

Phase 1 Desk Study and  
Preliminary Geo-Environmental Assessment

For a site referred to as




Spout Farm, Preston

Undertaken on behalf of

Community Gateway Association

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320200303P

Report Title:	<b>Spout Farm, Preston</b> <b>Phase 1 Desk Study and Preliminary Geo-Environmental Assessment</b>
Report Reference:	<b>8517/G/01</b>
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Drafted By:	<b>T P Booth</b> 
Reviewed By:	<b>S C Seddon</b> 
Authorised By:	<b>P G Davies</b> 

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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](mailto:info@wmlconsulting.com)  
[www.wmlconsulting.com](http://www.wmlconsulting.com)

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## **1.0 INTRODUCTION**

### **Appointment**

- 1.1 WML Consulting has been commissioned by Community Gateway Association to undertake a Phase 1 Desk Study and Preliminary Geo-environmental Assessment of a site within Spout Farm in the Longridge area of Preston.

### **Proposed Development**

- 1.2 It is understood that the development will comprise the construction of 34 no low rise residential structures with associated access roads and external areas of hardstanding for parking together with private gardens.
- 1.3 The proposed development plan by PGB Architectural Services Ltd, referenced 2856-014 Revision B, dated March 2016, is presented in Appendix 01.

### **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 Environment Agency (2004) Model Procedures for the Management of Land Contamination, CLR11.

### **Scope**

- 1.6 The desk study has comprised a site reconnaissance visit on 15<sup>th</sup> December 2018 and a review of the following information sources:
- British Geological Survey (BGS) 1:50,000 scale, Sheet 67 'Garstang' (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 (2015) "Radon: Guidance on Protective Measures for New Buildings".



## 2.0 SITE SETTING

Description	Comments
Site Address	Land off:- Preston Road Longridge Preston PR3 3BD
National Grid Reference	360288E, 436034N
Site Area	1.78 hectares
Site Location	The site is bounded by:- North – Alston Reservoir No 2. East – Undeveloped grassland surrounding a nature reserve and pond. South – Spout Farm Nursery. West – Preston Road with residential properties beyond. The site location is indicated in the Groundsure Report in Appendix 03.
Site Description	<p>The site is predominantly undeveloped and surfaced with managed grass and low lying vegetation.</p> <p>The northern, southern and western site boundaries comprise linear strips of mature deciduous trees with further sporadic semi-mature deciduous trees forming the eastern site boundary.</p> <p>An area of semi-mature to mature trees and shrubs is located in the southern central section of the site.</p> <p>Several small stockpiles of wood (felled trees), woodchip and asphalt scrapings are located in the north-eastern section of the site.</p> <p>A line of mature conifers extends roughly north-east to south-west across the eastern part of the site and separates the larger undeveloped section of the site from the smaller eastern area.</p> <p>At the time of the inspection in late December 2018, the eastern area was locally surfaced with gravel and used for the storage of a number of forestry machines and equipment.</p> <p>Several fuel bowzers and waste oil storage drums were noted in the south-eastern corner. However, no visual or olfactory evidence of spills or leakages were evident.</p> <p>Two metal barn structures, with concrete floor slabs, and several smaller metal storage (wood) sheds are located in the south-western corner of the yard, immediately adjacent to the conifers.</p> <p>Several small stockpiles of wood chip, granular soils and logs were also located in the south-eastern section of the site close to the eastern site boundary.</p> <p>The field pond within the central section of the site on the historical plans was not visible at the time of the site inspection in December 2018. However, localised marsh type grasses were noted in this area denoting the area of the field pond which is likely to be evident during prolonged or heavy rainfall.</p>

Description	Comments
	Access to the site is from the track to Spout Farm on the southern site boundary. 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. However, during the inspection in December 2018, the site was noted to be generally level with more localised grassy undulations.

### 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	
<b>Geology</b>  (1:50, 000 scale Map Sheet and digital mapping )	<b>Superficial Deposits</b>	The site is indicated to be underlain by Devensian Glacial Till which mainly comprises clay with occasional sand and silts.
	<b>Solid Strata</b>	The Superficial Deposits are indicated to be underlain by strata of the Carboniferous Warley Wise Grit, which comprise predominantly sandstone with siltstone beds and subordinate seams of coal.
	<b>Geological Features</b>	None within 250m.
<b>Radon</b>	The property is not in a radon affected area as defined by the BGS/Public Health England 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.	
<b>Coal Mining and Subsidence</b>	<p>In consideration of the underlying geology, risks of subsidence from coal mining can be discounted.</p> <p>However, the Groundsure report indicates that the site may be in an area which has been subject to non-coal historic mining. This relates to the underground mining of vein minerals known or suspected by the BGS in the area. The BGS indicate however that difficult ground conditions beneath the site are 'unlikely or localised and are at a level where they need not be considered'.</p>	
<b>Hydrogeology</b>	<b>Superficial Aquifer</b>	<p>Secondary (Undifferentiated) Aquifer.</p> <p>This is a category 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-aquifers.</p>
	<b>Bedrock Aquifer</b>	<p>Secondary (A) Aquifer.</p> <p>These are 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.</p>
	<b>Source Protection Zone (SPZ)</b>	Not within an SPZ.

Description	Comments		
	<b>Groundwater Abstractions within 1Km</b>	2no for general use at Singletons Dairy Ltd 805m and 890m north.	
<b>Hydrology</b>	<b>Surface Water Features within 250m</b>	The nearest surface water feature is Alston Reservoir No.2, 89m north with a pond in the adjacent nature reservoir (former Alston Reservoir No 3) some 50m east. A south-westerly flowing unnamed watercourse is also located some 134m south-west.	
	<b>Surface Water Abstractions within 500m</b>	None.	
<b>Landfill and Waste Management Activity</b>	<b>Active Landfill within 500m</b>	None.	
	<b>Historical (Environment Agency/Local Authority) Landfill within 1km</b>	None.	
	<b>Other Waste Sites within 500m</b>	None.	
<b>Industrial Land Use Information</b>	<b>Potentially Contaminative Industrial Sites within 250m</b>	2no electricity pylons – 96m south-west and 189m south-east. 1no electrical equipment repair and servicing – 171m west.	
	<b>Underground HP Pipelines within 500m</b>	1no - The FM11 Grayrigg to Salmesbury gas pipeline running roughly north-west to south-east some 404m south-west of the site.	
	<b>Petrol Filling Stations within 500m</b>	None.	
<b>Environmental Permits, Incidents and Registers</b>	<b>Permits Incidents/Registers</b>	<b>Distance (m)</b>	<b>Comments</b>
	IPC Authorisations, Part A(1),	250	None
	Part A(2) Authorised Activities	250	None
	Part B IPPC Authorised Activities	250	None
	List 1 or List 2 Dangerous Substances Inventory Sites	250	None
	Radioactive Substance Authorisations	250	None
	Contaminated Land - Section 78R of the Environmental Protection Act 1990	250	None
<b>Potential Flood</b>	Detailed assessment of flood risk is outside the scope of this report.		

Description	Comments
<b>Risks</b>	<p>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.</p> <p>However, further reference to the EA website indicates that the site is within the flood risk area associated with the adjacent Alston reservoir No 2 which may require further assessment for planning purposes.</p> <p>The site is indicated on BGS records to be within an area which is considered to have a limited potential susceptibility to groundwater flooding. The BGS confidence rating for this assessment is considered 'Low'.</p>
<b>Environmentally Sensitive Sites</b>	<p>There are no designated environmentally sensitive sites within 1km of the study site. However, it is understood that a nature reserve is located immediately east at the site of the former Alston No 3 Reservoir.</p>
<b>Archaeological Information</b>	<p>No archaeological information has been obtained for the purpose of this report. Where considered necessary, an archaeological specialist should be consulted in this respect.</p>

#### **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 1847 indicate the site to comprise undeveloped agricultural land with several field boundaries immediately east of Preston Road, which extended roughly north to south along the western site boundary.
- 4.3 The surrounding area originally comprised undeveloped rural / agricultural land with occasional small field ponds, woodland and localised residential structures. Spout House was located immediately south of the site.
- 4.4 By 1892 Alston Reservoir No 3 had been constructed to the east of the site, with earthworks forming the reservoir walls along the south-eastern site boundary. By 1910 the second, larger reservoir had been constructed some 50m north of the site with associated Straining Chambers 10m north-east. Alston No 1 reservoir had been constructed immediately east of No 3 reservoir by 1932.
- 4.5 By 2002 the site remained unchanged although a pond was shown in the central northern section.
- 4.6 The reservoir immediately east of the site was no longer shown on the map of 2010 and by 2014 a large pond was located, some 50m south-east of the site in its place. Anecdotal information indicates that this may form part of a relatively new nature reserve.
- 4.7 In consideration of the past use of the site and surrounding area, no significant sources of ground contamination are envisaged.
- 4.8 However, more recent use of the south-eastern part of the site as a storage area for forestry machinery may have resulted in localised ground contamination from possible spillages and leakages of fuel and lubrication oil.



## 5.0 PRELIMINARY CONTAMINATION RISK ASSESSMENT

### Introduction

- 5.1 The following paragraphs outline a Preliminary Risk Assessment (PRA) for the site as defined by DEFRA and the EA Model Procedures for the Management of Land Contamination, CLR11 (2004).
- 5.2 The table in Paragraph 5.4 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).
- 5.3 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.
- 5.4 Where a possible linkage is identified, it does not necessarily mean that a significant risk exists, but indicates that further information is required through appropriate site investigation to substantiate the conceptual model.

Source	Pathway	Receptor	Linkage potential	Comment
<p>The majority of the site has remained undeveloped. The likelihood of significant ground contamination sources being present is therefore considered low.</p> <p>However, more localised sources of contamination, associated with stockpiled asphalt and the use of the eastern section of the site for storage of machinery and localised hydrocarbons, cannot be wholly discounted at this stage.</p>	Direct contact, ingestion of soil, dermal contact, dust exposure pathways.	Current Site Users	No linkage envisaged	No significant sources of contamination are anticipated and the transient nature of the site use will result in no significant long-term pollution linkage. Therefore, the risk to current site users is considered <b>VERY LOW</b> .
		Site End Users	Low	No significant contamination is anticipated with no direct pollution linkage anticipated across the majority of the site. However, residual risks of direct exposure could remain within private gardens in the eastern section of the site. The preliminary risk of direct contact with contaminants is therefore assessed as locally <b>MODERATE/LOW</b> .
		Construction Workers	Unlikely	In the unlikely event of construction workers being exposed to contaminated soils during earthworks and foundation construction, any perceived contamination risks will be mitigated by adopting good site working practices including appropriate health and safety measures during the works, thus providing a <b>LOW</b> 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 <b>VERY LOW</b> although this could increase during construction works. Appropriate health and safety measures, including dust suppression, adopted during site development will ensure that the risk remains very low.



Source	Pathway	Receptor	Linkage potential	Comment
<p>The likelihood of significant soluble and/or liquid and therefore mobile contaminants occurring across the majority of the site is considered low.</p> <p>However, more localised sources in the eastern section of the site, due to its current use, cannot be wholly discounted at the preliminary stage.</p>	Direct downward migration through leaching and/or mobile liquids.	Groundwater	Unlikely	The site is underlain by a Secondary A (Bedrock) Aquifer although the intervening relatively impermeable glacial till will reducing the potential for vertical migration. In addition, no significant mobile contamination sources are considered to exist at the site. Therefore, the risk to groundwater is considered to be <b>LOW</b> .
	Off-site migration in groundwater or surface water flow.	Surface water	Low	The nearest watercourse is located some 134m south-west; with Alston reservoirs and pond 89m north and 5m east respectively. However, as the majority of the site remains undeveloped it is unlikely to provide any significant sources of contamination which could impact upon surface waters. More localised contamination sources associated with current land use in the eastern section cannot be wholly discounted. However, relatively impermeable glacial till will inhibit any significant flow of mobile contaminants off-site. Therefore, the preliminary overall risk to surface water is considered <b>LOW</b> .
		Groundwater/surface water abstractions	Unlikely	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 <b>VERY LOW</b> .
		Adjacent Properties	Low	The majority of the site is undeveloped and unlikely to provide any significant sources of contamination which could impact upon adjacent land. More localised contamination sources associated with current land use in the eastern section cannot be wholly discounted. However, relatively impermeable glacial till will inhibit any significant flow of mobile contaminants off-site. Therefore, the perceived risk to adjacent land and properties is considered <b>LOW</b> .
		Ecology	Low	There are no recorded ecologically sensitive sites within influencing distance of the subject site, although a nature reserve is believed to be located immediately east. The preliminary risk to ecology is however considered <b>LOW</b> .
The likelihood of significant volatile contaminants occurring across the majority of the site due to its past use is considered low.	Inhalation of harmful vapours (indoor and outdoor airspaces)	Current Site Users	No linkage envisaged	Significant sources of volatile contaminants at the site are not anticipated. Also, with site use being currently transient, no plausible long-term pollution linkage is anticipated. Therefore, the preliminary risk to current site users is assessed as <b>VERY LOW</b> .

Source	Pathway	Receptor	Linkage potential	Comment
		Site End Users	Unlikely	Significant volatile contamination sources are not anticipated. Although, not considered to be significant, more localised contamination sources associated with current land use in the eastern section cannot be wholly discounted. The preliminary risk from inhalation of indoor/outdoor vapours is however assessed as <b>LOW</b> .
		Construction Workers	Unlikely	In the unlikely event of construction workers coming into contact with possible volatile compounds, the exposure time will be relatively short. The chronic exposure risk to construction workers, assuming that appropriate health and safety measures will be adopted, is therefore considered <b>VERY LOW</b> .
		Adjacent Properties	Unlikely	Significant sources of volatile contaminants at the site are not anticipated. Also, relatively impermeable glacial till will inhibit any significant lateral flow of volatile contaminants off-site. Therefore, the perceived risk to adjacent properties and users is assessed as <b>VERY LOW</b> .
<p>The presence of appreciable thicknesses of made ground with the potential to produce significant volumes of hazardous ground gas at the site is unlikely.</p> <p>There are no current or closed landfills within influencing distance of the site.</p> <p>Organic deposits with the potential to generate ground gas could occur in the central northern section of the site, associated with former field ponds, but are unlikely to be extensive.</p>	Emissions from the ground beneath the site collecting in confined spaces and excavations	Construction/ services maintenance workers	Unlikely	The potential to generate significant volumes of toxic and/ or flammable/ explosive gas beneath the site is considered low. Assuming that appropriate health and safety measures will be adopted during construction, the preliminary risk is considered <b>VERY LOW</b> .
	Migration of gases on/off site and collecting in confined spaces on/off site.	Adjoining site users	Unlikely	The potential for significant volumes of toxic and/or flammable/ explosive gasses to be generated beneath the site is considered low. Also, relatively impermeable glacial till will inhibit any significant lateral flow of volatile contaminants off-site. The potential risk to adjoining site users from site sources of ground gas is therefore considered <b>VERY LOW</b> .
		Current/future site users	Unlikely	No significant sources of ground gas are envisaged with intervening relatively impermeable glacial till greatly reducing the potential for lateral migration from any off-site sources. A plausible pollution linkage is therefore not envisaged with the preliminary risk considered <b>LOW</b> .
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 anticipated	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 <b>VERY LOW</b> .

Source	Pathway	Receptor	Linkage potential	Comment
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 <b>LOW</b> .

### Preliminary Risk Assessment

- 5.5 Under the proposed development scenario, potential pollution linkages are on the whole considered unlikely with associated preliminary risks assessed as very low to low.
- 5.6 The approach at the Phase 1 Desk Study stage must, however, be precautionary until such time as uncertainties in the conceptual model can be verified by appropriate site investigation.
- 5.7 Such uncertainties relate, in the main, to the potential presence of hydrocarbons in the eastern section of the site associated with possible localised spills and leakages from machinery and hydrocarbon storage and to a lesser degree localised contamination associated with stockpiled asphalt.
- 5.8 Locally, there are no historic industrial activities which could be considered as having affected the site adversely.

**6.0 PRELIMINARY GEOTECHNICAL CONSIDERATIONS**

Consideration	Summary
<b>Ground Obstructions</b>	<p>Significant historical/existing foundations, ground floor slabs and other buried concrete obstructions associated with current and former structures are not anticipated with the exception of those associated with the metal barns in the eastern section of the site.</p> <p>These will need to be broken out to suitable depths below formation levels where they are to impinge on the proposed redevelopment. Subject to appropriate sorting and crushing, such materials will be suitable for re-use as bulk fill beneath hard cover areas.</p>
<b>Earthworks</b>	<p>No significant earthworks / reprofiling is anticipated.</p> <p>It is envisaged that there will be a surplus of topsoil arising from the site strip. Subject to chemical analyses, excavated topsoil should be retained for use in gardens and landscaped areas. The sale of site-won topsoil could also prove to be economically viable.</p>
<b>Foundations and Floor Slabs</b>	<p>Traditional style spread foundations on competent glacial till may be suitable for the support of new structures. This will need to be confirmed by appropriate site investigations.</p> <p>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.</p>
<b>Soakaways</b>	<p>In consideration of the potential cohesive nature of the underlying strata, soakaways are unlikely to be a feasible drainage option for the site.</p>

## 7.0 SUMMARY AND RECOMMENDATIONS

Development Considerations	Comments
Shallow Coal Mining	Very low risk.
Flooding	Low risk from rivers and sea. However, the site is at risk of flooding associated with the adjacent Alston reservoir which may require further assessment for planning purposes.
Earthworks	No significant earthworks envisaged.
Foundations	Traditional style spread foundations may be suitable for the support of new structures, although this will need to be confirmed by appropriate site investigations.
Ground Contamination	Preliminary very low to low risk across the majority of the site which can be managed as part of the development construction. However, contamination associated with hydrocarbons in the eastern section of the site cannot be wholly discounted but is not anticipated to be significant and / or widespread.  Notwithstanding the above, no significant environmental remediation is envisaged.
Hazardous Ground Gas	None envisaged, but may be subject to confirmatory monitoring if natural organic / degradable materials, such as historical field pond deposits, 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.

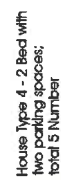
### Site Investigation

- 7.1 Site investigations will be necessary to provide information on the physical and chemical ground conditions. This will enable assumptions made in the preliminary site conceptual model to be confirmed or modified so as to assess the actual environmental risks posed by the site.
- 7.2 The investigation may also need to include the installation of ground gas monitoring standpipes with subsequent monitoring for hazardous ground gas concentrations and flow if organic strata are encountered during the investigations.
- 7.3 In addition, appropriate investigation will be required to establish geotechnical parameters for the design of foundations, floor slabs and pavement construction.
- 7.4 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**







## **APPENDIX 02**

### **Site Photographs**



**Photograph 1**  
**View south-east along a footpath surrounded by semi-mature trees in the southern part of the site.**



**Photograph 2**  
**View north-east towards a line mature conifers in the eastern part of the site.**



**Photograph 3**  
**View west across southern part of the site with mature deciduous trees forming the western site boundary in the background.**



**Photograph 4**  
**View south-west towards stockpiles of wood and woodchip in the north-eastern part of the site.**





**Photograph 5**  
**View east towards a stockpile of asphalt scrapings in the north-eastern part of the site.**



**Photograph 6**  
**View south-east across north-eastern corner of the site with trees forming the eastern site boundary.**



**Photograph 7**  
**View south-east towards stockpiles of granular material located on the eastern site boundary.**



**Photograph 8**  
**View south-west towards fuel bowers stored in the eastern part of the site with a line of mature conifers beyond.**







**Photograph 9**

**View south-west towards machinery stored in the eastern part of the site.**

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**Photograph 10**

**View south-west towards structures located in the south-eastern corner of the site.**





**Photograph 11**

**View north-east towards a machinery stored in the eastern part of the site with semi-mature deciduous trees forming the eastern site boundary beyond.**



**Photograph 12**

**View south-east towards waste oil storage containers in the south-eastern corner of the site.**

## **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-5670273

Your Reference: 8517G

Report Date 5 Dec 2018

Report Delivery Method: Email - pdf

## Enviro Insight

Address: SPOUT FARM, PRESTON ROAD, LONGRIDGE, PR3 3BD

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:** SPOUT FARM, PRESTON ROAD, LONGRIDGE, PR3 3BD  
**Date:** 5 Dec 2018  
**Reference:** GS-5670273  
**Client:** WML Consulting



Aerial Photograph Capture date: 03-Apr-2017  
Grid Reference: 360288,436034  
Site Size: 1.78ha

Report Reference: GS-5670273  
Client Reference: 8517G



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# 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.

<b>Section 1: Historical Industrial Sites</b>	On-site	0-50	51-250	251-500
1.1 Potentially Contaminative Uses identified from 1:10,000 scale mapping	0	1	3	4
1.2 Additional Information – Historical Tank Database	0	0	0	0
1.3 Additional Information – Historical Energy Features Database	0	0	0	6
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	7	9	21

<b>Section 2: Environmental Permits, Incidents and Registers</b>	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	0
2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations	0	0	0	0
2.1.8 Records of Licensed Discharge Consents	0	0	0	1
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	2	1
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
<b>3.1 Landfill Sites</b>						
3.1.1 Environment Agency/Natural Resources Wales Registered Landfill Sites	0	0	0	0	1	Not searched
3.1.2 Environment Agency/Natural Resources Wales Historic Landfill Sites	0	0	0	0	0	2
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
<b>3.2 Landfill and Other Waste Sites Findings</b>						
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	0	9	0

## Section 4: Current Land Use

	On-site	0-50m	51-250	251-500
4.1 Current Industrial Sites Data	0	0	4	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	1

## 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

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
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		
6.3 Groundwater Abstraction Licences (within 2000m of the study site)	0	0	0	0	2	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	0	0	2	16	Not searched	Not searched
6.11 Surface water features within 250m of the study site	No	No	Yes	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	Limited potential
7.8 BGS confidence rating for the Groundwater Flooding susceptibility areas	Low

## 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	6
8.7 Records of Local Nature Reserves (LNR)	0	0	0	0	0	0
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	0	0	0

## 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

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.

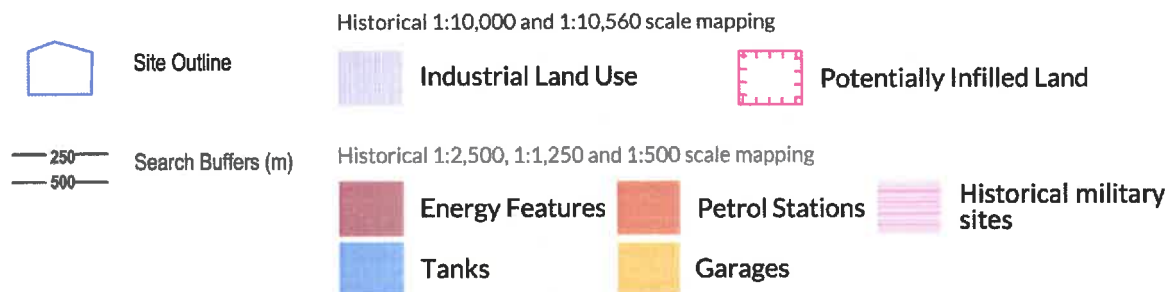
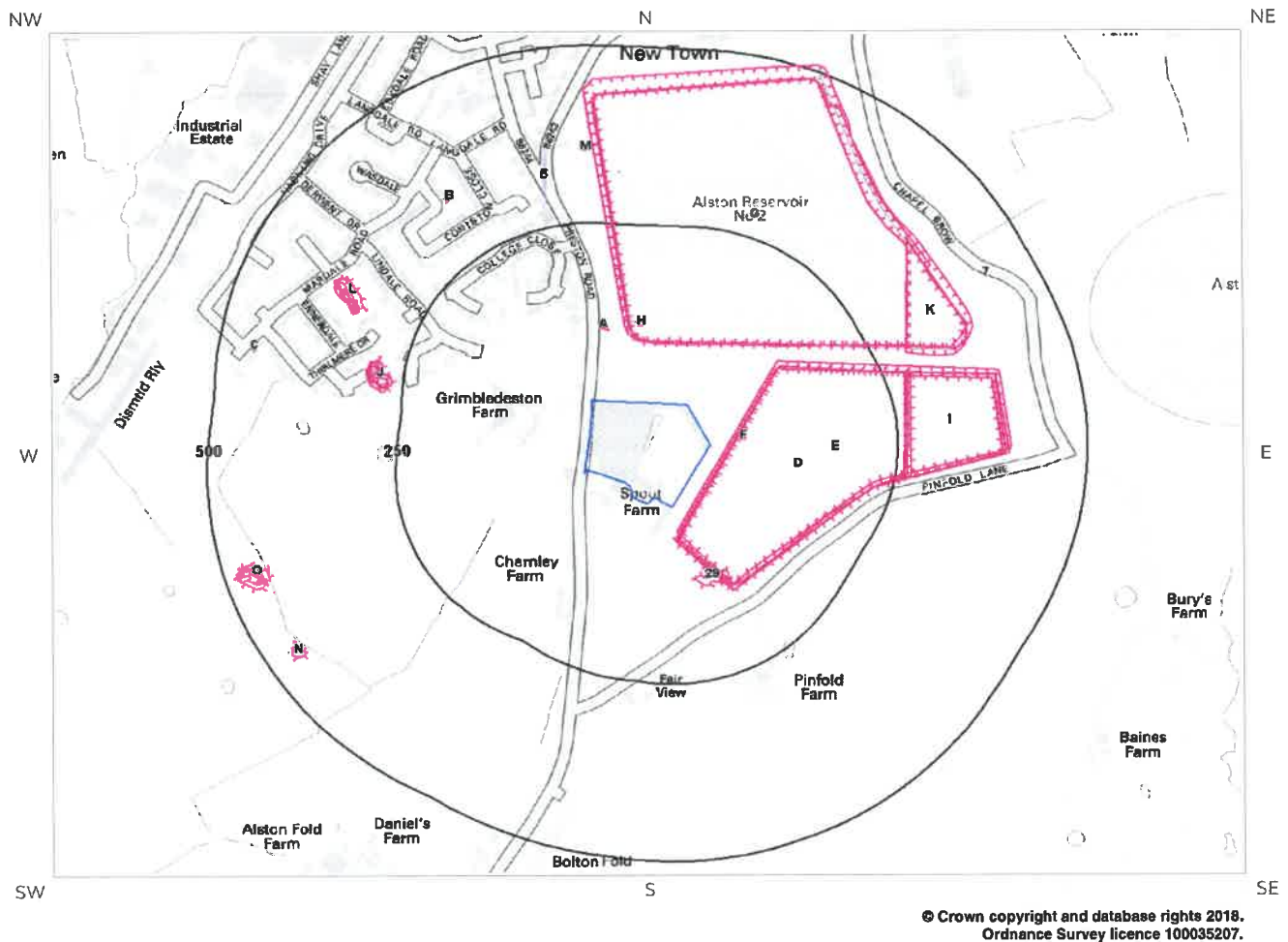
## Note: Maps

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



# 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: 8

ID	Distance [m]	Direction	Use	Date
1F	44	E	Valve Shaft	1910
2A	101	N	Valve Shaft	1932
3A	101	N	Valve Shaft	1910
4H	109	N	Valve Shaft	1910
5	277	N	Pipe	1846
6M	352	N	Valve Shaft	1910
7	432	NE	Pipe	1846
8N	446	SW	Unspecified Pit	1932

## 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: 0

Database searched and no data found.

