchment Area: Mersey Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.2
12	155 NW	Mill Brook	Inland river not influenced by normal tidal action.	Catchment Area: Mersey Relationship to Ground Level: Not provided Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
12	155 NW	Mill Brook	Inland river not influenced by normal tidal action.	Catchment Area: Mersey Relationship to Ground Level: Not provided Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
13	170 NW	Mill Brook	Inland river not influenced by normal tidal action.	Catchment Area: Mersey Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.7
13	170 NW	Mill Brook	Inland river not influenced by normal tidal action.	Catchment Area: Mersey Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.7
14	179 NW	Mill Brook	Inland river not influenced by normal tidal action.	Catchment Area: Mersey Relationship to Ground Level: Not provided Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
14	179 NW	Mill Brook	Inland river not influenced by normal tidal action.	Catchment Area: Mersey Relationship to Ground Level: Not provided Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
15	209 SE	Mill Brook	Inland river not influenced by normal tidal action.	Catchment Area: Mersey Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
15	209	Mill Brook	Inland river not influenced by normal tidal action.	Catchment Area: Mersey Relationship to Ground Level: Underground

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
	SE			Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
16	215 SE	Mill Brook	Inland river not influenced by normal tidal action.	Catchment Area: Mersey Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 0.9
16	215 SE	Mill Brook	Inland river not influenced by normal tidal action.	Catchment Area: Mersey Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 0.9

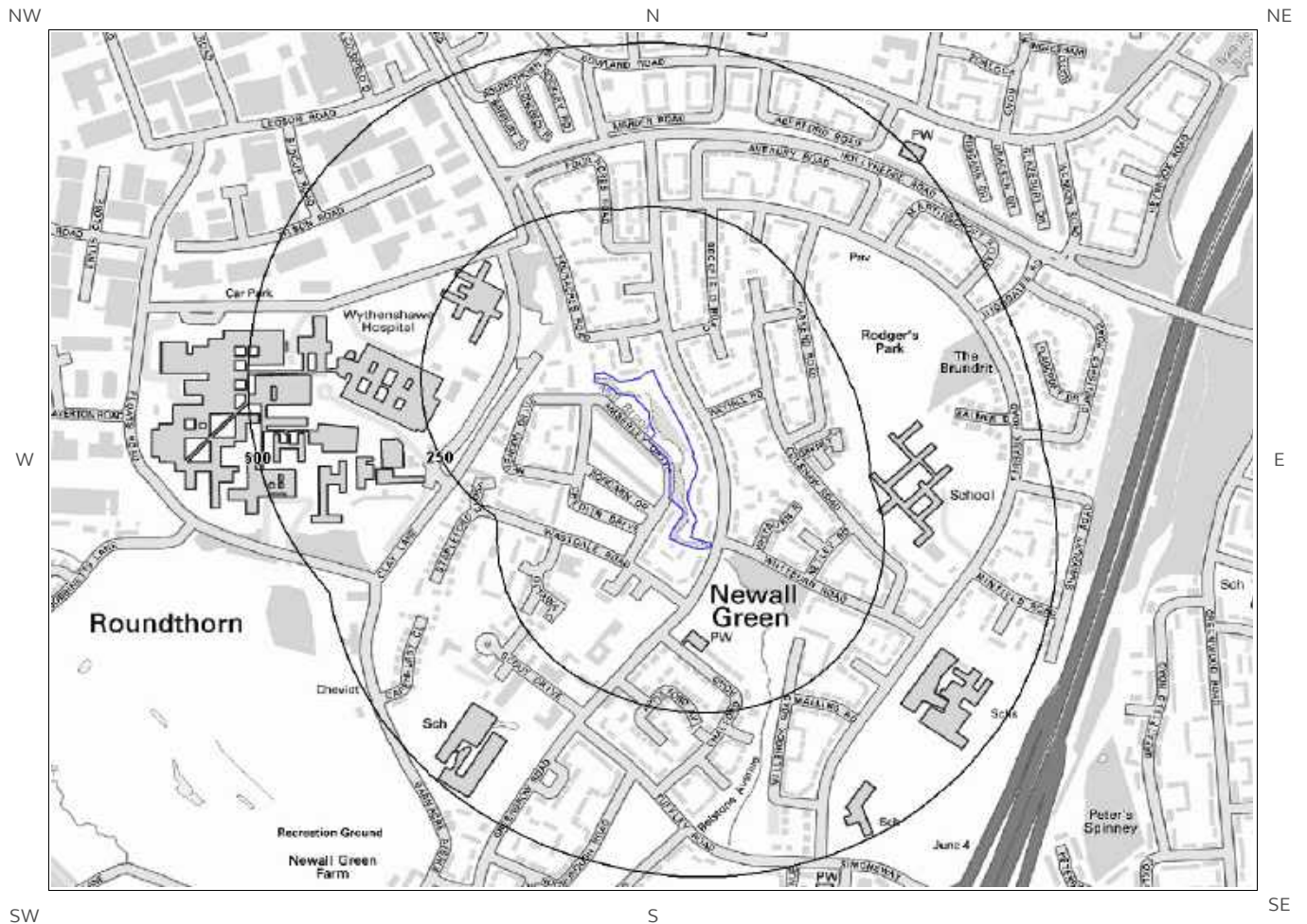
6.11 Surface Water Features

Surface water features within 250m of the study site

None identified

Database searched and no data found.

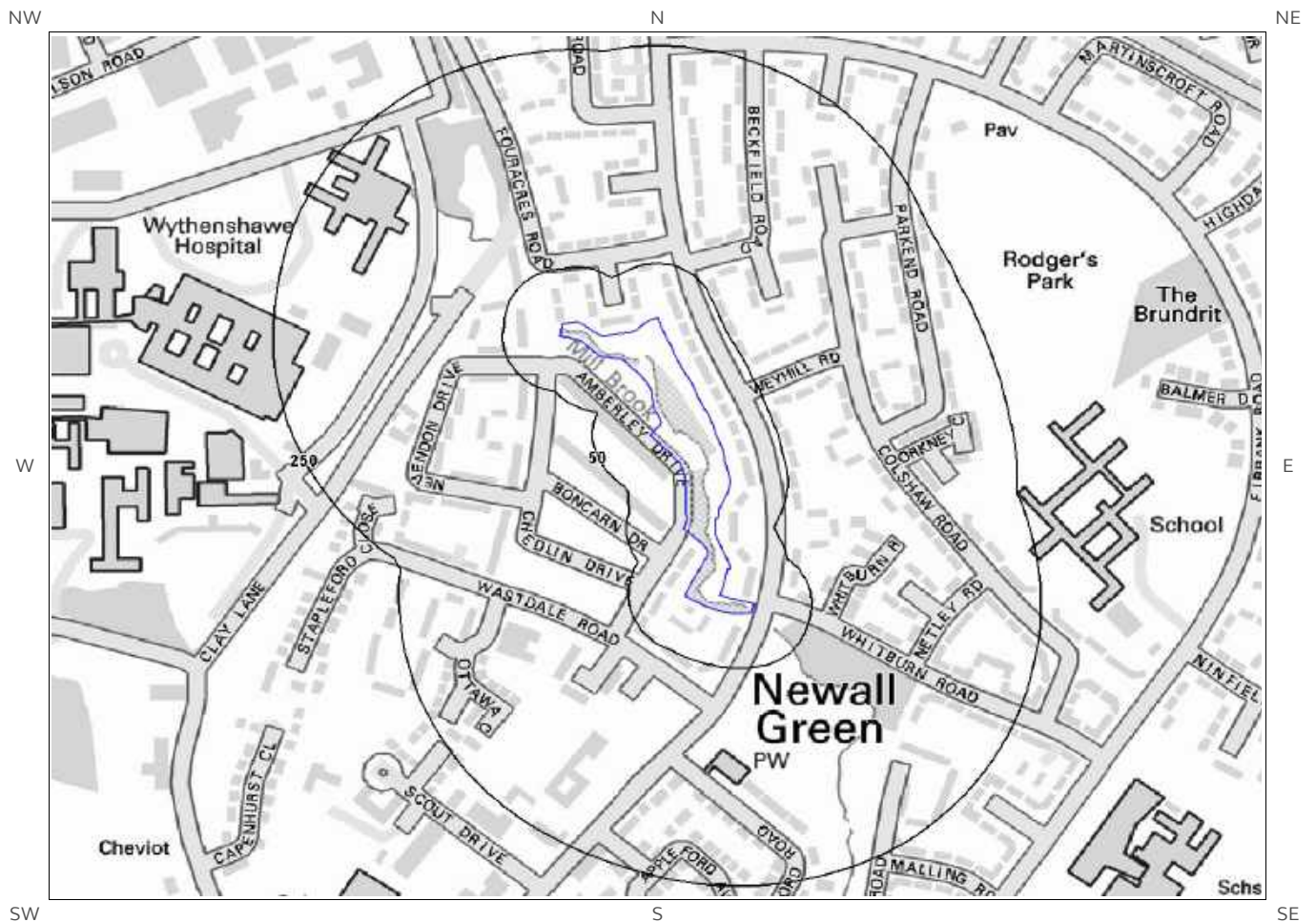
7a. Environment Agency/Natural Resources Wales Flood Map for Planning (from rivers and the sea)



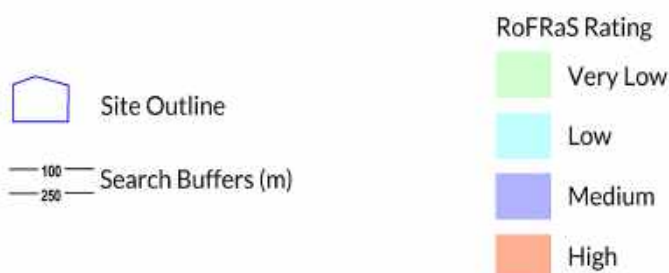
© Crown copyright and database rights 2018.
Ordnance Survey licence 100035207.



7b. Environment Agency/Natural Resources Wales Risk of Flooding from Rivers and the Sea (RoFRaS) Map



© Crown copyright and database rights 2018.
Ordnance Survey licence 100035207.



7 Flooding

7.1 River and Coastal Zone 2 Flooding

Environment Agency/Natural Resources Wales Zone 2 floodplain within 250m None identified

Environment Agency/Natural Resources Wales Zone 2 floodplains estimate the annual probability of flooding as between 1 in 1000 (0.1%) and 1 in 100 (1%) from rivers and between 1 in 1000 (0.1%) and 1 in 200 (0.5%) from the sea. Any relevant data is represented on Map 7a – Flood Map for Planning:

Database searched and no data found.

7.2 River and Coastal Zone 3 Flooding

Environment Agency/Natural Resources Wales Zone 3 floodplain within 250m None identified

Zone 3 shows the extent of a river flood with a 1 in 100 (1%) or greater chance of occurring in any year or a sea flood with a 1 in 200 (0.5%) or greater chance of occurring in any year. Any relevant data is represented on Map 7a – Flood Map for Planning.

Database searched and no data found.

7.3 Risk of Flooding from Rivers and the Sea (RoFRaS) Flood Rating

Highest risk of flooding onsite Very Low

The Environment Agency/Natural Resources Wales RoFRaS database provides an indication of river and coastal flood risk at a national level on a 50m grid with the flood rating at the centre of the grid calculated and given above. The data considers the probability that the flood defences will overtop or breach by considering their location, type, condition and standard of protection.

RoFRaS data for the study site indicates the property is in an area with a Very Low (less than 1 in 1000) chance of flooding in any given year.

7.4 Flood Defences

Flood Defences within 250m of the study site None identified
Database searched and no data found.

7.5 Areas benefiting from Flood Defences

Areas benefiting from Flood Defences within 250m of the study site None identified

7.6 Areas benefiting from Flood Storage

Areas used for Flood Storage within 250m of the study site

None identified

7.7 Groundwater Flooding Susceptibility Areas

7.7.1 British Geological Survey groundwater flooding susceptibility areas within 50m of the boundary of the study site

Identified

Clearwater Flooding or Superficial Deposits Flooding

Superficial Deposits Flooding

Notes: Groundwater flooding may either be associated with shallow unconsolidated sedimentary aquifers which overlie unproductive aquifers (Superficial Deposits Flooding), or with unconfined aquifers (Clearwater Flooding).

7.7.2 Highest susceptibility to groundwater flooding in the search area based on the underlying geological conditions

Potential at Surface

Where potential for groundwater flooding to occur at surface is indicated, this means that given the geological conditions in the area groundwater flooding hazard should be considered in all land-use planning decisions. It is recommended that other relevant information e.g. records of previous incidence of groundwater flooding, rainfall, property type, and land drainage information be investigated in order to establish relative, but not absolute, risk of groundwater flooding.

7.8 Groundwater Flooding Confidence Areas

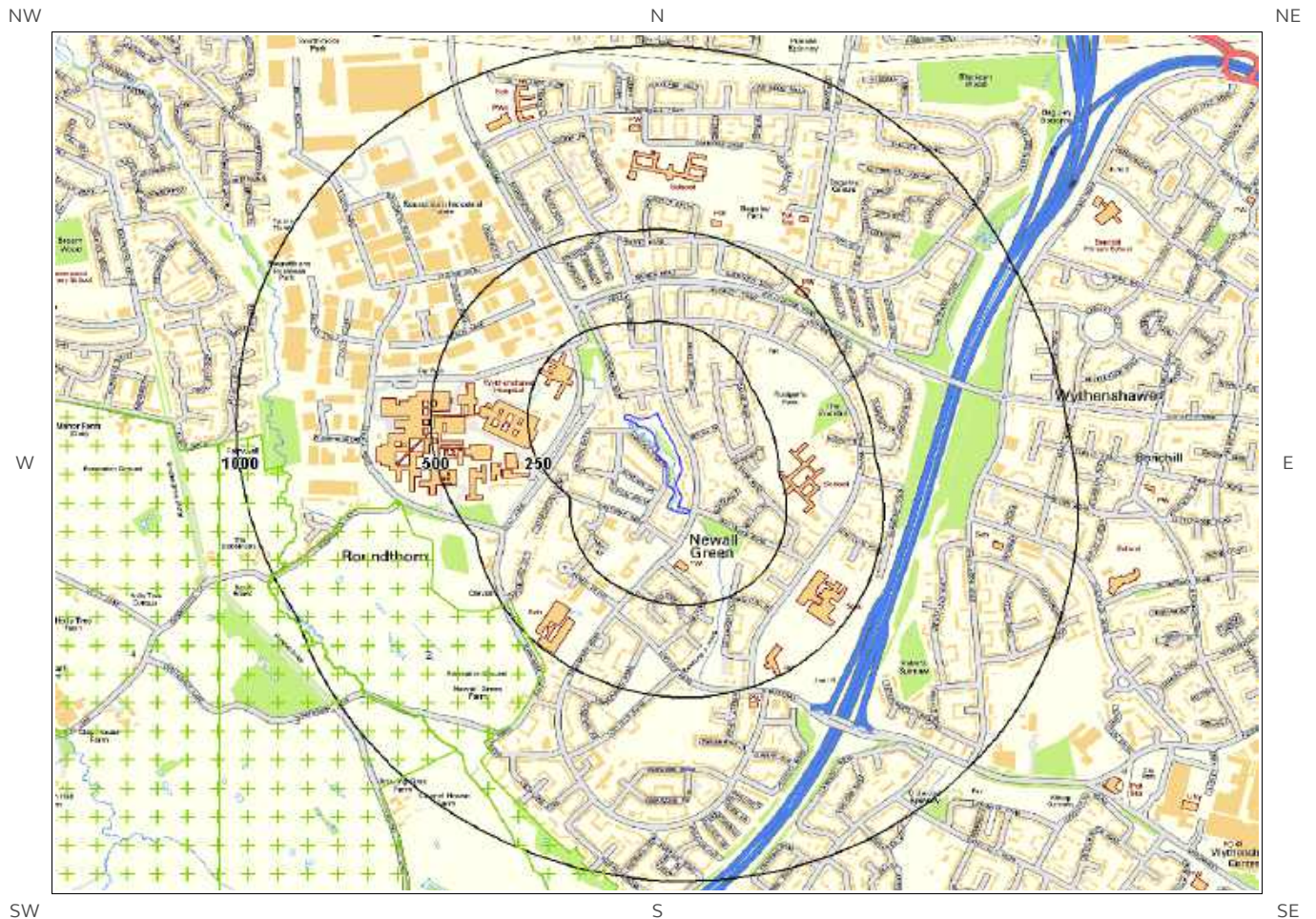
British Geological Survey confidence rating in this result

Moderate

Notes: Groundwater flooding is defined as the emergence of groundwater at the ground surface or the rising of groundwater into man-made ground under conditions where the normal range of groundwater levels is exceeded.

The confidence rating is on a threefold scale - Low, Moderate and High. This provides a relative indication of the BGS confidence in the accuracy of the susceptibility result for groundwater flooding. This is based on the amount and precision of the information used in the assessment. In areas with a relatively lower level of confidence the susceptibility result should be treated with more caution. In other areas with higher levels of confidence the susceptibility result can be used with more confidence.

8. Designated Environmentally Sensitive Sites Map



© Crown copyright and database rights 2018.
Ordnance Survey licence 100035207.



8. Designated Environmentally Sensitive Sites

Designated Environmentally Sensitive Sites within 2000m of the study site	Identified
---	------------

8.1 Records of Sites of Special Scientific Interest (SSSI) within 2000m of the study site:

0

Database searched and no data found.

8.2 Records of National Nature Reserves (NNR) within 2000m of the study site:

0

Database searched and no data found.

8.3 Records of Special Areas of Conservation (SAC) within 2000m of the study site:

0

Database searched and no data found.

8.4 Records of Special Protection Areas (SPA) within 2000m of the study site:

0

Database searched and no data found.

8.5 Records of Ramsar sites within 2000m of the study site:

0

Database searched and no data found.

8.6 Records of Ancient Woodland within 2000m of the study site:

0

Database searched and no data found.

8.7 Records of Local Nature Reserves (LNR) within 2000m of the study site:

1

The following Local Nature Reserve (LNR) records provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	LNR Name	Data Source
Not shown	1323	N	Wythenshawe Park	Natural England

8.8 Records of World Heritage Sites within 2000m of the study site:

0

Database searched and no data found.

8.9 Records of Environmentally Sensitive Areas within 2000m of the study site:

0

Database searched and no data found.

8.10 Records of Areas of Outstanding Natural Beauty (AONB) within 2000m of the study site:

0

Database searched and no data found.

8.11 Records of National Parks (NP) within 2000m of the study site:

0

Database searched and no data found.

8.12 Records of Nitrate Sensitive Areas within 2000m of the study site:

0

Database searched and no data found.

8.13 Records of Nitrate Vulnerable Zones within 2000m of the study site:

0

Database searched and no data found.

8.14 Records of Green Belt land within 2000m of the study site:

3

Green Belt data contains Ordnance Survey data © Crown copyright and database right [2015].

ID	Distance	Direction	Green Belt Name	Local Authority Name
2	478	SW	Liverpool, Manchester and West Yorks Greenbelt	Manchester District (B)
3	848	SW	Liverpool, Manchester and West Yorks Greenbelt	Trafford District (B)
4	1047	W	Liverpool, Manchester and West Yorks Greenbelt	Trafford District (B)

9. Natural Hazards Findings

9.1 Detailed BGS GeoSure Data

BGS GeoSure Data has been searched to 50m. The data is included in tabular format. If you require further information on geology and ground stability, please obtain a **Groundsure Geo Insight**, available from our **website**. The following information has been found:

9.1.1 Shrink Swell

Maximum Shrink-Swell** hazard rating identified on the study site Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Ground conditions predominantly low plasticity. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with shrink-swell clays.

9.1.2 Landslides

Maximum Landslide* hazard rating identified on the study site Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Slope instability problems are unlikely to be present. No special actions required to avoid problems due to landslides. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with landslides.

9.1.3 Soluble Rocks

Maximum Soluble Rocks* hazard rating identified on the study site Negligible

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Soluble rocks are present, but unlikely to cause problems except under exceptional conditions. No special actions required to avoid problems due to soluble rocks. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with soluble rocks.

* This indicates an automatically generated 50m buffer and site.

9.1.4 Compressible Ground

Maximum Compressible Ground* hazard rating identified on the study site

Negligible

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
No indicators for compressible deposits identified. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.

9.1.5 Collapsible Rocks

Maximum Collapsible Rocks* hazard rating identified on the study site

Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

9.1.6 Running Sand

Maximum Running Sand** hazard rating identified on the study site

Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Very low potential for running sand problems if water table rises or if sandy strata are exposed to water. No special actions required, to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.

* This indicates an automatically generated 50m buffer and site.

9.2 Radon

9.2.1 Radon Affected Areas

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

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

9.2.2 Radon Protection

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

10. Mining

10.1 Coal Mining

Coal mining areas within 75m of the study site

None identified

Database searched and no data found.

10.2 Non-Coal Mining

Non-Coal Mining areas within 50m of the study site boundary

None identified

Database searched and no data found.

10.3 Brine Affected Areas

Brine affected areas within 75m of the study site

None identified

Guidance: No Guidance Required.

Contact Details

Groundsure Helpline
Telephone: 08444 159 000
info@groundsure.com

British Geological Survey Enquiries
Kingsley Dunham Centre
Keyworth, Nottingham NG12 5GG
Tel: 0115 936 3143.
Fax: 0115 936 3276.
Email:
Web: www.bgs.ac.uk

BGS Geological Hazards Reports and general geological enquiries:
enquiries@bgs.ac.uk

Environment Agency
National Customer Contact Centre, PO Box 544
Rotherham, S60 1BY
Tel: 03708 506 506
Web: www.environment-agency.gov.uk
Email: enquiries@environment-agency.gov.uk

Public Health England
Public information access office
Public Health England, Wellington House
133-155 Waterloo Road, London, SE1 8UG
www.gov.uk/phe
Email: enquiries@phe.gov.uk
Main switchboard: 020 7654 8000

The Coal Authority
200 Lichfield Lane
Mansfield
Notts NG18 4RG
Tel: 0345 7626 848
DX 716176 Mansfield 5
www.coal.gov.uk

Ordnance Survey
Adanac Drive, Southampton
SO16 0AS
Tel: 08456 050505

Local Authority
Authority: Manchester City Council
Phone: 0161 234 5000
Web: <http://www.manchester.gov.uk/>
Address: Town Hall, Albert Square, Manchester, M60 2LA

Gemapping PLC
Virginia Villas, High Street, Hartley Witney,
Hampshire RG27 8NW
Tel: 01252 845444



Acknowledgements: Site of Special Scientific Interest, National Nature Reserve, Ramsar Site, Special Protection Area, Special Area of Conservation data is provided by, and used with the permission of, Natural England/Natural Resources Wales who retain the Copyright and Intellectual Property Rights for the data.

PointX © Database Right/Copyright, Thomson Directories Limited © Copyright Link Interchange Network Limited © Database Right/Copyright and Ordnance Survey © Crown Copyright and/or Database Right. All Rights Reserved. Licence Number [03421028].

This report has been prepared in accordance with the Groundsure Ltd standard Terms and Conditions of business for work of this nature.