## 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: 6

ID	Distance (m)	Direction	Use	Date
9B	337	NW	Electricity Substation	1996
10B	337	NW	Electricity Substation	1990
11B	337	NW	Electricity Substation	1977
12B	337	NW	Electricity Substation	1981
13C	449	W	Electricity Substation	1980
14C	449	W	Electricity Substation	1991

## 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: 37

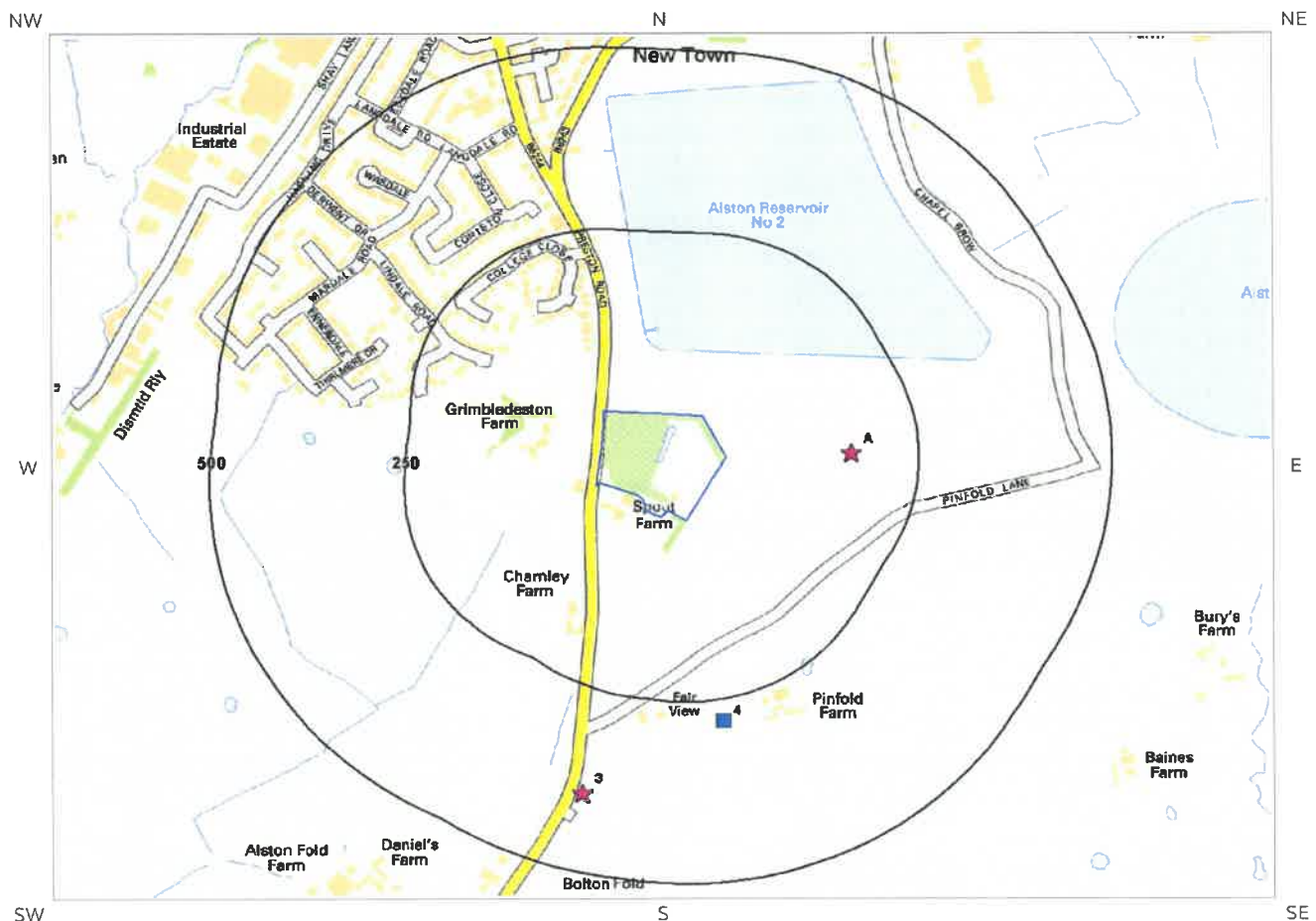
The following Historical Potentially Infilled Features derived from the Historical Mapping information is provided by Groundsure:

ID	Distance(m)	Direction	Use	Date
15E	20	SE	Reservoir	1951
16D	25	SE	Reservoir	1910
17D	25	SE	Reservoir	1932
18D	26	SE	Reservoir	1892
19E	27	SE	Reservoir	1969
20E	27	SE	Reservoir	1994
21F	44	E	Valve Shaft	1910



22G	84	N	Reservoir	1951
23G	85	N	Reservoir	1932
24G	85	N	Reservoir	1910
25G	88	N	Reservoir	1969
26G	88	N	Reservoir	1994
27A	101	N	Valve Shaft	1932
28A	101	N	Valve Shaft	1910
29	101	SE	Pond	1846
30H	109	N	Valve Shaft	1910
31I	259	E	Reservoir	1932
32I	259	E	Reservoir	1910
33J	265	W	Pond	1951
34J	265	W	Pond	1968
35J	266	W	Pond	1892
36I	267	E	Pond	1892
37J	269	W	Pond	1932
38J	269	W	Pond	1910
39K	291	NE	Reservoir	1910
40K	291	NE	Reservoir	1932
41L	328	NW	Pond	1951
42L	328	NW	Pond	1968
43L	333	W	Pond	1932
44L	333	W	Pond	1910
45L	333	NW	Pond	1892
46M	352	N	Valve Shaft	1910
47O	441	W	Ponds	1951
48N	446	SW	Unspecified Pit	1932
49O	450	W	Ponds	1892
50O	452	W	Ponds	1932
51O	452	W	Ponds	1910

## 2. Environmental Permits, Incidents and Registers Map



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- |                               |   |  |
|-------------------------------|---|--|
| Site Outline                  | Recorded Pollution Incident                   | RAS 3 & 4 Authorisations                                       |
| Dangerous Substances (List 1) | Dangerous Substances (List 2)                 | Part A(1) Authorised Processes and Historic IPC Authorisations |
| Water Industry Referrals      | Licenced Discharge Consents                   | Part A(2) and Part B Authorised Processes                      |
| Red List Discharge Consents   | Sites Determined as Contaminated Land         | COMAH / NIHS Sites   |
|                               | Hazardous Substance Consents and Enforcements |  |

## 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:

0

Database searched and no data found.

## 2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations:

0

Database searched and no data found.

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

1

The following Licensed Discharge Consents records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details
4	280	S	360367 435669	<p>Address: PTP SERVING ONE DOMESTIC PROPERTY, PINFOLD BARN, PINFOLD LANE, LONGRIDGE, PRESTON, PR3 3BH</p> <p>Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY</p> <p>Permit Number: NPSWQD008233</p> <p>Permit Version: 1</p> <p>Receiving Water: UNNAMED TRIB OF TUN BROOK</p> <p>Status: NEW CONSENT (WRA 91, S88 &amp; SCHED 10 AS AMENDED BY ENV ACT 1995)</p> <p>Issue date: 31/07/2009</p> <p>Effective Date: 31-Jul-2009</p> <p>Revocation Date:</p>

## 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:

3

The following NIRS List 2 records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details
1A	161	E	360532 436037	Incident Date: 02-Nov-2001 Incident Identification: 40861 Pollutant: Inert Materials and Wastes Pollutant Description: Other Inert Material or Waste Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
2A	161	E	360532 436037	Incident Date: 02-Nov-2001 Incident Identification: 40861 Pollutant: Inert Materials and Wastes Pollutant Description: Other Inert Material or Waste Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
3	392	S	360183 435571	Incident Date: 11-Jun-2003 Incident Identification: 165031 Pollutant: Atmospheric Pollutants and Effects Pollutant Description: Smoke Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)

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

0

Database searched and no data found.

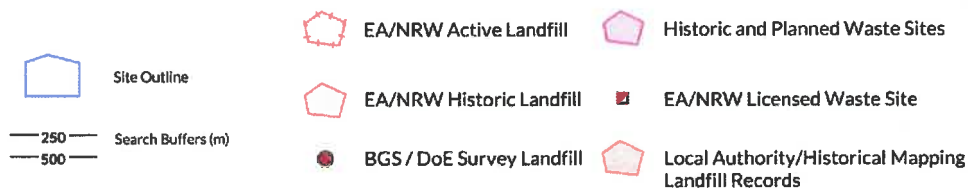
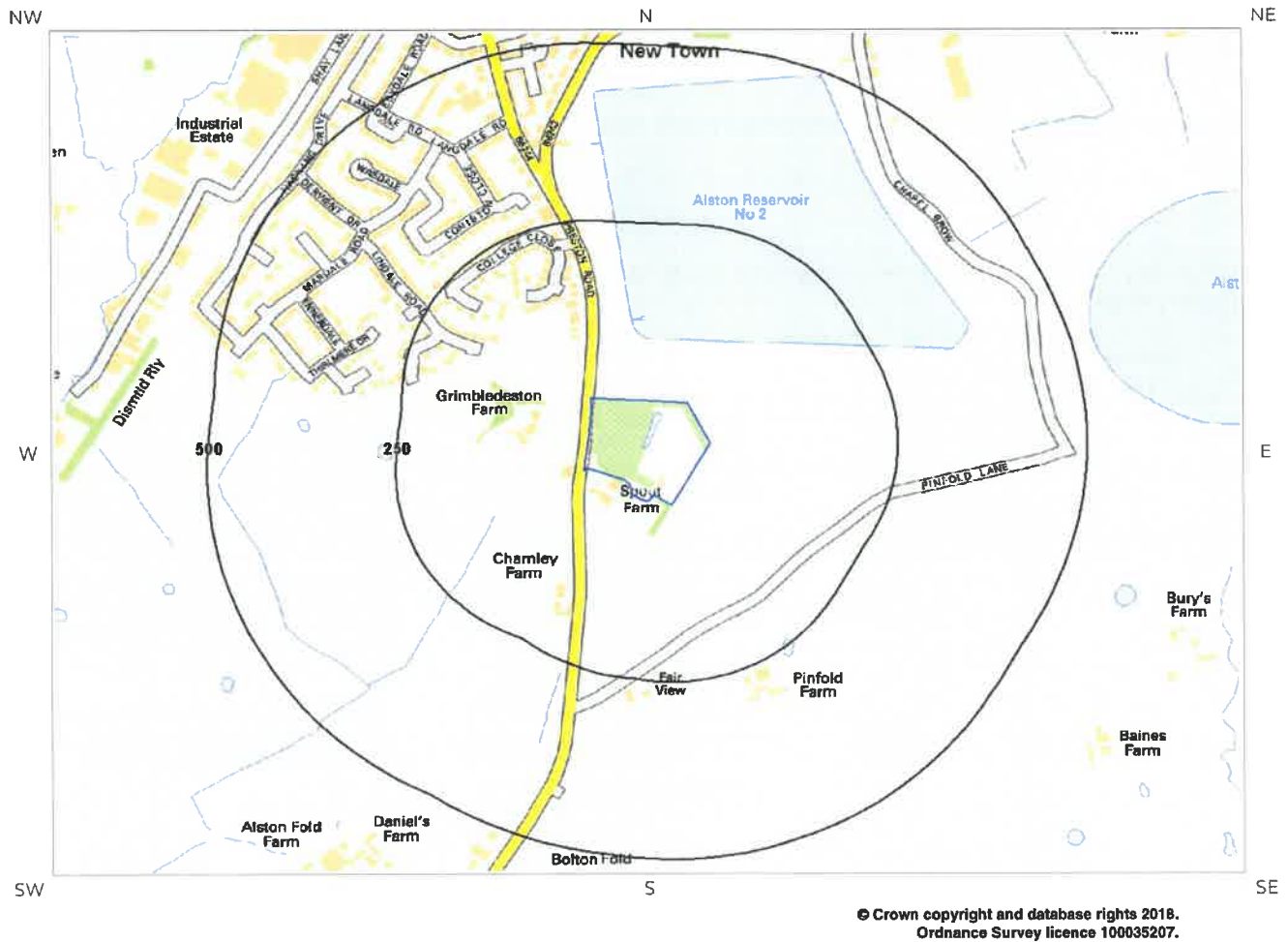
## 2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990

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



## 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:

1

The following Environment Agency/Natural Resources Wales landfill records are represented as polygons on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details
Not shown	614	N	360400 436700	<p>Address: Chapel Hill Quarry, Longridge, Preston, Lancashire, PR3</p> <p>Landfill Reference: 54011.0</p> <p>Environmental Permitting Regulations (Waste) Reference: NOR001</p> <p>Landfill Type: A05: Landfill taking Non-Biodegradable Wastes</p> <p>Operator: United Utilities Water Limited</p> <p>Status: Modified</p> <p>IPPC Reference:</p> <p>EPR Reference:</p>

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

2

The following landfill records are represented as either points or polygons on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details
Not shown	1473	E		<p>Site Address: Lower College Farm, Off Hothersall Lane, Longridge, Lancashire</p> <p>Waste Licence: Yes</p> <p>Site Reference: WD100/232, L1/03/411, K1/03/010, Licences 181 and 338</p> <p>Waste Type: Inert</p> <p>Environmental Permitting Regulations (Waste) Reference: -</p> <p>Licence Issue: 01-Aug-1983</p> <p>Licence Surrendered: 15-Mar-1993</p> <p>Licence Holder Address: Lower College Farm, Hothersall Lane, Longridge, Preston</p> <p>Operator: -</p> <p>Licence Holder: B K Walker</p> <p>First Recorded: 31-Dec-1983</p> <p>Last Recorded: 08-Dec-1991</p>
Not shown	1496	E		<p>Site Address: Lower College Farm, Off Hothersall Lane, Longridge, Lancashire</p> <p>Waste Licence: Yes</p> <p>Site Reference: L1/03/232, K1/03/010, Licences 181 and 338</p> <p>Waste Type: Inert</p> <p>Environmental Permitting Regulations (Waste) Reference: -</p> <p>Licence Issue: 01-Aug-1983</p> <p>Licence Surrendered: 22-Apr-1993</p> <p>Licence Holder Address: Lower College Farm, Hothersall Lane, Longridge, Preston</p> <p>Operator: -</p> <p>Licence Holder: B K Walker</p> <p>First Recorded: 31-Dec-1983</p> <p>Last Recorded: 08-Dec-1991</p>

### 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:

9

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

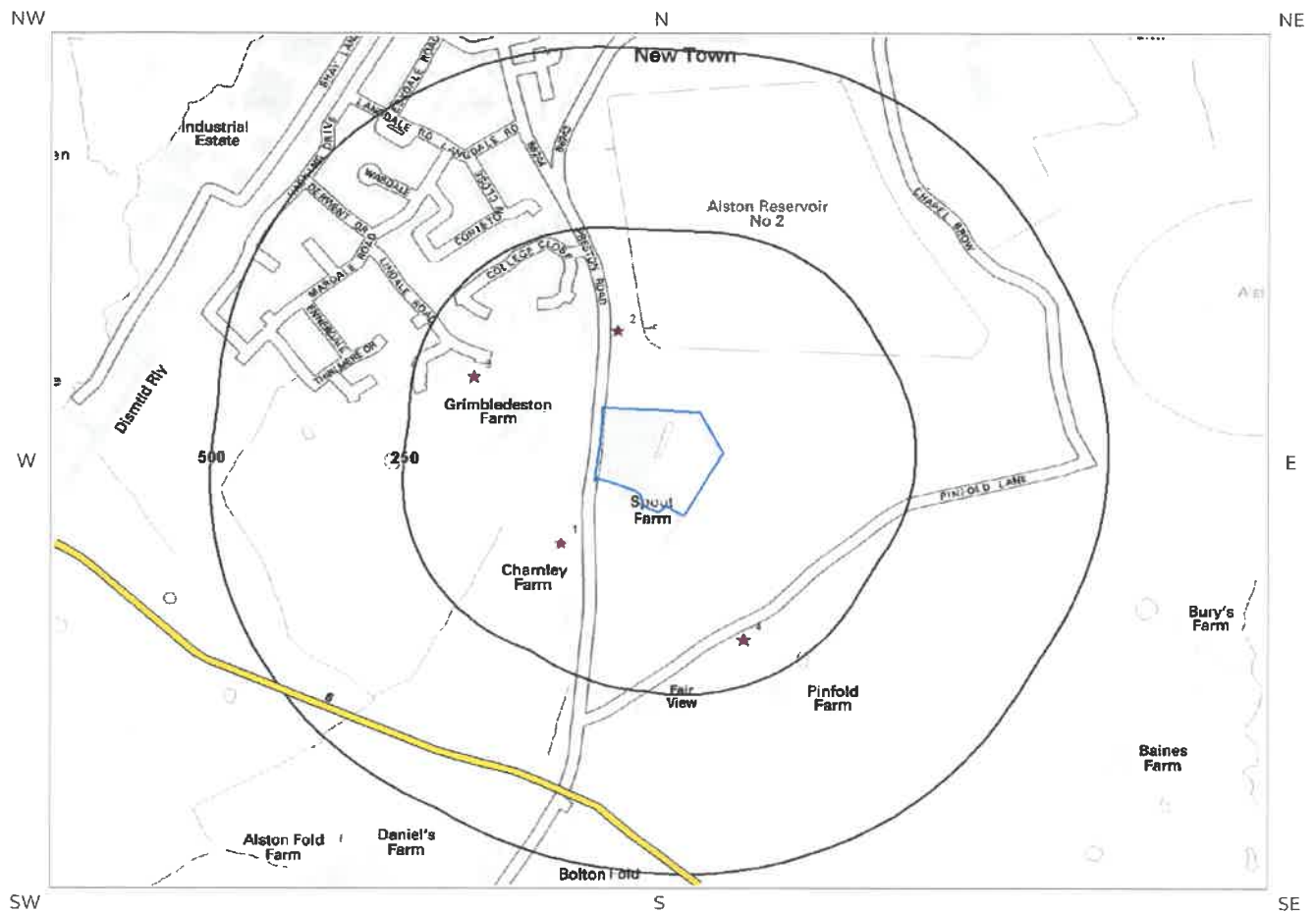
ID	Distance (m)	Direction	NGR	Details
Not shown	614	N	360400 436700	<p>Site Address: Chapel Hill Road, Longridge, Preston, Lancashire, PR3 2YB  Type: Household, Commercial &amp; Industrial Waste T Stn  Size: &lt; 25000 tonnes  Environmental Permitting Regulations (Waste) Licence Number: SIT022  EPR reference: -  Operator: Sita ( Lancashire ) Ltd  Waste Management licence No: 54117  Annual Tonnage: 4999.0</p> <p>Issue Date: 14/05/1993  Effective Date: -  Modified: 17/02/2003  Surrendered Date: -  Expiry Date: -  Cancelled Date: -  Status: Modified  Site Name: Chapel Hill H W D C  Correspondence Address: Tustin Court, Portway, Preston, Lancashire, PR2 2YQ</p>
Not shown	614	N	360400 436700	<p>Site Address: Chapel Hill Quarry, Longridge, Preston, Lancashire, PR3  Type: Landfill taking Non-Biodegradeable Wastes  Size: &gt;= 75000 tonnes  Environmental Permitting Regulations (Waste) Licence Number: NOR001  EPR reference: -  Operator: United Utilities Water Ltd  Waste Management licence No: 54011</p> <p>Issue Date: 16/01/1978  Effective Date: -  Modified: -  Surrendered Date: -  Expiry Date: -  Cancelled Date: -  Status: Issued  Site Name: Chapel Hill Quarry  Correspondence Address: Lingley Mere, Lingley Green Avenue, Great Sankey,</p>



ID	Distance (m)	Direction	NGR	Details	
				Annual Tonnage: 250000.0	Warrington, Cheshire, WA5 3LP
Not shown	614	N	360400 436700	Site Address: Chapel Hill Quarry, Longridge, Preston, Lancashire, PR3 Type: Landfill taking Non-Biodegradable Wastes Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: NOR001 EPR reference: EA/EPR/TP3891CU/A001 Operator: United Utilities Water Ltd Waste Management licence No: 54011 Annual Tonnage: 240000.0	Issue Date: 16/01/1978 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Chapel Hill Quarry Correspondence Address: -
Not shown	614	N	360400 436700	Site Address: Chapel Hill Road, Longridge, Preston, Lancashire, PR3 2YB Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: SIT022 EPR reference: - Operator: Sita ( Lancashire ) Ltd Waste Management licence No: 54117 Annual Tonnage: 4999.0	Issue Date: 14/05/1993 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Chapel Hill H W D C Correspondence Address: Tustin Court, Portway, Preston, Lancashire, PR2 2YQ
Not shown	614	N	360400 436700	Site Address: Chapel Hill Road, Longridge, Preston, Lancashire, PR3 2YB Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: SIT022 EPR reference: - Operator: Sita U K Ltd Waste Management licence No: 54117 Annual Tonnage: 4999.0	Issue Date: 14/05/1993 Effective Date: - Modified: 17/02/2003 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Chapel Hill H W D C Correspondence Address: Tustin Court, Portway, Preston, Lancashire, PR2 2YQ
Not shown	614	N	360400 436700	Site Address: Chapel Hill Quarry, Longridge, Preston, Lancashire, PR3 Type: Landfill taking Non-Biodegradable Wastes Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: NOR001 EPR reference: EA/EPR/TP3891CU/V009 Operator: United Utilities Water Limited Waste Management licence No: 54011 Annual Tonnage: 240000.0	Issue Date: 16/01/1978 Effective Date: - Modified: 13/01/2015 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Chapel Hill Quarry Correspondence Address: -
Not shown	714	N	360400 436800	Site Address: Land/premises At, Chapel Hill Road, Longridge, Preston, Lancashire, PR3 2YB Type: Household Waste Amenity Site Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: SIT022 EPR reference: EA/EPR/RP3591CY/V002 Operator: Sita ( Lancashire ) Ltd Waste Management licence No: 54117 Annual Tonnage: 4999.0	Issue Date: 14/05/1993 Effective Date: - Modified: 17/02/2003 Surrendered Date: 0 Expiry Date: - Cancelled Date: - Status: Modified Site Name: Chapel Hill H W D C Correspondence Address: -
Not shown	714	N	360400 436800	Site Address: Land/premises At, Chapel Hill Road, Longridge, Preston, Lancashire, PR3 2YB Type: Household Waste Amenity Site Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: SIT022 EPR reference: EA/EPR/RP3591CY/V005 Operator: Suez Recycling And Recovery	Issue Date: 14/05/1993 Effective Date: - Modified: 30/06/2016 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Chapel Hill H W D C Correspondence Address: -

ID	Distance (m)	Direction	NGR	Details
Not shown	714	N	360400 436800	Lancashire Ltd Waste Management licence No: 54117 Annual Tonnage: 4999.0
				Site Address: Chapel Hill Road, Longridge, Preston, Lancashire, PR3 3JY Type: Household Waste Amenity Site Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: LAN016 EPR reference: EA/EPR/FB3509HW/T001 Operator: Lancashire County Council Waste Management licence No: 54117 Annual Tonnage: 4999.0
				Issue Date: 14/05/1993 Effective Date: 12/02/2018 Modified: 30/06/2016 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Transferred Site Name: Longridge Household Waste Recycling Centre Correspondence Address: -

## 4. Current Land Use Map



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## 4. Current Land Uses

### 4.1 Current Industrial Data

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

4

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

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1	96	SW	Pylon	360159 435908	Lancashire, PR3	Electrical Features	Infrastructure and Facilities
2	108	N	Valve Shaft	360233 436202	Lancashire, PR3	Unspecified Quarries Or Mines	Extractive Industries
3	171	W	Arrow Electrics	360047 436138	48, Water Meadows, Longridge, Preston, Lancashire, PR3 3BW	Electrical Equipment Repair and Servicing	Repair and Servicing
4	189	SE	Pylon	360397 435773	Lancashire, PR3	Electrical Features	Infrastructure and Facilities

### 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: 1

The following National Grid high pressure gas transmission pipelines records are represented as linear features on the Current Land Use map:

ID	Distance (m)	Direction	Details	
5	404	SW	Pipe Name: FM11 - Grayrigg to Samlesbury Pipe Number: Feeder 11 Pipeline Safety Regulations Number: - Ownership: National Grid	Maximum Operating Pressure (Bar): - Pipeline Diameter (mm): 900mm Wall Thickness (mm): -mm Year of commission: - Abandonment Status: Not Abandoned



## 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, DEVANSIAN	DIAMICTON

---

### 5.3 Bedrock and Solid Geology

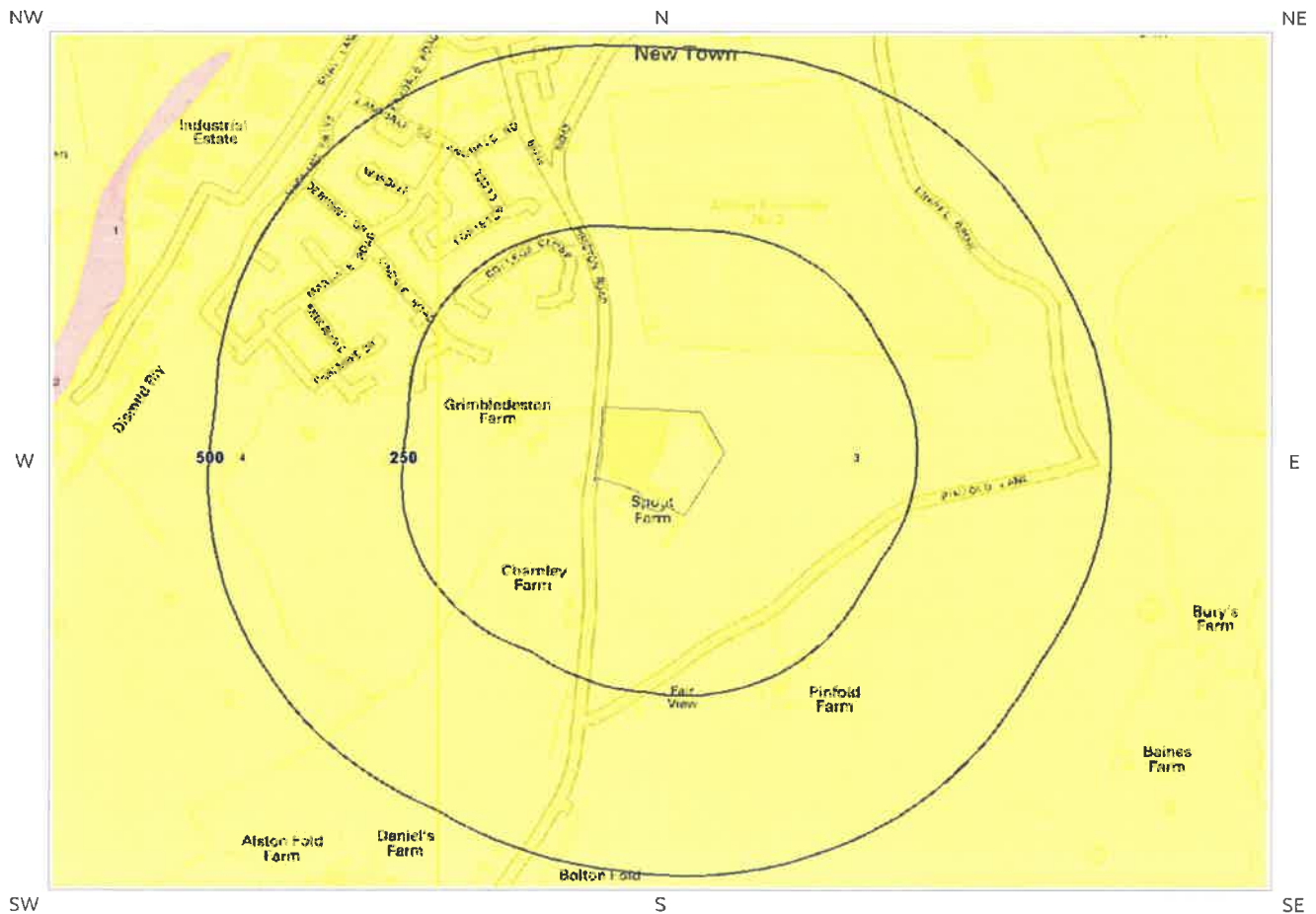
The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
WWG-SDST	WARLEY WISE GRIT	SANDSTONE

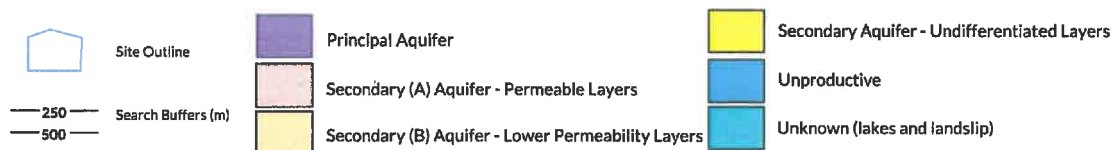
(Derived from the BGS 1:50,000 Digital Geological Map of Great Britain)

# 6 Hydrogeology and Hydrology

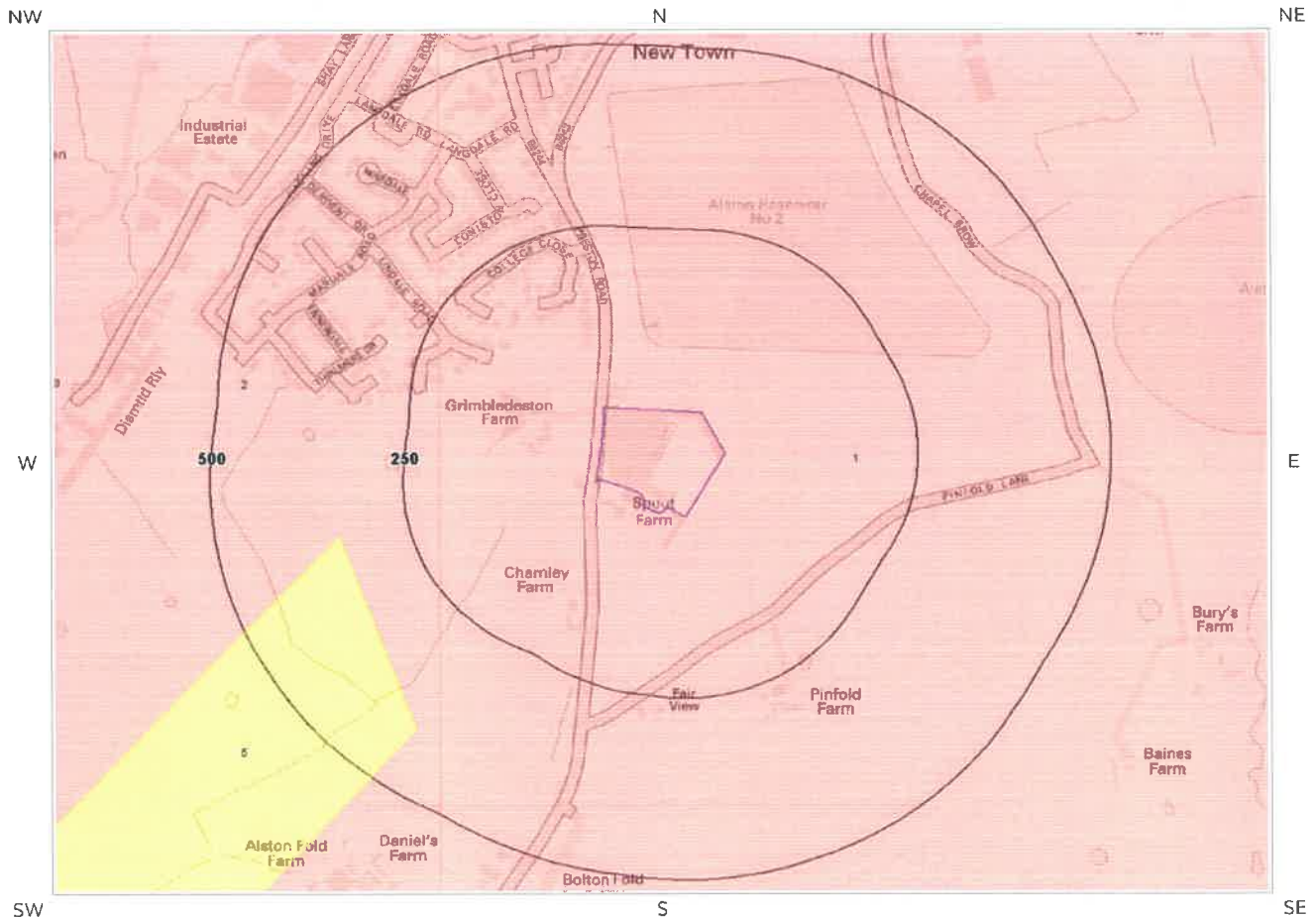
## 6a. Aquifer Within Superficial Geology



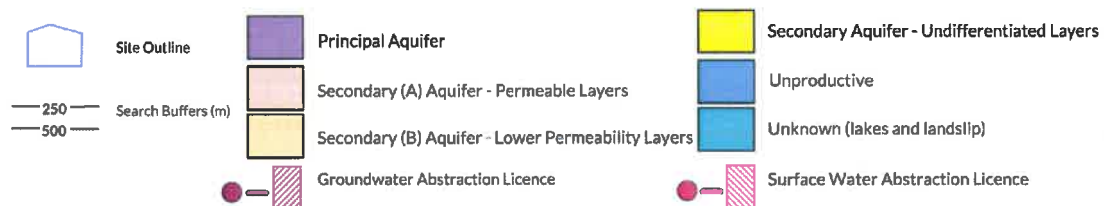
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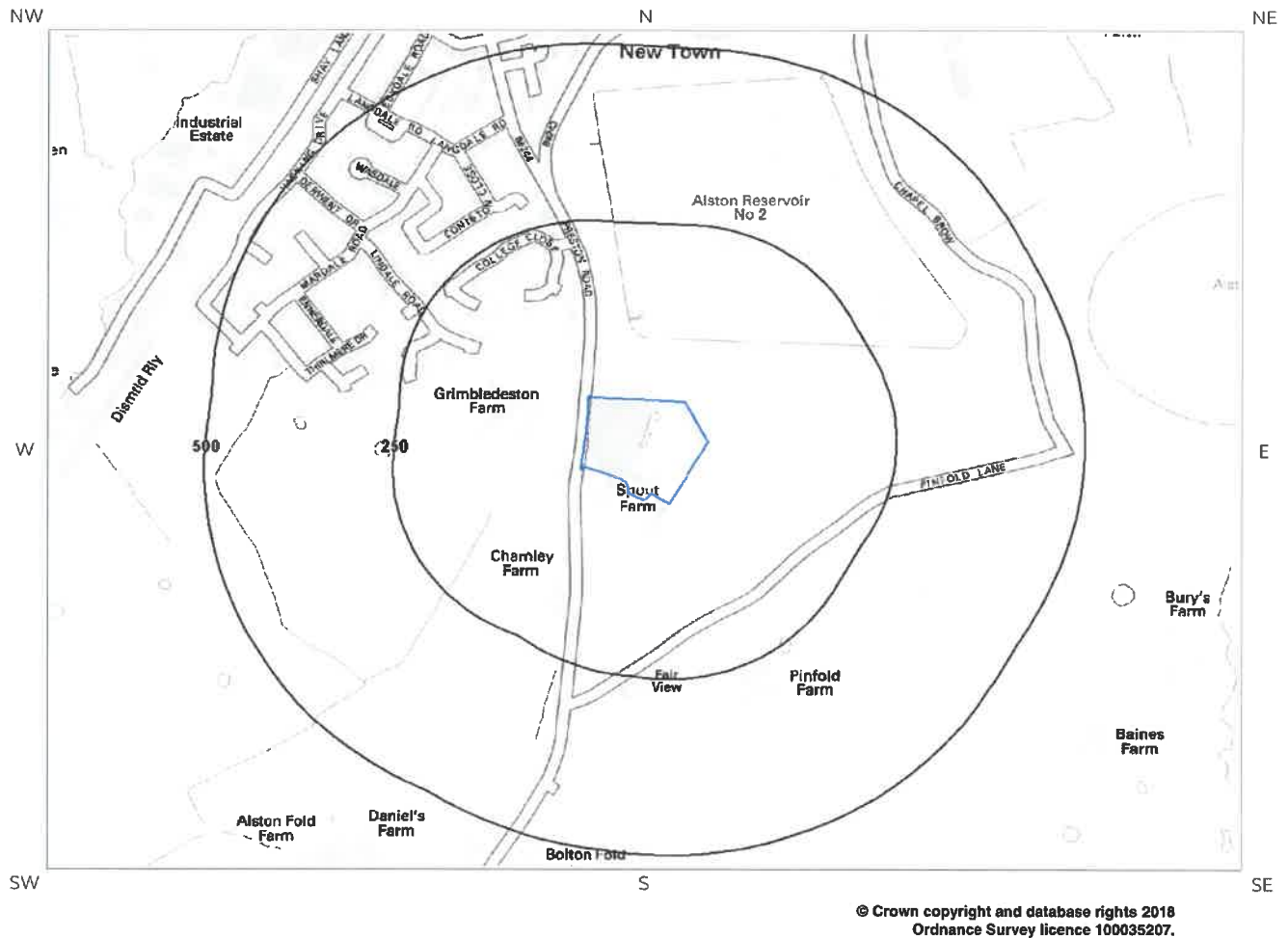
# 6b. Aquifer Within Bedrock Geology and Abstraction Licences



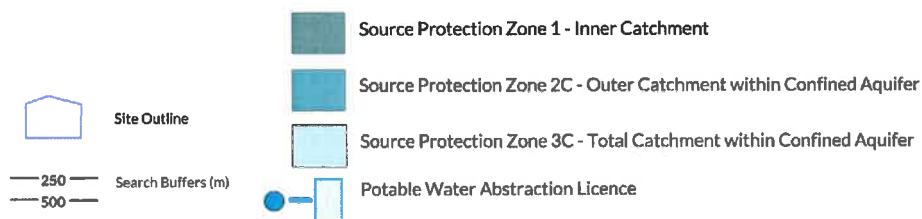
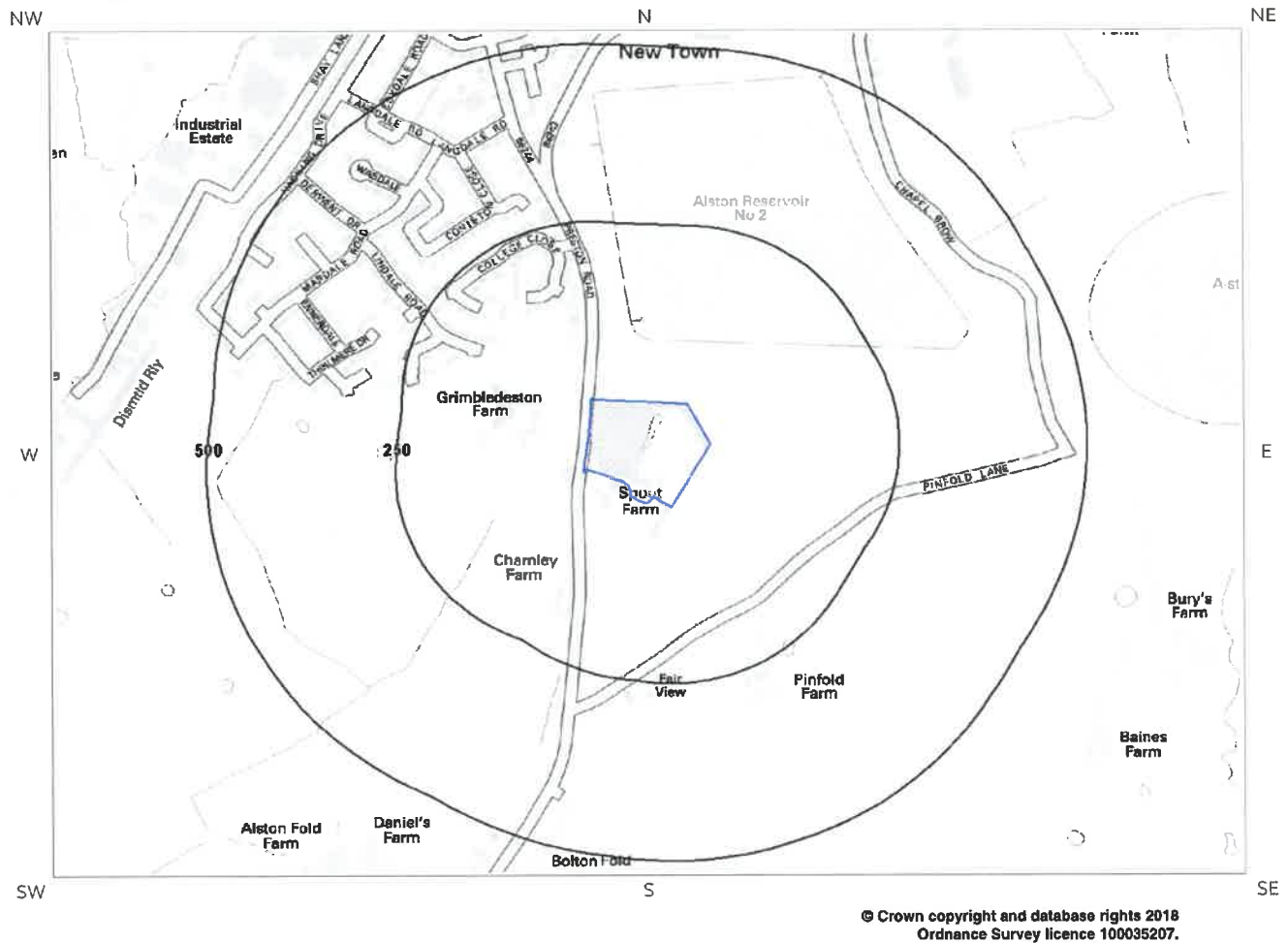
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# 6c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licences

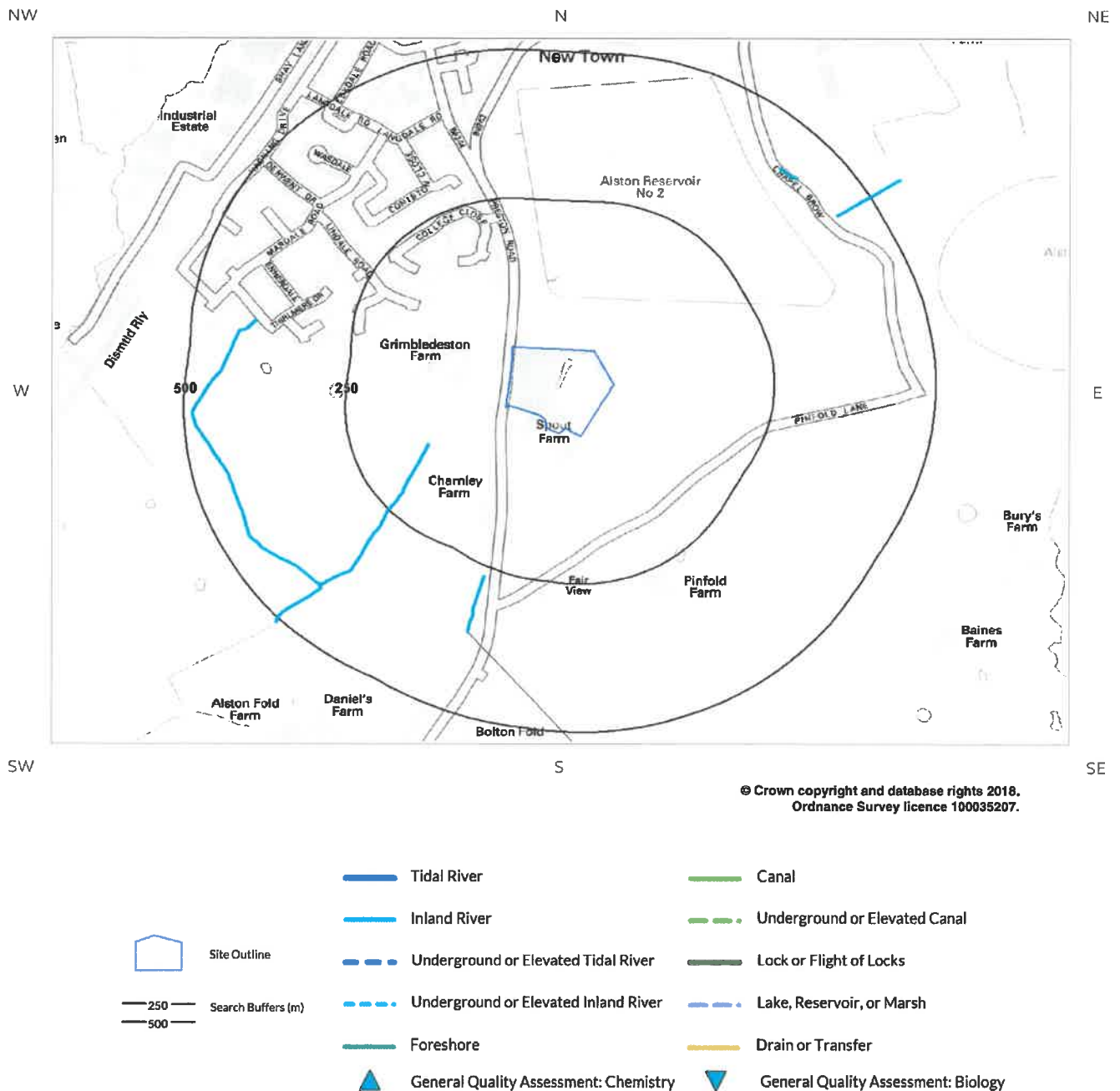


# 6d. Hydrogeology – Source Protection Zones within confined aquifer





# 6e. Hydrology – Watercourse Network and River Quality



# 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
3	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
4	203	W	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

## 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 A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
2	203	W	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
5	338	W	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

## 6.3 Groundwater Abstraction Licences

Groundwater Abstraction Licences within 2000m of the study site

Identified

The following Abstraction Licences records are represented as points, lines and regions on the Aquifer within Bedrock Geology Map (6b):

ID	Distance (m)	Direction	NGR	Details
Not shown	805	N	360200 436900	<p>Status: Historical Licence No: 2671348013 Details: General use relating to Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT MILL FARM, PRESTON ROAD, LONGRIDGE Data Type: Point Name: SINGLETONS DAIRY LTD</p> <p>Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: - Original Start Date: 15/08/1989 Expiry Date: - Issue No: 100 Version Start Date: 15/08/1989 Version End Date:</p>
Not shown	890	N	360176 436984	<p>Status: Active Licence No: NW/071/0348/002 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: MILL FARM BOREHOLE Data Type: Point Name: SINGLETONS DAIRY LTD</p> <p>Annual Volume (m³): 31840 Max Daily Volume (m³): 88 Original Application No: - Original Start Date: 27/06/2013 Expiry Date: 31/03/2028 Issue No: 1 Version Start Date: 27/06/2013 Version End Date:</p>

## 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/Low Leaching Potential	L	Soils in which pollutants are unlikely to penetrate the soil layer because either water movement is largely horizontal, or they have the ability to attenuate diffuse pollutants.
203	W	Minor Aquifer/Low Leaching Potential	L	Soils in which pollutants are unlikely to penetrate the soil layer because either water movement is largely horizontal, or they have the ability to attenuate diffuse pollutants.

## 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	134 SW	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
3	134 SW	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
2	266 SW	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
4	266 SW	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
3	365 SW	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: Not provided Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	365 SW	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: Not provided Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
4	398 W	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
6	398 W	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
5	416 SW	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided



ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
6	416 SW	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
7	416 SW	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
7	416 SW	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ribble 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	416 SW	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
9	416 SW	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
8	421 NE	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	421 NE	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
9	439 NE	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
11	439 NE	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided

## 6.11 Surface Water Features

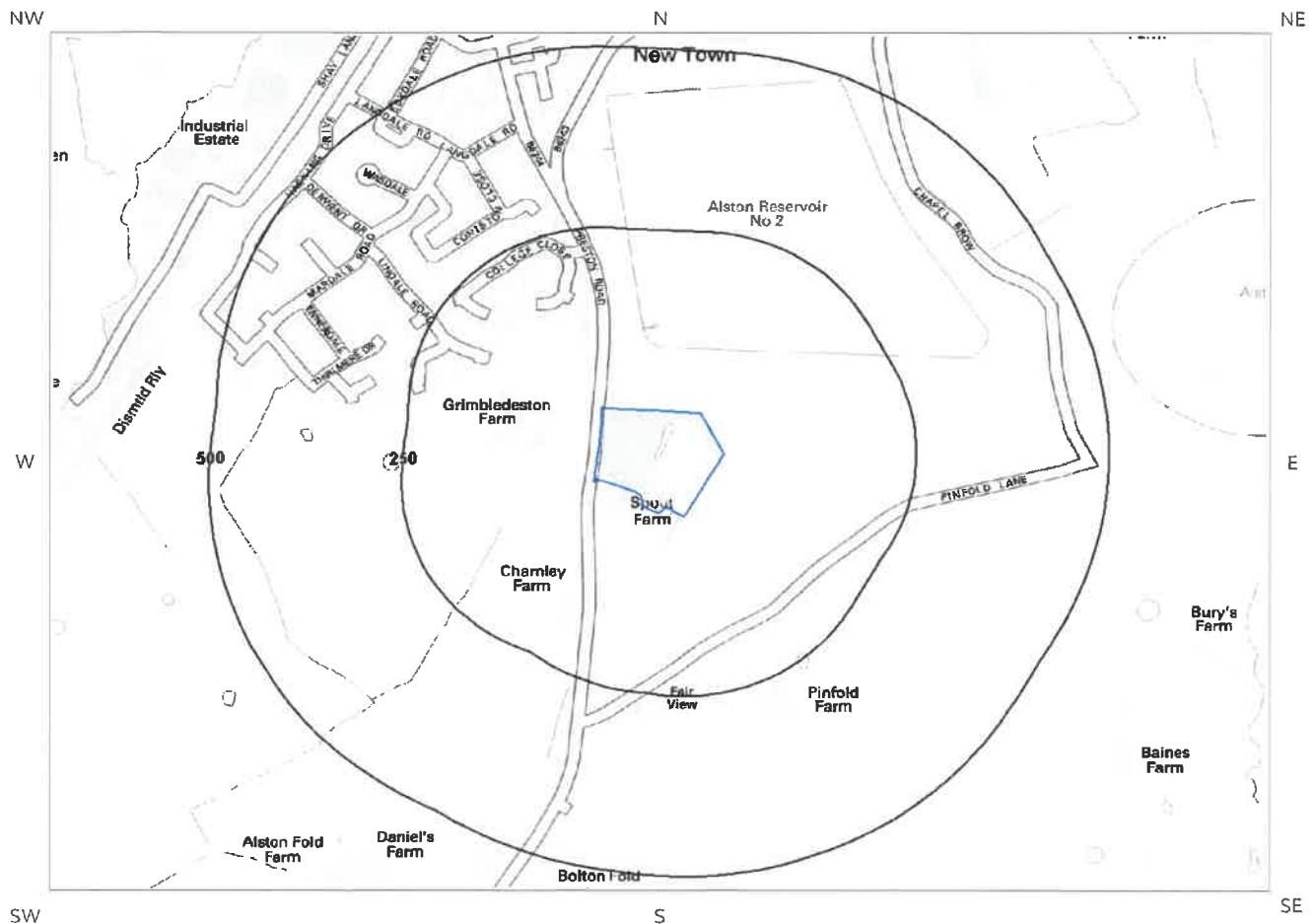
Surface water features within 250m of the study site

Identified

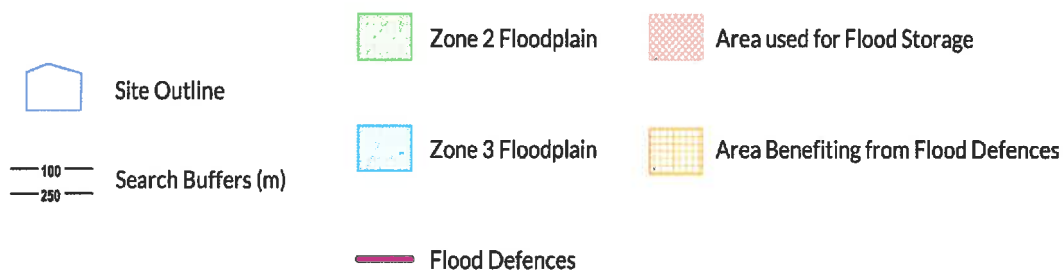
The following surface water records are not represented on mapping:

Distance (m)	Direction
89	N
134	SW

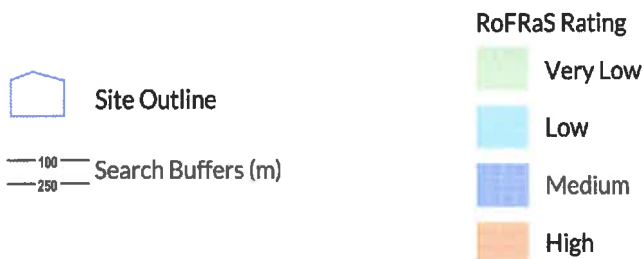
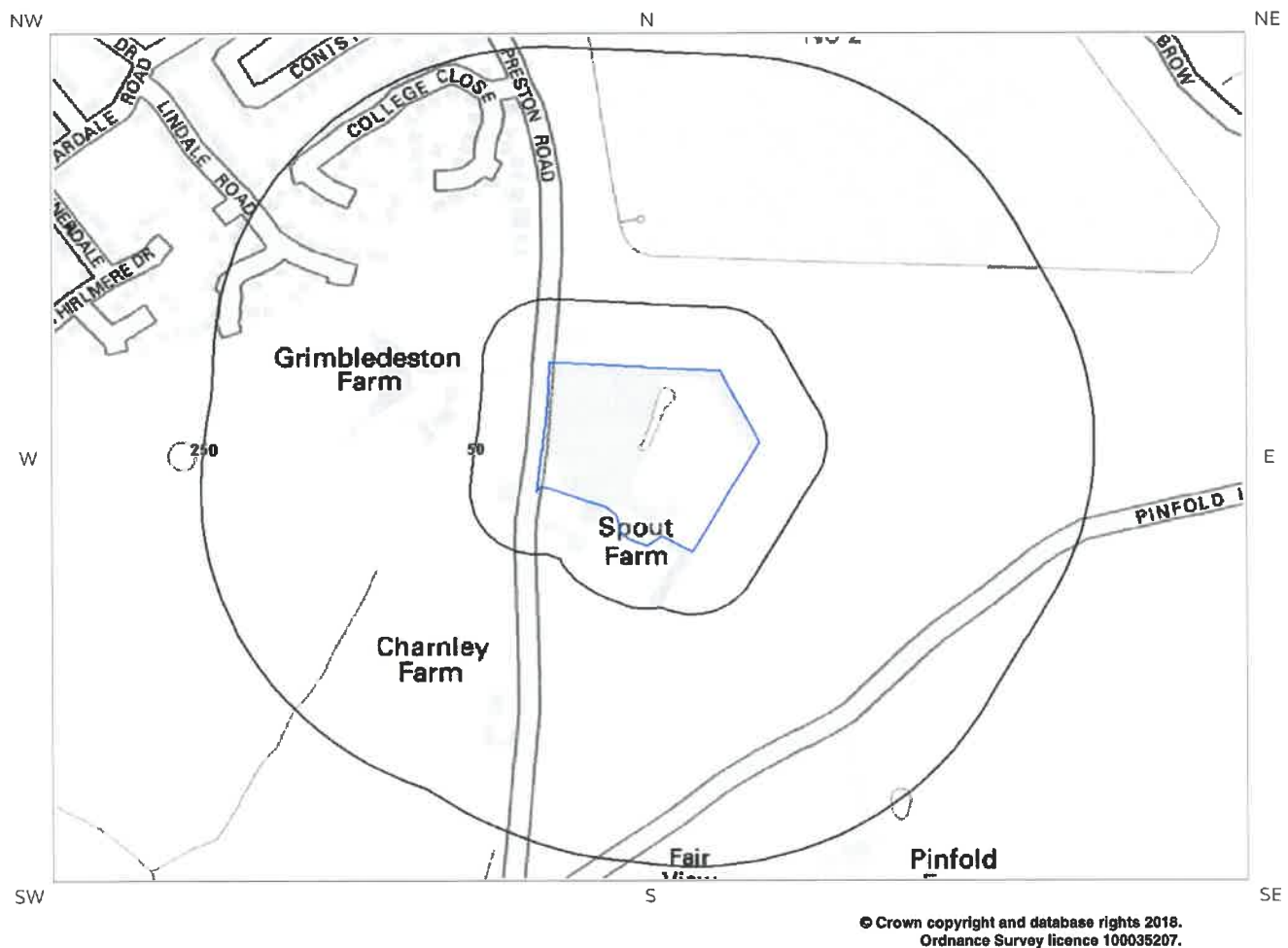
# 7a. Environment Agency/Natural Resources Wales Flood Map for Planning (from rivers and the sea)



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



# 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

Clearwater 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

Limited potential

Where limited potential for groundwater flooding to occur is indicated, this means that although given the geological conditions there may be a groundwater flooding hazard, unless other relevant information, e.g. records of previous flooding, suggests groundwater flooding has occurred before in this area, you need take no further action in relation to groundwater flooding hazard.

## 7.8 Groundwater Flooding Confidence Areas

British Geological Survey confidence rating in this result

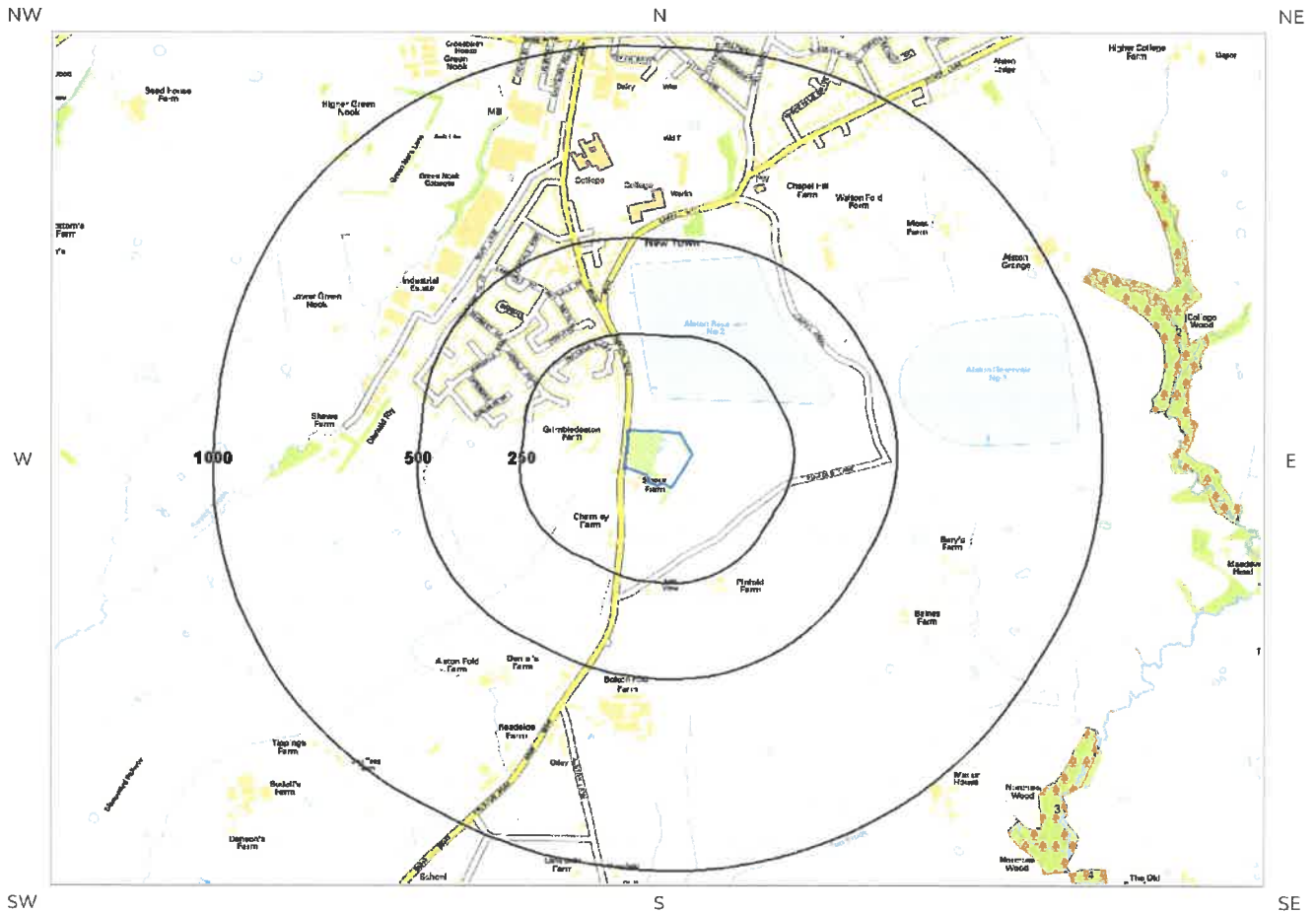
Low

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



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## 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:

6

The following records of Designated Ancient Woodland provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	Ancient Woodland Name	Data Source
1	1052	NE	COLLEGE WOOD	Ancient Replanted Woodland
2	1070	NE	COLLEGE WOOD	Ancient and Semi-Natural Woodland
3	1191	SE	KING WOOD	Ancient and Semi-Natural Woodland
4	1397	SE	KING WOOD	Ancient and Semi-Natural Woodland
Not shown	1674	SE	KING WOOD	Ancient and Semi-Natural Woodland
Not shown	1938	SE	LEECES WOOD	Ancient and Semi-Natural Woodland

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

0

Database searched and no data found.