Standard Terms and Conditions

Groundsure's Terms and Conditions can be viewed online at this link:

<https://www.groundsure.com/terms-and-conditions-may25-2018>

WML Consulting	Groundsure Reference:	GS-5615195
UNIT 8 WRIGHT MOTTERSHAW LYDON CONSULTING LTD, STANLEY GREEN BUSINESS PARK, CHEADLE/CHEADLE HULME, SK8 6QL	Your Reference:	8538G
	Report Date	14 Nov 2018
	Report Delivery Method:	Email - pdf

Geo Insight

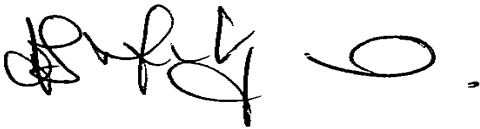
Address: AMBERLEY DRIVE, MANCHESTER, M23 2RW

Dear Sir/ Madam,

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

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

Yours faithfully,



Managing Director
Groundsure Limited

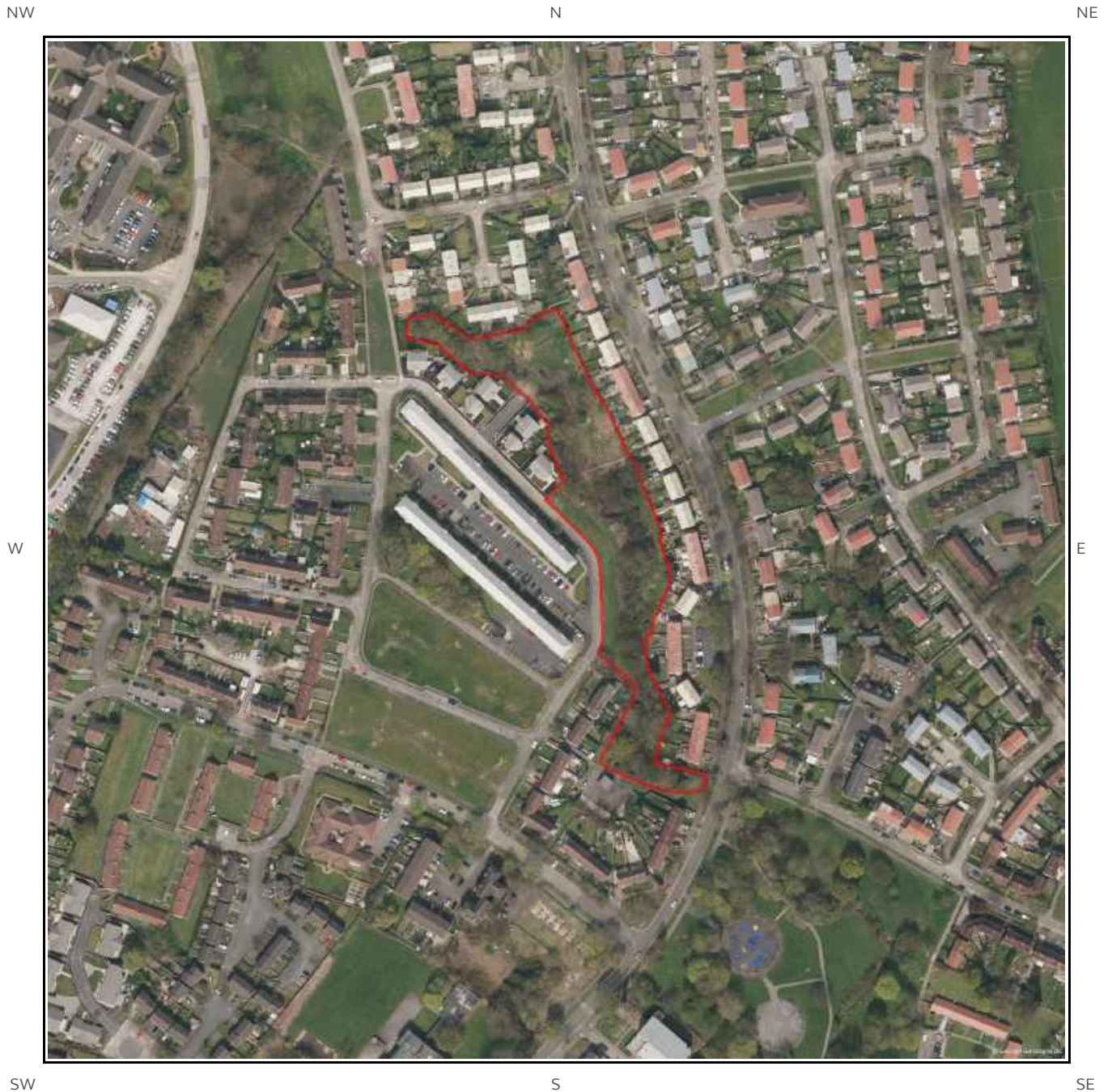
Enc.
Groundsure Geo Insight

Address: AMBERLEY DRIVE, MANCHESTER, M23 2RW

Date: 14 Nov 2018

Reference: GS-5615195

Client: WML Consulting



Aerial Photograph Capture date: 21-Apr-2016

Grid Reference: 381162,387950

Site Size: 1.05ha

Contents Page

Contents Page.....	3
Overview of Findings.....	5
1:10,000 Scale Availability.....	8
Availability of 1:10,000 Scale Geology Mapping.....	9
1 Geology (1:10,000 scale).....	10
1.1 Artificial Ground map (1:10,000 scale).....	10
1. Geology 1:10,000 scale.....	11
1.1 Artificial Ground.....	11
1.2 Superficial Deposits and Landslips map (1:10,000 scale).....	12
1.2 Superficial Deposits and Landslips.....	13
1.2.1 Superficial Deposits/ Drift Geology.....	13
1.2.2 Landslip.....	13
1.3 Bedrock and linear features map (1:10,000 scale).....	14
1.3 Bedrock and linear features.....	15
1.3.1 Bedrock/ Solid Geology.....	15
1.3.2 Linear features.....	15
2 Geology 1:50,000 Scale.....	16
2.1 Artificial Ground map.....	16
2. Geology 1:50,000 scale.....	17
2.1 Artificial Ground.....	17
2.1.1 Artificial/ Made Ground	17
2.1.2 Permeability of Artificial Ground.....	17
2.2 Superficial Deposits and Landslips map (1:50,000 scale).....	18
2.2 Superficial Deposits and Landslips.....	19
2.2.1 Superficial Deposits/ Drift Geology.....	19
2.2.2 Permeability of Superficial Ground	19
2.2.3 Landslip.....	19
2.2.4 Landslip Permeability.....	19
2.3 Bedrock and linear features map (1:50,000 scale).....	20
2.3 Bedrock, Solid Geology & linear features.....	21
2.3.1 Bedrock/Solid Geology.....	21
2.3.2 Permeability of Bedrock Ground.....	21
2.3.3 Linear features.....	21
3 Radon Data.....	22
3.1 Radon Affected Areas.....	22
3.2 Radon Protection.....	22
4 Ground Workings map.....	23
4 Ground Workings.....	24
4.1 Historical Surface Ground Working Features derived from Historical Mapping.....	24
4.2 Historical Underground Working Features derived from Historical Mapping.....	24
4.3 Current Ground Workings.....	24
5 Mining, Extraction & Natural Cavities.....	26
5.1 Historical Mining.....	26
5.2 Coal Mining.....	26
5.3 Johnson Poole and Bloomer.....	26
5.4 Non-Coal Mining.....	26
5.5 Non-Coal Mining Cavities.....	27
5.6 Natural Cavities.....	27
5.7 Brine Extraction.....	27
5.8 Gypsum Extraction.....	27
5.9 Tin Mining.....	27
5.10 Clay Mining.....	28
6 Natural Ground Subsidence.....	29
6.1 Shrink-Swell Clay map.....	29
6.2 Landslides map.....	30
6.3 Ground Dissolution of Soluble Rocks map.....	31
6.4 Compressible Deposits map.....	32
6.5 Collapsible Deposits map.....	33
6.6 Running Sand map.....	34

6 Natural Ground Subsidence.....	35
6.1 Shrink-Swell Clays.....	35
6.2 Landslides.....	35
6.3 Ground Dissolution of Soluble Rocks.....	35
6.4 Compressible Deposits.....	36
6.5 Collapsible Deposits.....	36
6.6 Running Sands.....	36
7 Borehole Records.....	38
8 Estimated Background Soil Chemistry.....	40
9 Railways and Tunnels map.....	41
9 Railways and Tunnels.....	42
9.1 Tunnels	42
9.2 Historical Railway and Tunnel Features	42
9.3 Historical Railways.....	43
9.4 Active Railways.....	43
9.5 Railway Projects.....	43

Overview of Findings

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

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

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

Section 1: Geology 1:10,000 Scale

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

Section 2: Geology 1:50,000 Scale

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

Section 2: Geology 1:50,000 Scale

2.3 Bedrock, Solid Geology and linear features

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

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

Yes

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

No

Section 3: Radon

3. Radon

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

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

3.2 Radon Protection

No radon protective measures are necessary.

Section 4: Ground Workings

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

Section 5: Mining, Extraction & Natural Cavities

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

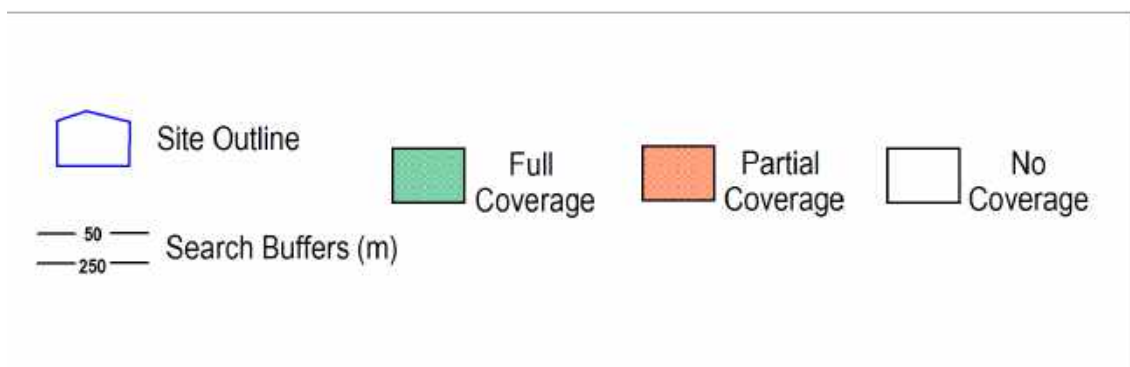
Section 5: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
5.6 Brine Extraction	0	0	0	0	0
5.7 Gypsum Extraction	0	0	0	0	0
5.8 Tin Mining	0	0	0	0	0
5.9 Clay Mining	0	0	0	0	0
Section 6: Natural Ground Subsidence	On-site				
6.1 Shrink-Swell Clay	Very Low				
6.2 Landslides	Very Low				
6.3 Ground Dissolution of Soluble Rocks	Negligible				
6.4 Compressible Deposits	Negligible				
6.5 Collapsible Deposits	Very Low				
6.5 Running Sand	Very Low				
Section 7: Borehole Records	On-site	0-50m	51-250		
7 BGS Recorded Boreholes	0	0	17		
Section 8: Estimated Background Soil Chemistry	On-site	0-50m	51-250		
8 Records of Background Soil Chemistry	5	4	0		
Section 9: Railways and Tunnels	On-site	0-50m	51-250	250-500	
9.1 Tunnels	0	0	0	Not Searched	
9.2 Historical Railway and Tunnel Features	0	0	0	Not Searched	
9.3 Historical Railways	0	0	0	Not Searched	
9.4 Active Railways	0	0	0	Not Searched	
9.5 Railway Projects	0	0	1	0	

1:10,000 Scale Availability



1_10,000 Availability Legend

© Crown copyright and database rights 2018.
Ordnance Survey licence 100035207.



Availability of 1:10,000 Scale Geology Mapping

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

ID	Distance	Artificial Coverage	Superficial Coverage	Bedrock Coverage	Mass Movement Coverage
1	0.0	No deposits are mapped	Full	Full	No coverage
2	1045.0	No deposits are mapped	Full	Full	No coverage
N3	1932.0	Some deposits are mapped	Full	Full	No coverage

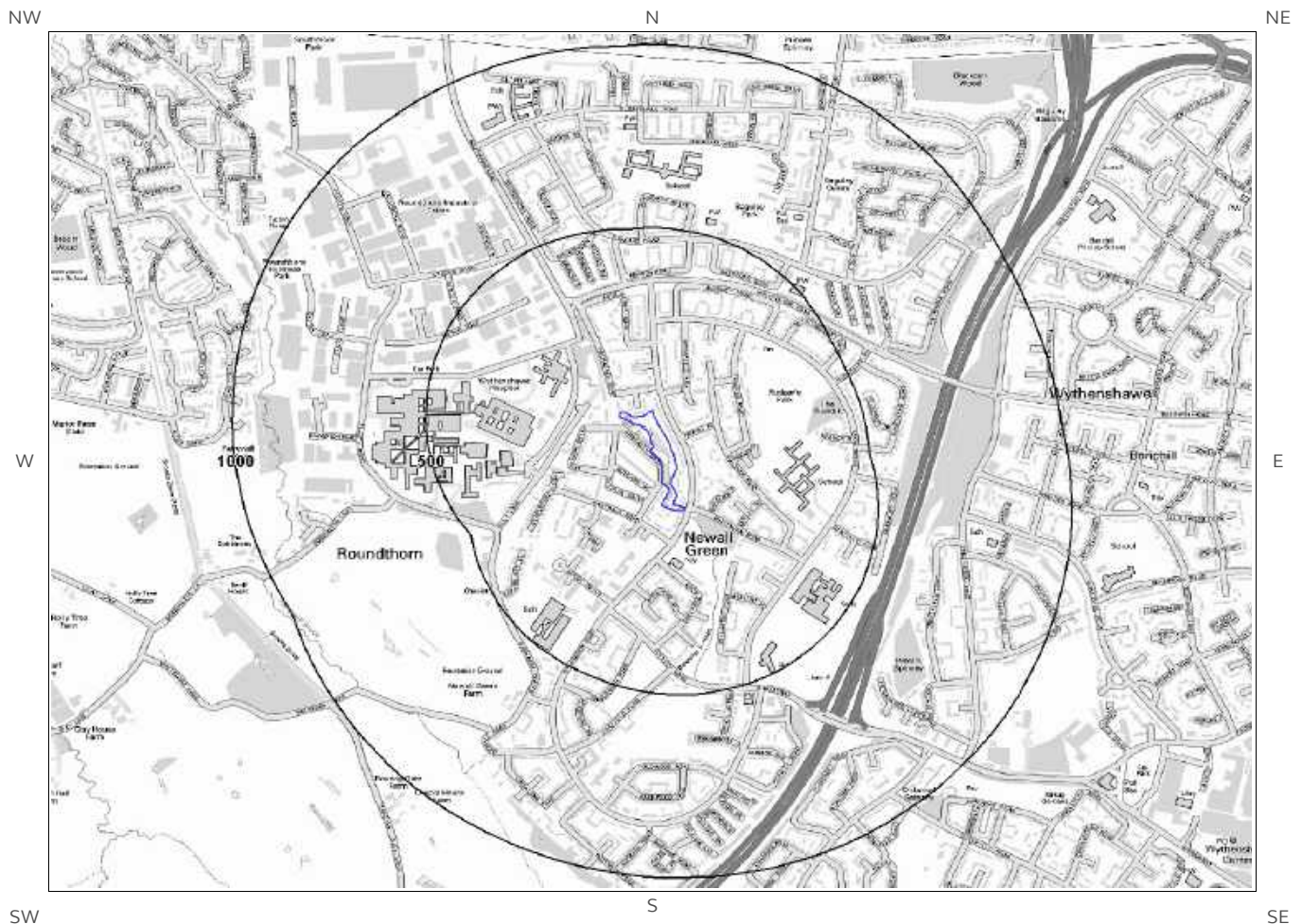
Guidance: The 1:10,000 scale geological interpretation is the most detailed generally available from BGS and is the scale at which most geological surveying is carried out in the field. The database is presented as four types of geology (artificial, mass movement, superficial and bedrock), although not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

The definitions of coverage are as follows:

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

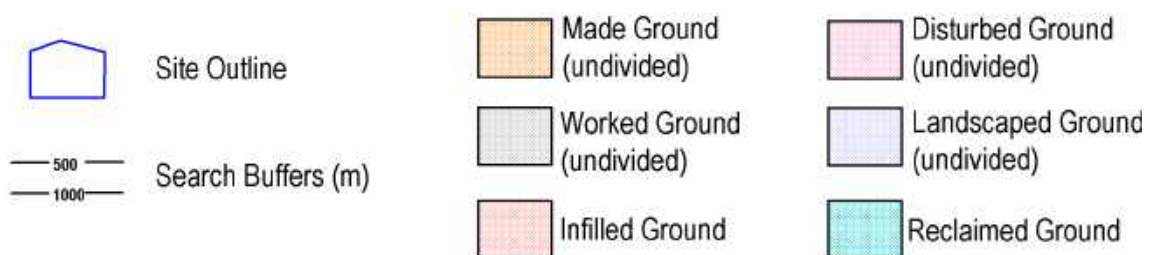
1 Geology (1:10,000 scale).

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



Artificial Ground Legend

© Crown copyright and database rights 2018.
Ordnance Survey licence 100035207.



1. Geology 1:10,000 scale

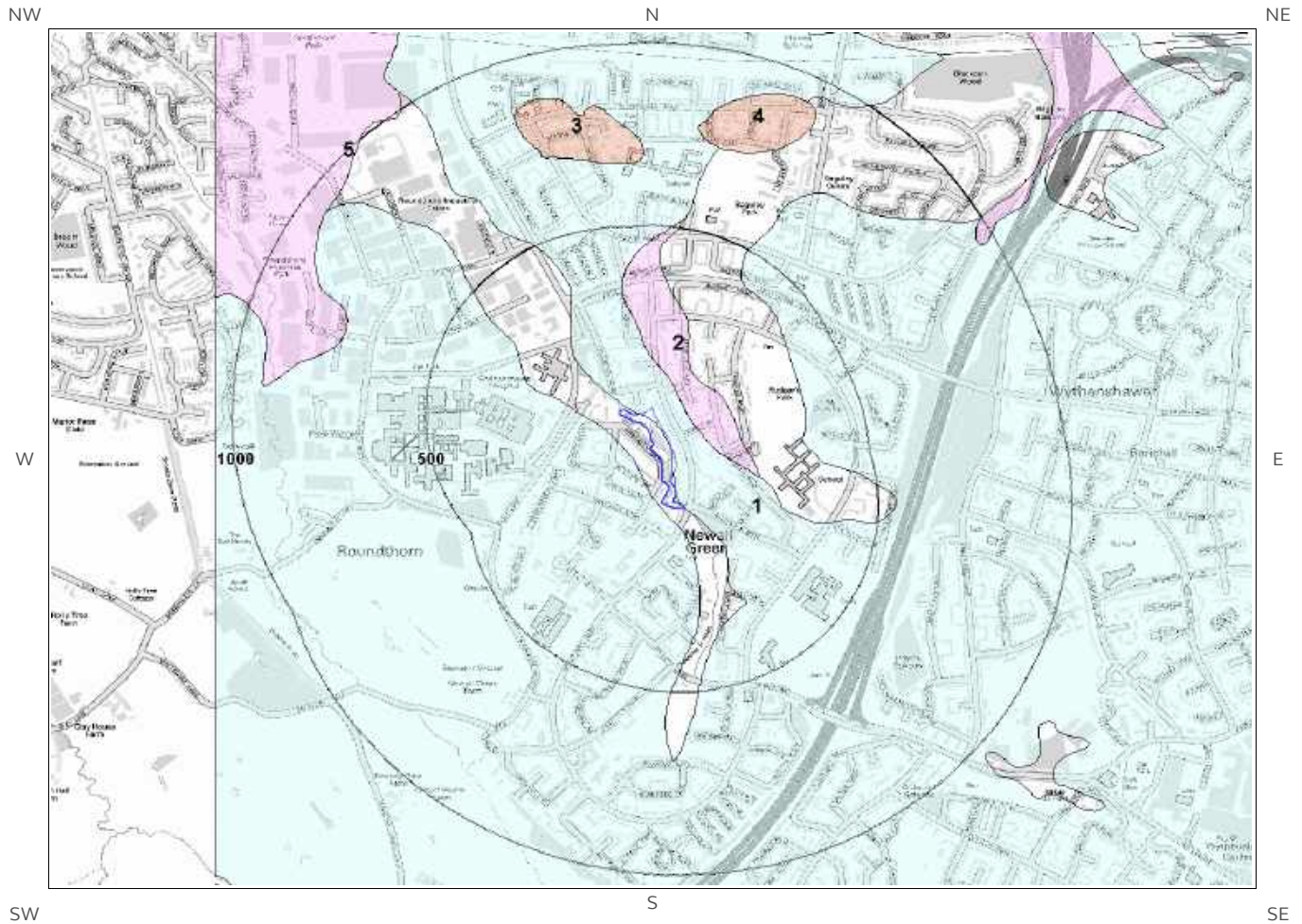
1.1 Artificial Ground

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

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

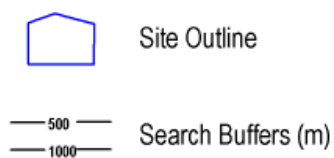
Database searched and no data found.

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



Artificial Ground Legend

© Crown copyright and database rights 2018.
Ordnance Survey licence 100035207.