## 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:

0

Database searched and no data found.

---

# 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 Identified

The following non-coal mining information is provided by the BGS:

Distance (m)	Direction	Name	Commodity	Assessment of likelihood
0.0	On Site	Not available	Vein Mineral	Sporadic underground mining of restricted extent may have occurred. Potential for difficult ground conditions are unlikely and localised and are at a level where they need not be considered

Past underground mine workings are uncommon, localised and of limited area. The rock types present in this area are such that minor mineral veins may be present within them on which it is possible that there have been attempts to work these by underground methods and/or it is possible that small scale underground extraction of other materials may have occurred. All such occurrences are likely to be restricted in size and infrequent. It should be noted, however, that there is always the possibility of the existence of other sub-surface excavations, such as wells, cess pits, follies, air raid shelters/bunkers and other military structures etc. that could affect surface ground stability but which are outside the scope of this dataset. However, if in a coalfield area you should still consider a Coal Authority mining search for the area of interest.

## 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](http://www.bgs.ac.uk)

BGS Geological Hazards Reports and general geological enquiries:  
[enquiries@bgs.ac.uk](mailto: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](http://www.environment-agency.gov.uk)  
Email: [enquiries@environment-agency.gov.uk](mailto: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](http://www.gov.uk/phe)  
Email: [enquiries@phe.gov.uk](mailto:enquiries@phe.gov.uk)  
Main switchboard: 020 7654 8000



**Public Health  
England**

**The Coal Authority**  
200 Lichfield Lane  
Mansfield  
Notts NG18 4RG  
Tel: 0345 7626 848  
DX 716176 Mansfield 5  
[www.coal.gov.uk](http://www.coal.gov.uk)



**The Coal  
Authority**

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



**Local Authority**  
Authority: Ribble Valley Borough Council  
Phone: 01200 425111  
Web: <https://www.ribblevalley.gov.uk/>  
Address: Council Offices, Church Walk, Clitheroe, Lancashire, BB7 2RA

**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.

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



WML Consulting

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

Groundsure  
Reference:

GS-5670274

Your Reference: 8517G

Report Date 5 Dec 2018

Report Delivery Method: Email - pdf

## Geo Insight

Address: SPOUT FARM, PRESTON ROAD, LONGRIDGE, PR3 3BD

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:** SPOUT FARM, PRESTON ROAD, LONGRIDGE, PR3 3BD  
**Date:** 5 Dec 2018  
**Reference:** GS-5670274  
**Client:** WML Consulting

320200303P

NW

N

NE

W

E



SW

S

SE

Aerial Photograph Capture date: 03-Apr-2017  
Grid Reference: 360288,436034  
Site Size: 1.78ha

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# Overview of Findings

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

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

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

## Section 1: Geology 1:10,000 Scale

1.1 Artificial Ground	1.1 Is there any Artificial Ground/ Made Ground present beneath the study site at 1:10,000 scale?	No
1.2 Superficial Geology and Landslips	1.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site at 1:10,000 scale?*	No
	1.2.2 Are there any records of landslip 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 landslip within 500m of the study site boundary?	No
	2.2.4 Are there any records relating to permeability of landslips within the study site* boundary?	No

## Section 2: Geology 1:50,000 Scale

### 2.3 Bedrock, Solid Geology and linear features

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

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

Yes

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

Yes

## Section 3: Radon

### 3. Radon

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

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

3.2 Radon Protection

No radon protective measures are necessary.

## Section 4: Ground Workings

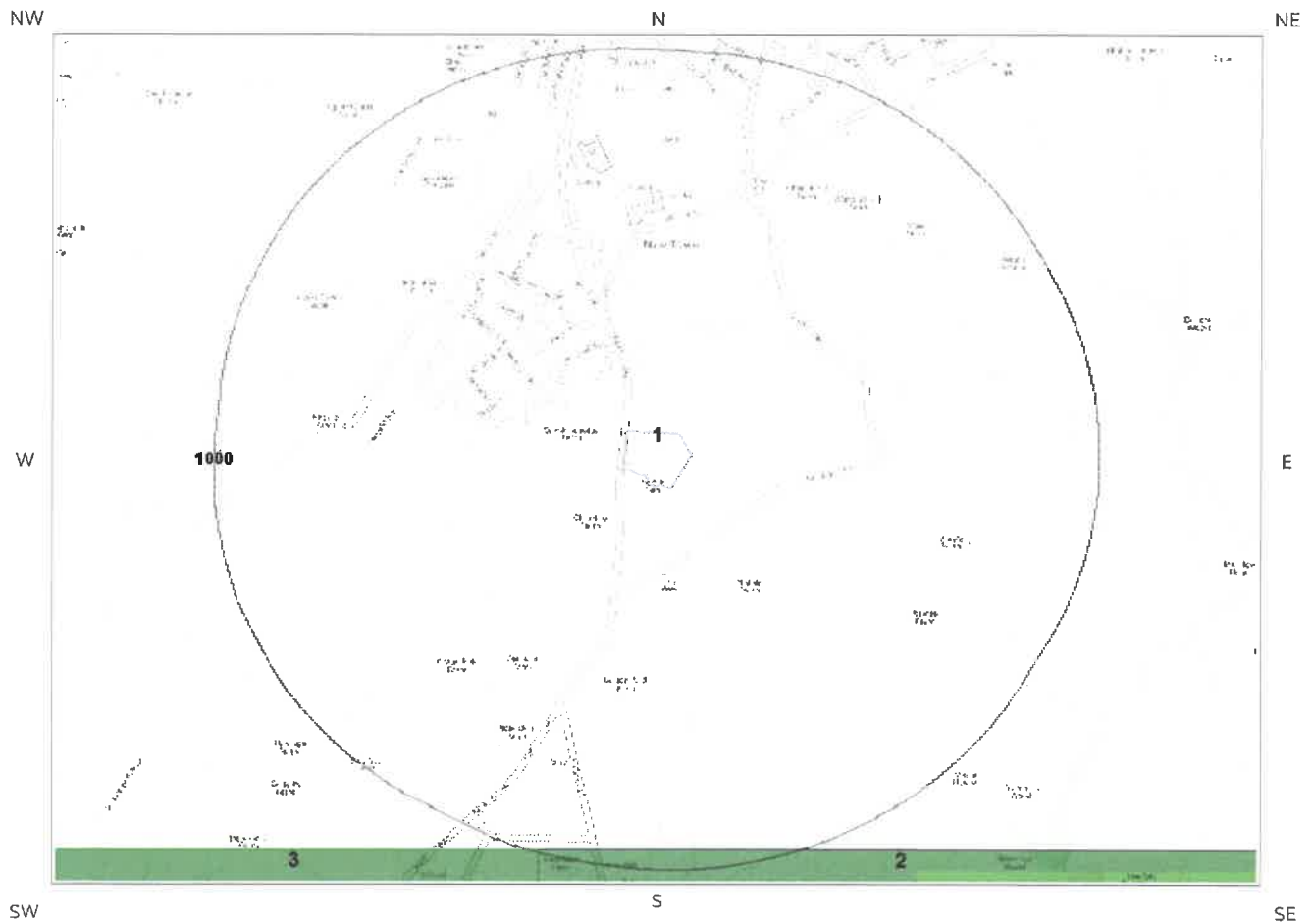
	On-site	0-50m	51-250	251-500	501-1000
4.1 Historical Surface Ground Working Features from Small Scale Mapping	0	6	5	Not Searched	Not Searched
4.2 Historical Underground Workings from Small Scale Mapping	0	1	3	1	0
4.3 Current Ground Workings	0	0	0	0	3

## Section 5: Mining, Extraction & Natural Cavities

	On-site	0-50m	51-250	251-500	501-1000
5.1 Historical Mining	0	1	3	1	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*	1	0	1	1	2
5.5 Non-Coal Mining Cavities	0	0	0	0	0
5.5 Natural Cavities	0	0	0	0	0

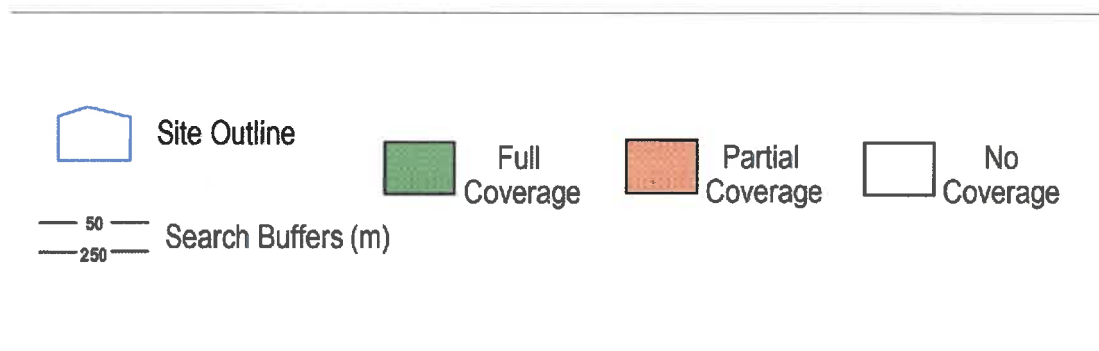
Section 5: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
5.6 Brine Extraction	0	0	0	0	0
5.7 Gypsum Extraction	0	0	0	0	0
5.8 Tin Mining	0	0	0	0	0
5.9 Clay Mining	0	0	0	0	0
Section 6: Natural Ground Subsidence	On-site				
6.1 Shrink-Swell Clay	Very Low				
6.2 Landslides	Very 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	0		
Section 8: Estimated Background Soil Chemistry	On-site	0-50m	51-250		
8 Records of Background Soil Chemistry	2	0	0		
Section 9: Railways and Tunnels	On-site	0-50m	51-250	250-500	
9.1 Tunnels	0	0	0	Not Searched	
9.2 Historical Railway and Tunnel Features	0	0	0	Not Searched	
9.3 Historical Railways	0	0	0	Not Searched	
9.4 Active Railways	0	0	0	Not Searched	
9.5 Railway Projects	0	0	0	0	

# 1:10,000 Scale Availability



1\_10,000 Availability Legend

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# Availability of 1:10,000 Scale Geology Mapping

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

ID	Distance	Artificial Coverage	Superficial Coverage	Bedrock Coverage	Mass Movement Coverage
1	0.0	No deposits are mapped	No coverage	No coverage	No coverage
2	945.0	Some deposits are mapped	Full	Full	Some deposits are mapped
3	992.0	Some deposits are mapped	Full	Full	Some deposits are mapped

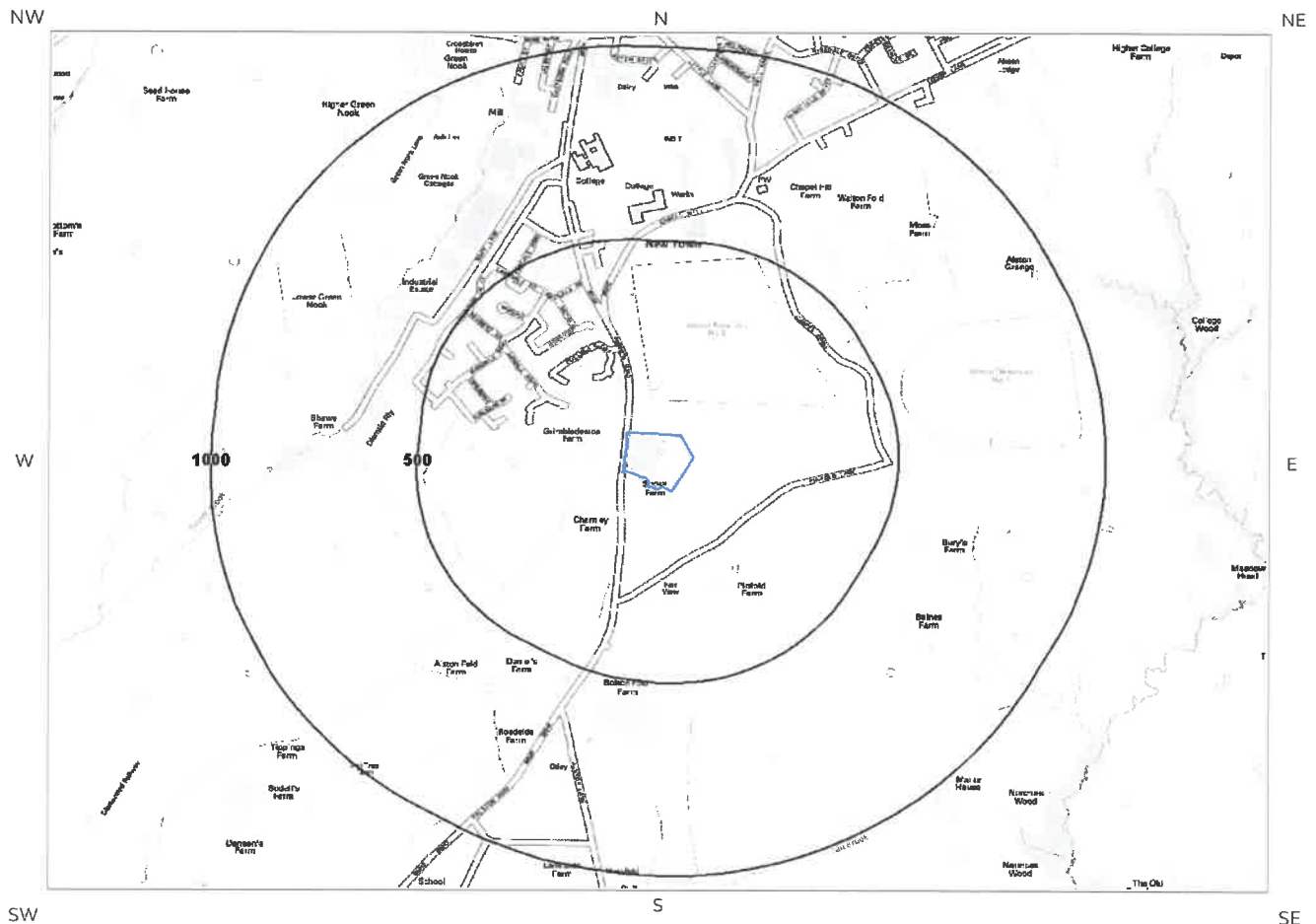
Guidance: The 1:10,000 scale geological interpretation is the most detailed generally available from BGS and is the scale at which most geological surveying is carried out in the field. The database is presented as four types of geology (artificial, mass movement, superficial and bedrock), although not 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

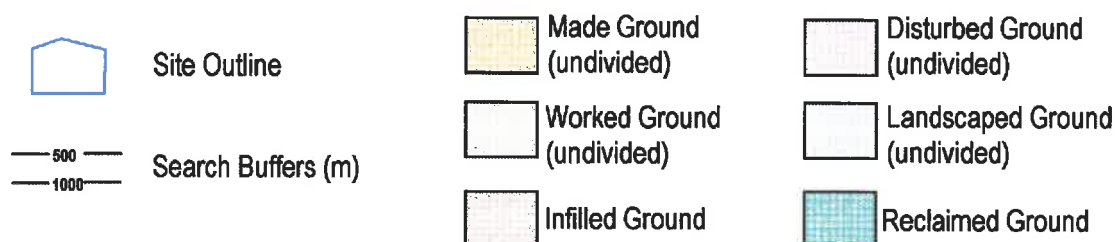


## 1.1 Artificial Ground map (1:10,000 scale)



### Artificial Ground Legend

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# 1. Geology 1:10,000 scale

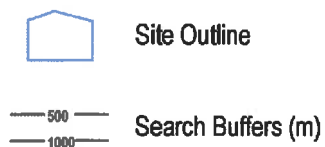
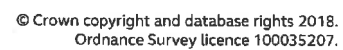
## 1.1 Artificial Ground

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

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

Database searched and no data found.

---



## 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? No

Database searched and no data found.

---

### 1.2.2 Landslip

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

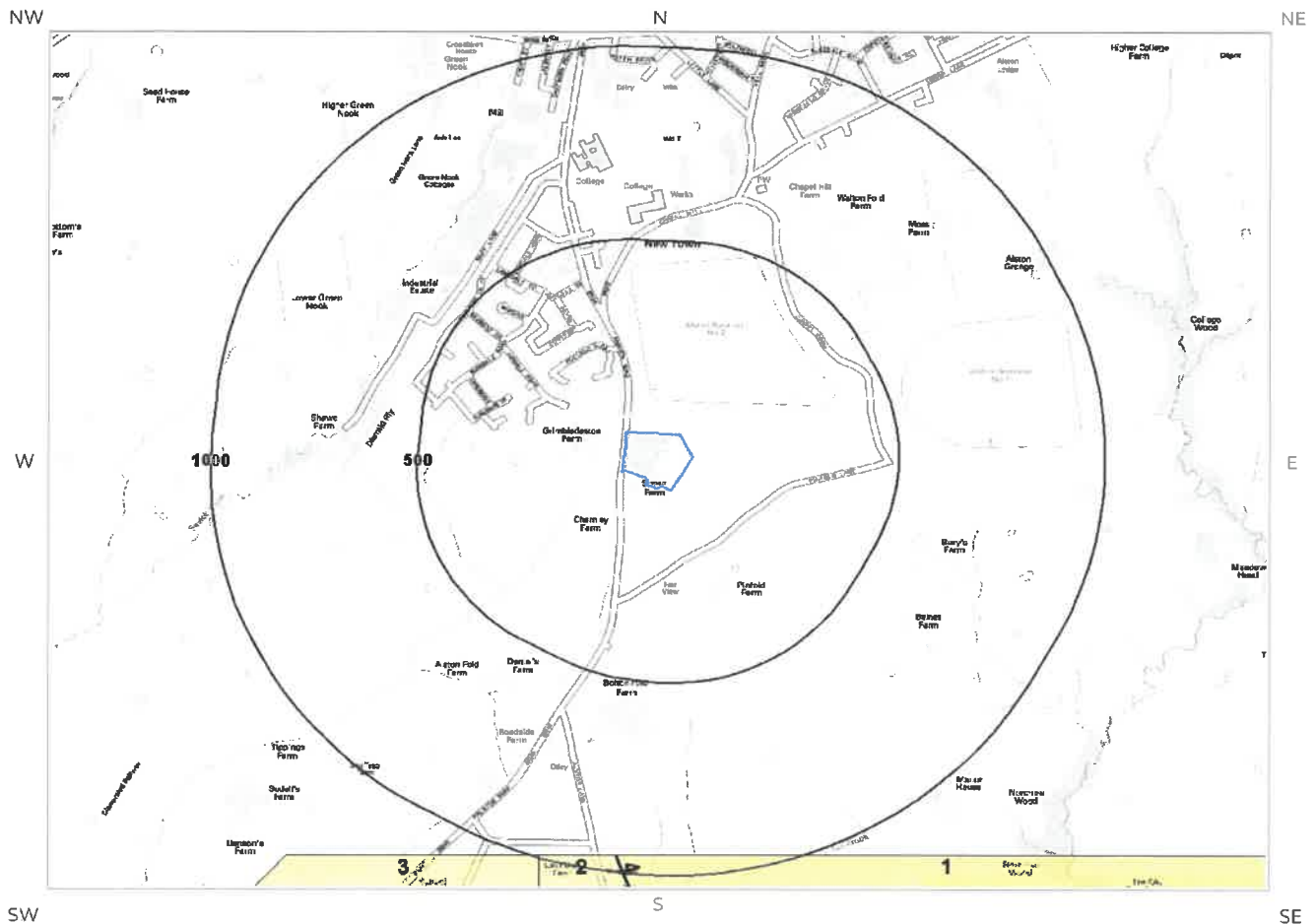
Database searched and no data found.

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

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

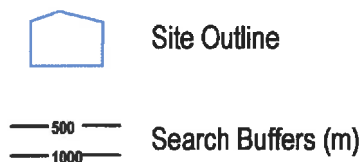
---

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



Bedrock and linear features Legend

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## 1.3 Bedrock and linear features

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

### 1.3.1 Bedrock/ Solid Geology

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

Database searched and no data found at this scale.

---

### 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.

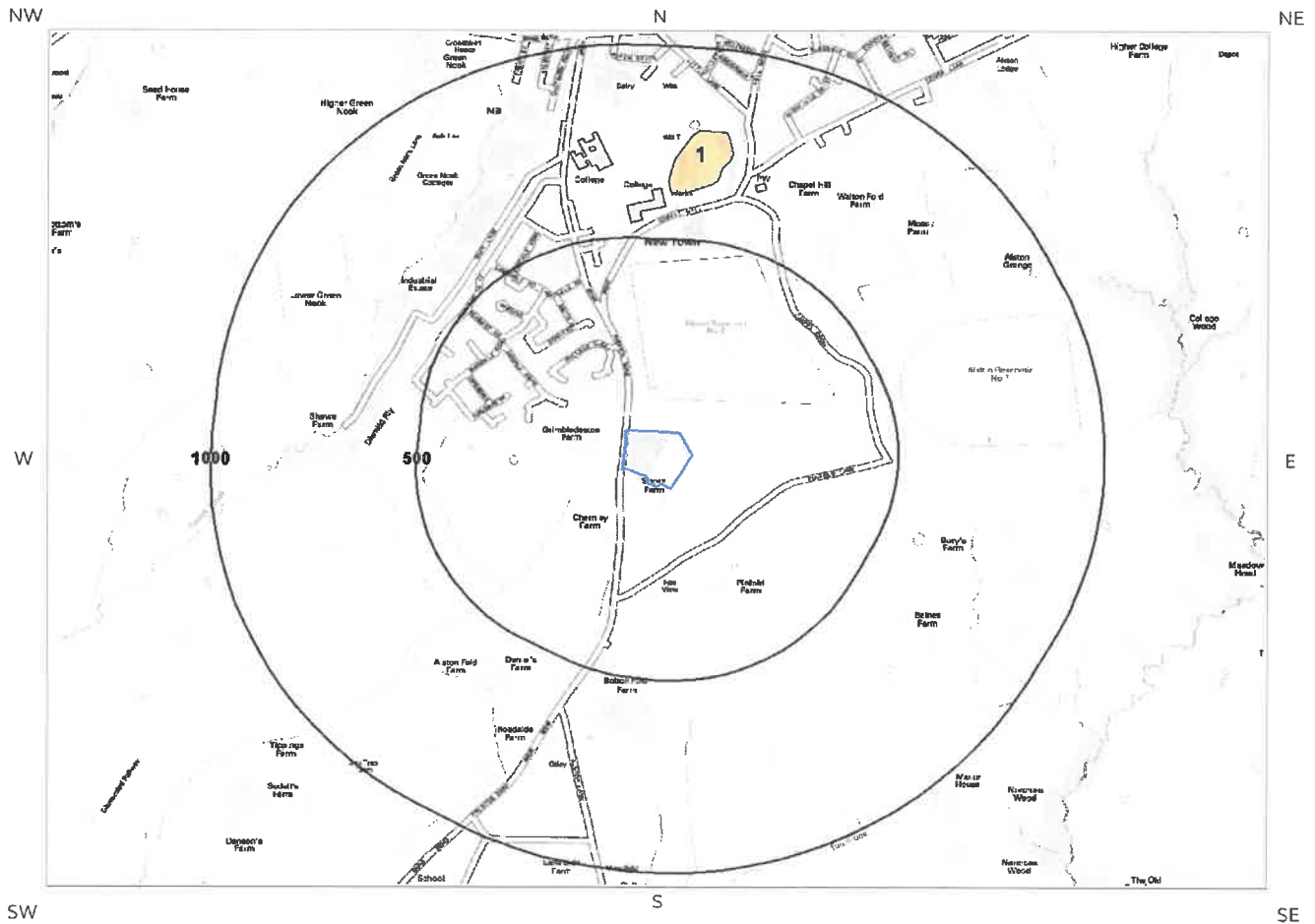
This Geology shows the main components as discrete layers, these are: Bedrock/ Solid Geology and linear features such as faults. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

---

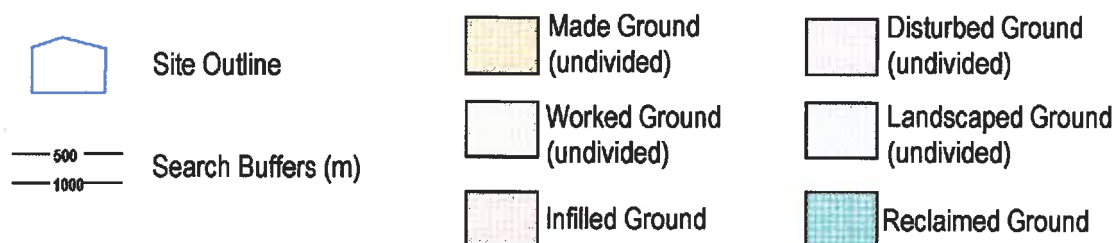


# 2 Geology 1:50,000 Scale

## 2.1 Artificial Ground map



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## 2. Geology 1:50,000 scale

### 2.1 Artificial Ground

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 067

#### 2.1.1 Artificial/ Made Ground

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

Database searched and no data found.

---

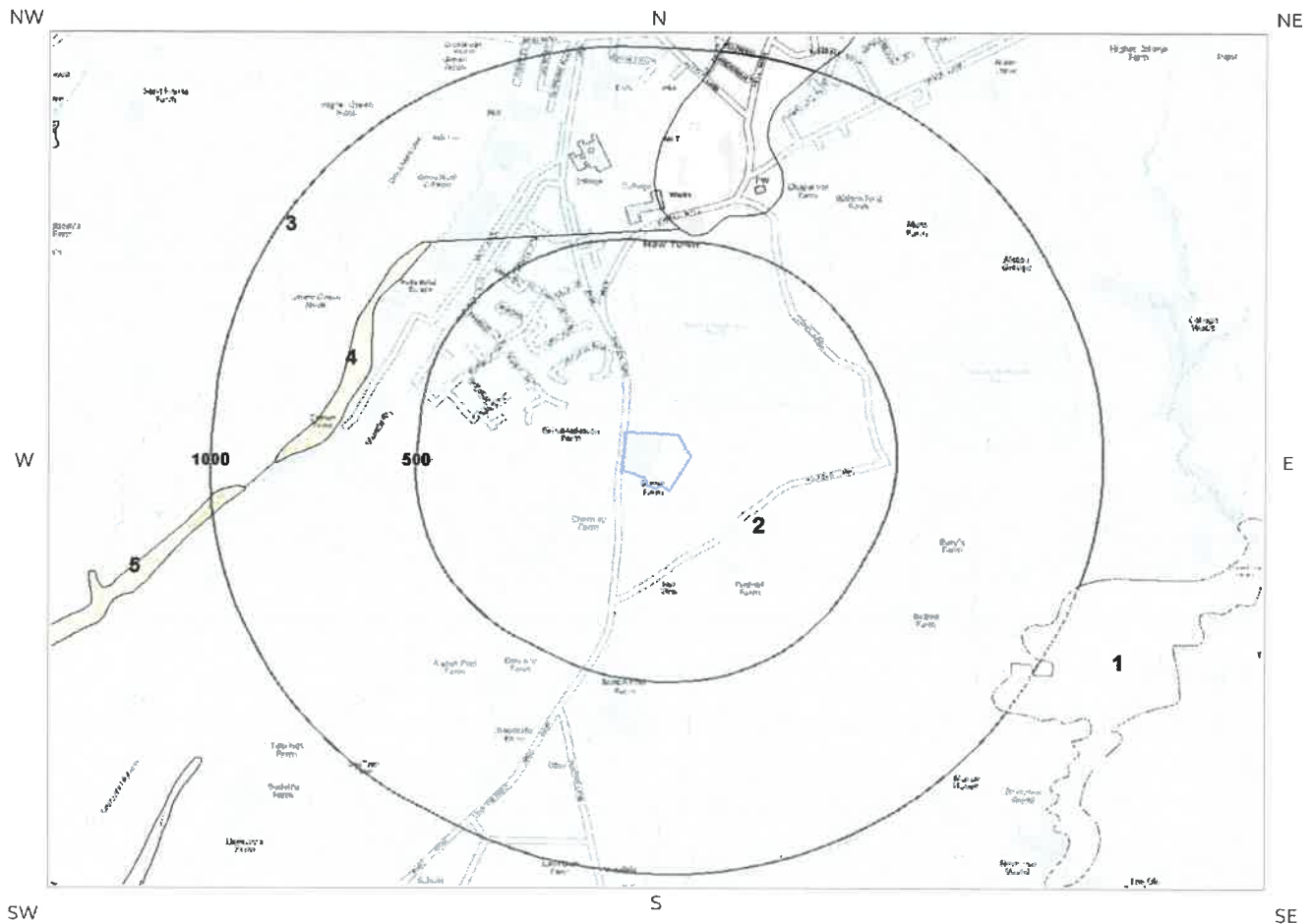
#### 2.1.2 Permeability of Artificial Ground

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

Database searched and no data found.

---

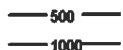
## 2.2 Superficial Deposits and Landslips map (1:50,000 scale)



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Site Outline



Search Buffers (m)

## 2.2 Superficial Deposits and Landslips

### 2.2.1 Superficial Deposits/ Drift Geology

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

ID	Distance	Direction	LEX Code	Description	Rock Description
2	0.0	On Site	TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON

### 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.

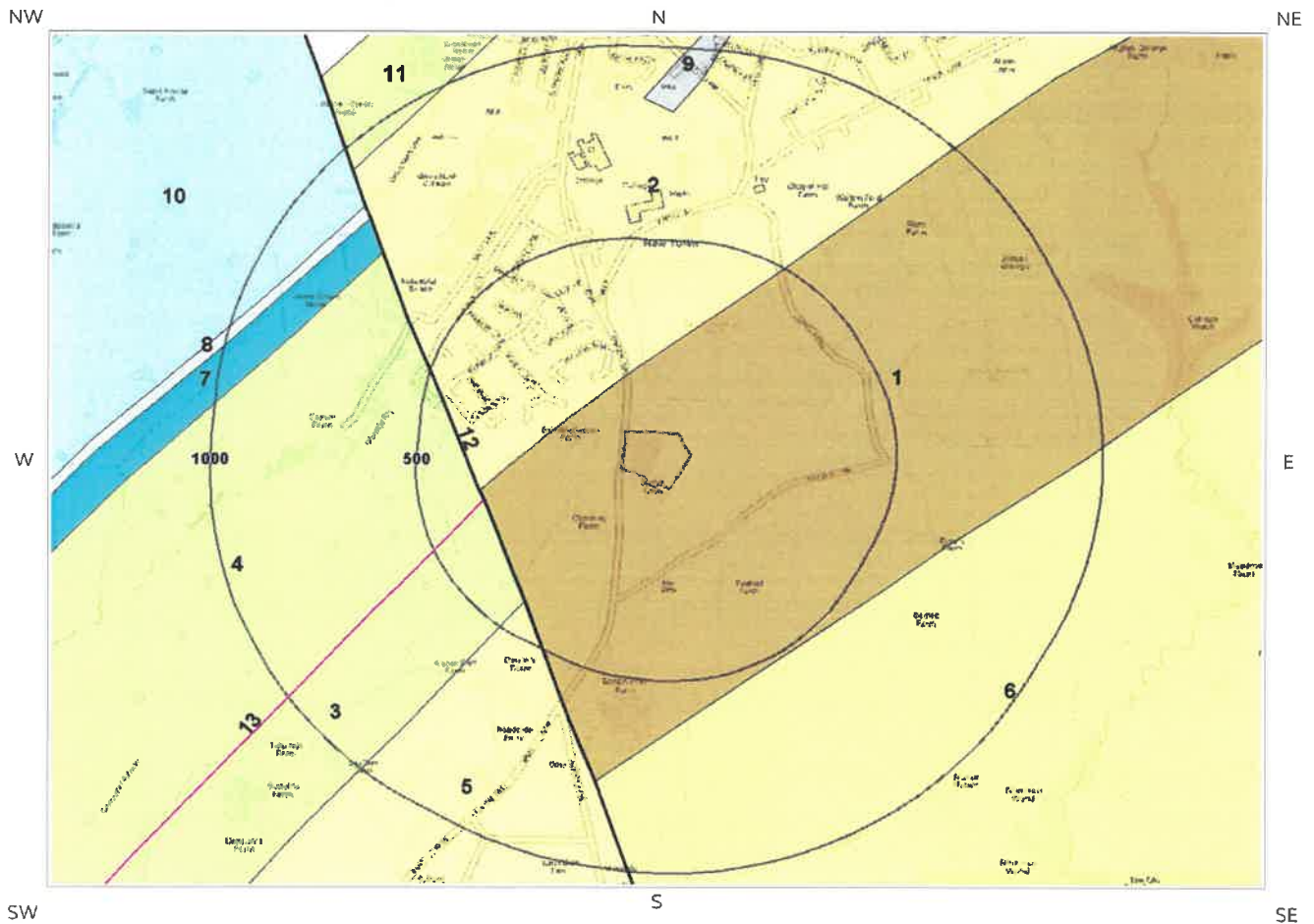
This Geology shows the main components as discrete layers, there are: Artificial/ Made Ground, Superficial/ Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

### 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.

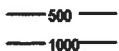
## 2.3 Bedrock and linear features map (1:50,000 scale)



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Site Outline



Search Buffers (m)

## 2.3 Bedrock, Solid Geology & linear features

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 067

### 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	WWG-SDST	WARLEY WISE GRIT - SANDSTONE	NAMURIAN
2	113.0	NW	PG-SDST	PENDLE GRIT MEMBER - SANDSTONE	NAMURIAN
3	338.0	W	BSG-MDST	BOWLAND SHALE FORMATION - MUDSTONE	WISEAN
4	342.0	W	BSG-MDSI	BOWLAND SHALE FORMATION - MUDSTONE AND SILTSTONE	WISEAN
5	411.0	SW	PG-SDSL	PENDLE GRIT MEMBER - SANDSTONE AND SILTSTONE, INTERBEDDED	NAMURIAN

### 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	High	Moderate

### 2.3.3 Linear features

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

ID	Distance	Direction	Category Description	Feature Description
12	338.0	W	FAULT	Fault, inferred
13	342.0	W	FOSSIL_HORIZON	Marine band

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

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



## 3 Radon Data

### 3.1 Radon Affected Areas

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

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

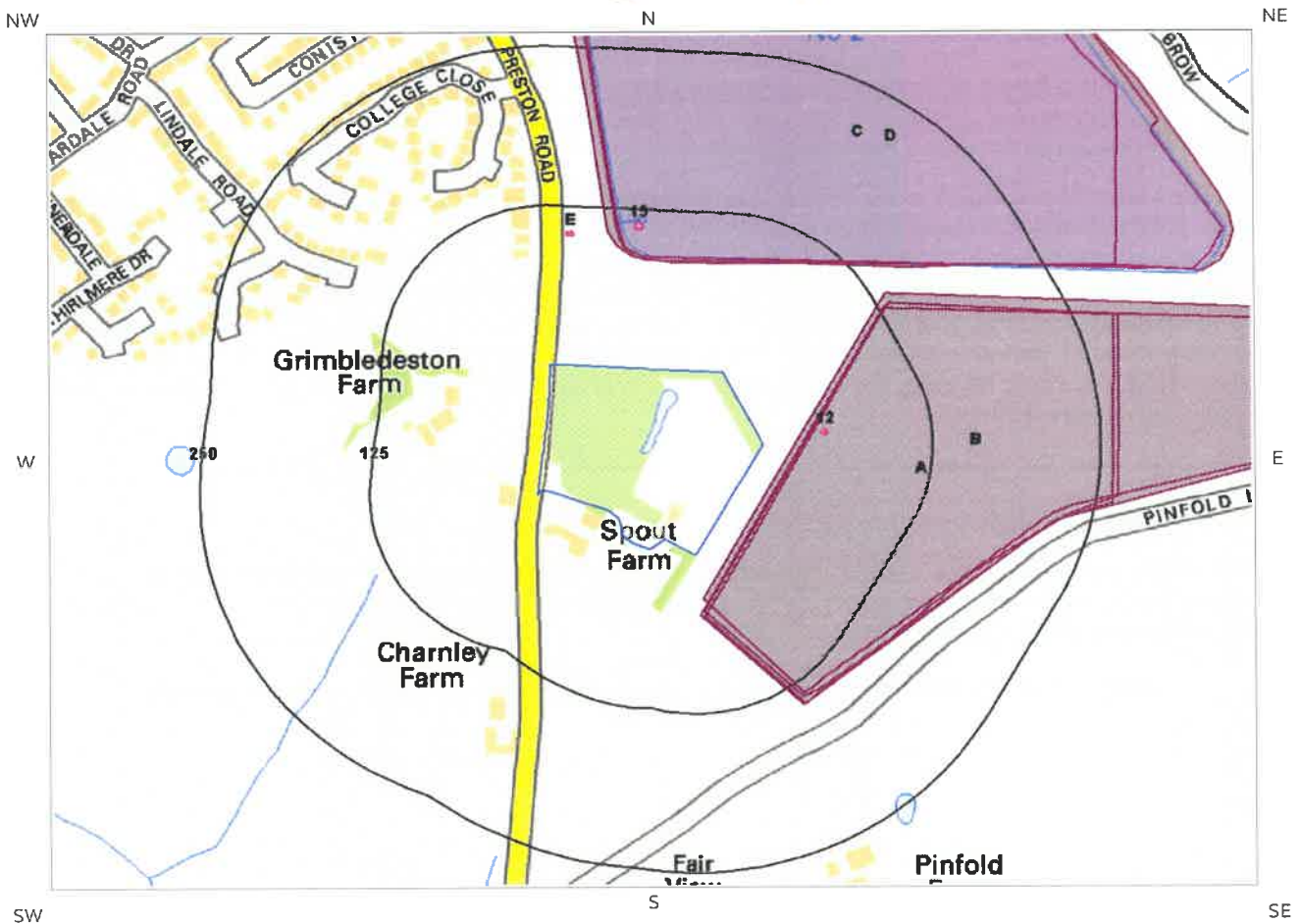
---

### 3.2 Radon Protection

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

---

# 4 Ground Workings map



Ground Workings Legend

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

# 4 Ground Workings

## 4.1 Historical Surface Ground Working Features derived from Historical Mapping

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

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

ID	Distance (m)	Direction	NGR	Use	Date
1B	20.0	SE	360548 435993	Reservoir	1951
2A	25.0	SE	360477 435983	Reservoir	1910
3A	25.0	SE	360477 435983	Reservoir	1932
4A	26.0	SE	360480 435988	Reservoir	1892
5B	27.0	SE	360545 435984	Reservoir	1969
6B	27.0	SE	360545 435984	Reservoir	1994
7D	84.0	N	360462 436366	Reservoir	1951
8C	85.0	N	360424 436358	Reservoir	1932
9C	85.0	N	360424 436358	Reservoir	1910
10D	88.0	N	360465 436358	Reservoir	1969
11D	88.0	N	360465 436358	Reservoir	1994

## 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? Yes

The following Historical Underground Working Features are provided by Groundsure:

ID	Distance (m)	Direction	NGR	Use	Date
12	44.0	E	360416 436041	Valve Shaft	1910

ID	Distance (m)	Direction	NGR	Use	Date
13E	101.0	N	360229 436198	Valve Shaft	1932
14E	101.0	N	360229 436198	Valve Shaft	1910
15	109.0	N	360280 436204	Valve Shaft	1910
Not shown	352.0	N	360207 436449	Valve Shaft	1910

### 4.3 Current Ground Workings

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

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

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

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
Not shown	615.0	N	360356 436704	Sandstone	Chapel Hill Quarry	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	746.0	N	360364 436834	Sandstone	Chapel Field Quarry	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	924.0	E	361275 435841	Clay & Shale	Bury's Farm	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased

# 5 Mining, Extraction & Natural Cavities map



**Mining, Extraction and Natural Cavities Legend**

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# 5 Mining, Extraction & Natural Cavities

## 5.1 Historical Mining

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

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

The following Historical Mining information is provided by Groundsure:

ID	Distance (m)	Direction	NGR	Details	Date
6	44.0	E	360416 436041	Valve Shaft	1910
7A	101.0	N	360229 436198	Valve Shaft	1910
8A	101.0	N	360229 436198	Valve Shaft	1932
9	109.0	N	360280 436204	Valve Shaft	1910
10	352.0	N	360207 436449	Valve Shaft	1910

## 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? Yes

The following non-coal mining information is provided by the BGS:

ID	Distance (m)	Direction	Name	Commodity	Assessment of likelihood
1	0.0	On Site	Not available	Vein Mineral	Sporadic underground mining of restricted extent may have occurred. Potential for difficult ground conditions are unlikely and localised and are at a level where they need not be considered
2	203.0	W	Not available	Vein Mineral	Sporadic underground mining of restricted extent may have occurred. Potential for difficult ground conditions are unlikely and localised and are at a level where they need not be considered
3	338.0	W	Not available	Vein Mineral	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered
Not shown	945.0	S	Not available	Vein Mineral	Sporadic underground mining of restricted extent may have occurred. Potential for difficult ground conditions are unlikely and localised and are at a level where they need not be considered
Not shown	992.0	S	Not available	Vein Mineral	Sporadic underground mining of restricted extent may have occurred. Potential for difficult ground conditions are unlikely and localised and are at a level where they need not be considered

## 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.

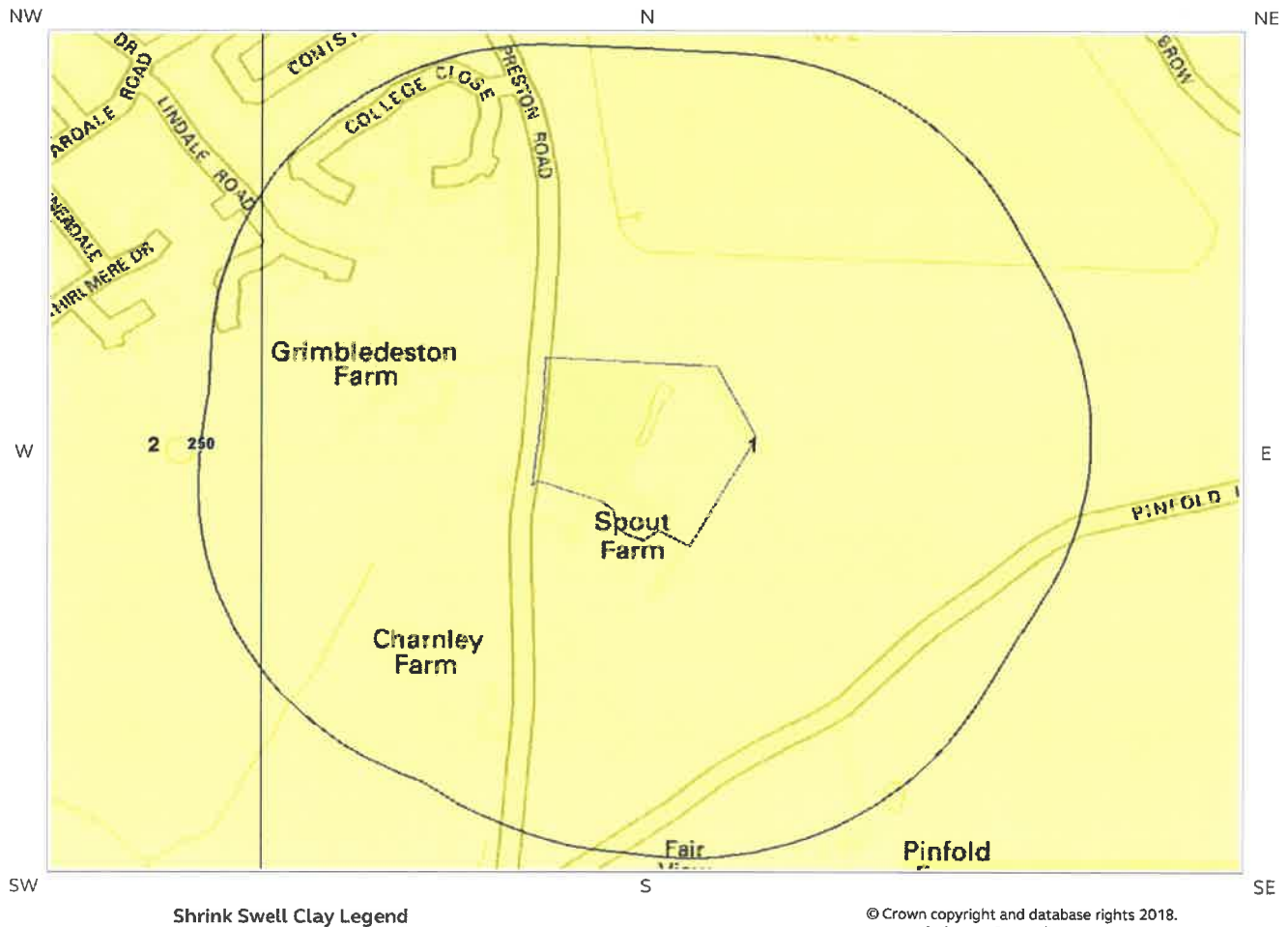
Are there any Clay Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

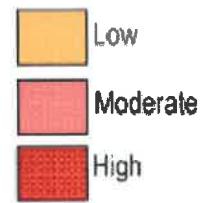
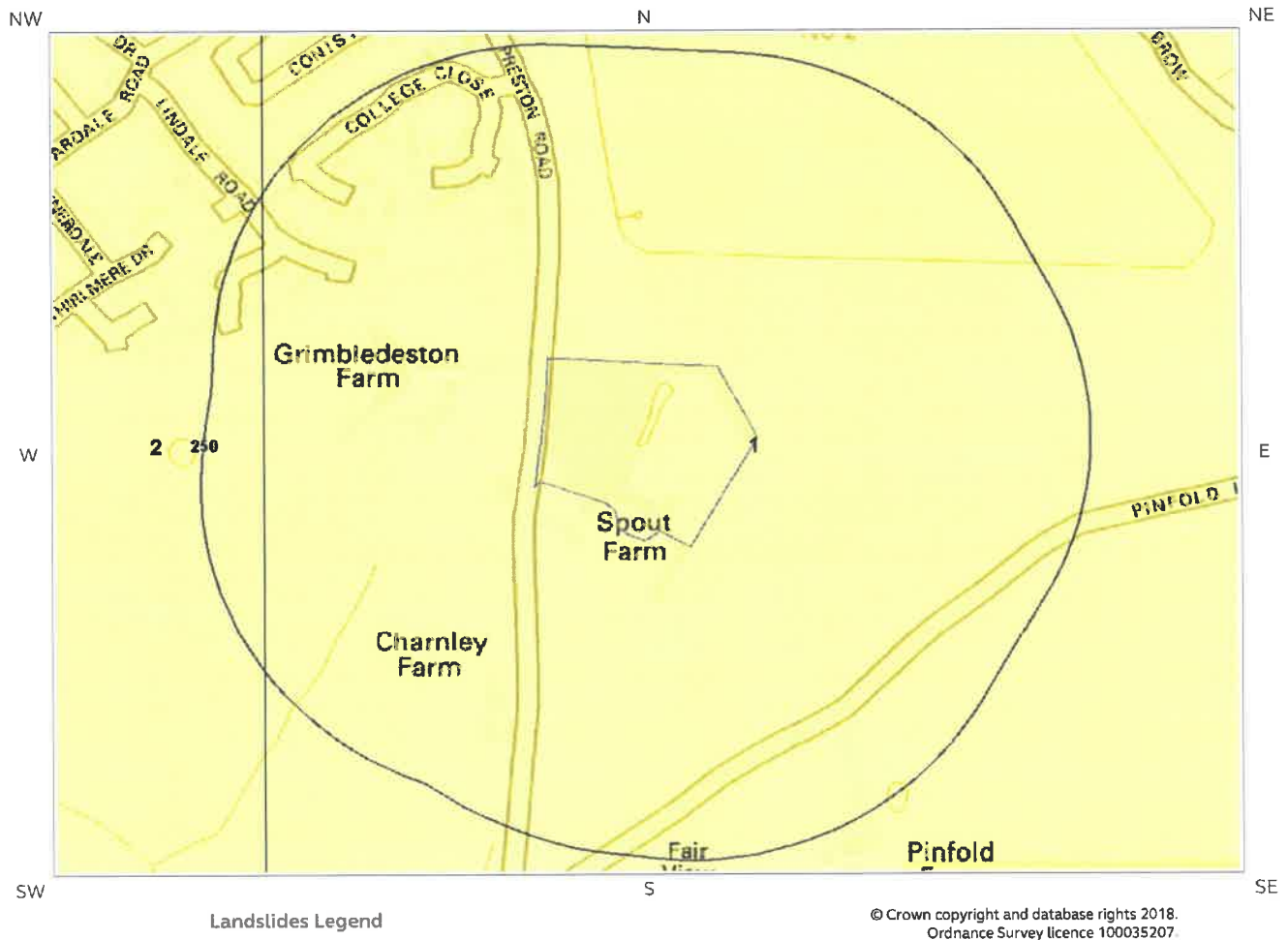
---

# 6 Natural Ground Subsidence

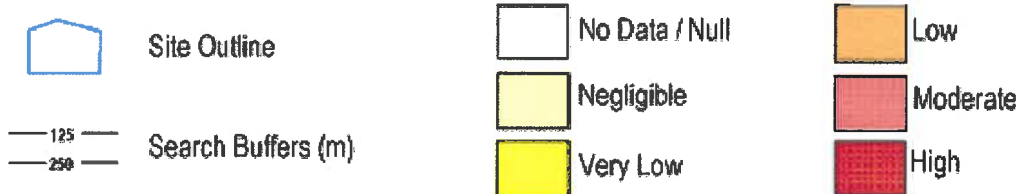
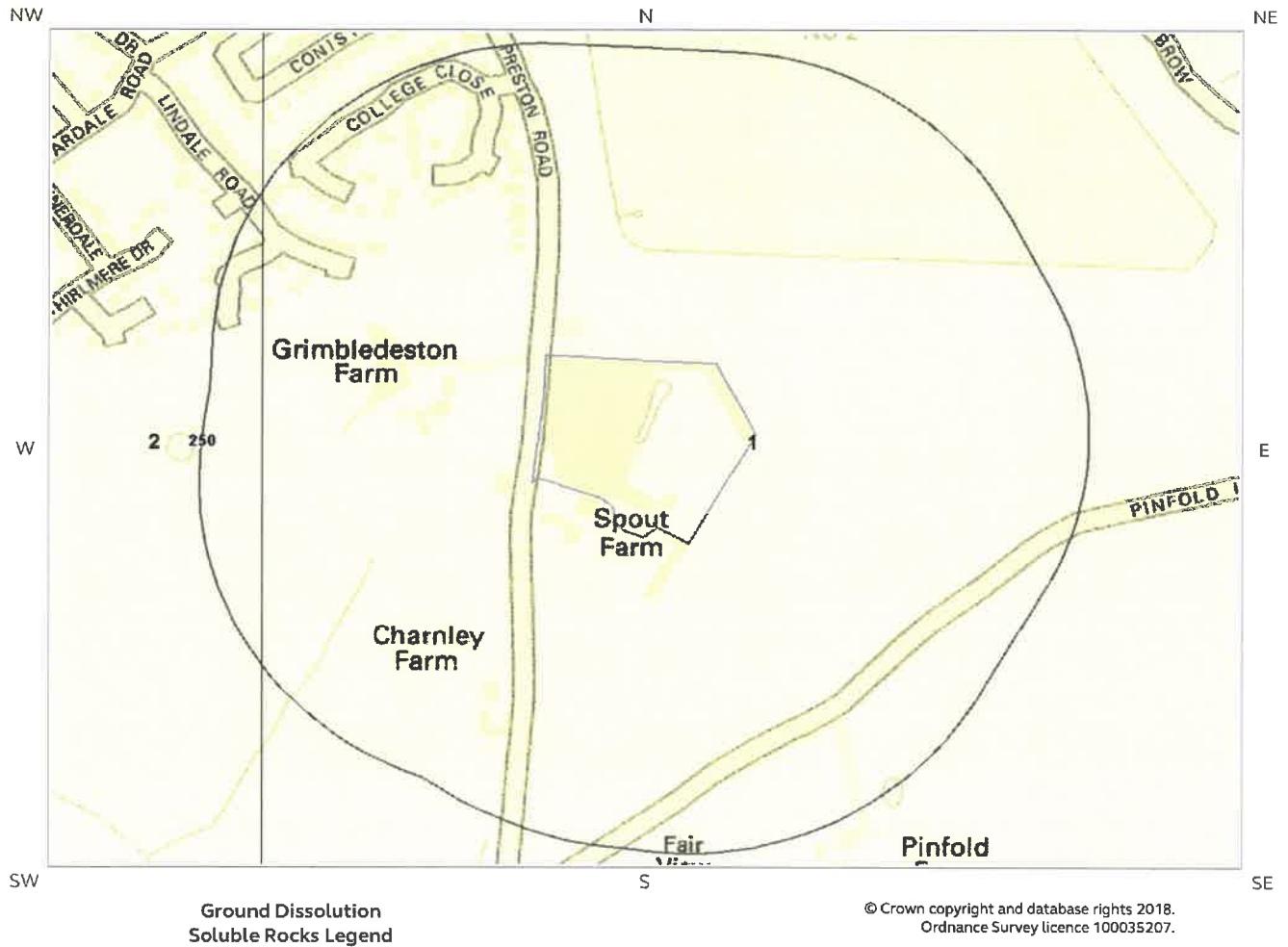
## 6.1 Shrink-Swell Clay map



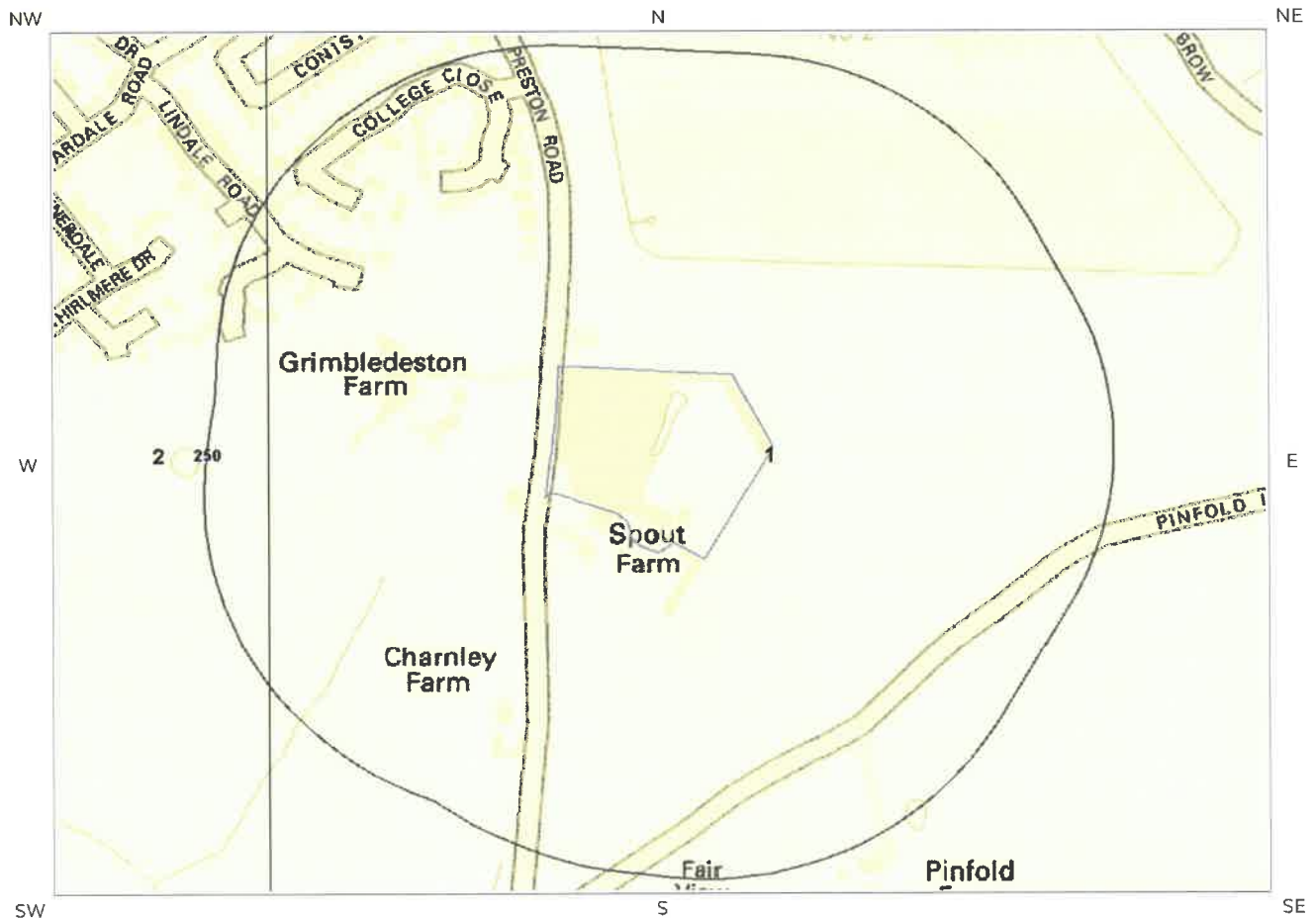
## 6.2 Landslides map



## 6.3 Ground Dissolution of Soluble Rocks map

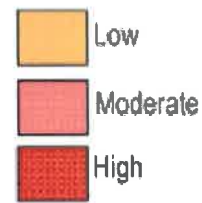
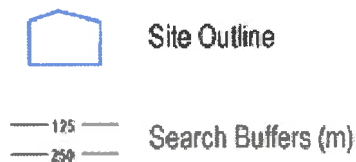