1.2 Superficial Deposits and Landslips

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

1.2.1 Superficial Deposits/ Drift Geology

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

ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	TILLD-DMTN	Till, Devensian - Diamicton	Diamicton
2	74.0	NE	GFDUD-XSV	Glaciofluvial Deposits, Devensian - Sand And Gravel	Sand And Gravel

1.2.2 Landslip

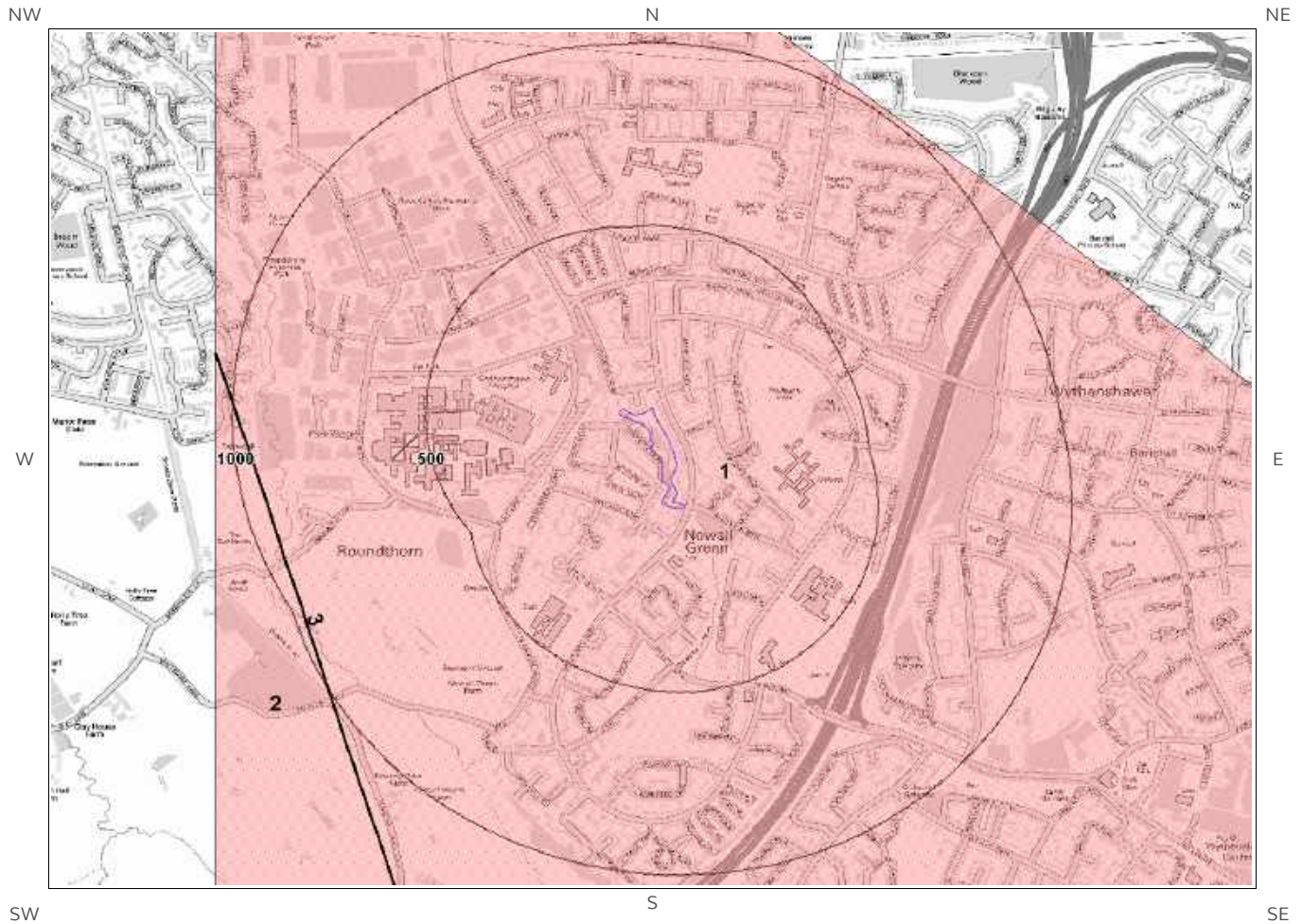
Are there any records of Landslip within 500m of the study site boundary at 1:10,000 scale? No

Database searched and no data found.

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

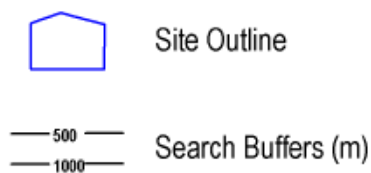
This Geology shows the main components as discrete layers, these are: Artificial / Made Ground, Superficial / Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

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



Bedrock and linear features Legend

© Crown copyright and database rights 2018.
Ordnance Survey licence 100035207.



1.3 Bedrock and linear features

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

1.3.1 Bedrock/ Solid Geology

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

ID	Distance (m)	Direction	LEX Code	Description	Rock Age
1	0.0	On Site	BOM-MDST	Bollin Mudstone Member - Mudstone	Anisian Age

1.3.2 Linear features

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

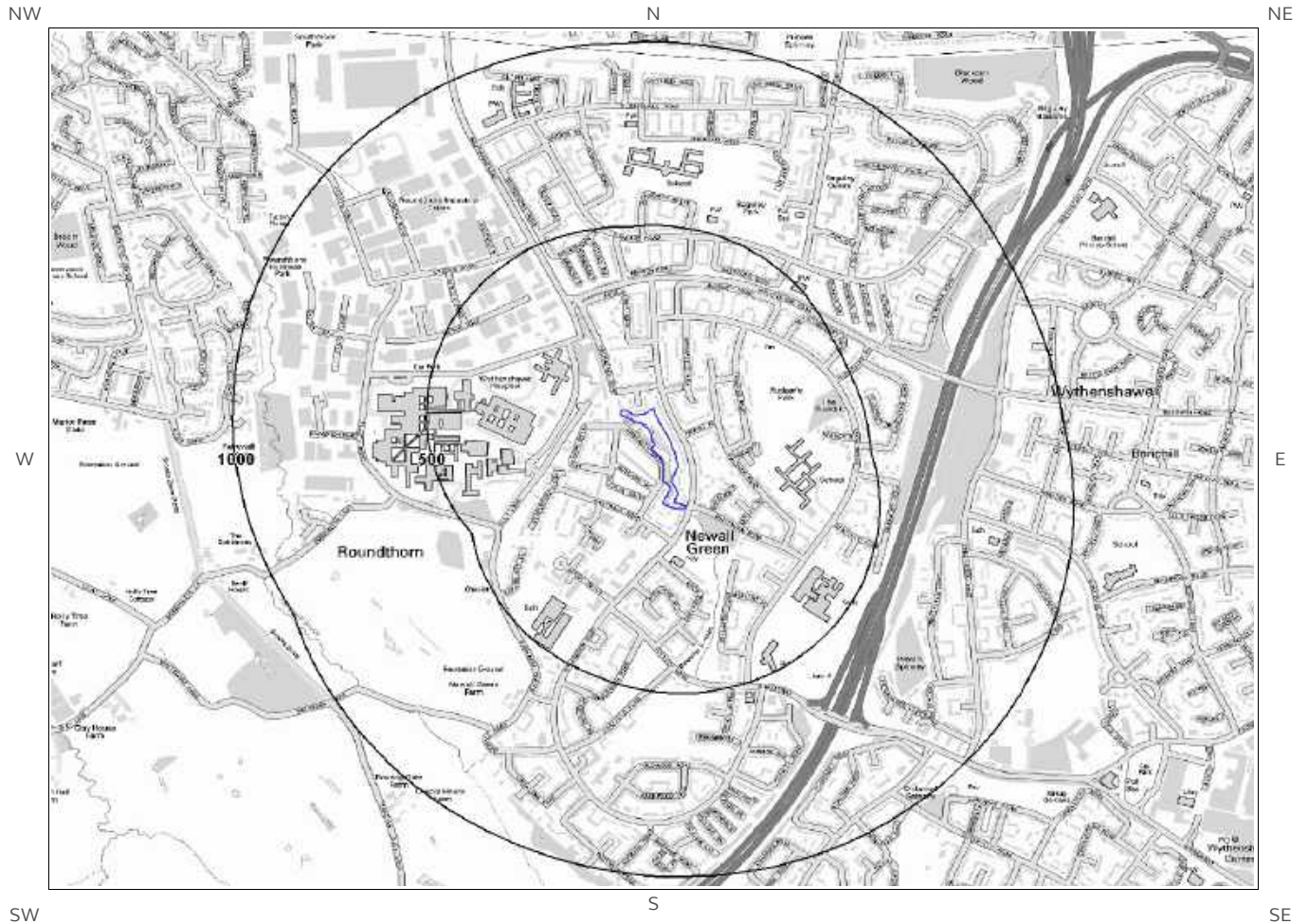
Database searched and no data found at this scale.

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

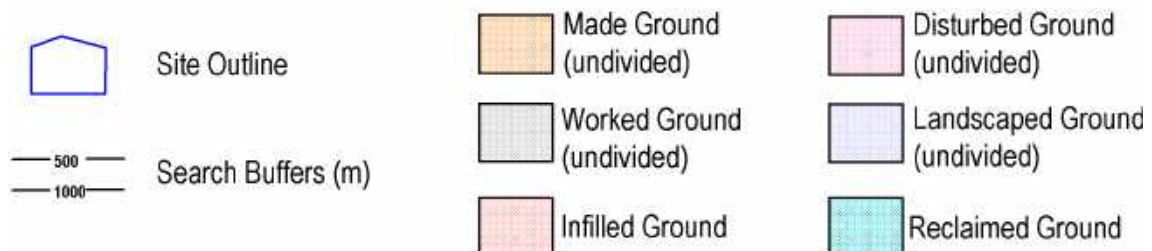
This Geology shows the main components as discrete layers, these are: Bedrock/ Solid Geology and linear features such as faults. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

2 Geology 1:50,000 Scale

2.1 Artificial Ground map



© Crown copyright and database rights 2018.
Ordnance Survey licence 100035207.



2. Geology 1:50,000 scale

2.1 Artificial Ground

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

2.1.1 Artificial/ Made Ground

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

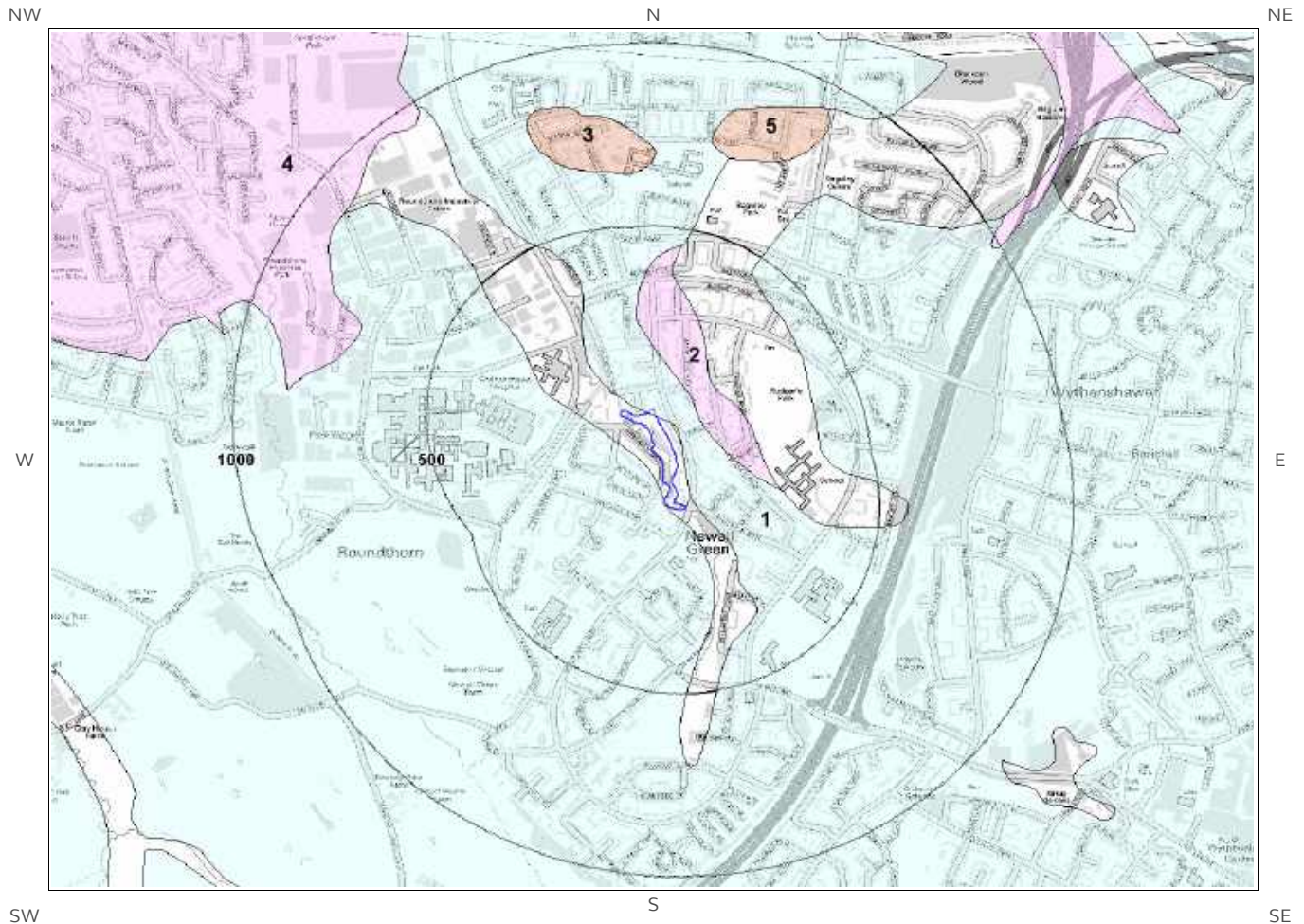
Database searched and no data found.

2.1.2 Permeability of Artificial Ground

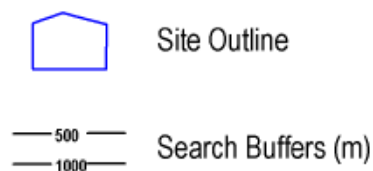
Are there any records relating to permeability of artificial ground within the study site boundary? No

Database searched and no data found.

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



© Crown copyright and database rights 2018.
Ordnance Survey licence 100035207.



2.2 Superficial Deposits and Landslips

2.2.1 Superficial Deposits/ Drift Geology

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

ID	Distance	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON
2	95.0	NE	GFDUD-XSV	GLACIOFLUVIAL DEPOSITS, DEVENSIAN	SAND AND GRAVEL

2.2.2 Permeability of Superficial Ground

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

Distance (m)	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Mixed	High	Low

2.2.3 Landslip

Are there any records of Landslip within 500m of the study site boundary? No

Database searched and no data found.

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

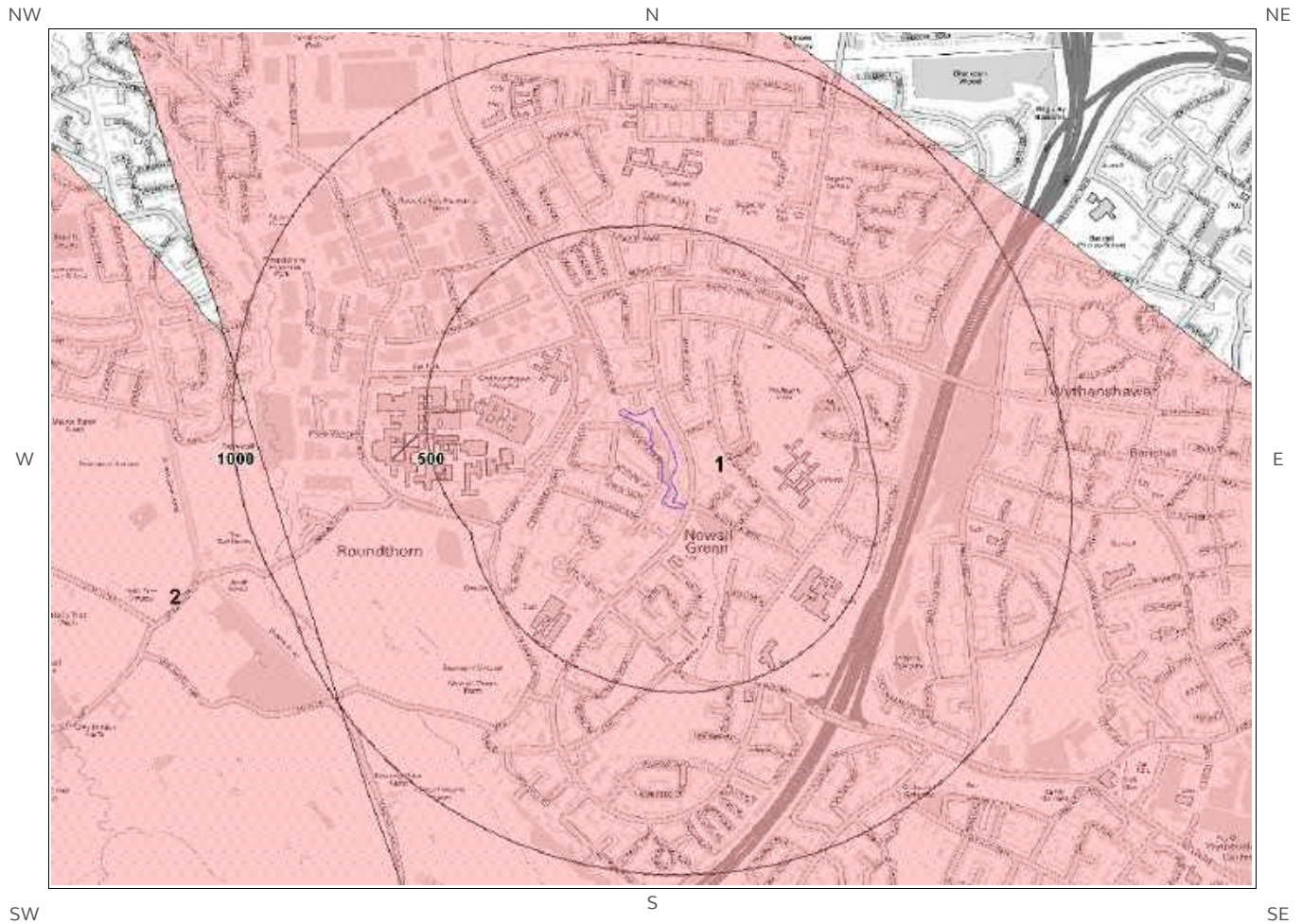
This Geology shows the main components as discrete layers, there are: Artificial/ Made Ground, Superficial/ Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

2.2.4 Landslip Permeability

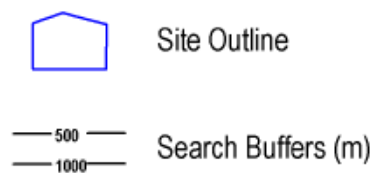
Are there any records relating to permeability of landslips within the study site boundary? No

Database searched and no data found.

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



© Crown copyright and database rights 2018.
Ordnance Survey licence 100035207.



2.3 Bedrock, Solid Geology & linear features

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

2.3.1 Bedrock/Solid Geology

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

ID	Distance	Direction	LEX Code	Rock Description	Rock Age
1	0.0	On Site	BOM-MDST	BOLLIN MUDSTONE MEMBER - MUDSTONE	ANISIAN

2.3.2 Permeability of Bedrock Ground

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

Distance	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Fracture	Low	Low

2.3.3 Linear features

Are there any records of linear features within 500m of the study site boundary? No

Database searched and no data found.

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

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

3 Radon Data

3.1 Radon Affected Areas

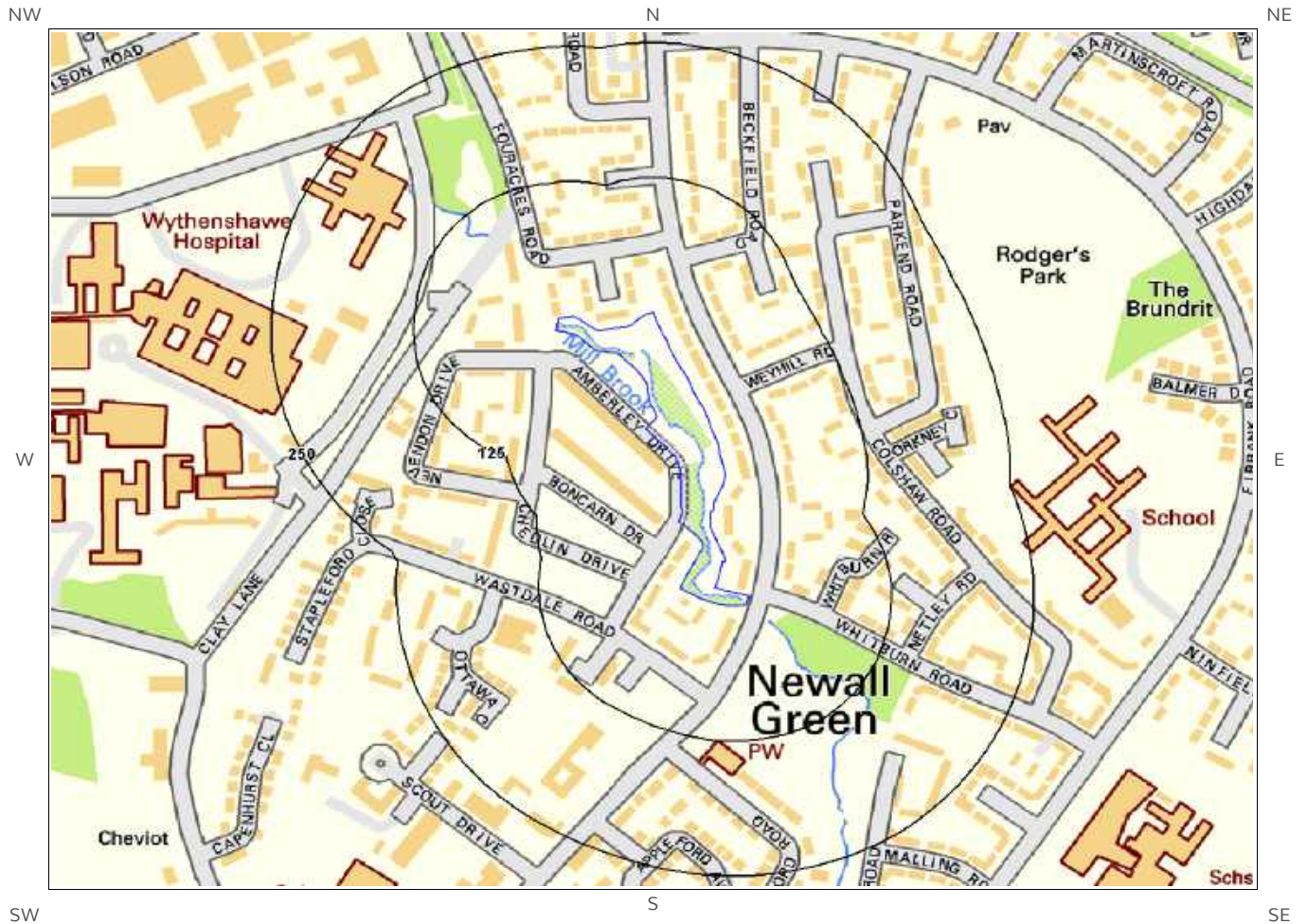
Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

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

3.2 Radon Protection

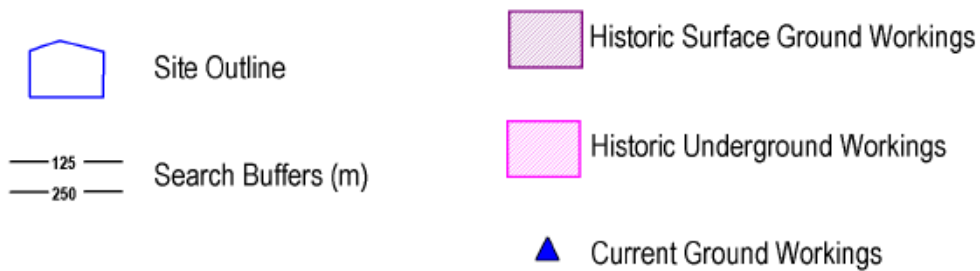
Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment? No radon protective measures are necessary.

4 Ground Workings map



Ground Workings Legend

© Crown copyright and database rights 2018.
Ordnance Survey licence 100035207.



4 Ground Workings

4.1 Historical Surface Ground Working Features derived from Historical Mapping

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

Are there any Historical Surface Ground Working Features within 250m of the study site boundary? No

Database searched and no data found.

4.2 Historical Underground Working Features derived from Historical Mapping

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

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

Database searched and no data found.