## 6.4 Compressible Deposits map



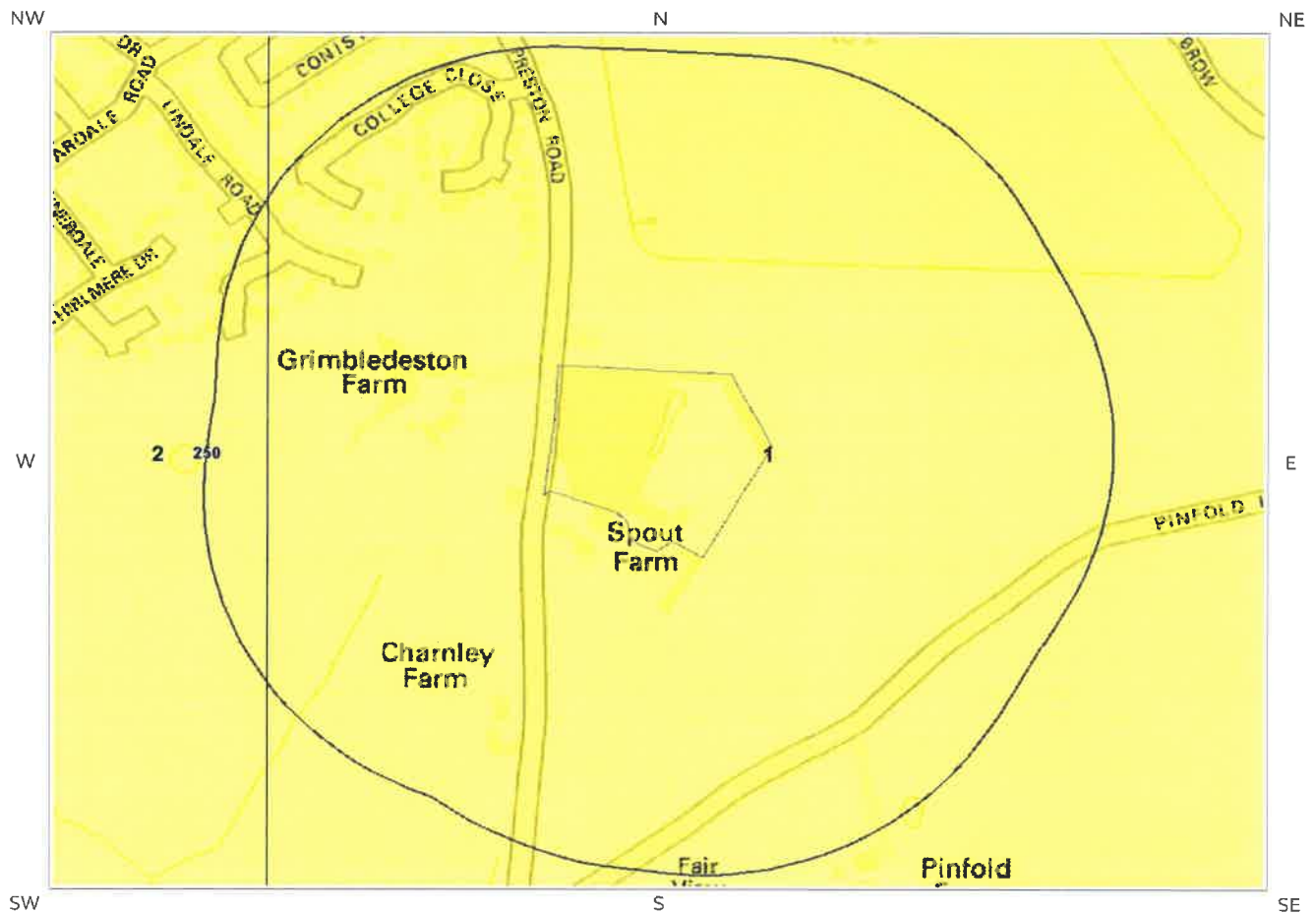
Compressible Deposits Legend

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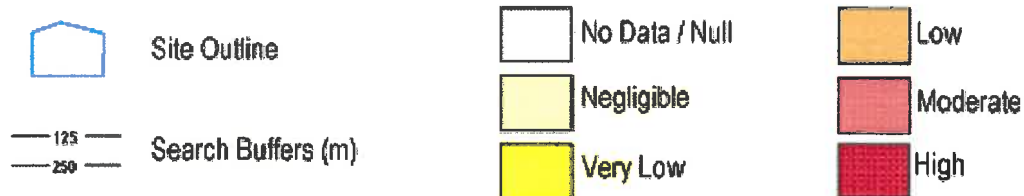


## 6.5 Collapsible Deposits map

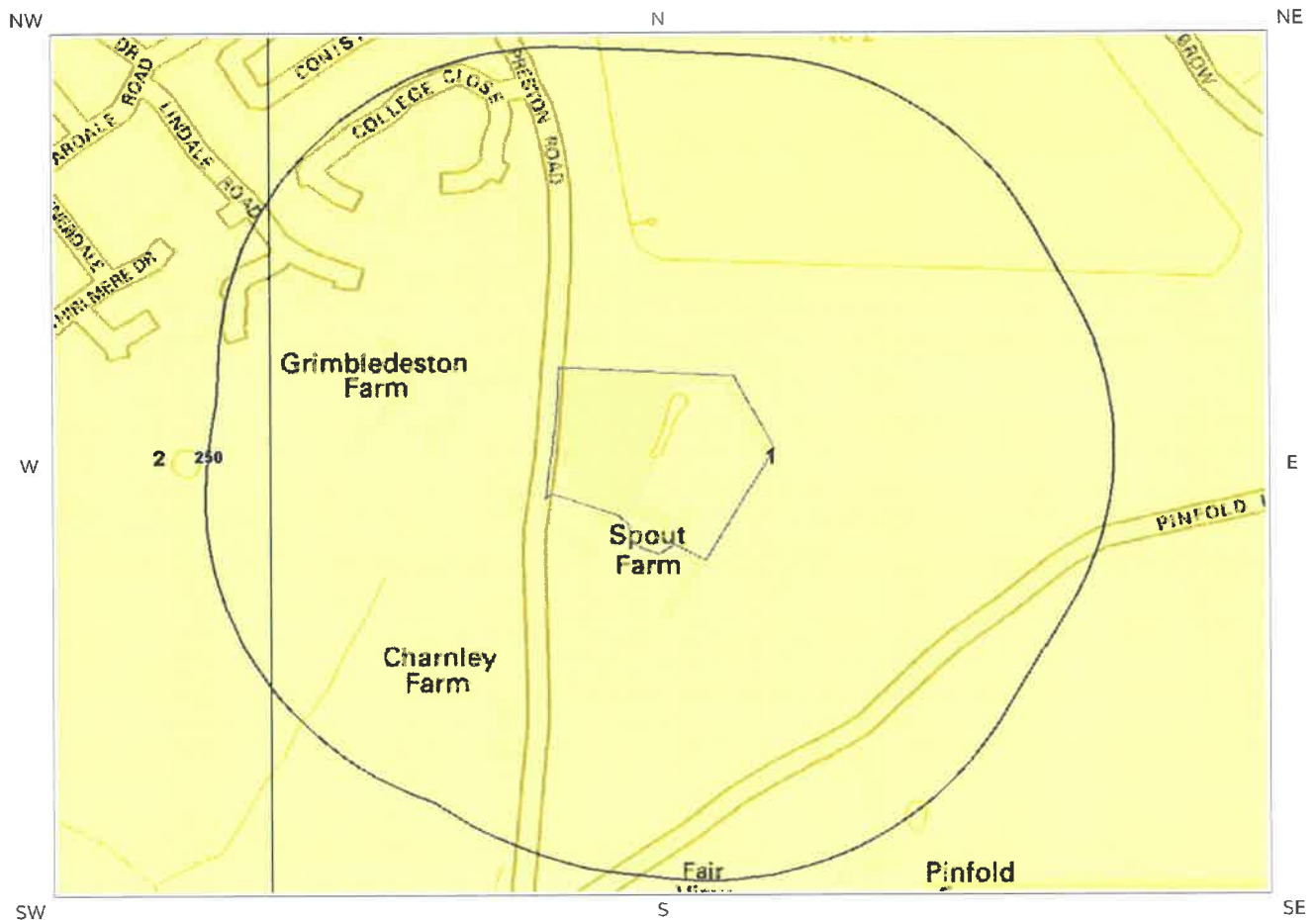


Collapsible Deposits Legend

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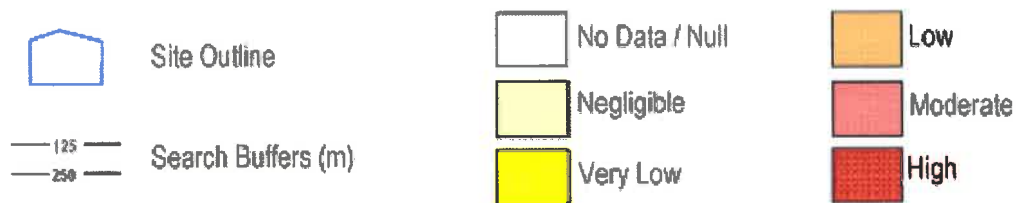


## 6.6 Running Sand map



Running Sand Legend

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## 6 Natural Ground Subsidence

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

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

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

### 6.1 Shrink-Swell Clays

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

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	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:

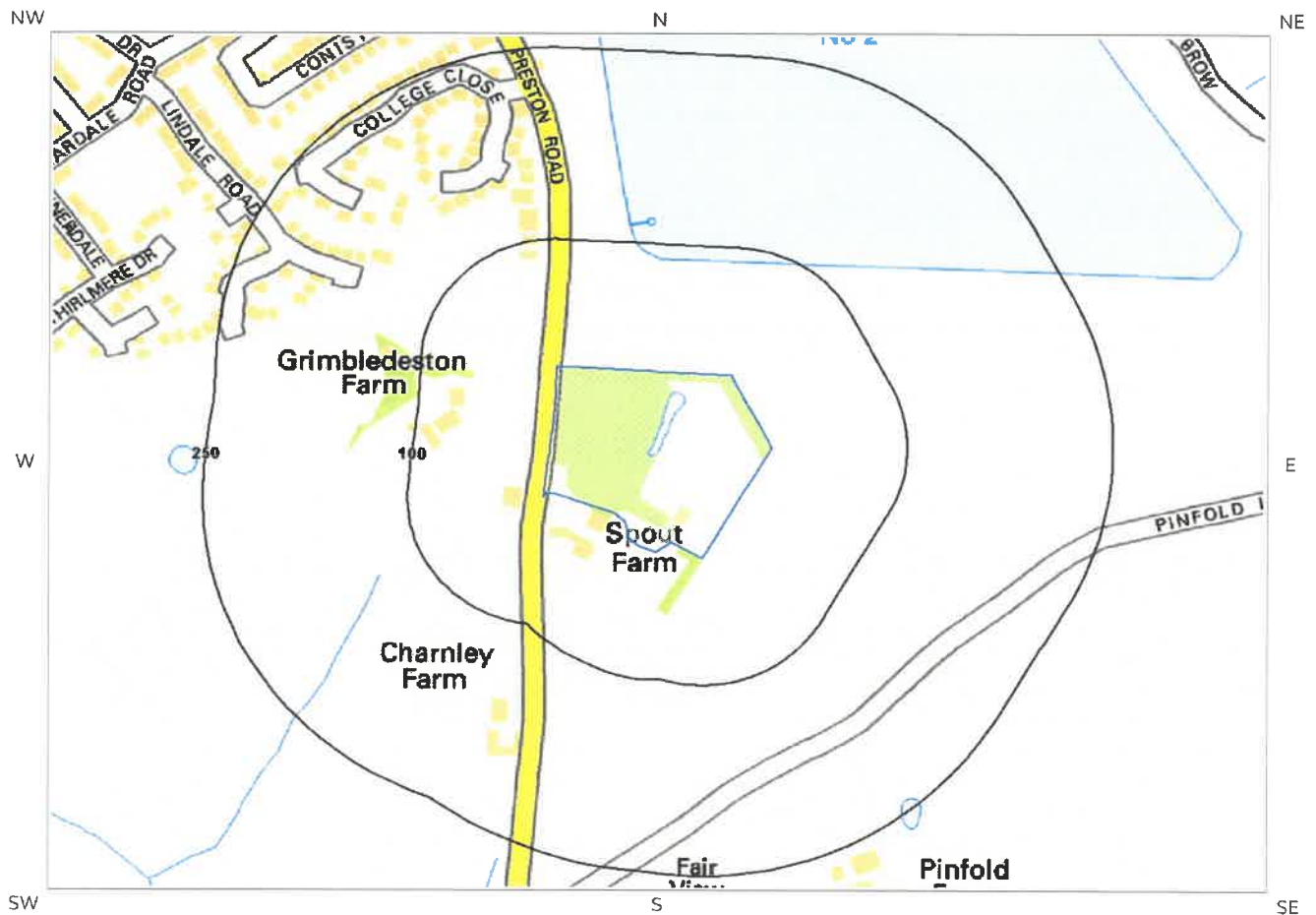
ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible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

## 6.6 Running Sands

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

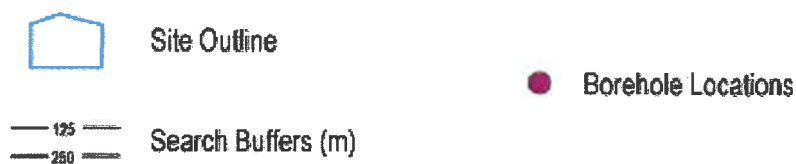
ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Very low potential for running sand problems if water table rises or if sandy strata are exposed to water. No special actions required, to avoid problems due to running sand. No special ground investigation required, and increased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

# 7 Borehole Records map



Borehole Records Legend

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## 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: 0

Database searched and no data found.

---



## 8 Estimated Background Soil Chemistry

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

2

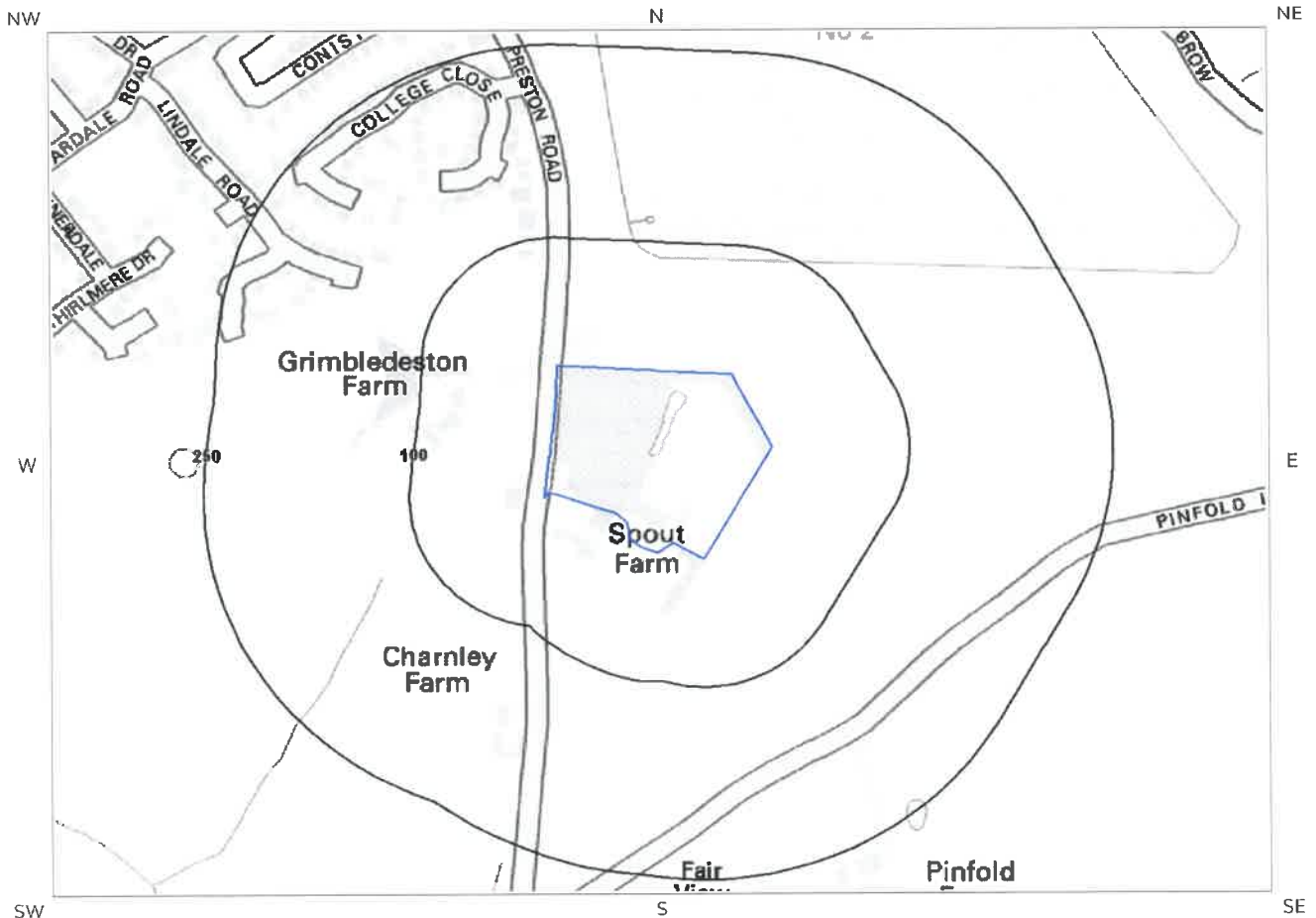
For further information on how this data is calculated and limitations upon its use, please see the Groundsure Geo Insight User Guide, available on request.

Distance (m)	Direction	Sample Type	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Nickel (Ni)	Lead (Pb)
0.0	On Site	RuSoilExAs	<15 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	RuSoilExAs	<15 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg	<100 mg/kg

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

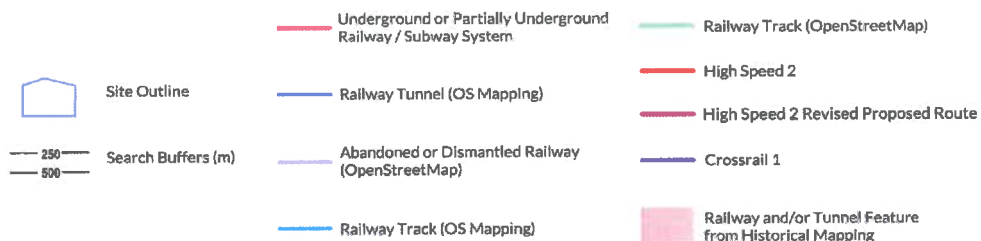
---

# 9 Railways and Tunnels map



**Railways and Tunnels Legend**

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# 9 Railways and Tunnels

## 9.1 Tunnels

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

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

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

Database searched and no data found.

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

---

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

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

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

Database searched and no data found.

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

---

## 9.2 Historical Railway and Tunnel Features

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

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

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

Database searched and no data found.

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

---

### 9.3 Historical Railways

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

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

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

Database searched and no data found.

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

---

### 9.4 Active Railways

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

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

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

Database searched and no data found.

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

---

### 9.5 Railway Projects

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

Is the study site within 5km of the route of the High Speed 2 rail project? No

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](mailto:enquiries@bgs.ac.uk)  
Web: [www.bgs.ac.uk](http://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](http://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](mailto: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](mailto:enquiries.gs@jpb.co.uk)  
Website: [www.jpb.co.uk](http://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](mailto:reading@pba.co.uk)  
Website: <http://www.peterbrett.com/home>



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Client Ref: 8517G  
Report Ref: GS-5670275  
Grid Ref: 360287, 436020

Map Name: County Series

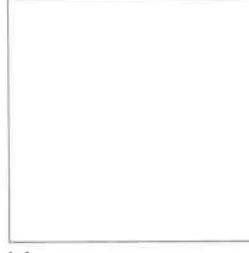
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Printed at: 1:2,500



Surveyed 1892  
Revised 1892  
Edition N/A  
Copyright N/A  
Levelled N/A

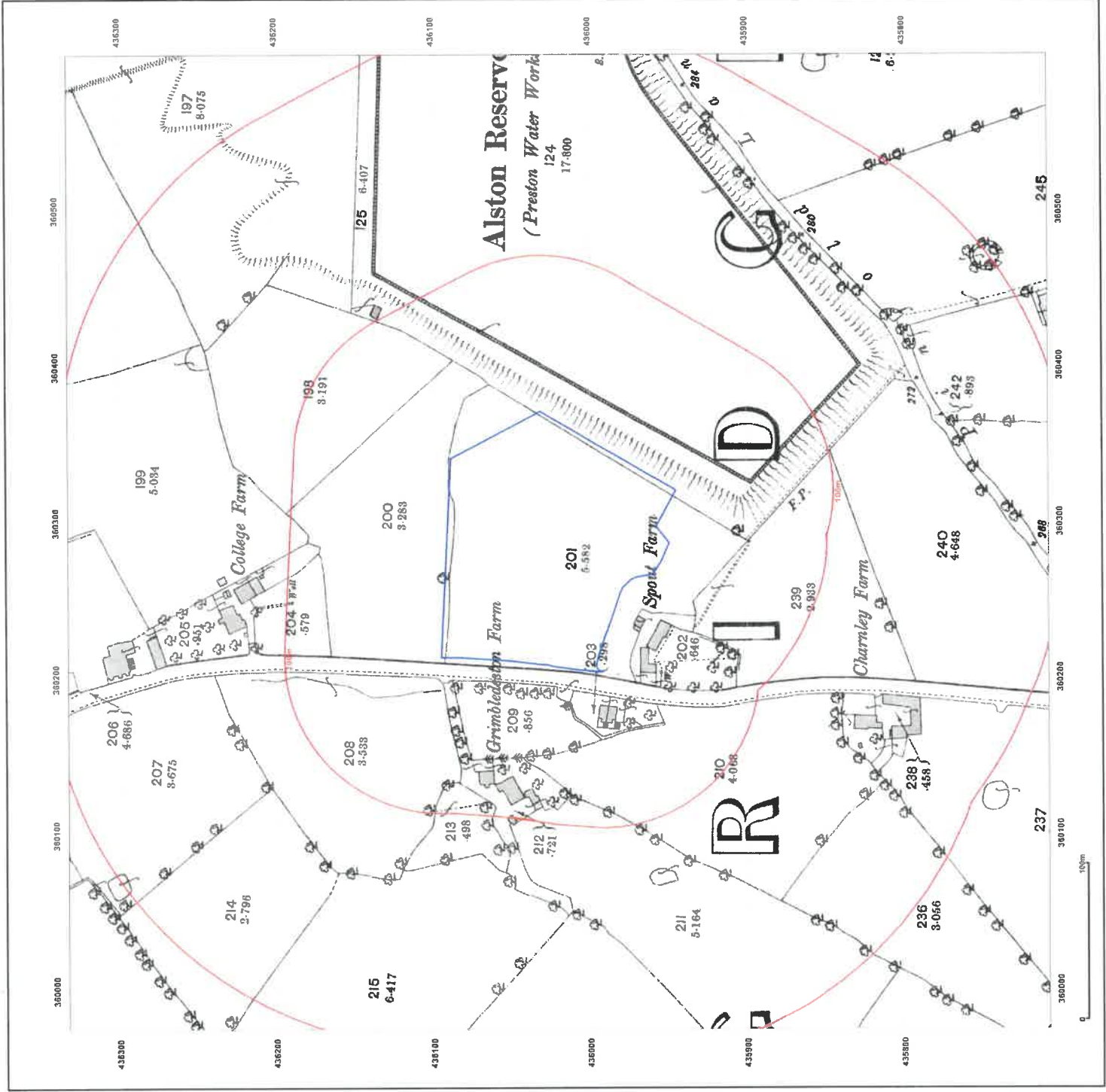


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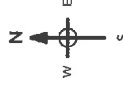
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Grid Ref: 360287, 436020

Map Name: County Series

Map date: 1912

Scale: 1:2,500

Printed at: 1:2,500



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• Edition N/A  
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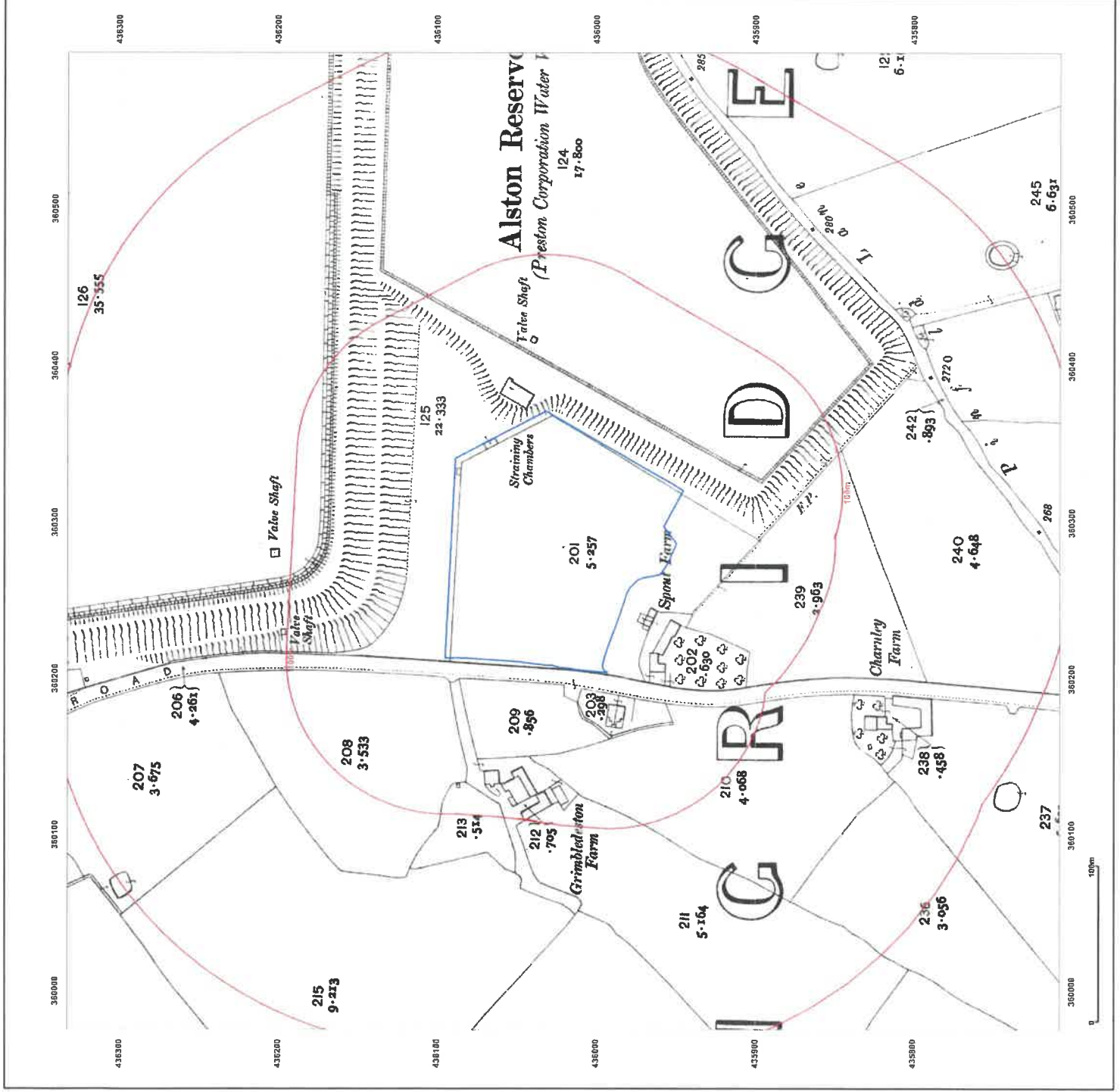


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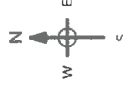
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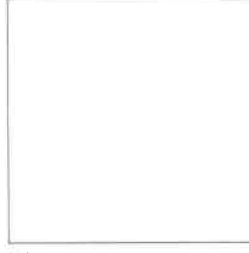
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Printed at: 1:2,500



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Revised 1932  
Edition N/A  
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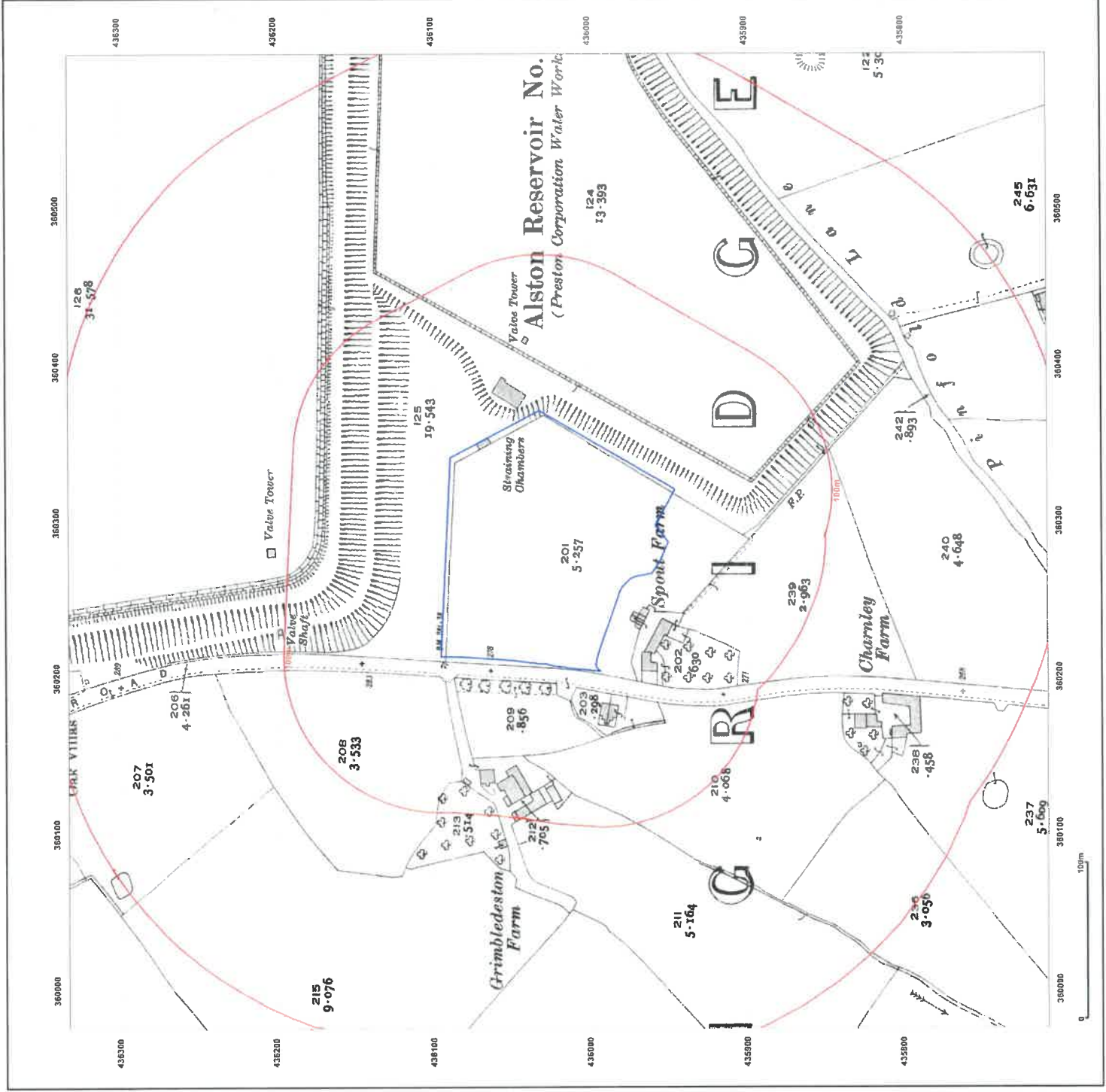


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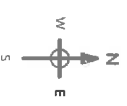
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**Map date:** 1967-1971

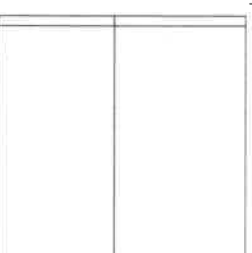
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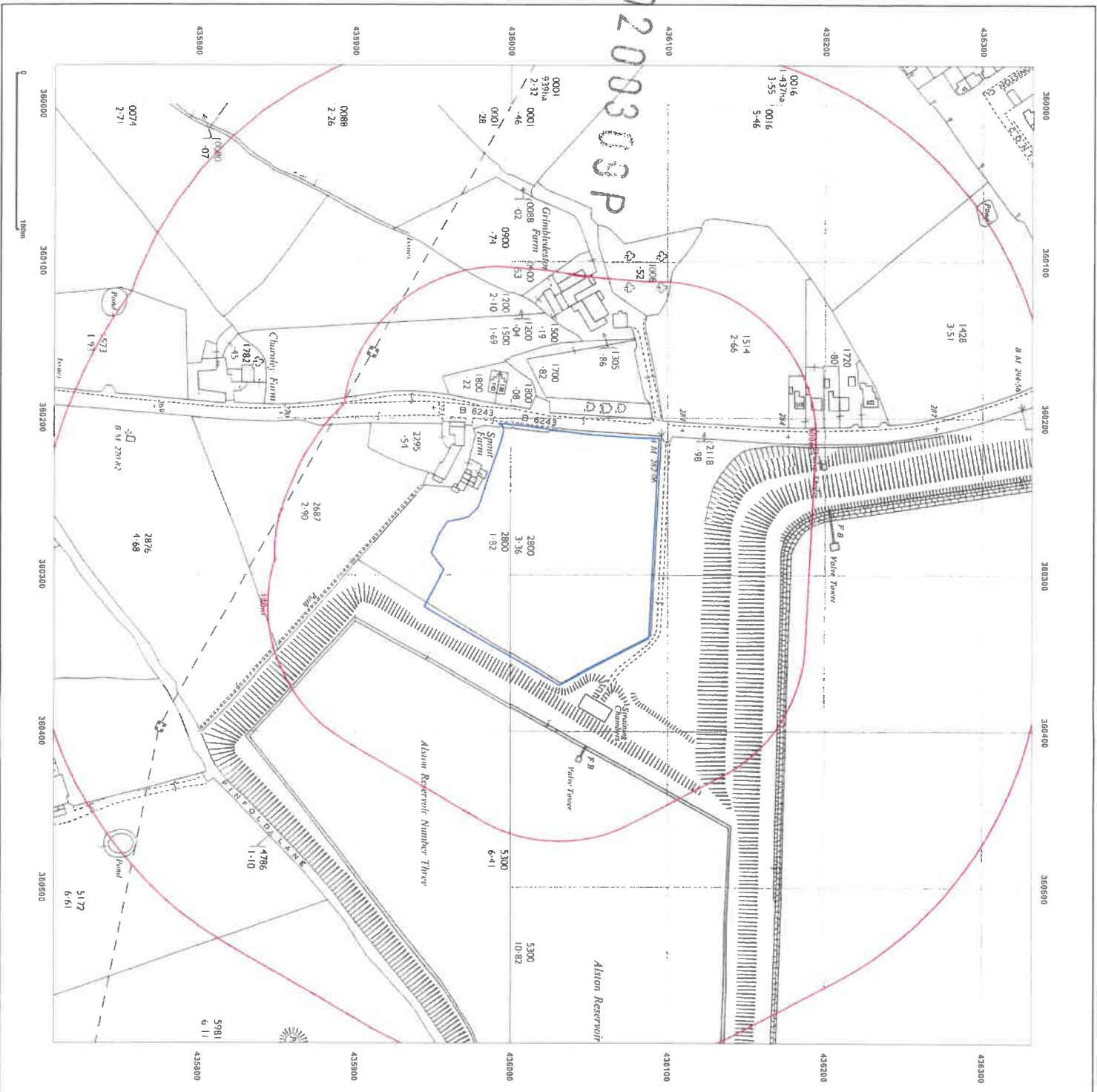
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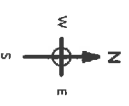
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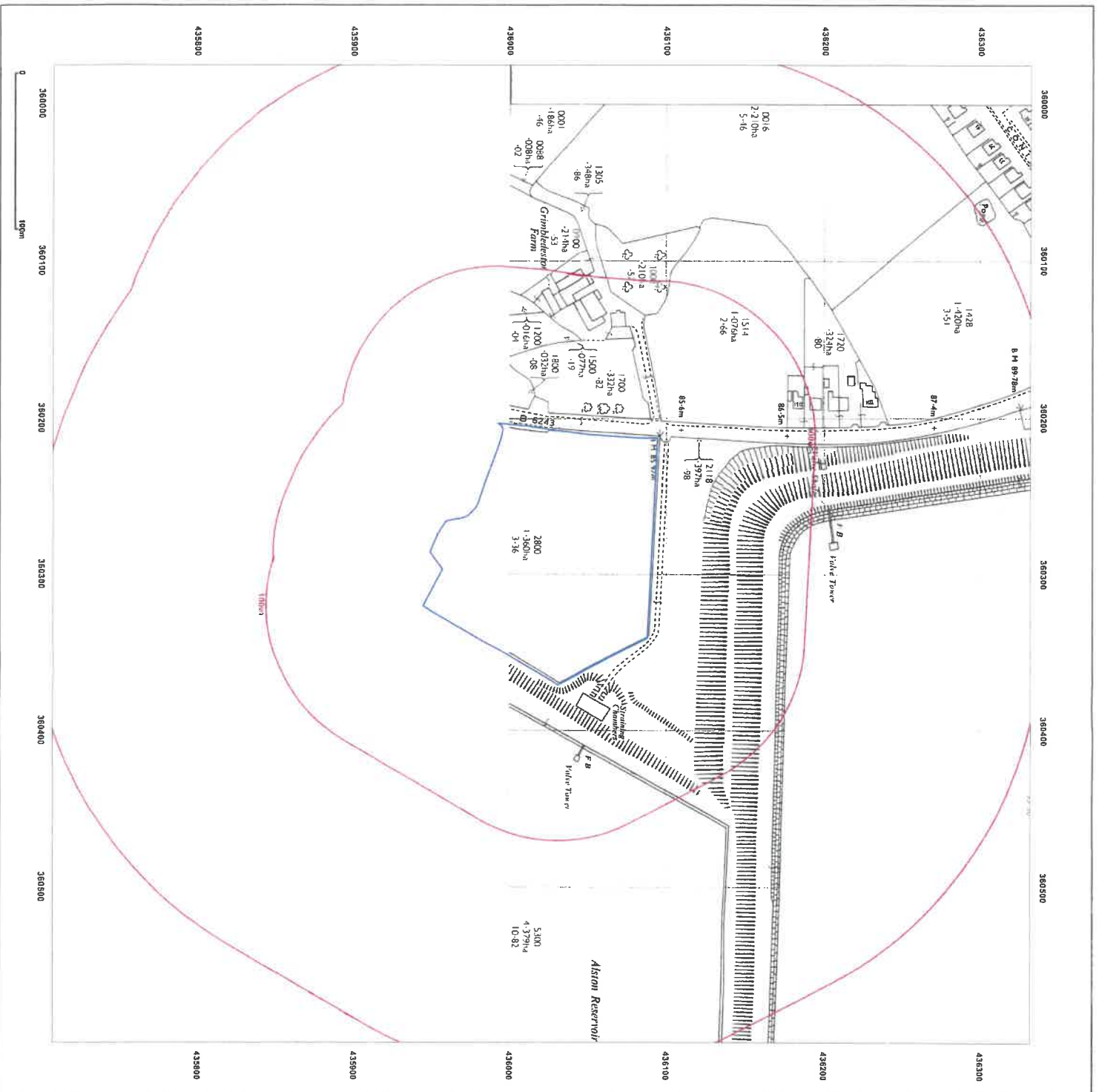
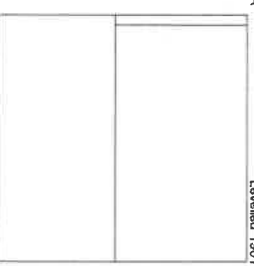
**Scale:** 1:2,500

**Printed at:** 1:2,500



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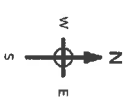
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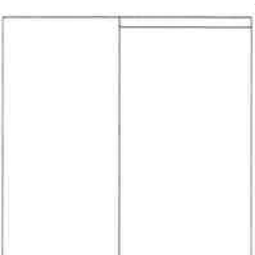
**Scale:** 1:2,500

**Printed at:** 1:2,500



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Revised N/A  
Edition N/A  
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Edition N/A  
Copyright 1982  
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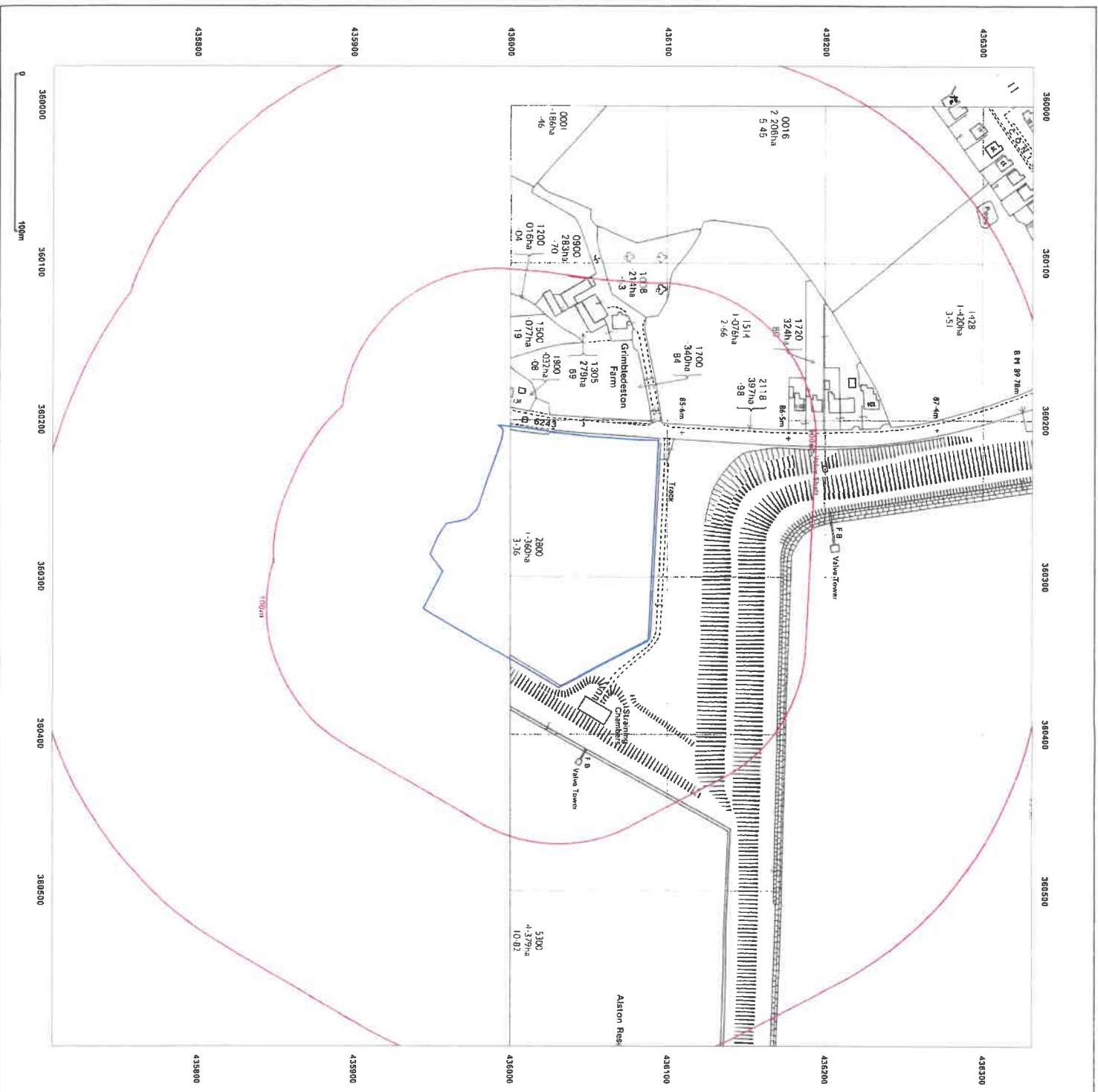


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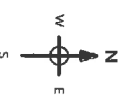
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Report Ref: GS-5670275  
Grid Ref: 360287, 436020

Map Name: National Grid

Map date: 1990-1994

Scale: 1:2,500

Printed at: 1:2,500



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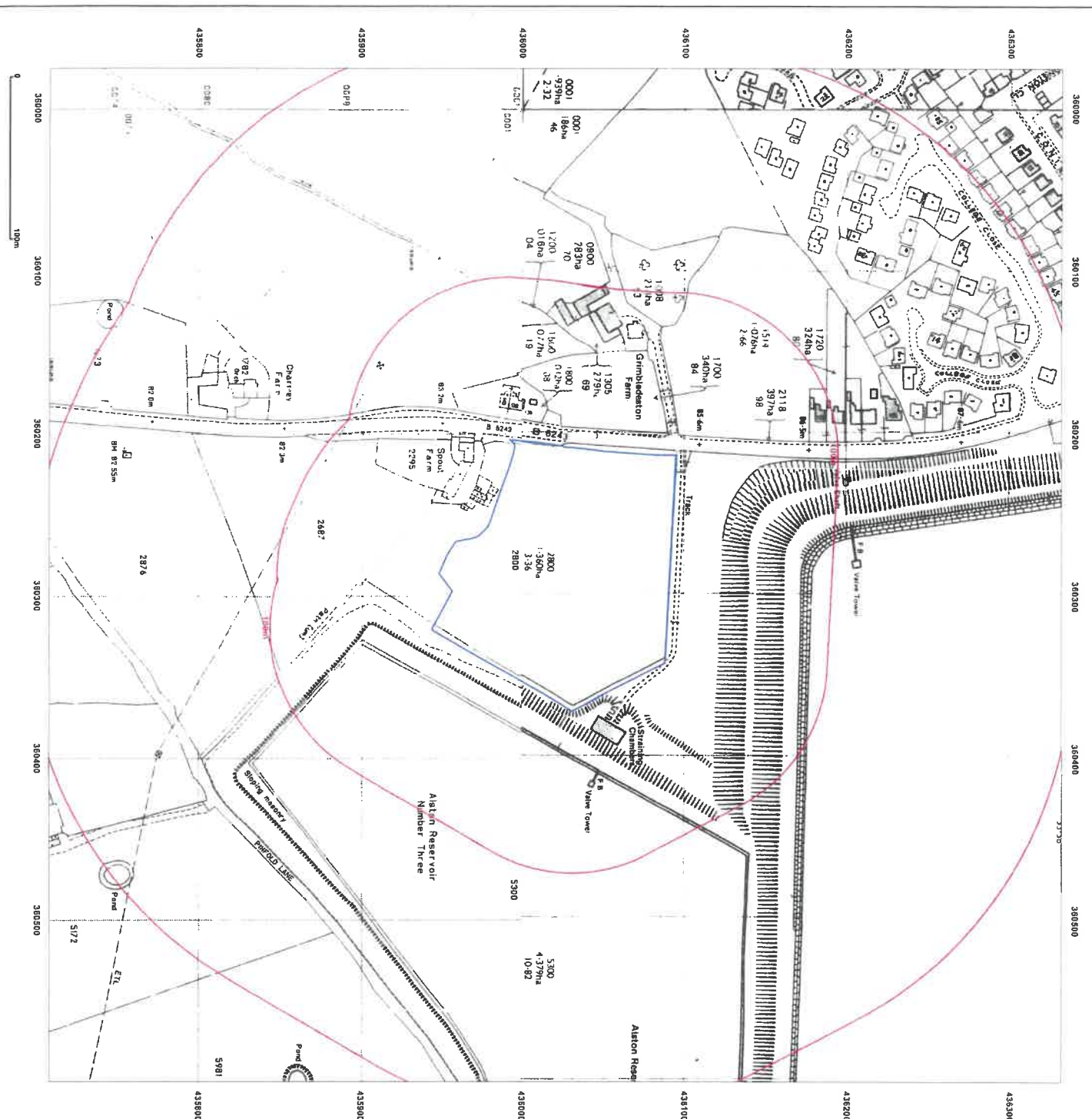
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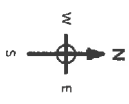
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**Map date:** 1994

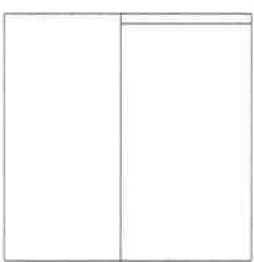
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**Printed at:** 1:2,500



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Edition N/A  
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Edition N/A  
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Levelled N/A

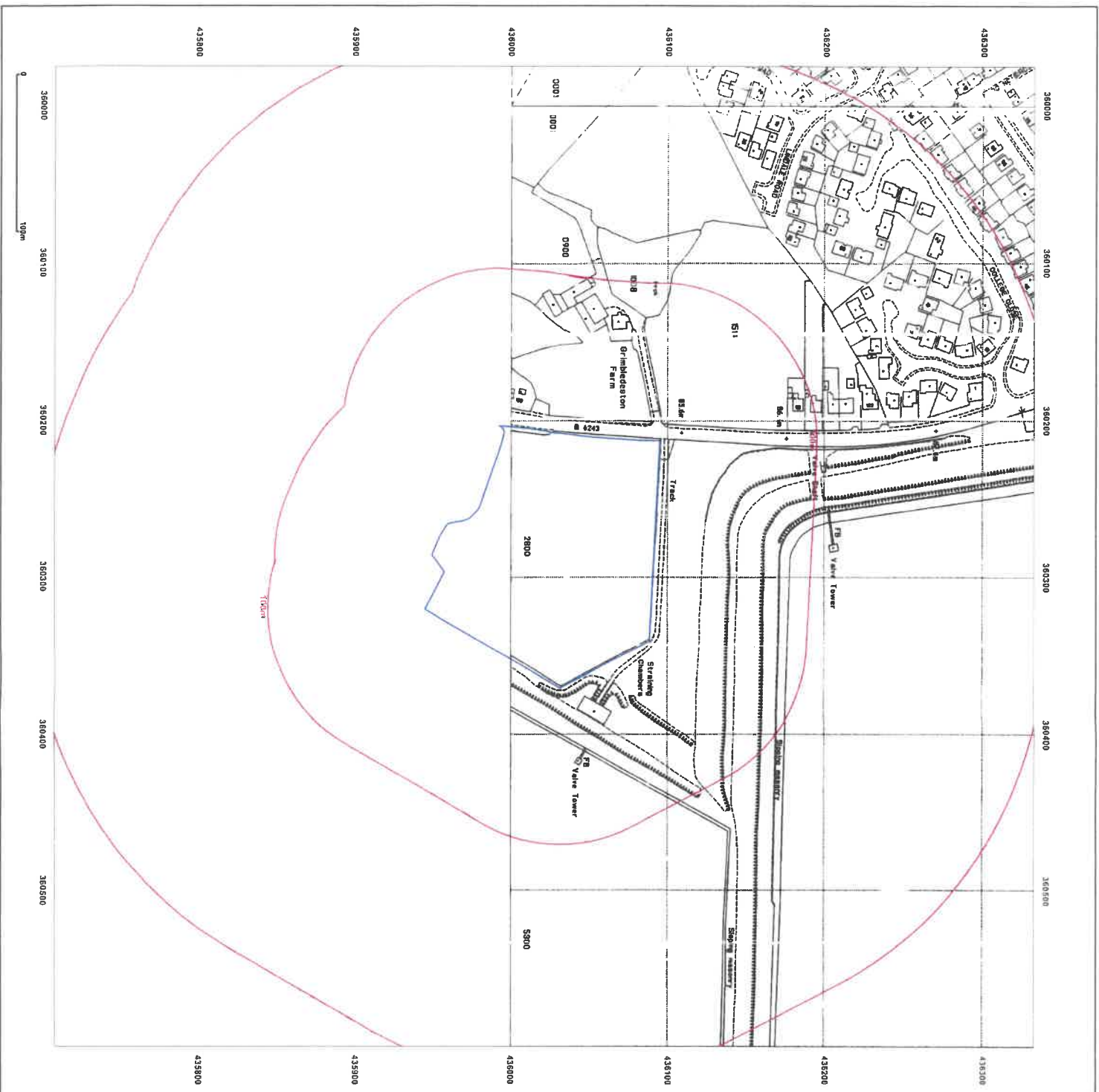


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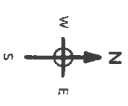
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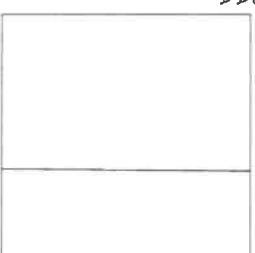
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**Printed at:** 1:10,560



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Edition 1846  
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Edition 1847  
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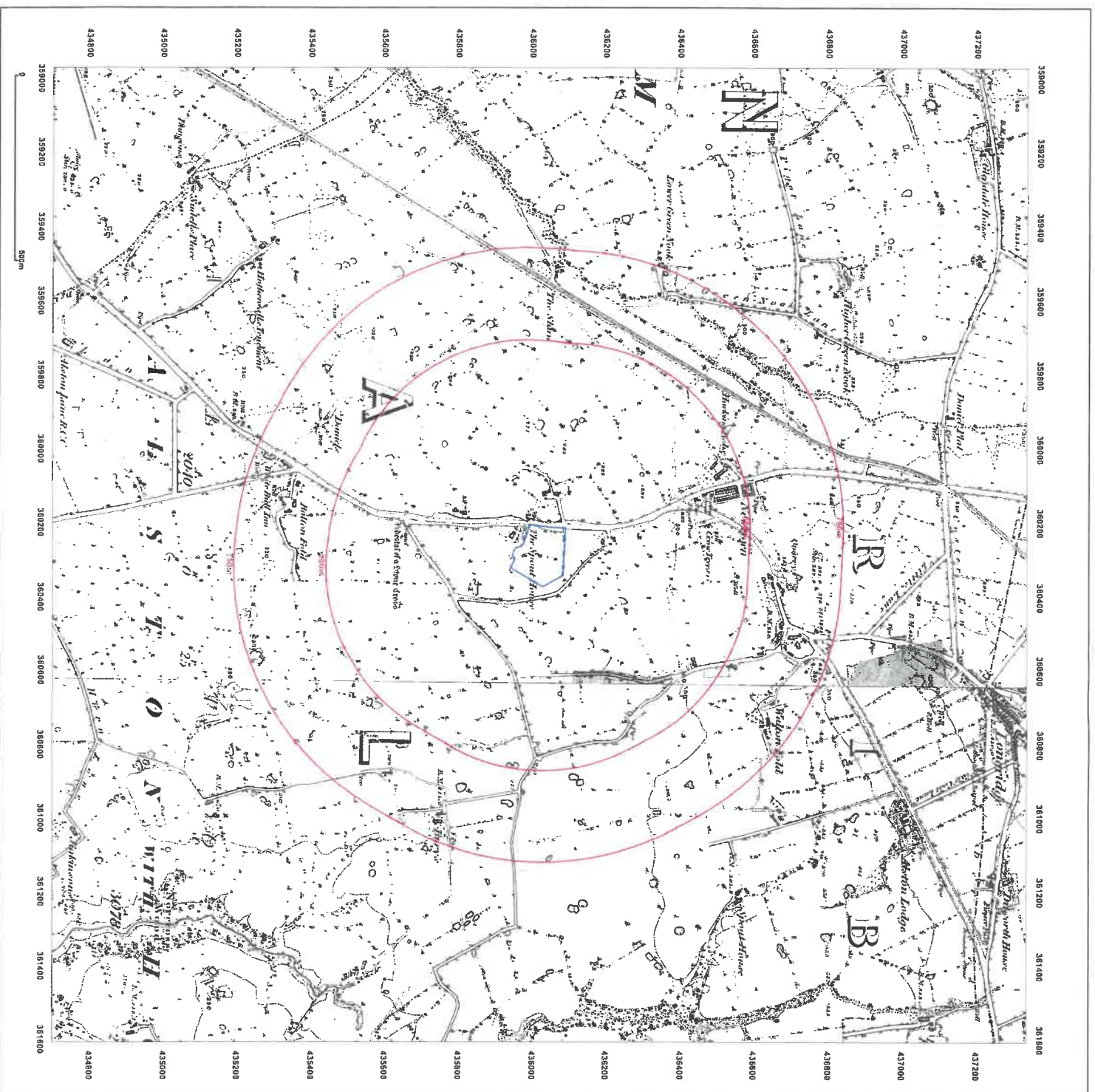


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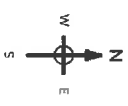
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**Map date:** 1892

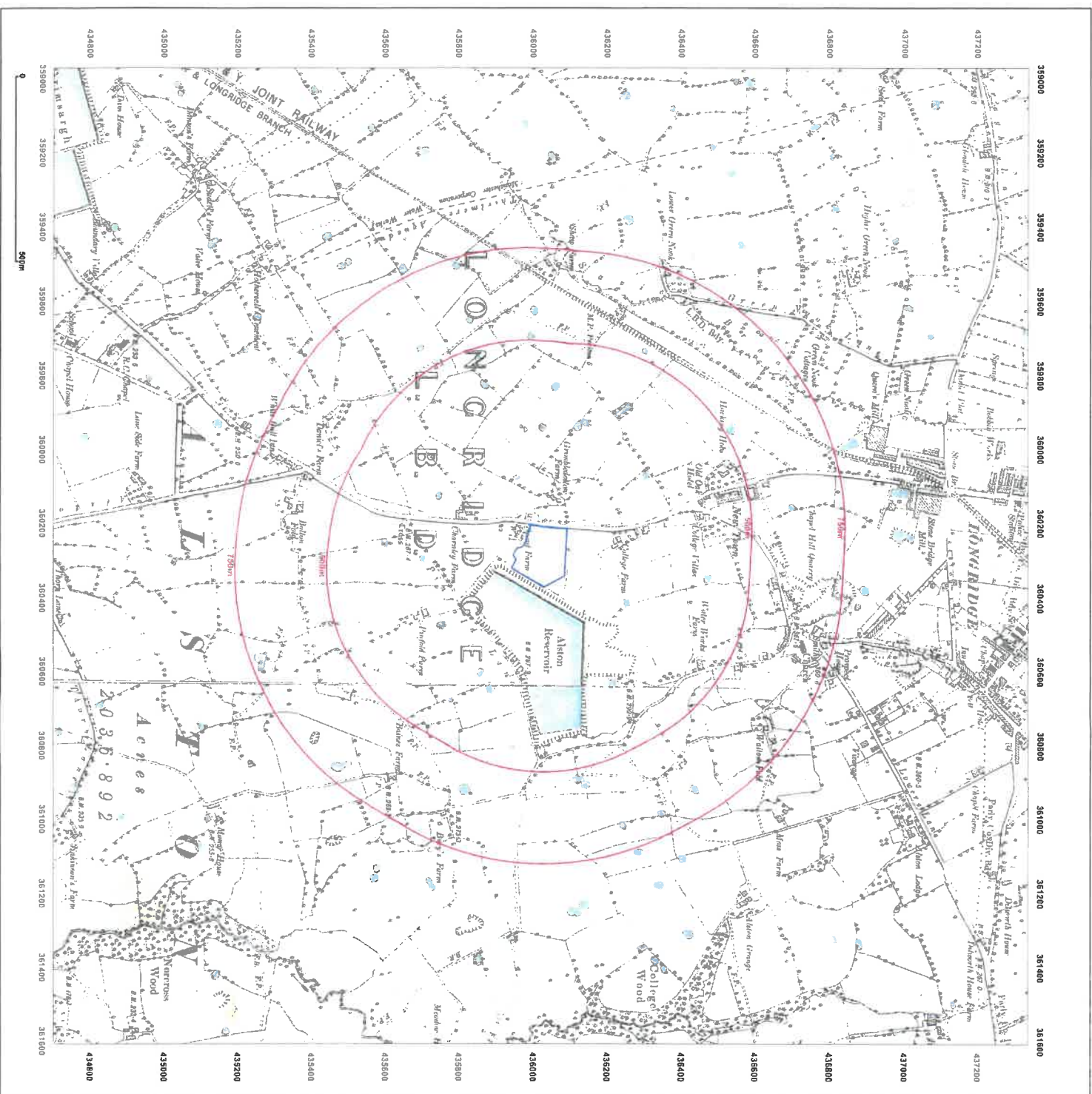
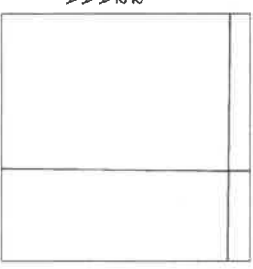
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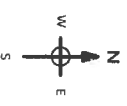
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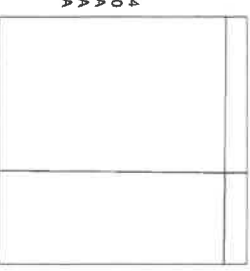
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**Printed at:** 1:10,560