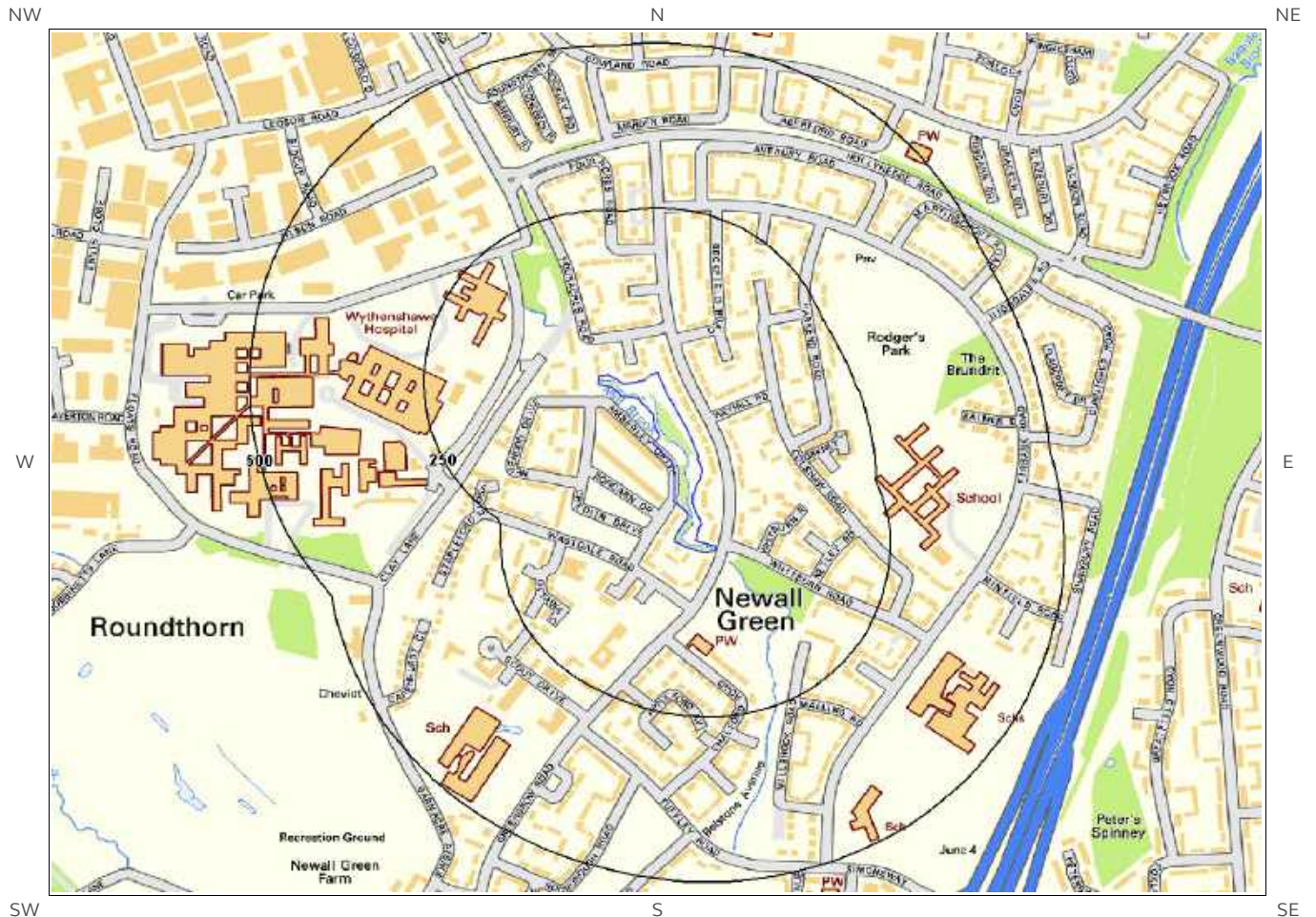
4.3 Current Ground Workings

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

Are there any BGS Current Ground Workings within 1000m of the study site boundary? No

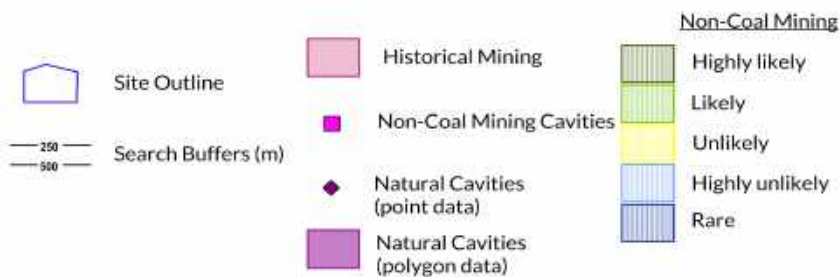
Database searched and no data found.

5 Mining, Extraction & Natural Cavities map



Mining, Extraction and
Natural Cavities Legend

© Crown copyright and database rights 2018.
Ordnance Survey licence 100035207.



5 Mining, Extraction & Natural Cavities

5.1 Historical Mining

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

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

Database searched and no data found.

5.2 Coal Mining

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

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

Database searched and no data found.

5.3 Johnson Poole and Bloomer

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

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

The following information provided by JPB is not represented on mapping: Database searched and no data found.

5.4 Non-Coal Mining

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

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

Database searched and no data found.

5.5 Non-Coal Mining Cavities

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

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

Database searched and no data found.

5.6 Natural Cavities

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

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

Database searched and no data found.

5.7 Brine Extraction

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

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

Database searched and no data found.

5.8 Gypsum Extraction

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

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

Database searched and no data found.

5.9 Tin Mining

This dataset provides information on tin mining areas and is derived from tin mining records. This search is based upon postcode information to a sector level..

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

Database searched and no data found.

5.10 Clay Mining

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

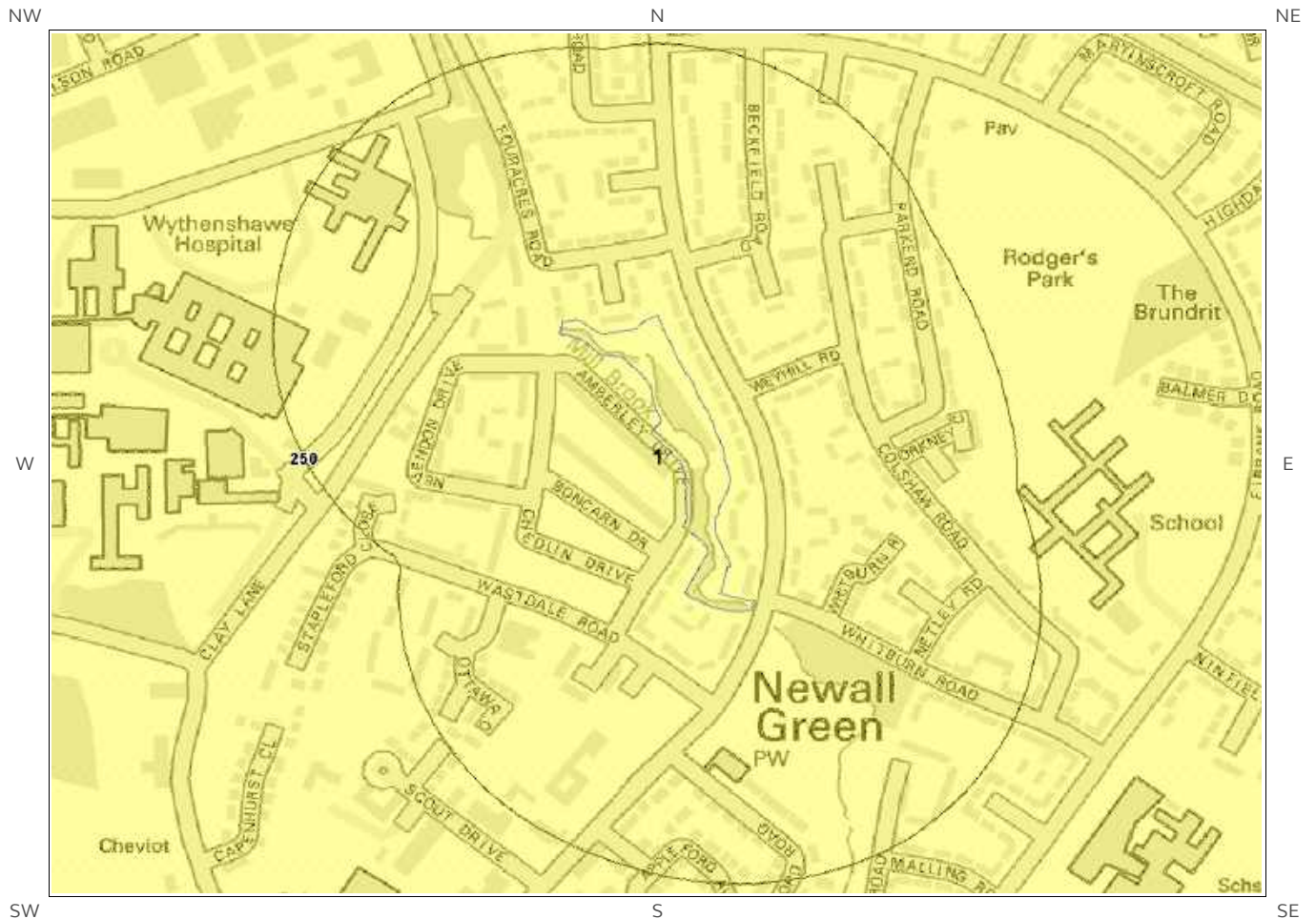
Are there any Clay Mining areas within 1000m of the study site boundary?

No

Database searched and no data found.

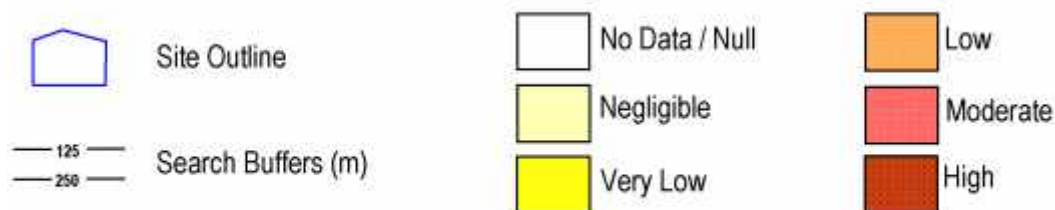
6 Natural Ground Subsidence

6.1 Shrink-Swell Clay map

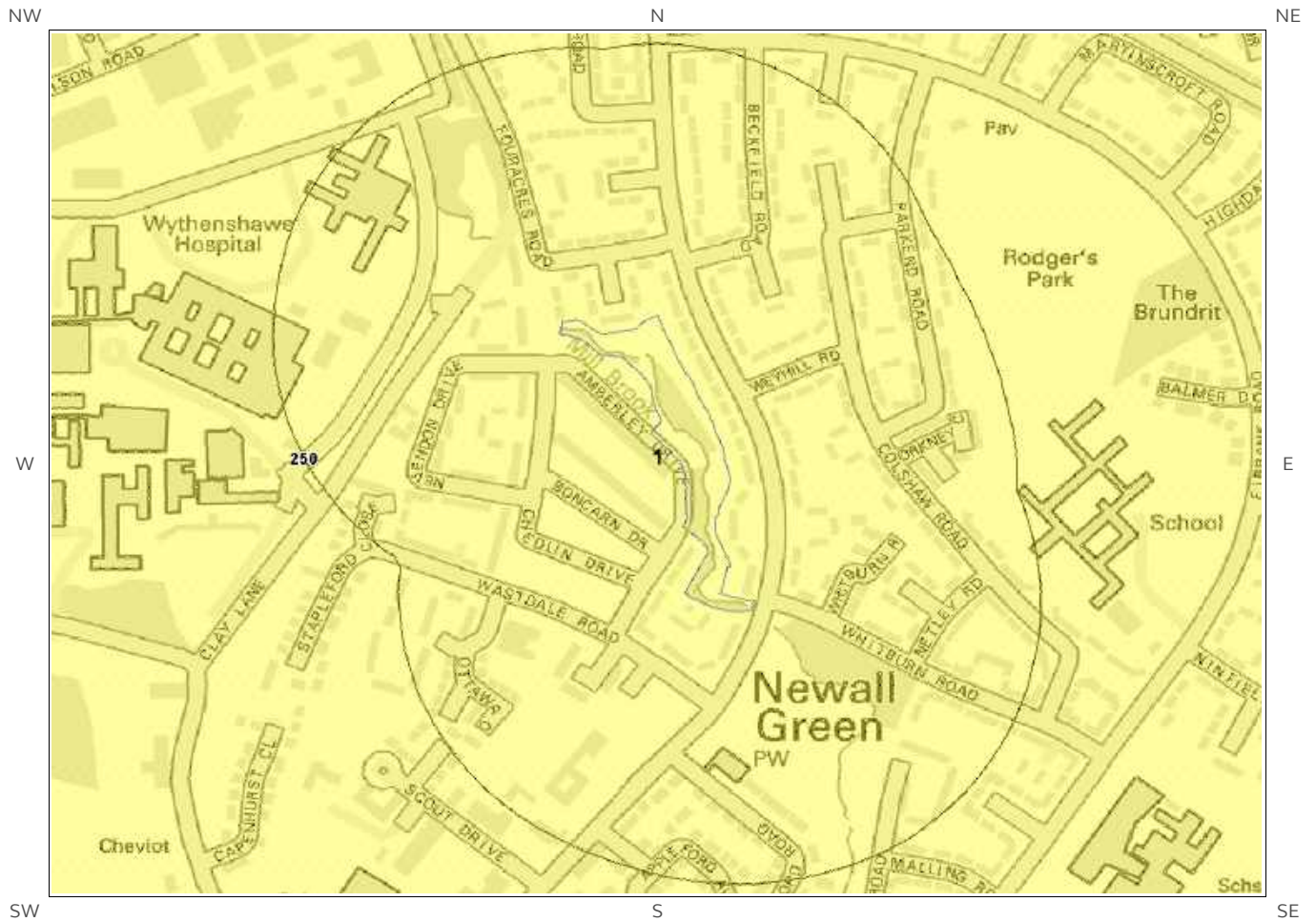


Shrink Swell Clay Legend

© Crown copyright and database rights 2018.
Ordnance Survey licence 100035207.

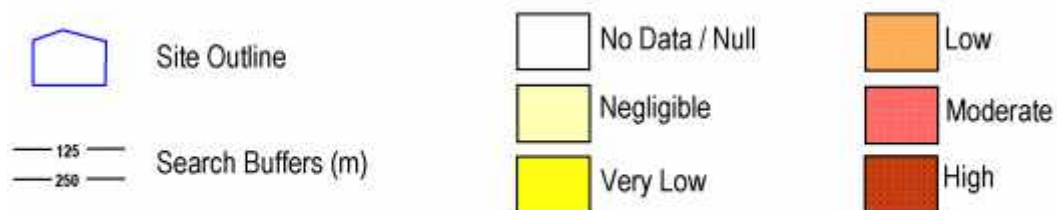


6.2 Landslides map

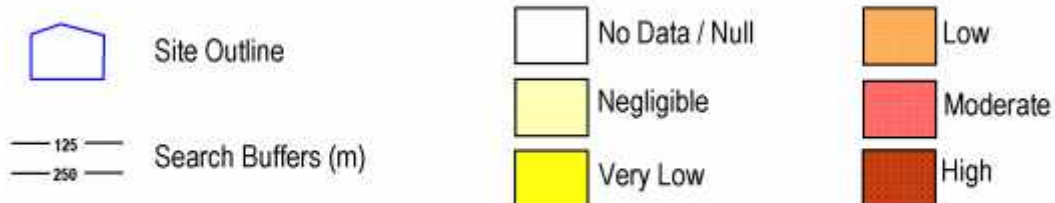


Landslides Legend

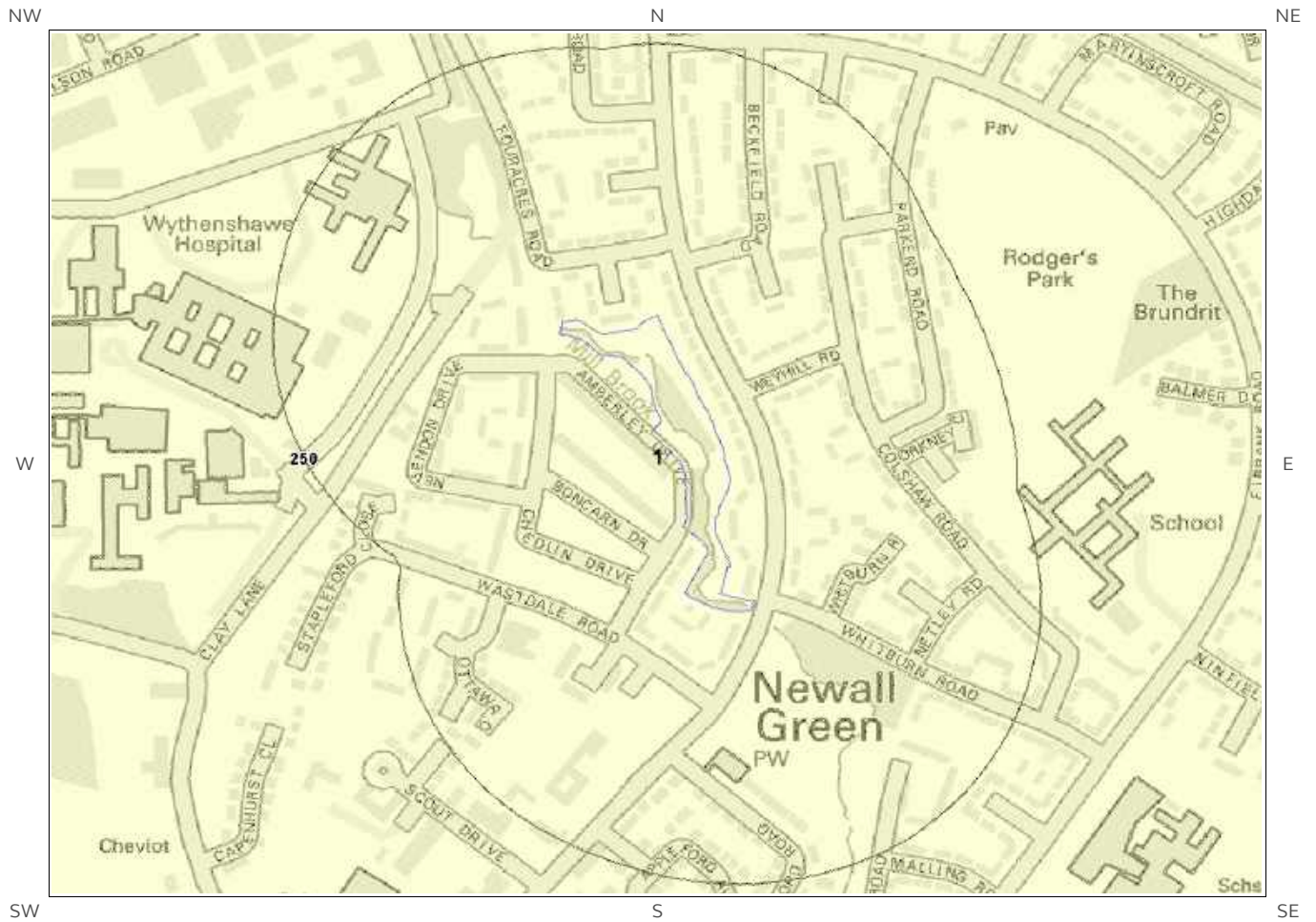
© Crown copyright and database rights 2018.
Ordnance Survey licence 100035207.



6.3 Ground Dissolution of Soluble Rocks map

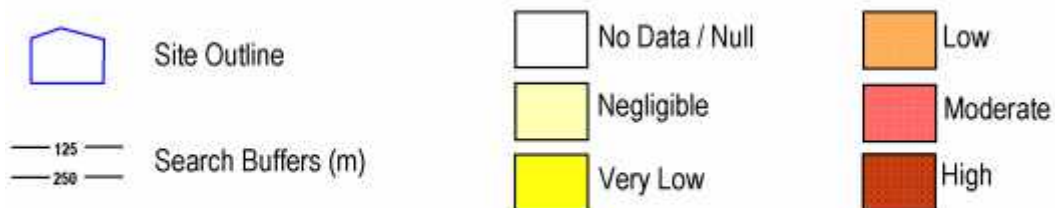


6.4 Compressible Deposits map

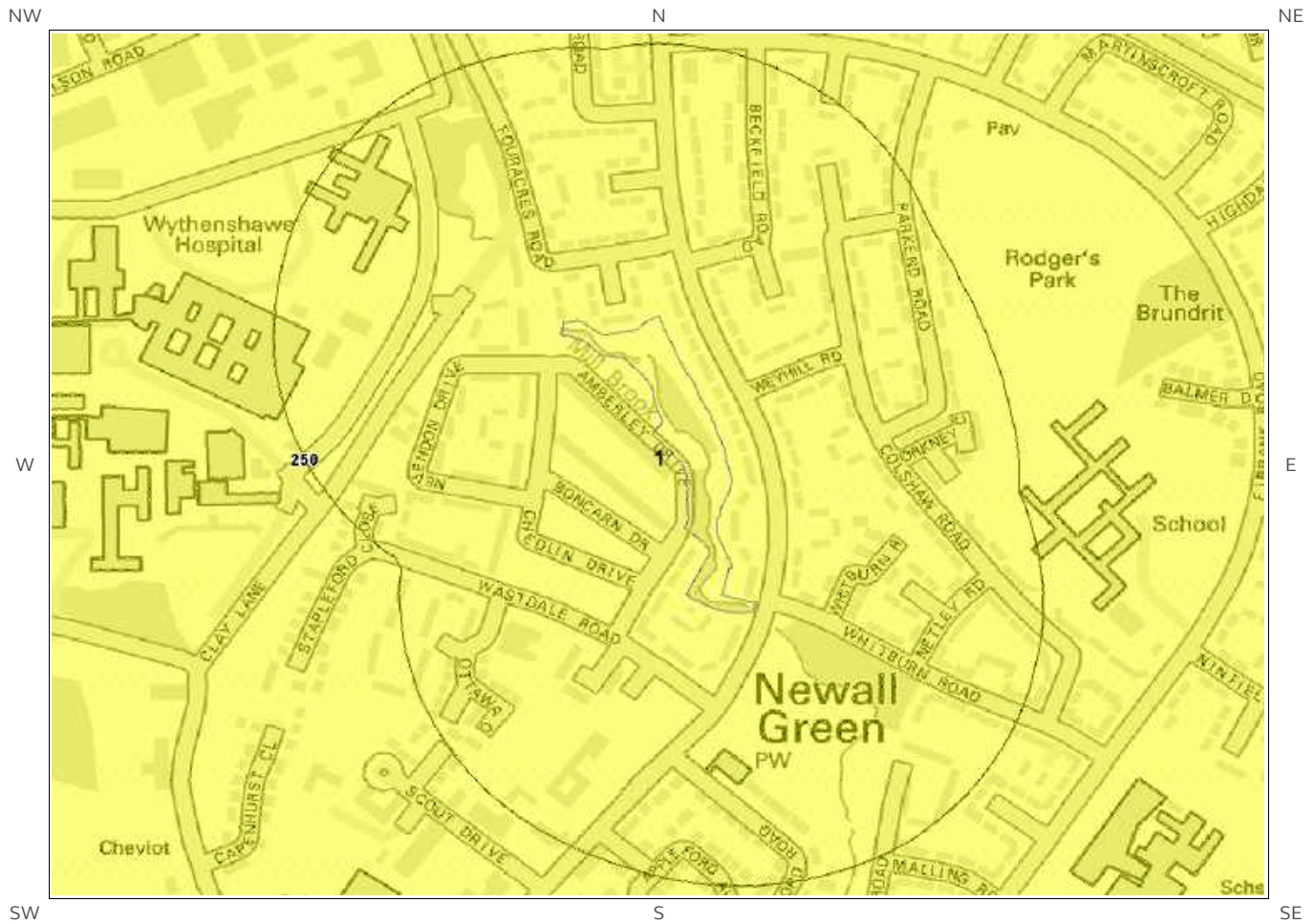


Compressible Deposits Legend

© Crown copyright and database rights 2018.
Ordnance Survey licence 100035207.