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Edition N/A  
Copyright N/A  
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Surveyed 1844  
Revised 1910  
Edition N/A  
Copyright N/A  
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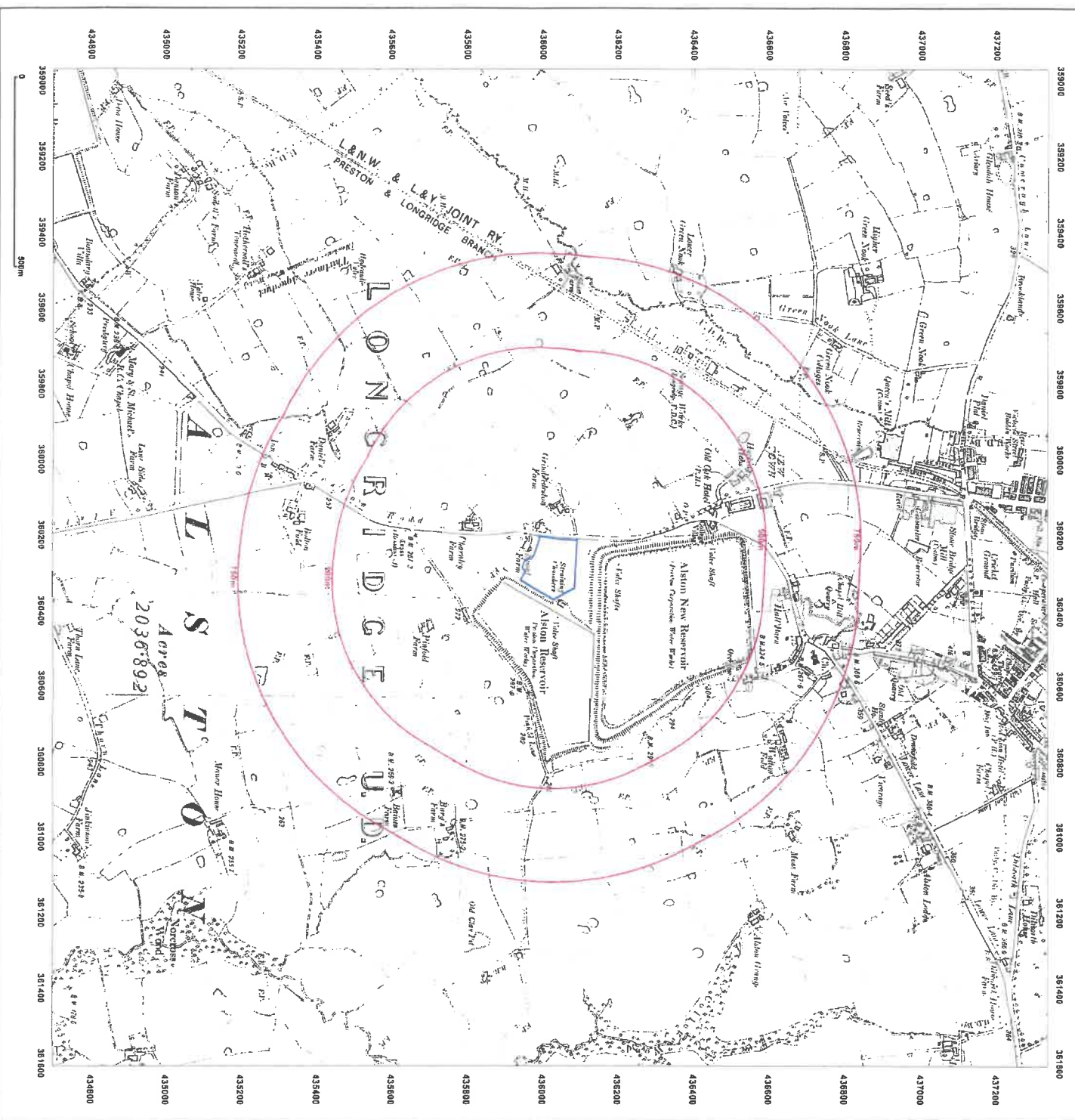


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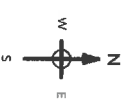
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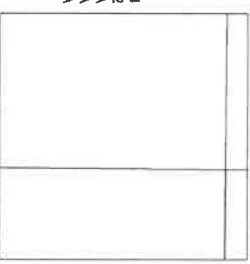
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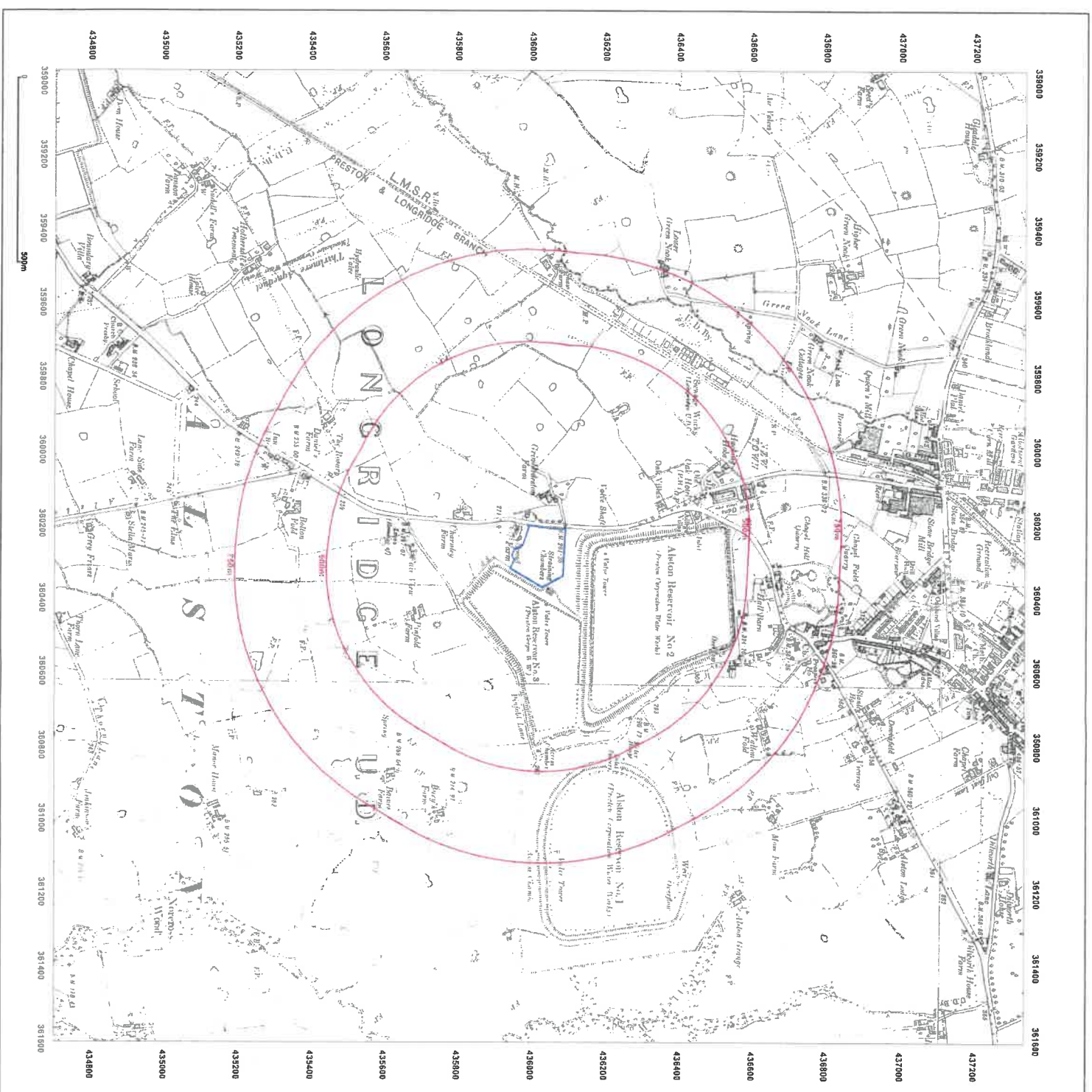
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320200309P

Client Ref: 8517G  
Report Ref: GS-5670275  
Grid Ref: 360287, 436020

Map Name: Provisional

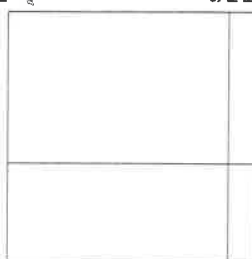
Map date: 1951

Scale: 1:10,560

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Revised 1951  
Edition N/A  
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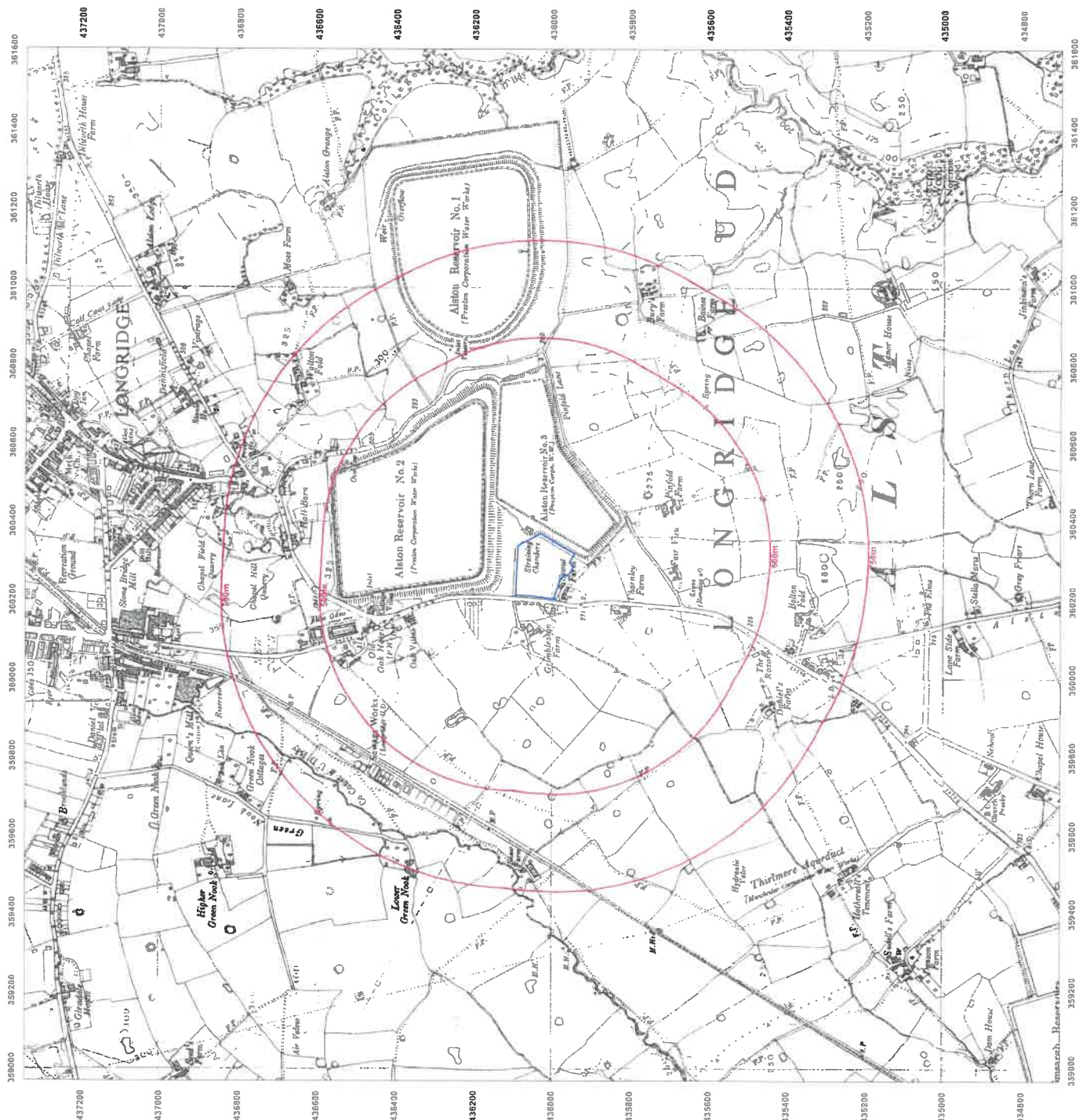
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500m





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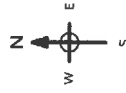
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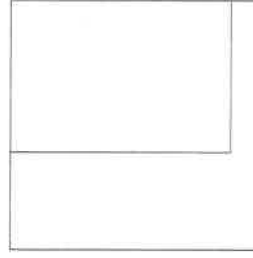
Map date: 1951

**Scale:** 1:10,560

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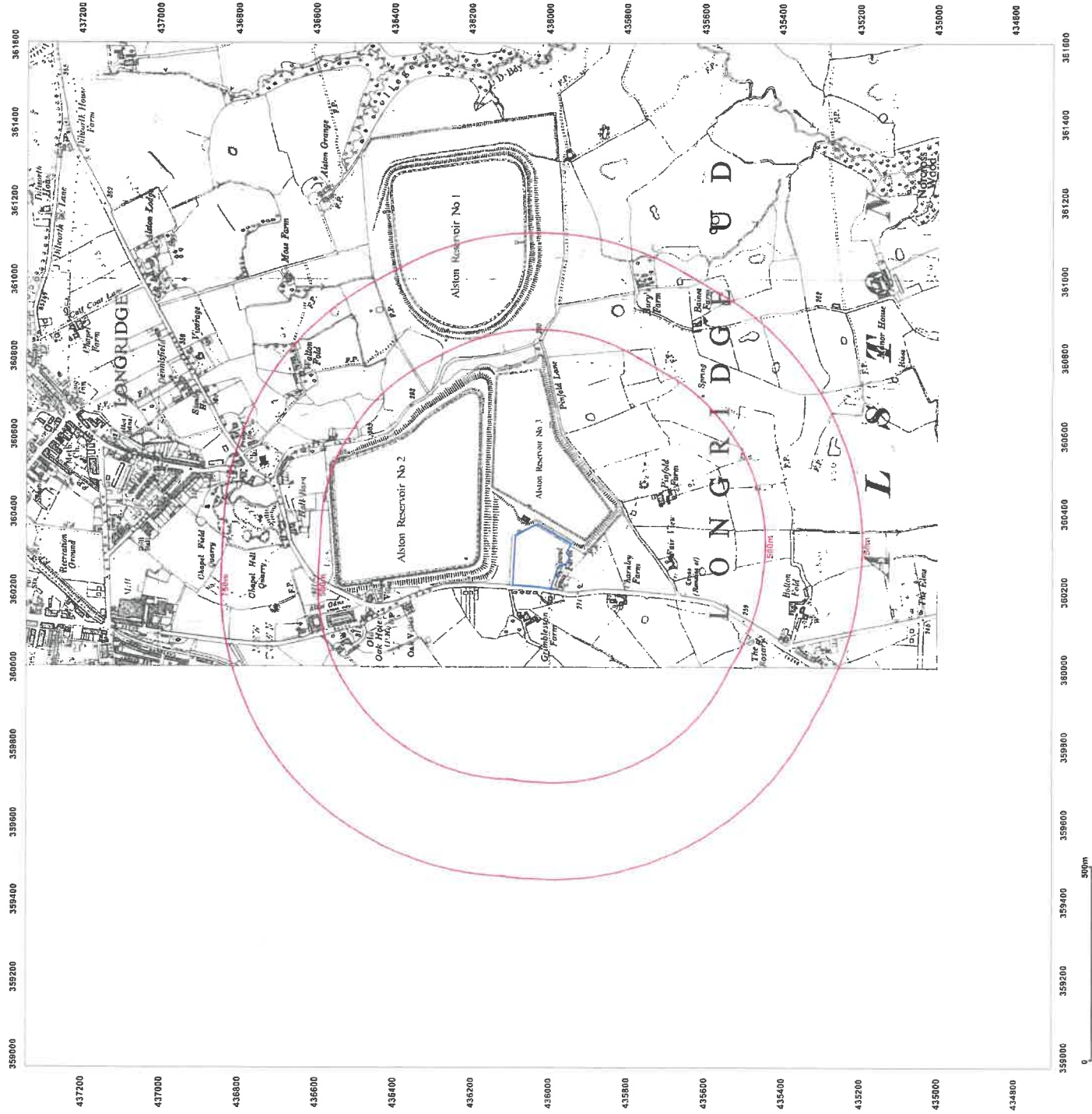


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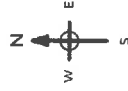
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**Map Name:** Provisional

**Map date:** 1965-1969

**Scale:** 1:10,560

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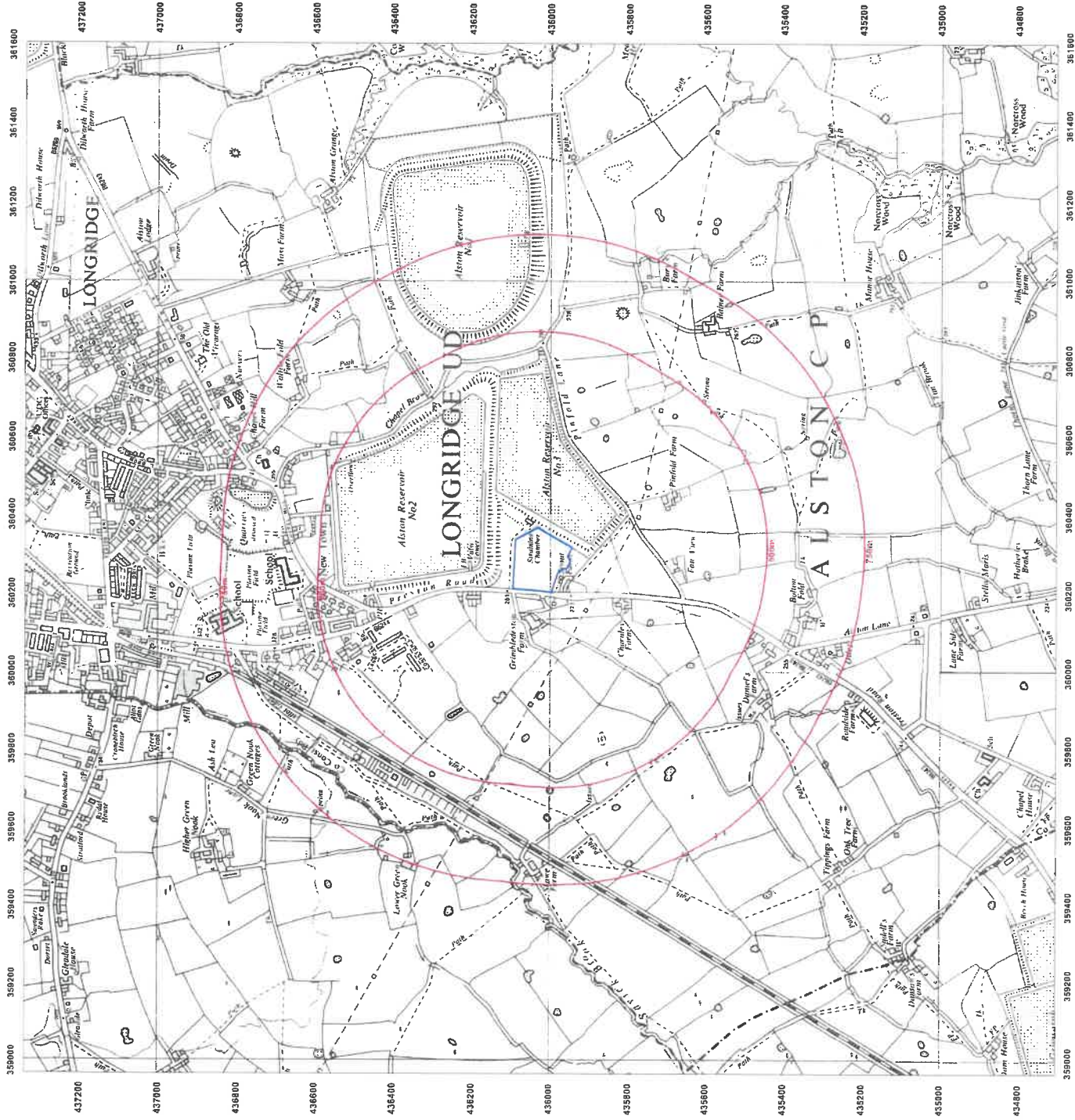
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#### Site Details:

SPOUT FARM, PRESTON ROAD,  
LONGRIDGE, PR3 3BD

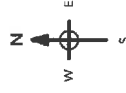
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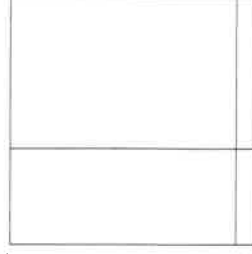
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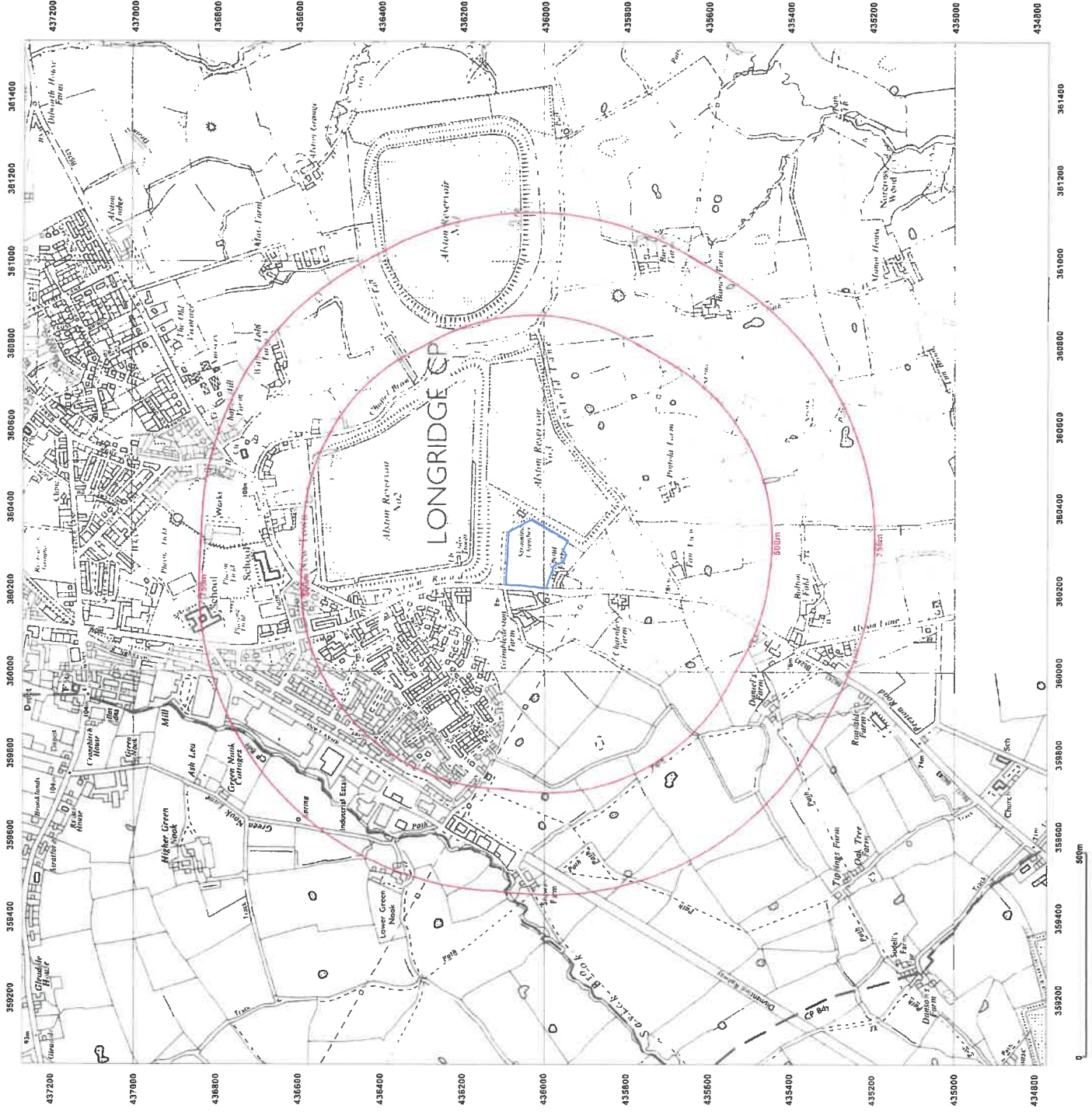


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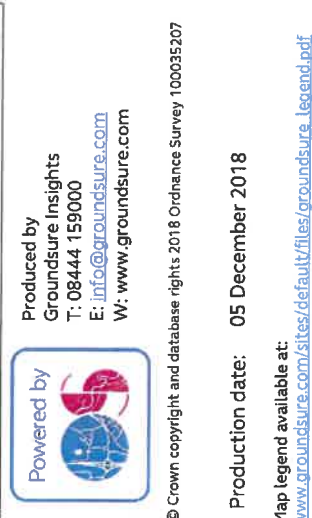
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#### Site Details:

SPOUT FARM, PRESTON ROAD,  
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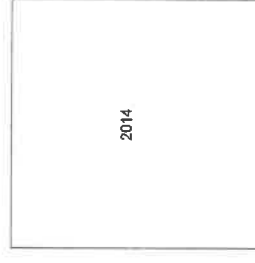
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Printed at: 1:10,000



2014



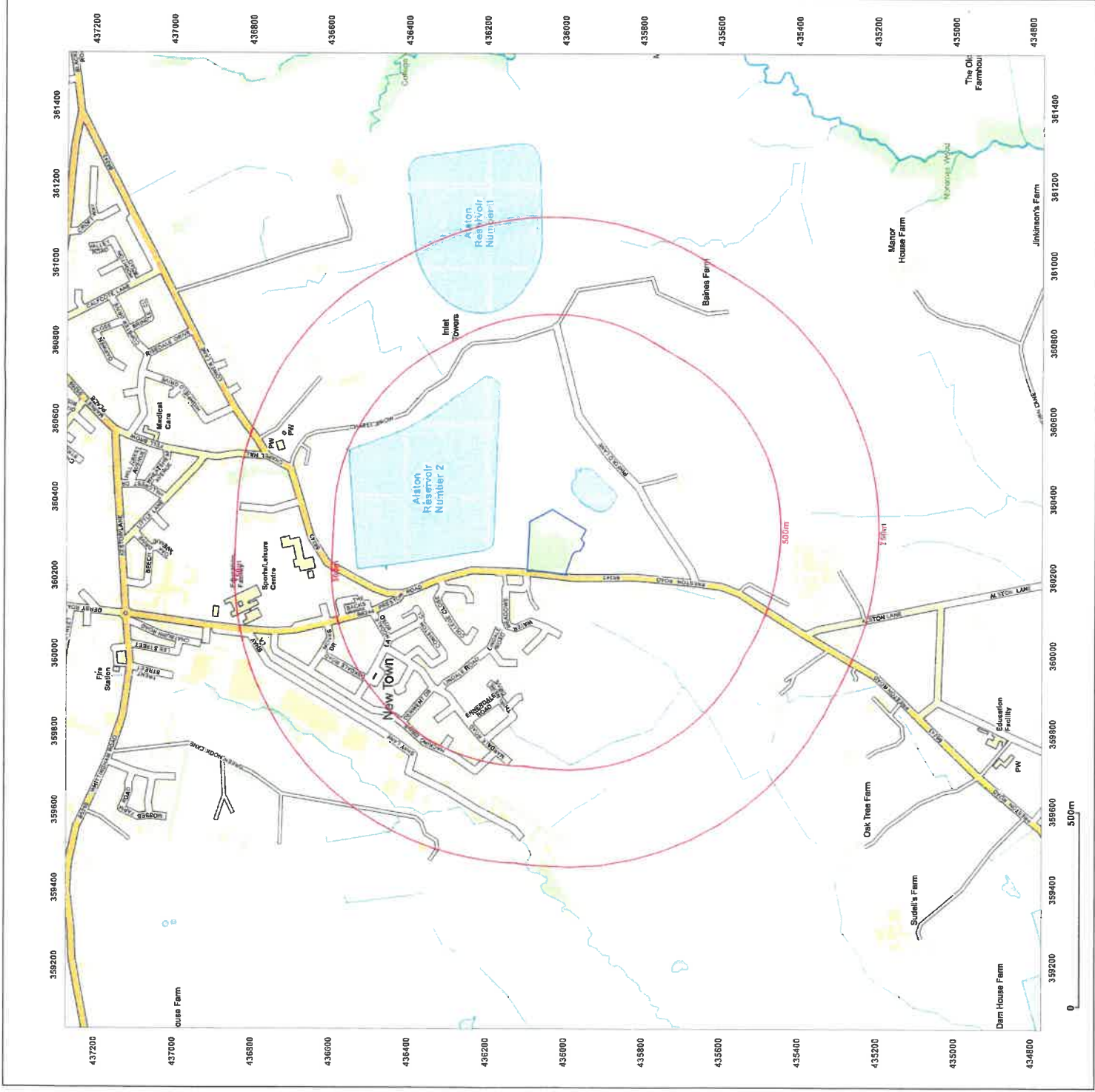
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## **APPENDIX 04**

### **Qualitative Risk Assessment Guidance**

### Qualitative Risk Assessment Guidance

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

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

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

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

**Table 1 Classification of Consequence**

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

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

**Table 2 Classification of Probability**

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

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

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

The matrix table is reproduced in Table 3 below.

**Table 3 Consequence Vs Probability Matrix**

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

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

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

**Table 4 Definitions of Classified Risks and Likely Required Actions**

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