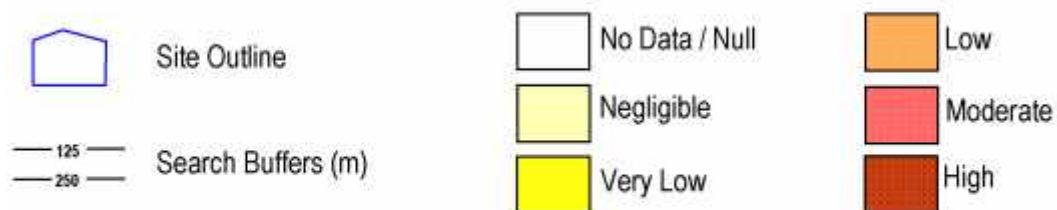


6.5 Collapsible Deposits map

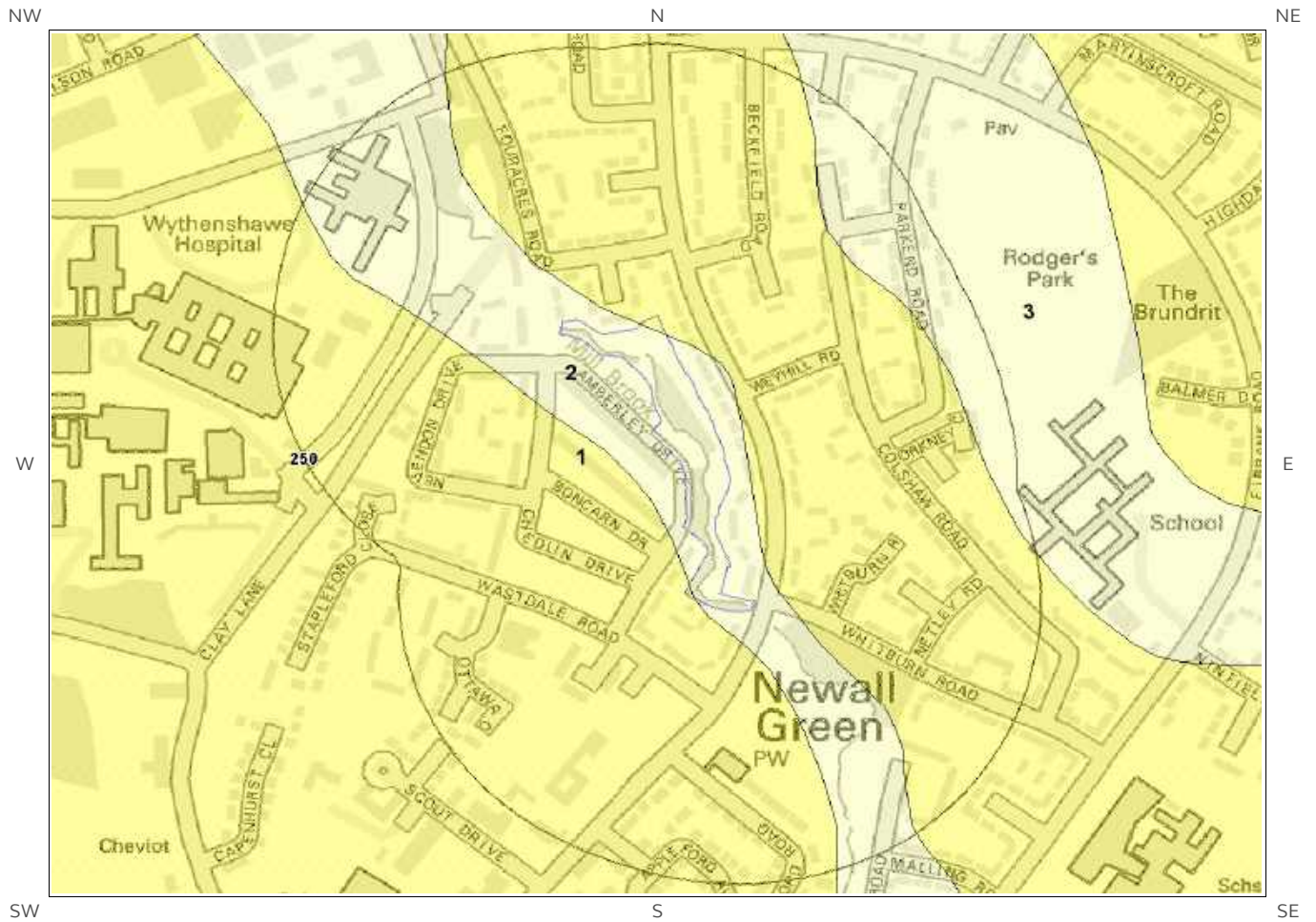


Collapsible Deposits Legend

© Crown copyright and database rights 2018.
Ordnance Survey licence 100035207.

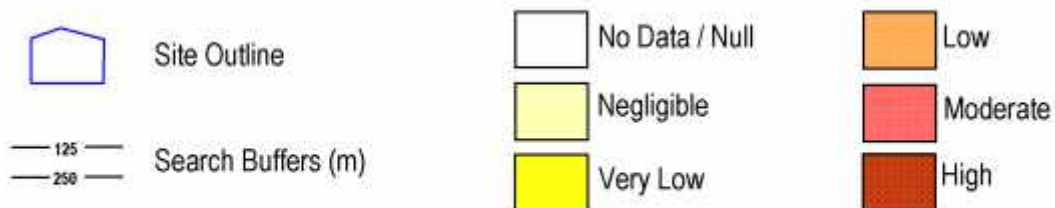


6.6 Running Sand map



Running Sand Legend

© Crown copyright and database rights 2018.
Ordnance Survey licence 100035207.



6 Natural Ground Subsidence

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

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

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

6.1 Shrink-Swell Clays

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

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

6.2 Landslides

The following Landslides information provided by the British Geological Survey:

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

6.3 Ground Dissolution of Soluble Rocks

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

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

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

6.4 Compressible Deposits

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

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

6.5 Collapsible Deposits

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

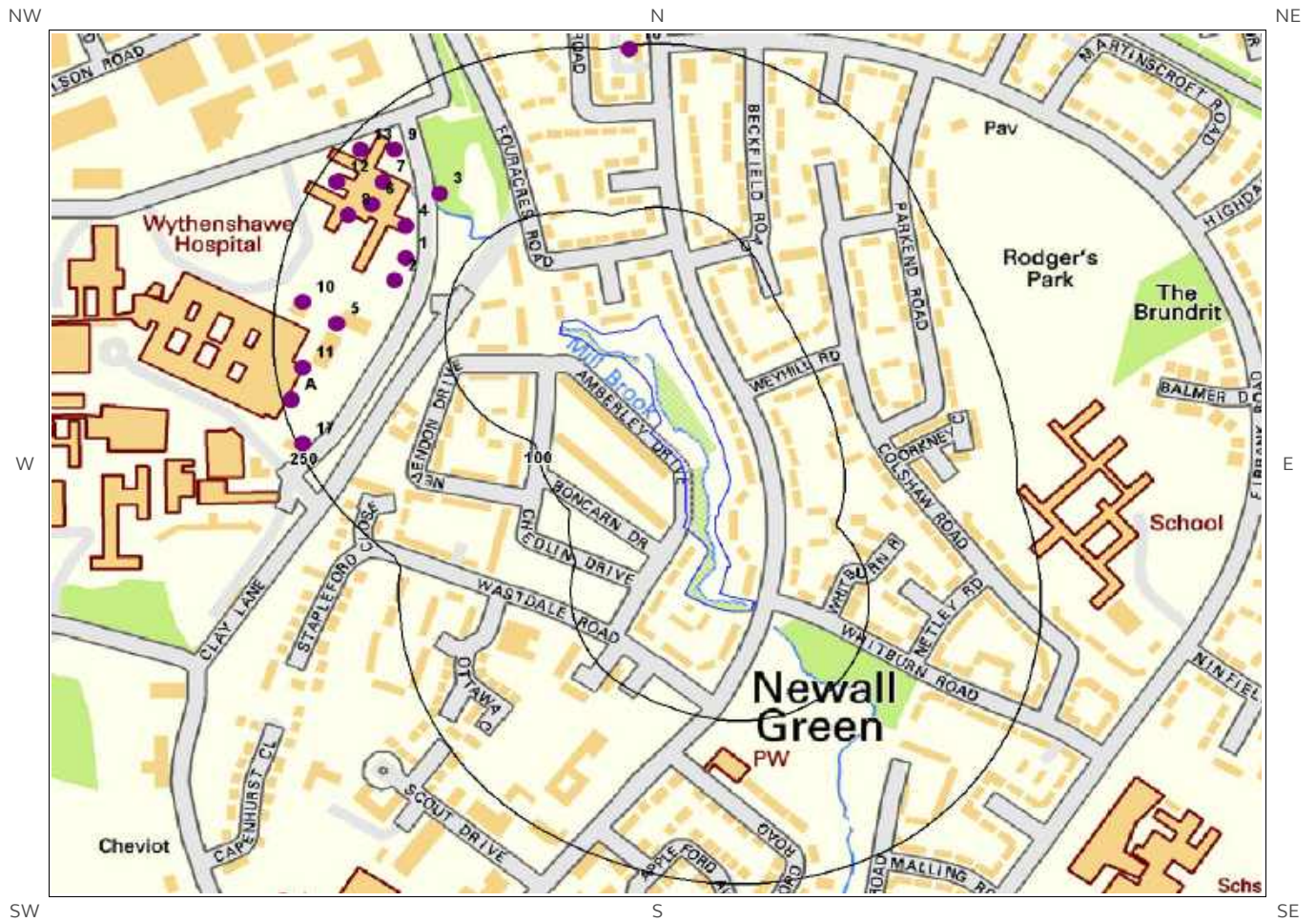
ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible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

6.6 Running Sands

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

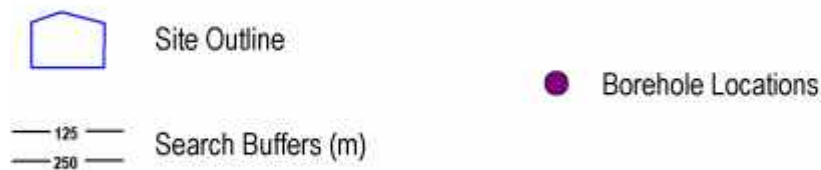
ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Very low potential for running sand problems if water table rises or if sandy strata are exposed to water. No special actions required, to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.
2	0.0	On Site	Negligible	No indicators for running sand identified. No special actions required to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.

7 Borehole Records map



Borehole Records Legend

© Crown copyright and database rights 2018.
Ordnance Survey licence 100035207.



7 Borehole Records

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

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

17

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
1	148.0	NW	380910 388120	SJ88NW520	-1.0	WYTHENSHAWE HOSPITAL 102
2	151.0	W	380900 388100	SJ88NW498	-1.0	WYTHENSHAWE HOSPITAL TP 103
3	158.0	NW	380940 388180	SJ88NW496	-1.0	WYTHENSHAWE HOSPITAL TP 101
4	162.0	NW	380910 388150	SJ88NW530	-1.0	WYTHENSHAWE HOSPITAL EXTENSION TP 5
5	195.0	W	380850 388060	SJ88NW499	-1.0	WYTHENSHAWE HOSPITAL TP 104
6	198.0	NW	380880 388170	SJ88NW531	-1.0	WYTHENSHAWE HOSPITAL EXTENSION TP 6
7	202.0	NW	380890 388190	SJ88NW534	-1.0	WYTHENSHAWE HOSPITAL EXTENSION TP 9
8	210.0	NW	380860 388160	SJ88NW497	-1.0	WYTHENSHAWE HOSPITAL TP 102
9	215.0	NW	380900 388220	SJ88NW519	-1.0	WYTHENSHAWE HOSPITAL 101
10	226.0	W	380820 388080	SJ88NW500	-1.0	WYTHENSHAWE HOSPITAL TP 105
11	227.0	W	380820 388020	SJ88NW528	-1.0	WYTHENSHAWE HOSPITAL EXTENSION TP 3
12	234.0	NW	380850 388190	SJ88NW539	-1.0	WYTHENSHAWE HOSPITAL EXTENSION 3/3R
13	236.0	NW	380870 388220	SJ88NW533	-1.0	WYTHENSHAWE HOSPITAL EXTENSION TP 8
14A	242.0	W	380810 387990	SJ88NW503	-1.0	WYTHENSHAWE HOSPITAL TP 108
15A	242.0	W	380810 387990	SJ88NW504	-1.0	WYTHENSHAWE HOSPITAL TP 108A
16	246.0	N	381104 388312	SJ88NW3	7.62	M/C CORPORATION 9 GREENBROW LANE
17	246.0	SW	380820 387950	SJ88NW521	-1.0	WYTHENSHAWE HOSPITAL 103

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

#16: scans.bgs.ac.uk/sobi_scans/boreholes/914655

8 Estimated Background Soil Chemistry

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

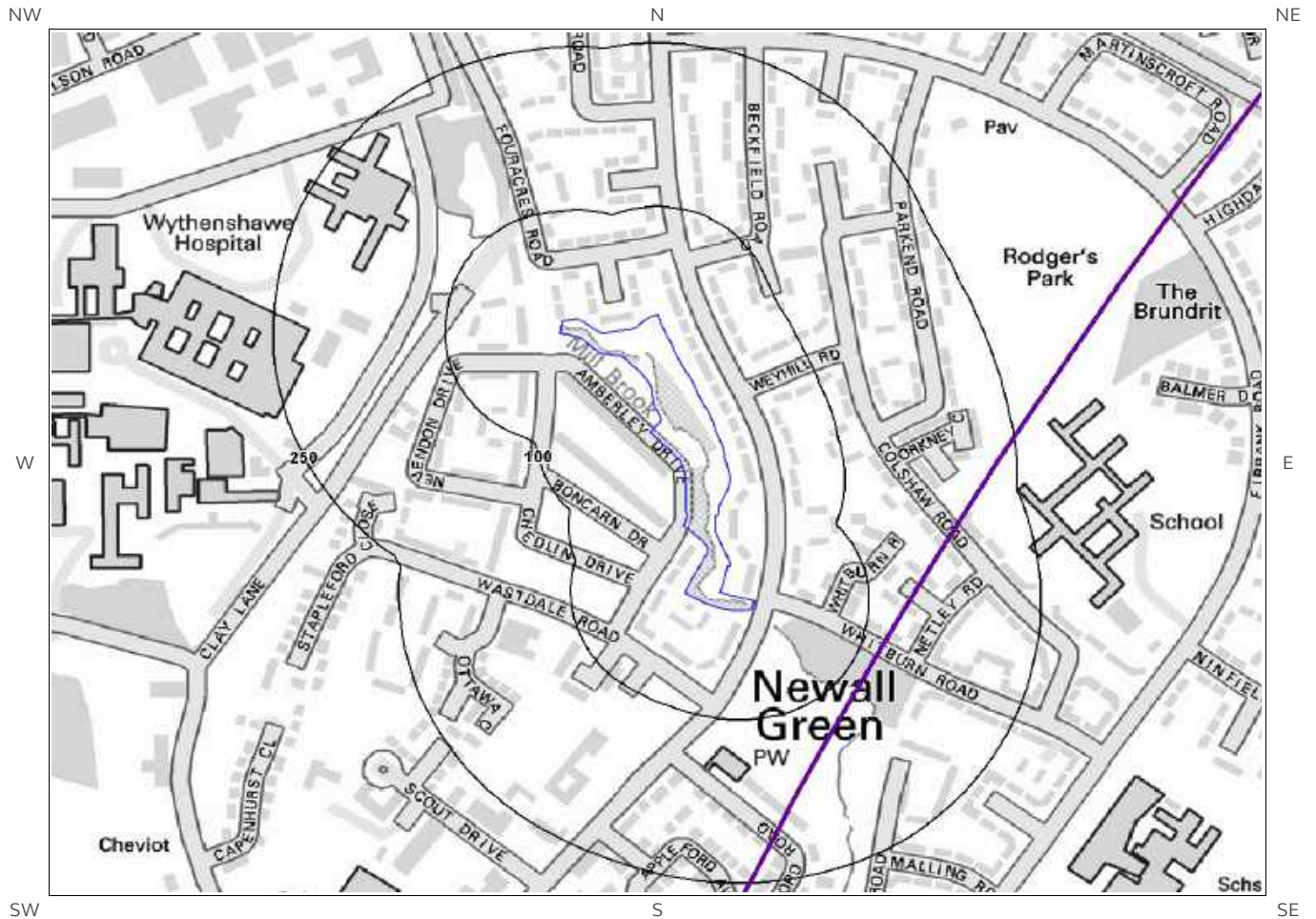
9

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

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

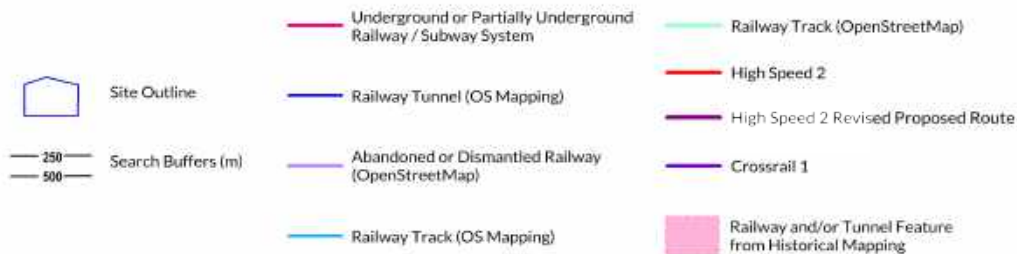
*As this data is based upon underlying 1:50,000 scale geological information, a 50m buffer has been added to the search radius.

9 Railways and Tunnels map



Railways and Tunnels Legend

© Crown copyright and database rights 2018.
Ordnance Survey licence 100035207.
© OpenStreetMapContributors



9 Railways and Tunnels

9.1 Tunnels

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

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

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

Database searched and no data found.

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

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

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

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

Database searched and no data found.

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

9.2 Historical Railway and Tunnel Features

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

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

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

Database searched and no data found.

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

9.3 Historical Railways

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

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

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

Database searched and no data found.

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

9.4 Active Railways

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

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

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

Database searched and no data found.

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

9.5 Railway Projects

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

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

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

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

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

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

Contact Details

Groundsure Helpline
Telephone: 08444 159 000
info@groundsure.com



British Geological Survey Enquiries

Kingsley Dunham Centre
Keyworth, Nottingham NG12 5GG
Tel: 0115 936 3143.
Fax: 0115 936 3276.
Email: enquiries@bgs.ac.uk
Web: www.bgs.ac.uk



BGS Geological Hazards Reports and general geological enquiries

British Gypsum

British Gypsum Ltd
East Leake
Loughborough
Leicestershire
LE12 6HX



The Coal Authority

200 Lichfield Lane
Mansfield
Notts NG18 4RG
Tel: 0345 7626 848
DX 716176 Mansfield 5
www.coal.gov.uk



Public Health England

Public information access office
Public Health England, Wellington House
133-155 Waterloo Road, London, SE1 8UG
<https://www.gov.uk/government/organisations/public-health-england>
Email: enquiries@phe.gov.uk
Main switchboard: 020 7654 8000



Johnson Poole & Bloomer Limited

Harris and Pearson Building, Brettell Lane
Brierley Hill, West Midlands
DY5 3LH
Tel: +44 (0) 1384 262 000
Email: enquiries.gs@jpb.co.uk
Website: www.jpb.co.uk



Ordnance Survey

Adanac Drive, Southampton
SO16 0AS
Tel: 08456 050505
Website: <http://www.ordnancesurvey.co.uk/>



Getmapping PLC

Virginia Villas, High Street, Hartley Witney,
Hampshire RG27 8NW
Tel: 01252 845444
Website: <http://www1.getmapping.com/>



Peter Brett Associates
Caversham Bridge House
Waterman Place
Reading
Berkshire RG1 8DN
Tel: +44 (0)118 950 0761 E-mail: reading@pba.co.uk
Website: <http://www.peterbrett.com/home>



Acknowledgements: Ordnance Survey © Crown Copyright and/or Database Right. All Rights Reserved. Licence Number [03421028].
This report has been prepared in accordance with the Groundsure Ltd standard Terms and Conditions of business for work of this nature.

Standard Terms and Conditions

Groundsure's Terms and Conditions can be viewed online at this link:
<https://www.groundsure.com/terms-and-conditions-may25-2018>

Site Details:

AMBERLEY DRIVE,
MANCHESTER, M23 2RW

Client Ref: 8538G
Report Ref: GS-5615196
Grid Ref: 381129, 387932

Map Name: County Series

Map date: 1876

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1876
Revised 1876
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1876
Revised 1876
Edition N/A
Copyright N/A
Levelled N/A

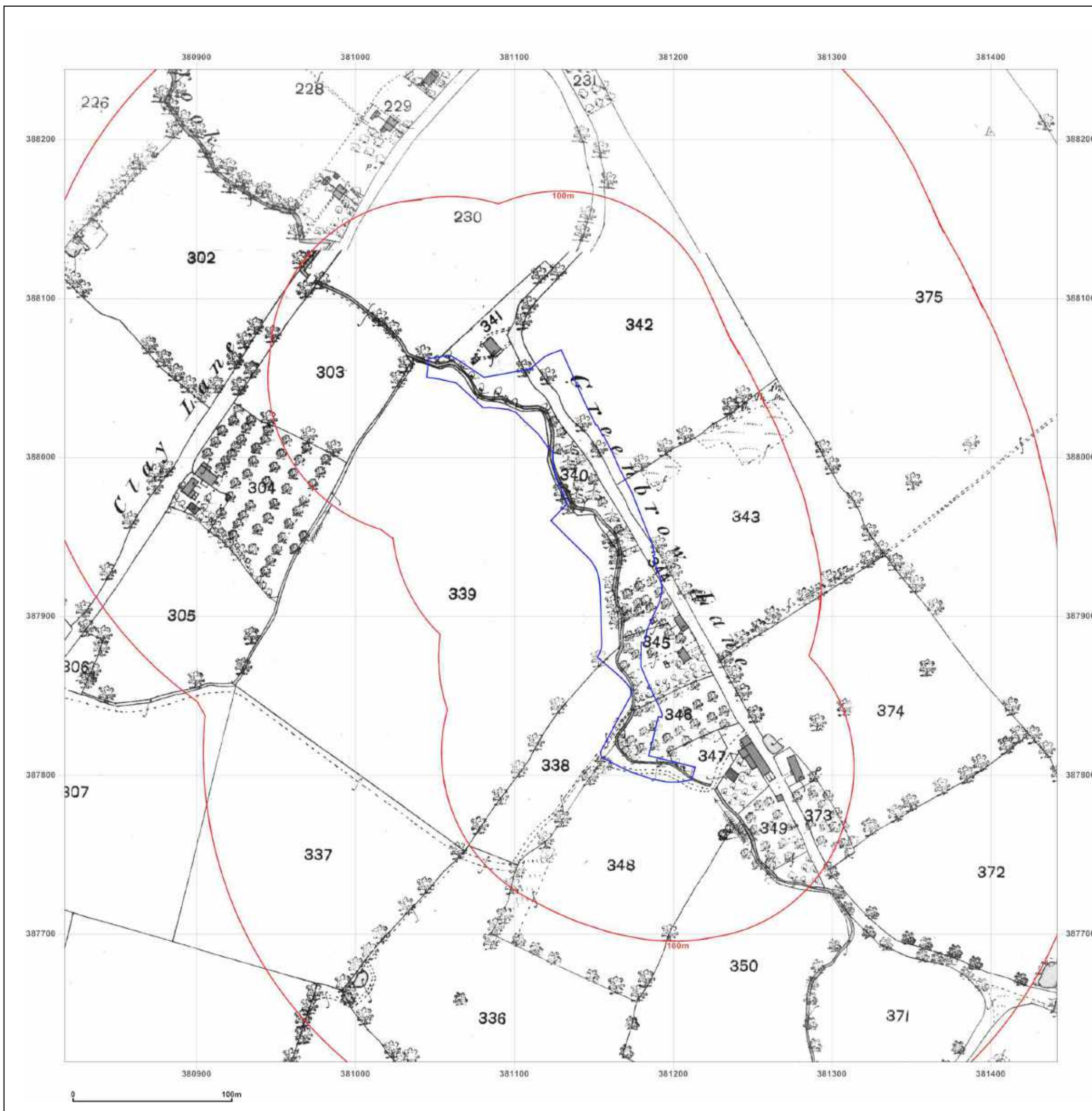


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 14 November 2018

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Site Details:

AMBERLEY DRIVE,
MANCHESTER, M23 2RW

Client Ref: 8538G
Report Ref: GS-5615196
Grid Ref: 381129, 387932

Map Name: County Series

Map date: 1898

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1877
Revised 1897
Edition 1898
Copyright N/A
Levelled N/A

Surveyed 1877
Revised 1897
Edition 1898
Copyright N/A
Levelled N/A

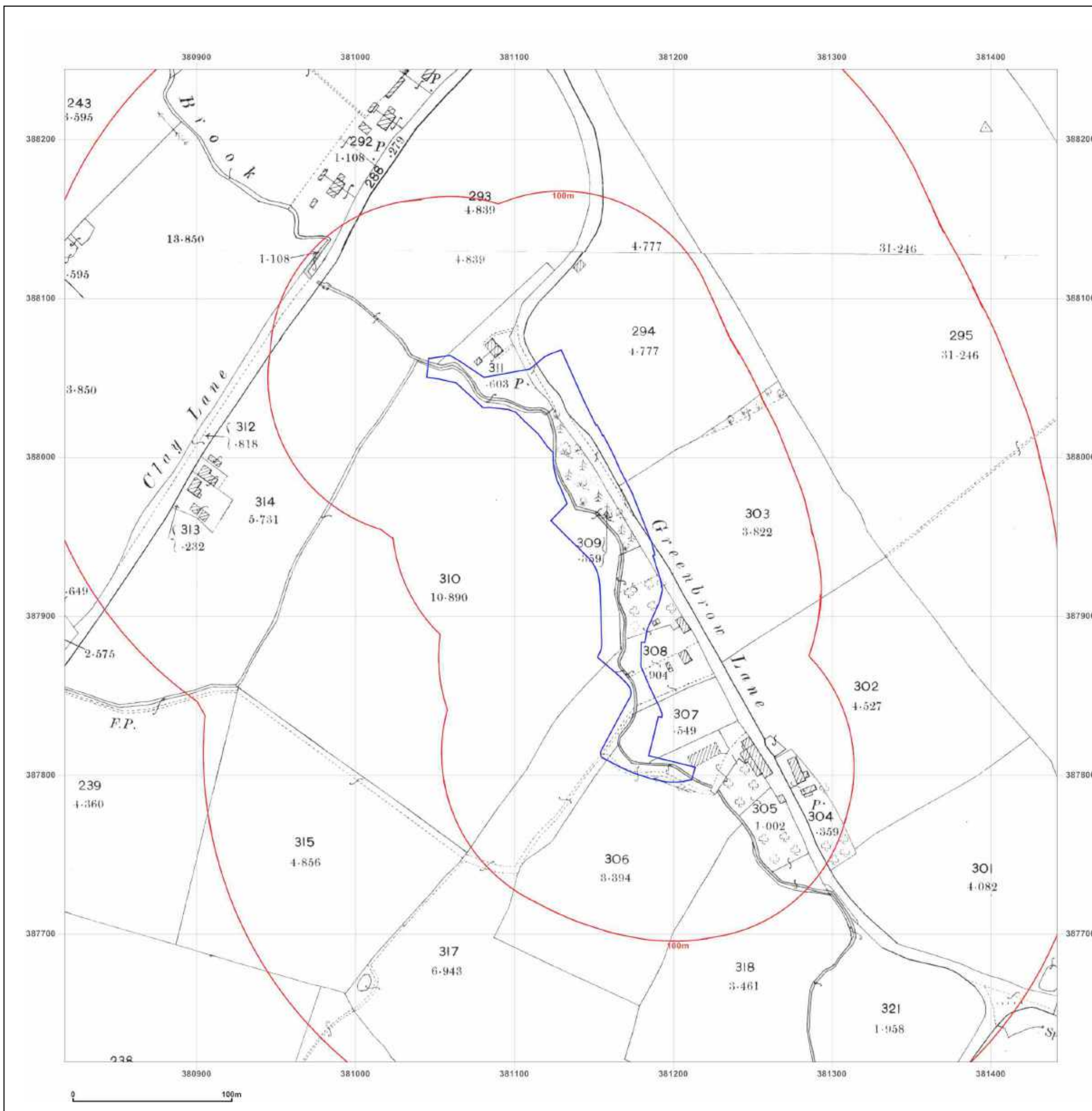


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 14 November 2018

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Site Details:

AMBERLEY DRIVE,
MANCHESTER, M23 2RW

Client Ref: 8538G
Report Ref: GS-5615196
Grid Ref: 381129, 387932

Map Name: County Series

Map date: 1910

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1910
Revised 1908
Edition 1910
Copyright N/A
Levelled N/A

Surveyed 1910
Revised 1908
Edition 1910
Copyright N/A
Levelled N/A

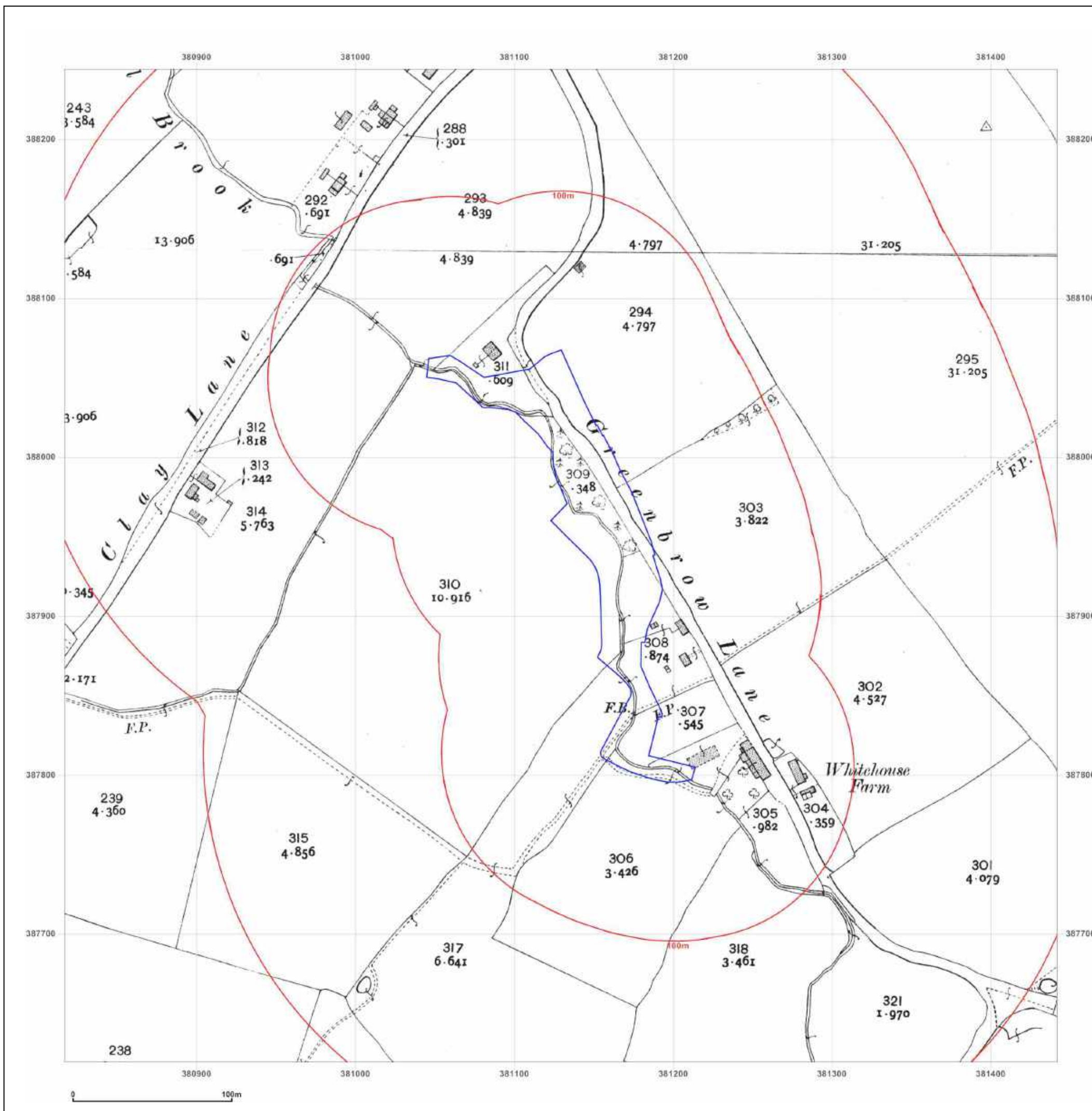


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 14 November 2018

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Site Details:

AMBERLEY DRIVE,
MANCHESTER, M23 2RW

Client Ref: 8538G
Report Ref: GS-5615196
Grid Ref: 381129, 387932

Map Name: National Grid

Map date: 1960

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1960
Revised 1960
Edition N/A
Copyright 1960
Levelled 1950

Surveyed 1959
Revised 1959
Edition N/A
Copyright 1960
Levelled 1949

Surveyed 1960
Revised 1960
Edition N/A
Copyright 1960
Levelled 1949

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

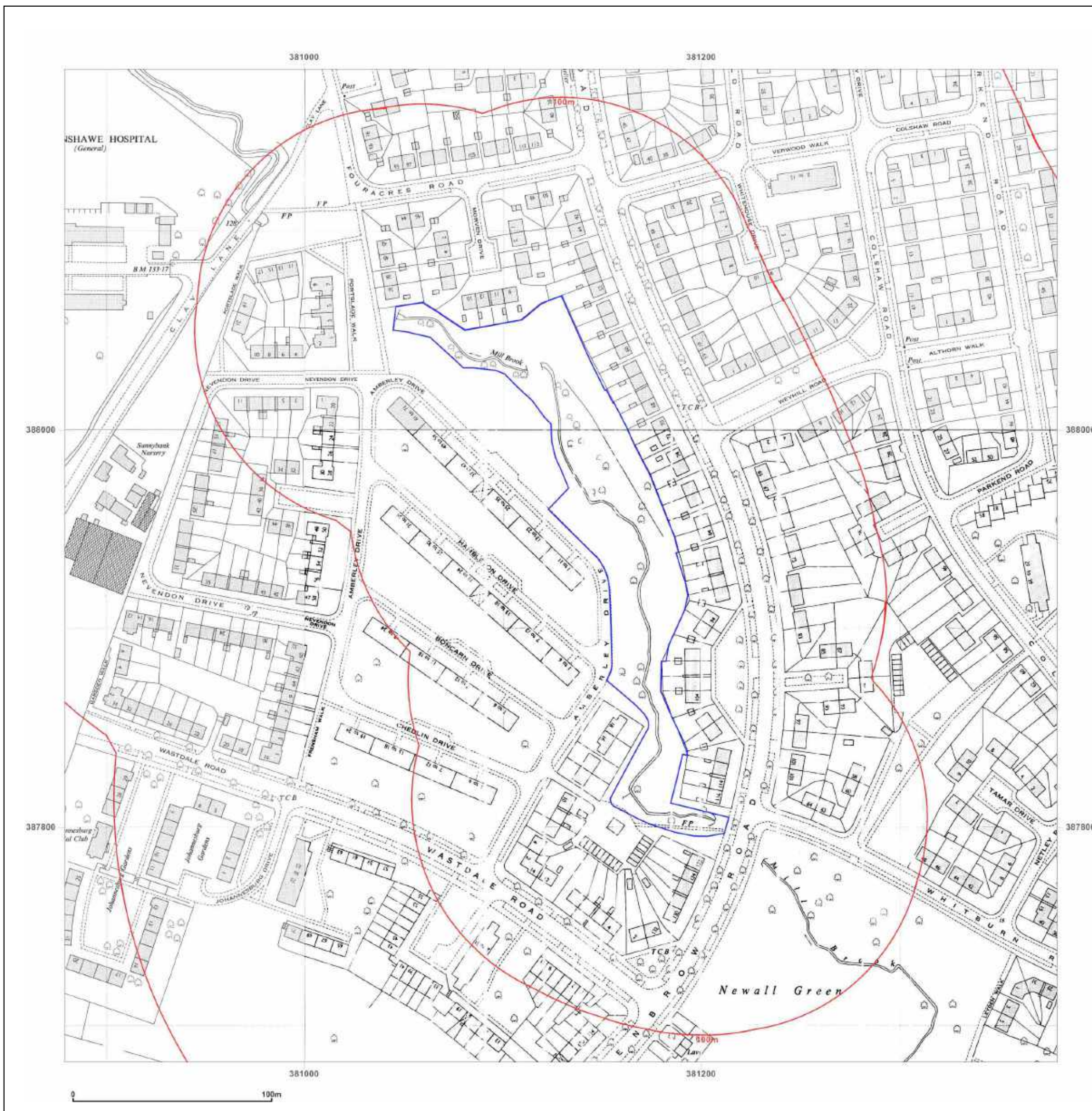


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 14 November 2018

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Site Details:

AMBERLEY DRIVE,
MANCHESTER, M23 2RW

Client Ref: 8538G
Report Ref: GS-5615196
Grid Ref: 381129, 387932

Map Name: National Grid

Map date: 1960

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1960
Revised 1960
Edition N/A
Copyright 1960
Levelled 1949

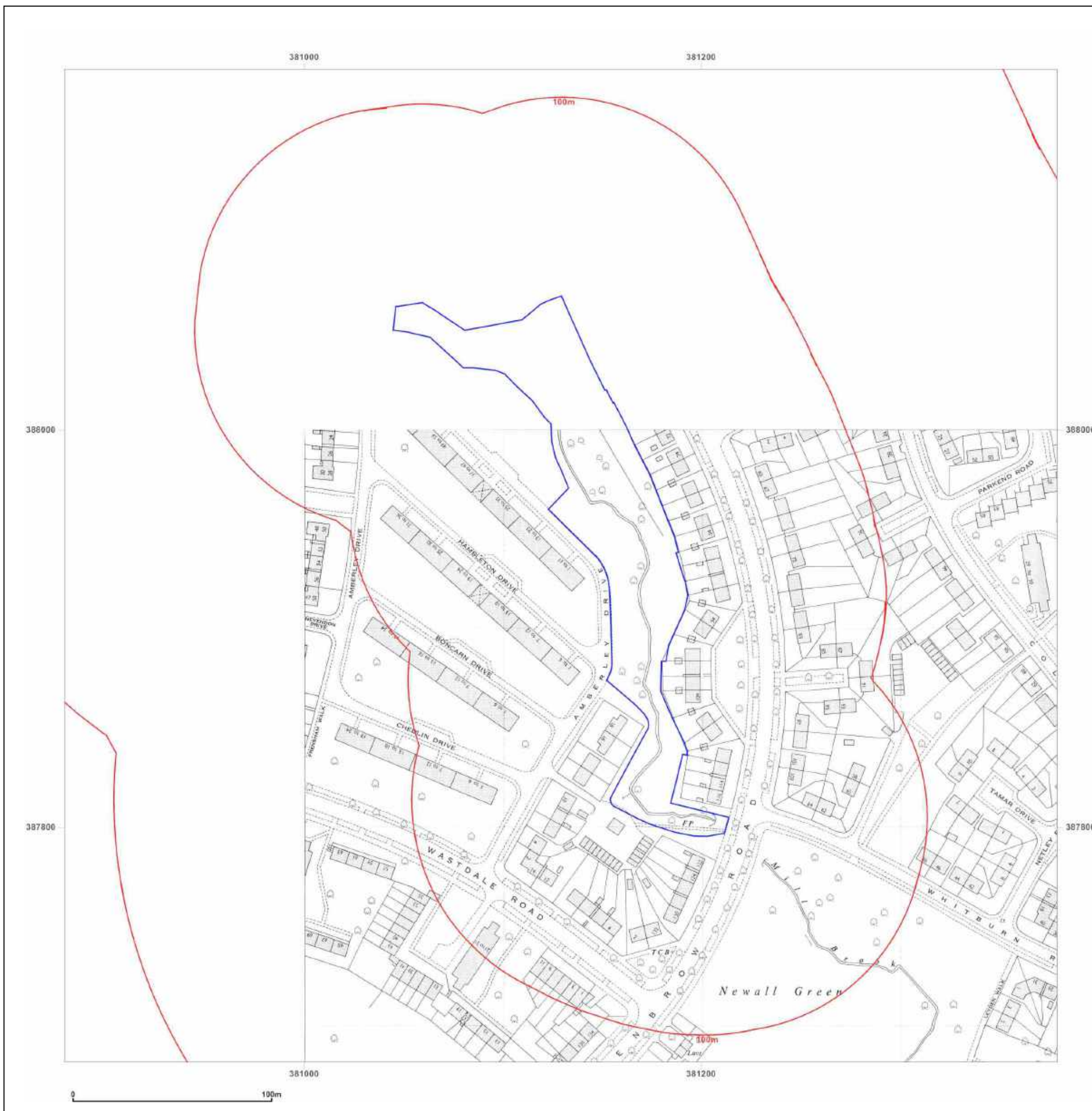


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 14 November 2018

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Site Details:

AMBERLEY DRIVE,
MANCHESTER, M23 2RW

Client Ref: 8538G
Report Ref: GS-5615196
Grid Ref: 381129, 387932

Map Name: National Grid

Map date: 1982-1987

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1959
Revised 1987
Edition N/A
Copyright 1987
Levelled 1959

Surveyed 1960
Revised 1984
Edition N/A
Copyright 1985
Levelled 1959

Surveyed 1959
Revised 1982
Edition N/A
Copyright 1982
Levelled 1959

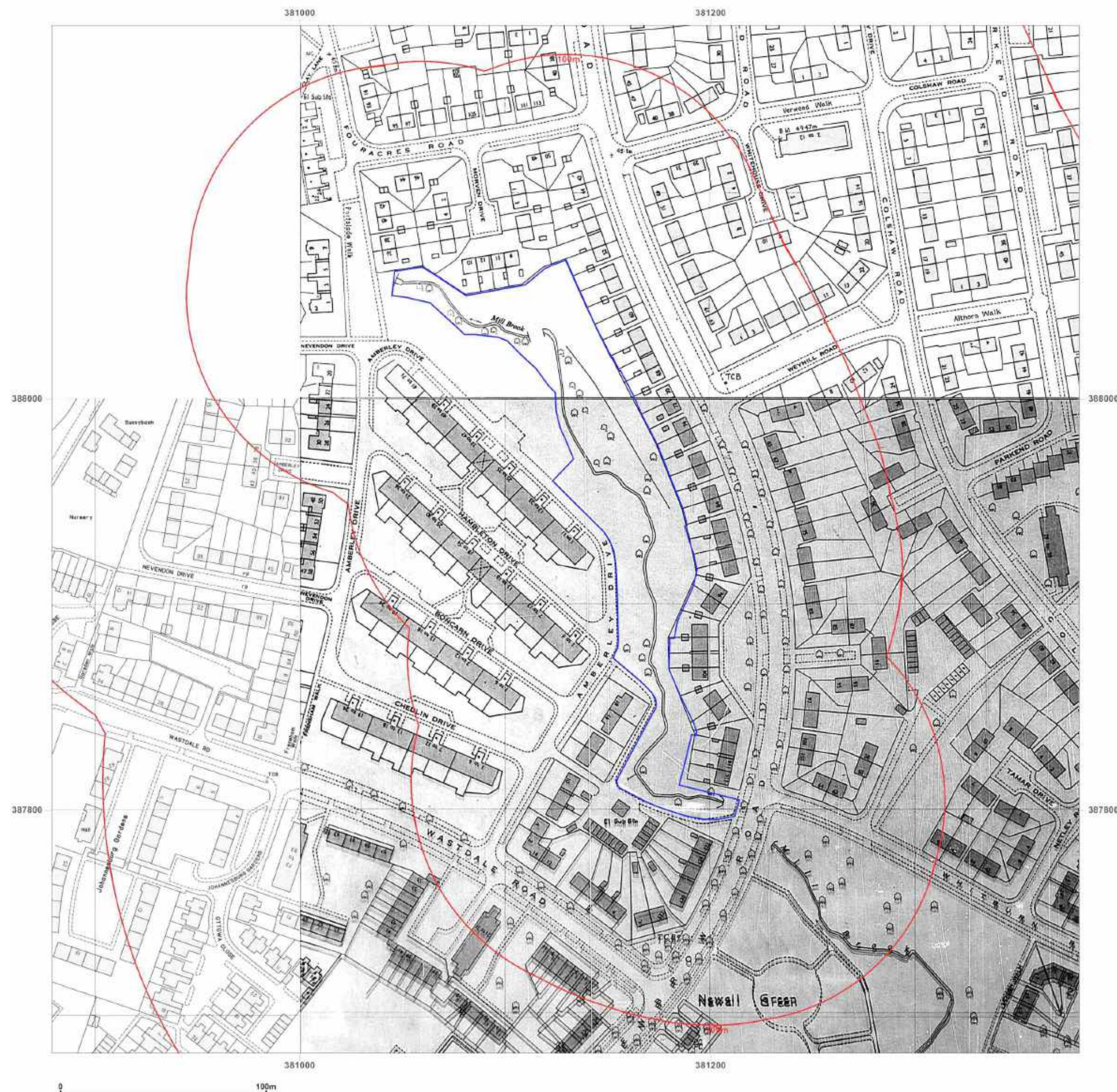


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 14 November 2018

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Site Details:

AMBERLEY DRIVE,
MANCHESTER, M23 2RW

Client Ref: 8538G
Report Ref: GS-5615196
Grid Ref: 381129, 387932

Map Name: National Grid

Map date: 1991-1992

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1975
Revised 1991
Edition N/A
Copyright 1991
Levelled 1975

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

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

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



Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 14 November 2018

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Site Details:

AMBERLEY DRIVE,
MANCHESTER, M23 2RW

Client Ref: 8538G
Report Ref: GS-5615196
Grid Ref: 381129, 387932

Map Name: National Grid

Map date: 1992-1993

Scale: 1:1,250

Printed at: 1:2,000



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

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

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

Surveyed 1993
Revised 1993
Edition N/A
Copyright 1993
Levelled N/A



Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 14 November 2018

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Site Details:

AMBERLEY DRIVE,
MANCHESTER, M23 2RW

Client Ref: 8538G
Report Ref: GS-5615196
Grid Ref: 381129, 387932

Map Name: National Grid

Map date: 1992-1993

Scale: 1:1,250

Printed at: 1:2,000



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

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

Surveyed 1993
Revised 1993
Edition N/A
Copyright 1993
Levelled N/A

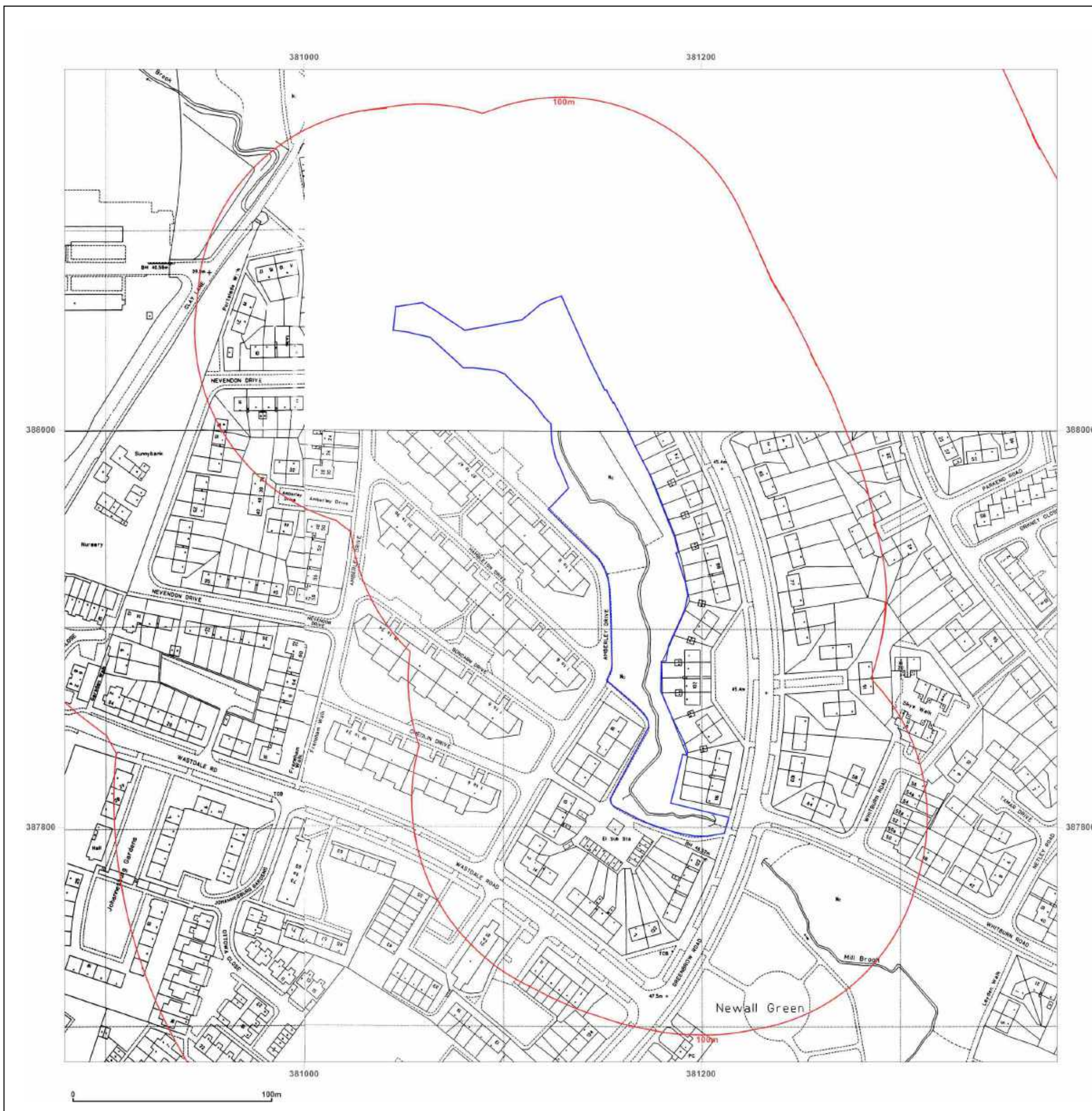


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 14 November 2018

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Site Details:

AMBERLEY DRIVE,
MANCHESTER, M23 2RW

Client Ref: 8538G
Report Ref: GS-5615196
Grid Ref: 381129, 387932

Map Name: National Grid

Map date: 1992-1995

Scale: 1:1,250

Printed at: 1:2,000



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

Surveyed 1994
Revised 1994
Edition N/A
Copyright 1994
Levelled N/A

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

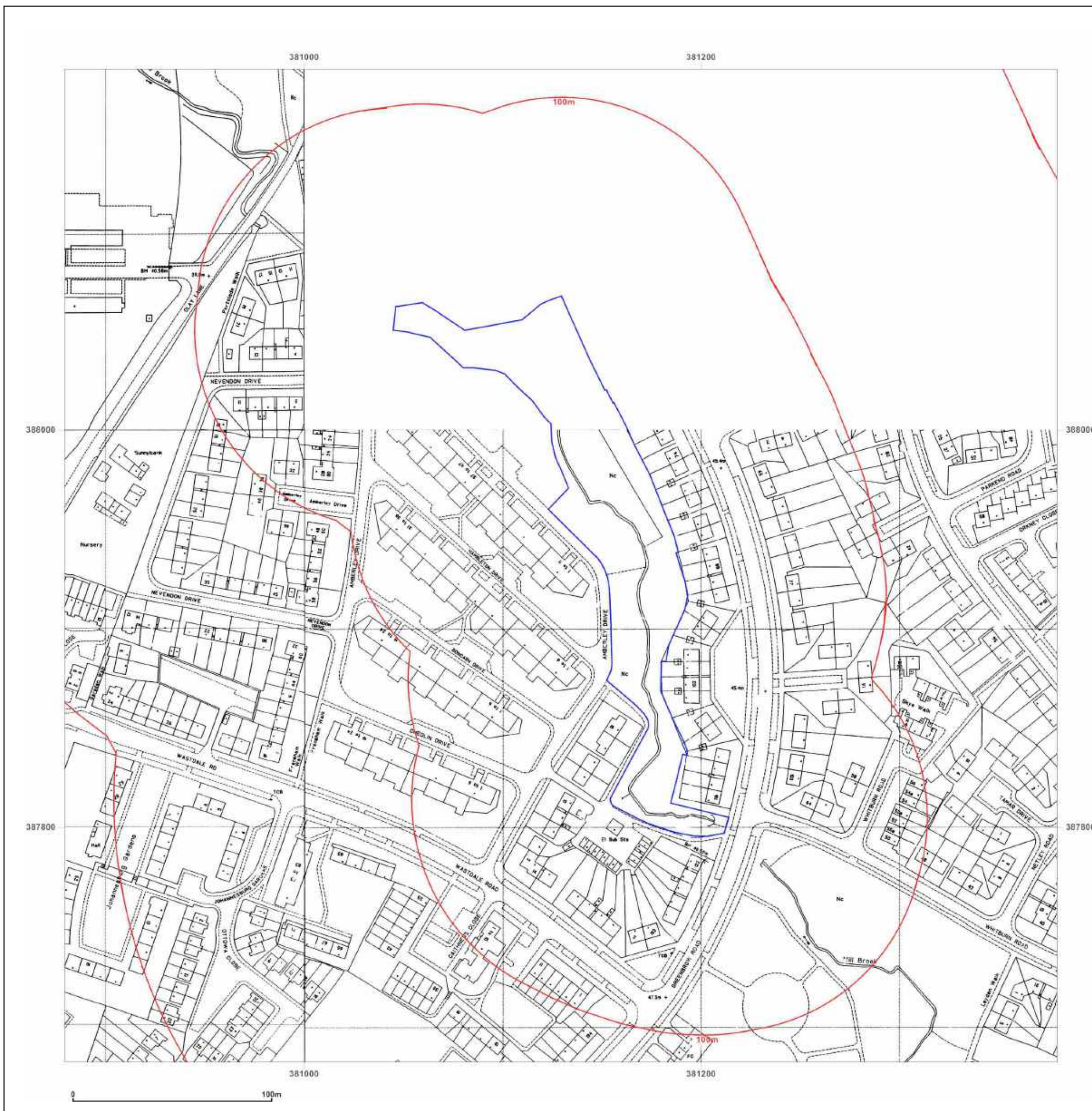


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 14 November 2018

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Site Details:

AMBERLEY DRIVE,
MANCHESTER, M23 2RW

Client Ref: 8538G
Report Ref: GS-5615196
Grid Ref: 381129, 387932

Map Name: National Grid

Map date: 1994-1995

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1994
Revised 1994
Edition N/A
Copyright 1994
Levelled N/A

Surveyed 1994
Revised 1994
Edition N/A
Copyright 1994
Levelled N/A

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

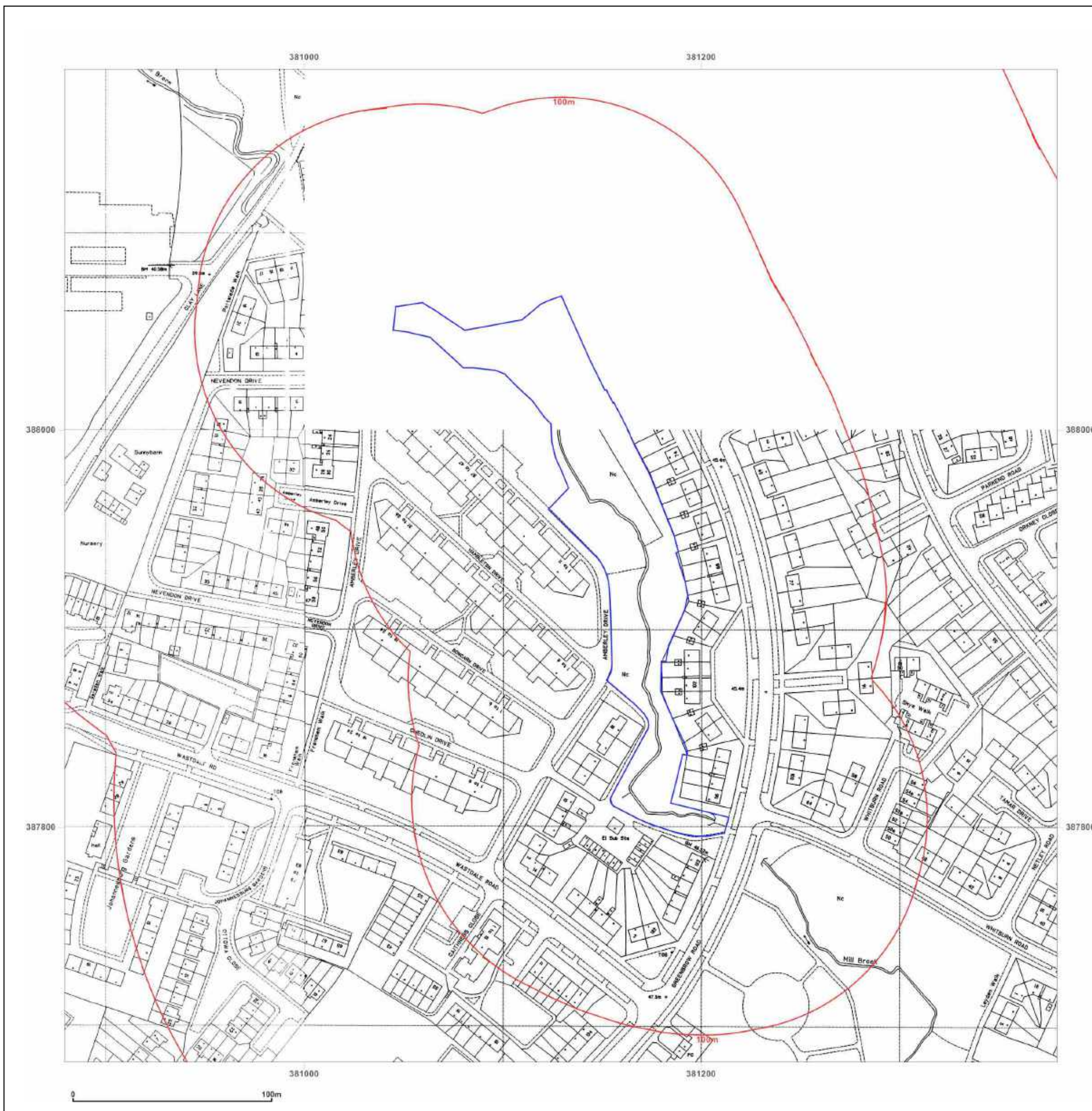


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 14 November 2018

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Site Details:

AMBERLEY DRIVE,
MANCHESTER, M23 2RW

Client Ref: 8538G
Report Ref: GS-5615196
Grid Ref: 381129, 387932

Map Name: County Series

Map date: 1907

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1873
Revised 1907
Edition 1907
Copyright N/A
Levelled N/A

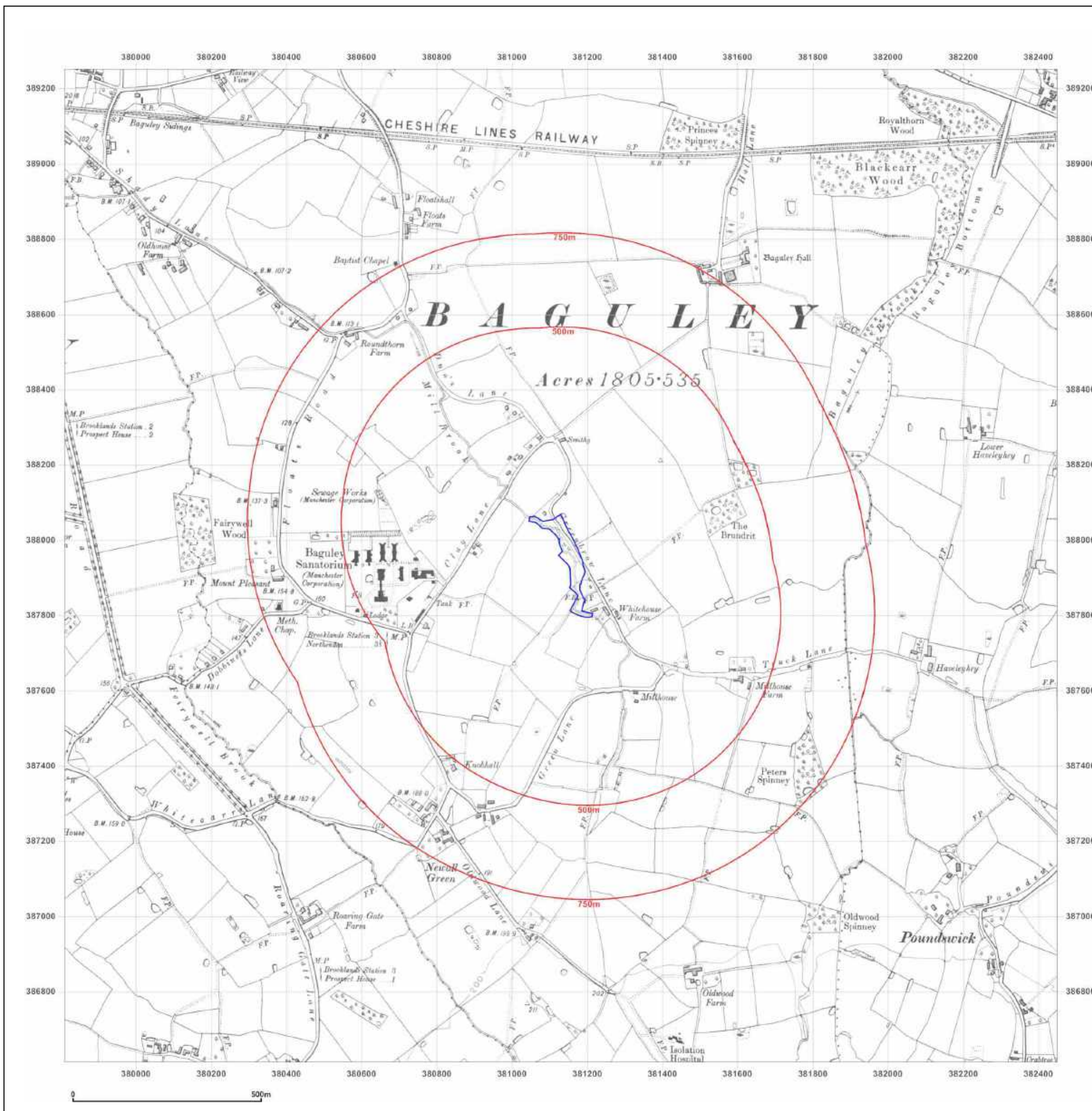


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 14 November 2018

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Site Details:

AMBERLEY DRIVE,
MANCHESTER, M23 2RW

Client Ref: 8538G
Report Ref: GS-5615196
Grid Ref: 381129, 387932

Map Name: County Series

Map date: 1907

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1873
Revised 1907
Edition 1907
Copyright N/A
Levelled N/A

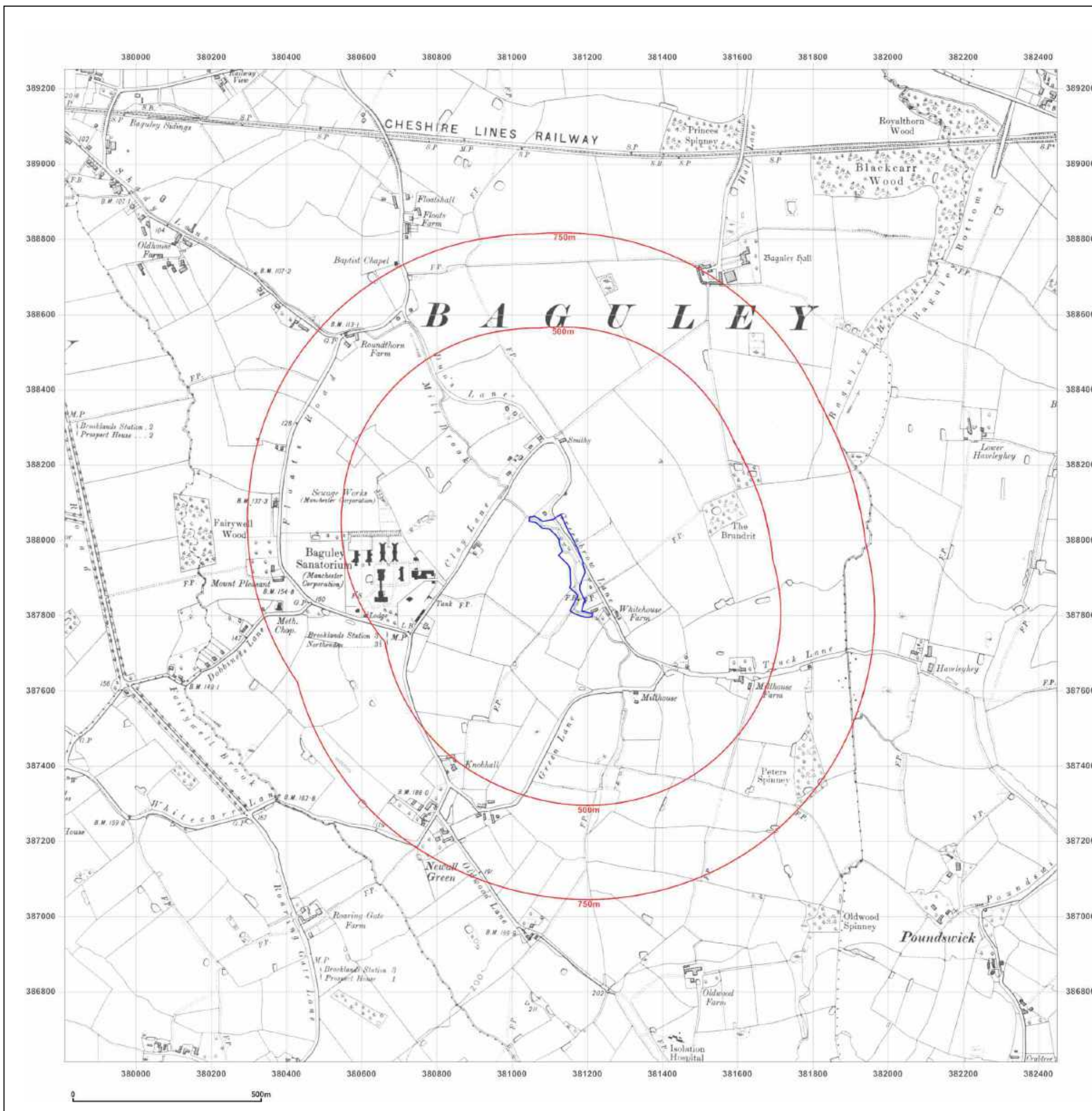


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 14 November 2018

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Site Details:

AMBERLEY DRIVE,
MANCHESTER, M23 2RW

Client Ref: 8538G
Report Ref: GS-5615196
Grid Ref: 381129, 387932

Map Name: Provisional

Map date: 1954

Scale: 1:10,560

Printed at: 1:10,560



Surveyed N/A
Revised 1954
Edition N/A
Copyright 1954
Levelled N/A

Surveyed 1949
Revised 1954
Edition N/A
Copyright N/A
Levelled N/A

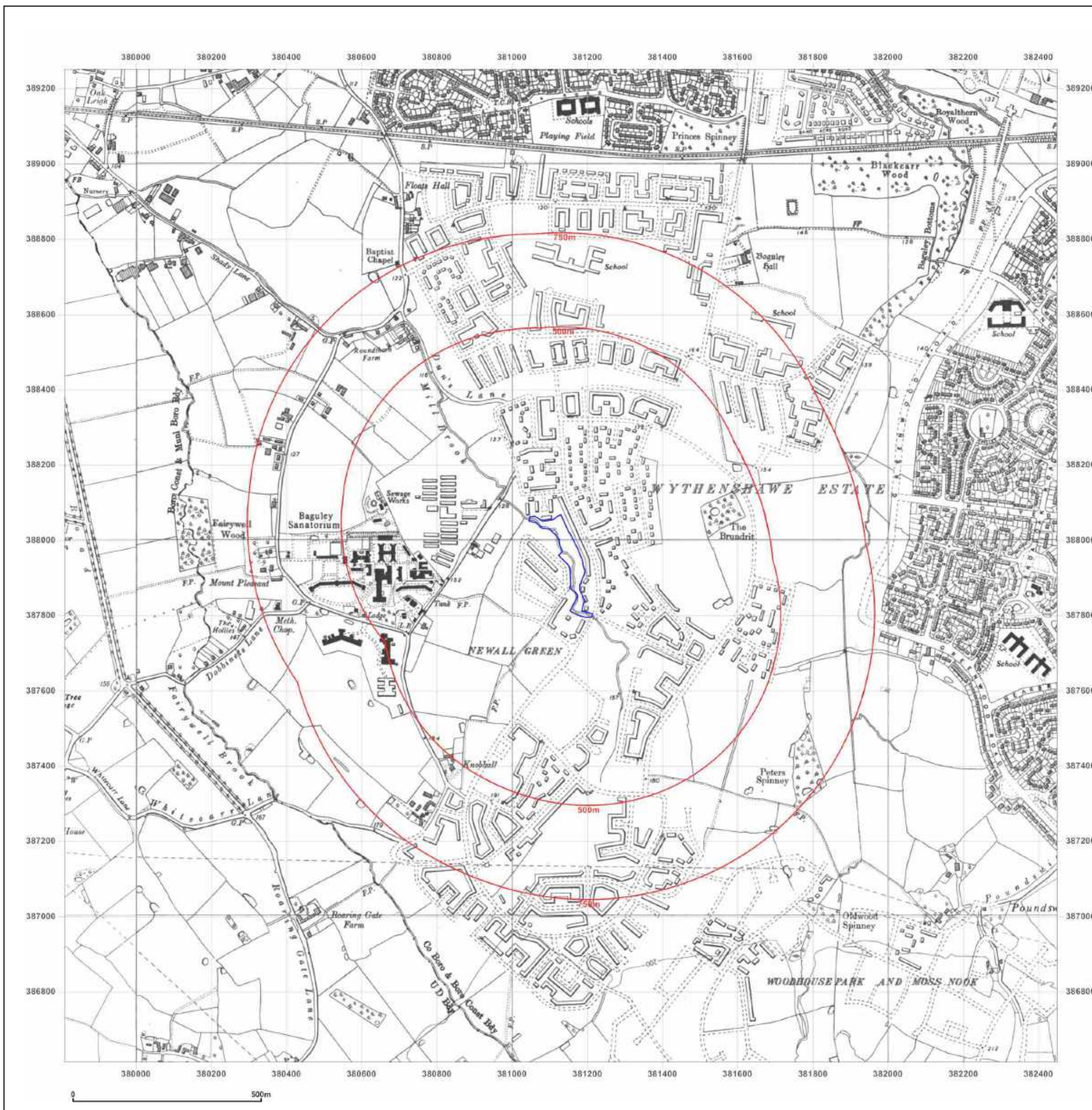


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 14 November 2018

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Site Details:

AMBERLEY DRIVE,
MANCHESTER, M23 2RW

Client Ref: 8538G
Report Ref: GS-5615196
Grid Ref: 381129, 387932

Map Name: Provisional

Map date: 1967

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1967
Revised 1967
Edition N/A
Copyright 1967
Levelled N/A

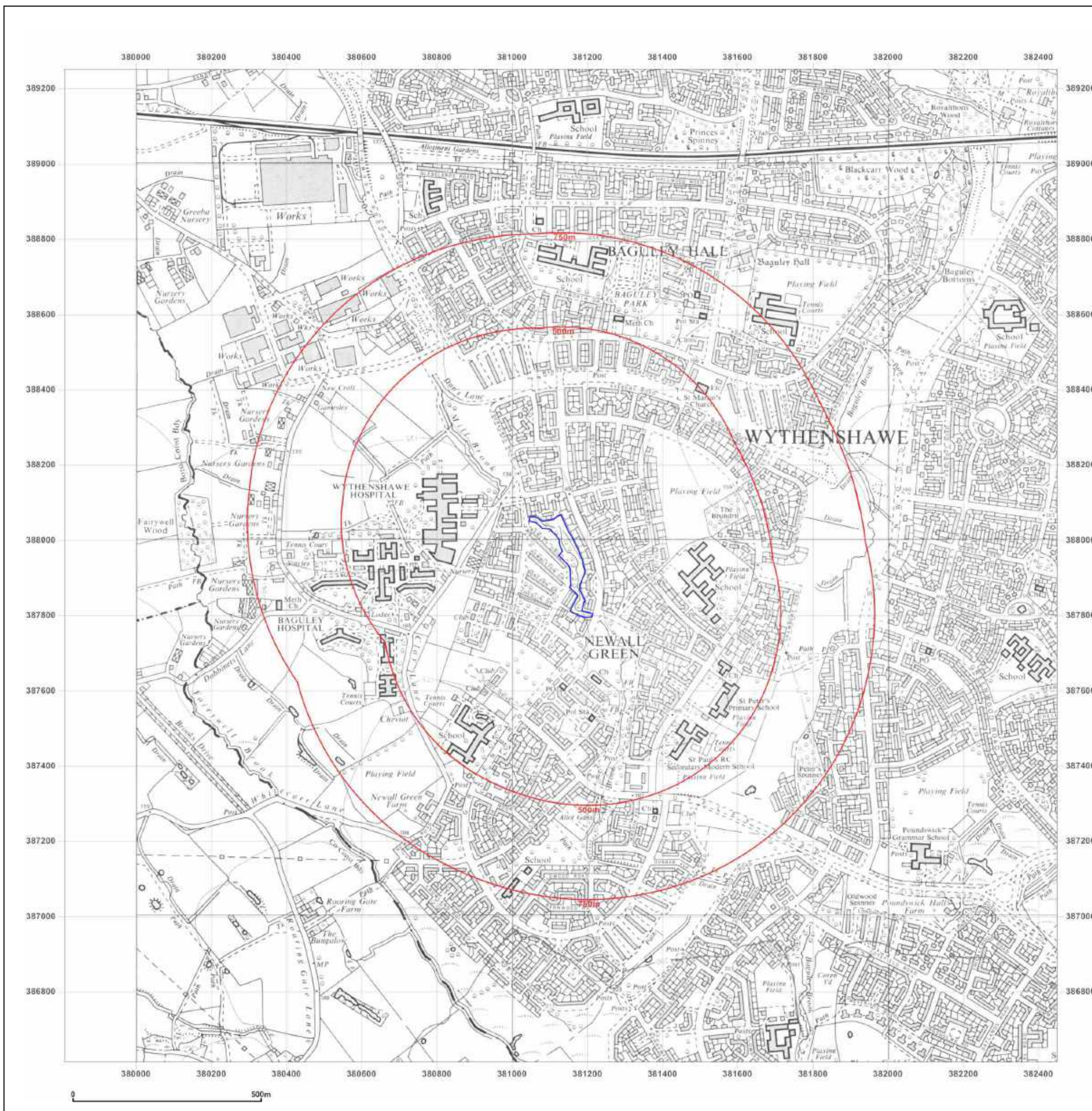


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 14 November 2018

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Site Details:

AMBERLEY DRIVE,
MANCHESTER, M23 2RW

Client Ref: 8538G
Report Ref: GS-5615196
Grid Ref: 381129, 387932

Map Name: National Grid

Map date: 1989-1990

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1988
Revised 1990
Edition N/A
Copyright 1990
Levelled 1981

Surveyed 1984
Revised 1989
Edition N/A
Copyright 1989
Levelled 1981

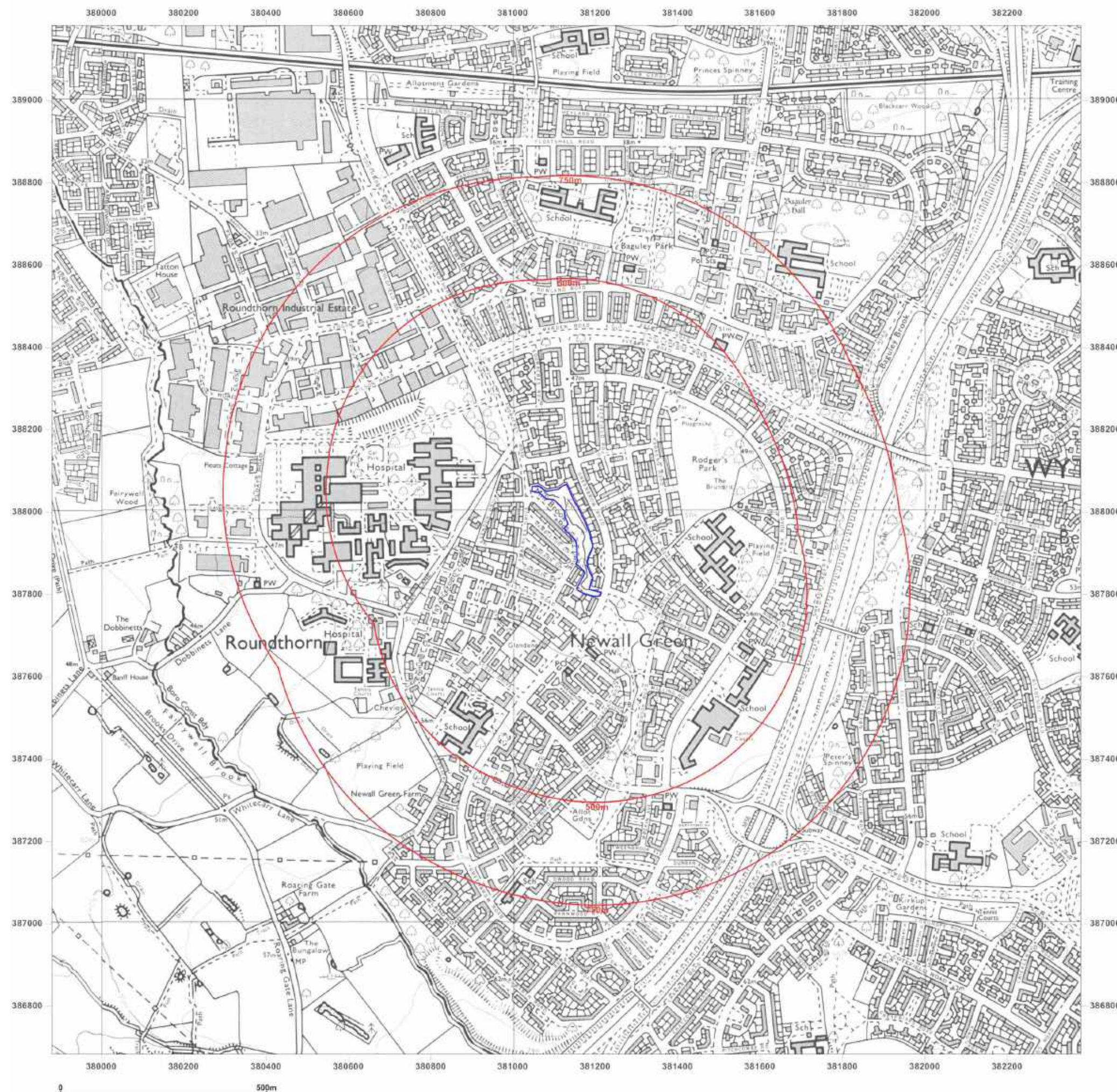


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 14 November 2018

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Site Details:

AMBERLEY DRIVE,
MANCHESTER, M23 2RW

Client Ref: 8538G
Report Ref: GS-5615196
Grid Ref: 381129, 387932

Map Name: National Grid

Map date: 1995

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1984
Revised 1995
Edition N/A
Copyright 1995
Levelled 1981

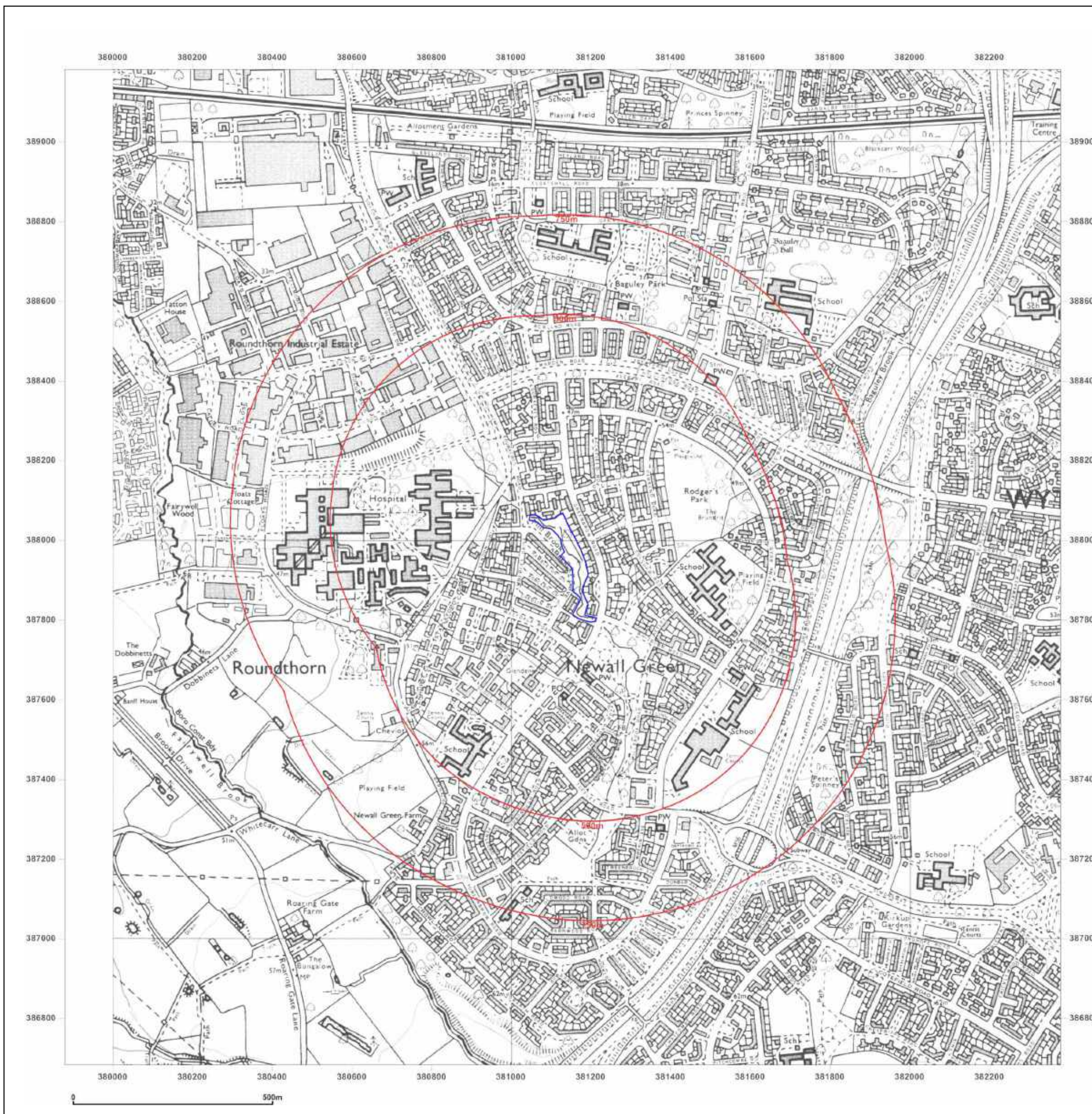


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 14 November 2018

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Site Details:

AMBERLEY DRIVE,
MANCHESTER, M23 2RW

Client Ref: 8538G
Report Ref: GS-5615196
Grid Ref: 381129, 387932

Map Name: 1:10,000 Raster

Map date: 2002

Scale: 1:10,000

Printed at: 1:10,000



2002



Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 14 November 2018

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Site Details:

AMBERLEY DRIVE,
MANCHESTER, M23 2RW

Client Ref: 8538G
Report Ref: GS-5615196
Grid Ref: 381129, 387932

Map Name: National Grid

Map date: 2010

Scale: 1:10,000

Printed at: 1:10,000



2010

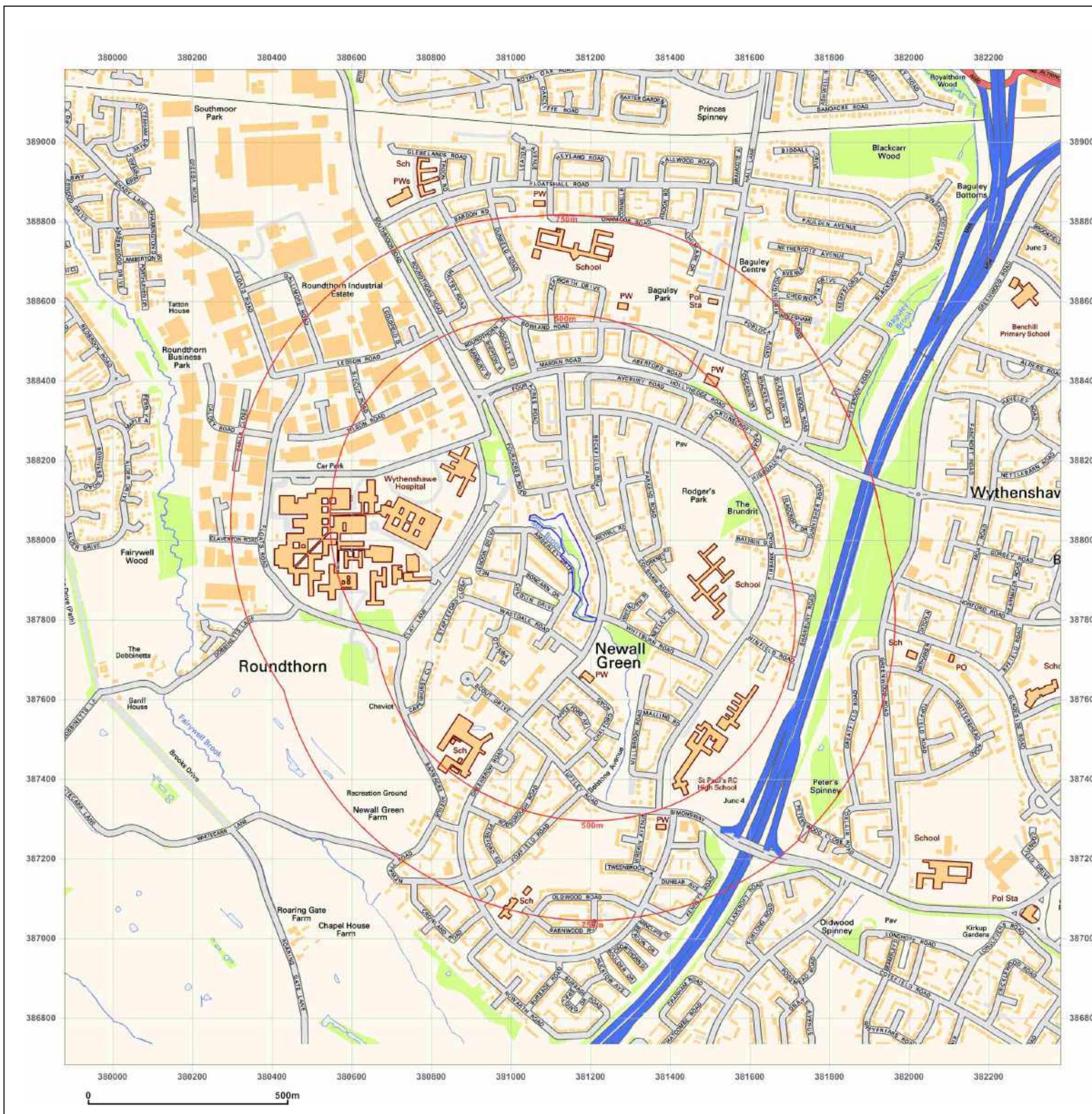


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 14 November 2018

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Site Details:

AMBERLEY DRIVE,
MANCHESTER, M23 2RW

Client Ref: 8538G
Report Ref: GS-5615196
Grid Ref: 381129, 387932

Map Name: National Grid

Map date: 2014

Scale: 1:10,000

Printed at: 1:10,000



2014

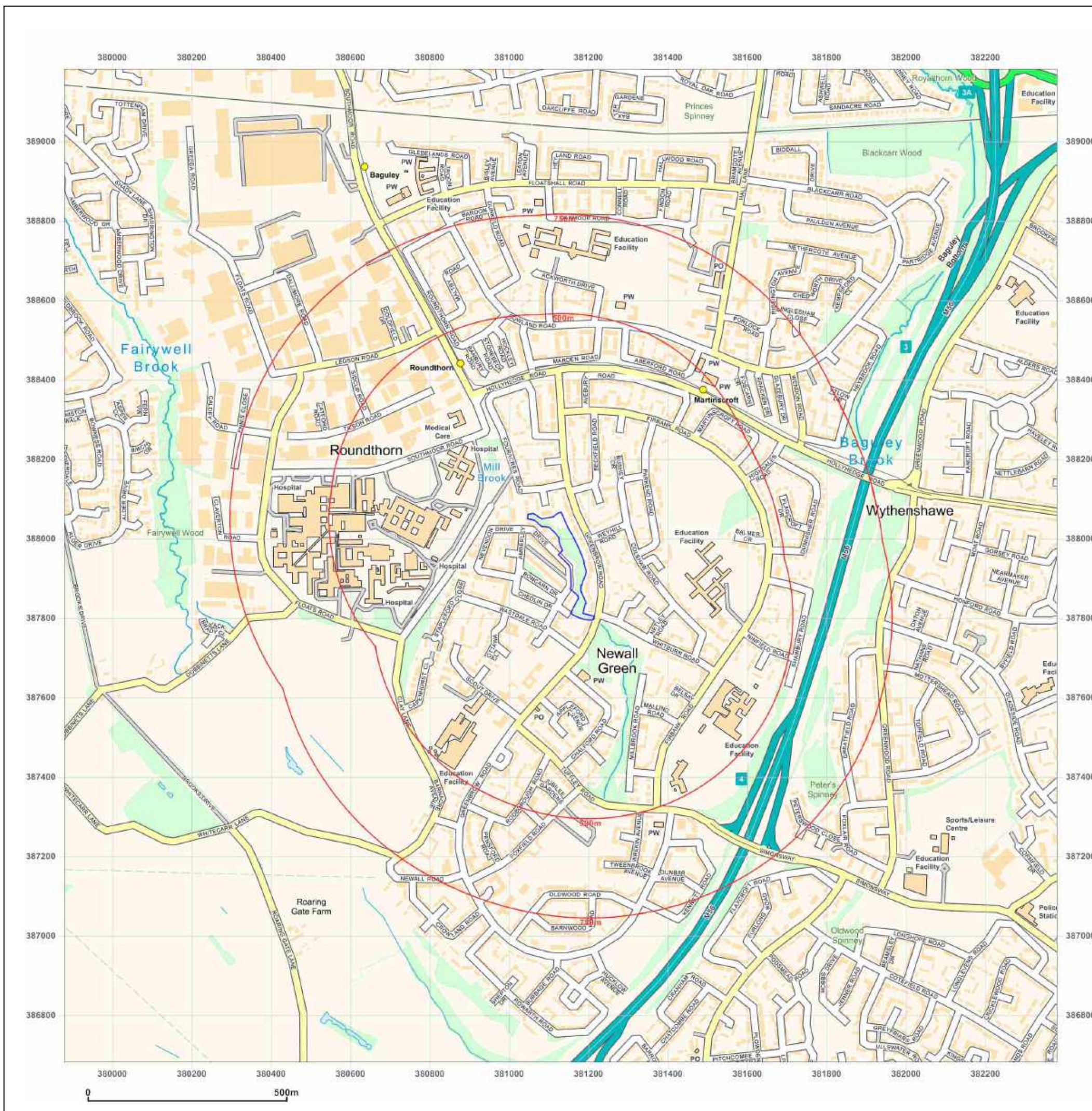


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 14 November 2018

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



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.