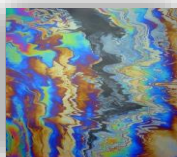


INVESTIGATE



REMEDiate



REGENERATE

# TECHNICAL REPORT

**WALKOVER SURVEY  
AND DESK STUDY  
AT  
3 MILLSTONES INN  
WEST BRADFORD  
LANCASHIRE, BB7 4SX  
FOR  
MR. MATTHEW FROST**

**DESK STUDY NO. 5981  
JANUARY 2015**



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Small Scale Survey Plans  
Large Scale Survey Plans  
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**WALKOVER SURVEY AND DESK STUDY AT: 3 MILLSTONES INN, BB7 4SX****CLIENT: MR. MATTHEW FROST****ARCHITECT: 3D.G DESIGN**

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**1. INTRODUCTION**

This report has been prepared in accordance with an email dated December 16<sup>th</sup> 2014, from the Engineer on behalf of the Client.

The brief was set out in our estimate, ref. E9966 and dated December 11<sup>th</sup> 2014, and comprises a walkover survey and a desk study report including a historical, geological, mining and environmental appraisal together with a conceptual ground model.

**1.1 Site Location and Description**

The site is located on the south side of Waddington Road as indicated on Figure 1. The approximate National Grid Reference of the centre of the site is SD742443.

As shown on Figure 2, the triangular shaped about 350m<sup>2</sup> hectare site is bounded to the north by Waddington Rd the west by the existing 3 Millstones Inn, and the east by open fields.

**1.2 Proposed Development and Purpose of the Desk Study**

We understand that it is proposed to erect a new two storey holiday let/hotel accommodation block comprising five en-suite bedrooms with a new drainage connection across the existing carpark to a point near to the existing building/highway.

The purpose of the desk study is to obtain information regarding the sites historical, geological and environmental setting in order to produce a conceptual ground model, to assess the ground conditions, to undertake a preliminary assessment of contamination sources, pathways and receptors relating to potential hazards that exist or will potentially exist on the site and to assess the need for ground investigation.

In addition a geological and mining appraisal was required to determine the geological structure, including the depth and thickness of coal and other mineral seam horizons, and to determine the potential for mineworkings in these horizons.

**1.3 Walkover Survey**

The walkover survey was undertaken on 22<sup>nd</sup> January 2015. Surface features observed were recorded on a plan of the site together with the positions and directions of photographs taken. The resulting Walkover Survey Plan and site photographs are appended.

The site comprises tarmac surfaced carpark in the east of the site raised from the road level (photos 1-4). Overhead telephone cables run east west across the car park (photo 2). The buildings on site occupy the western area and have a higher level garden than the car park (photo 5) accessed by a small flight of wooden stairs. This

garden level is approximately 1m higher than the car park with a grassy bank (photo 6) acting as the divider. The garden has five benches and rises to a higher level still to the west over a grassy bank (photo 7). Fencing running east west is present in this small garden and bench area with a small shed and firewood stacked on its south side (photo 8). A yard in the north western corner is surfaced with gravel and some flag paving (photo 10). The western perimeter sandstone wall has higher ground and a garage on its western side. Small garden sheds align along the eastern sandstone boundary wall (photo 14). There is a central area of the building with a flat felted roof (photo 15). These building are surrounded by small walkways along their perimeter. The pub front is directly on Waddington Road with a 1m wide pavement along its front (photo 16). A sandstone wall joins along the north western edge of the building extending along Waddington Road (photo 17). A hatch to cellars is situated on the eastern edge of the building with a store of beer kegs (Photo 18). Trees are along the boundaries only (photo 2).

## 2. DESK STUDY

### 2.1 Historical Appraisal

The past history of the site has been interpreted from the study of old Ordnance Survey plans supplied by GroundSure, as follows:

TABLE 1 SMALL SCALE SURVEYS

Date	Scale
1847	1:10,560
1890	1:10,560
1910	1:10,560
1914	1:10,560
1930	1:10,560
1938	1:10,560
1955	1:10,560
1974	1:10,000
2002	1:10,000
2010	1:10,000
2014	1:10,000

TABLE 2 LARGE SCALE SURVEYS

Date	Scale
1884	1:2,500
1886	1:2,500
1908	1:2,500
1912	1:2,500
1970	1:2,500
1976	1:2,500
1988	1:1,250
1993	1:1,250

Extracts of the above surveys are appended.

TABLE 3 HISTORICAL APPRAISAL

Date	On site	Beyond site boundary
1847	Buildings known as the Millstone Inn are shown in NW corner of site; remainder of site south of road is open fields. Site is located entirely on south side of the east west road.	Surroundings are small roads running in all directions through fields and pasture. Small buildings are present on the junctions of these roads within 150m of the site. West Bradford Brook runs east west 50m to the north of the site then bends to north south 85m to the NW of site.

		Ultimately drains into the River Ribble 500m to the SE of the site boundary. Darkhouse Wood surrounds Bradford Brook 500m to the north west.
1884	No significant change.	Bradford Brook present with sluice and weirs 50m to the north. Sparsely built surrounding area with small buildings on roads. Quarry 250m to the NW, cotton mill 200m to SE on edge of river with weir and Mill pond with embankment present.
1890	No significant change.	No significant change.
1908	No significant change.	Quarry 250m to the NW partially infilled and planted with trees, now 'Old Quarry'. Erection of St. Catherine's Church 150m to the NE with graveyard. Small pond 200m to the south.
1910	No significant change.	Increase in small rectangular buildings throughout the area. Surroundings patchwork of fields still
1912 - 1955	No significant change.	No significant change.
1970	Small outhouse built in south of site.	Nine buildings adjacent to SW of the site listed as Barnsteads Farm. Road that site is on first listed as Waddington Road. 'Old Quarry' 250m to the north west now completely backfilled. Cotton Mill to the south east significantly expanded.
1974	No significant change.	Increase in small rectangular buildings in surrounding 500m. Area still predominantly open fields. Buildings centred around roads.
1976	Another small building built on the southern area of the site	No significant change.
1988	No significant change.	No significant change.
1993	No significant change.	Cotton Mill to the south east now demolished and undergoing residential developments present to 300m to the east. Burial Ground present 200m to NW on the edge of Bradford Brook.
2002 - 2014	No significant change.	No significant change.

In the period between the 2014 Ordnance Survey and the Walkover Survey January 22<sup>nd</sup> 2015, we are not aware of any other significant changes to the site.

## 2.2 Geological Appraisal

The geological appraisal is based on the appended Groundsure GeolInsight Report (ref. CMAPS-CM-389440-4199-060115GEO).

### Made Ground

According to the GeoInsight report there are no records of artificial ground in the immediate vicinity of the site. However as the site has been developed some made ground might be expected.

### Drift

According to the GeoInsight report the drift strata beneath the site is expected to be Alluvium comprising of clays, silts, sands and gravels which typically exhibit very low to high permeability.

### Bedrock

The bedrock beneath the site is anticipated to belong to the Clitheroe Limestone Formation and Hodder Mudstone Formation. This lithology exhibits a low permeability. There is one inferred north trending fault 358m to the North which is not thought to have any impact on the site and are not thought to pose a risk from reactivation.

### Radon

The GeoInsight report contains information from the Radiation Protection Division of the Health Protection Agency (HPA). The HPA indicate that the site is in a Radon Affected Areas as between 3 and 5% of surrounding properties are above the Action Level. The Action Level is 200 Becquerels/ m<sup>3</sup>.

In addition, the GeoInsight report indicates that for new properties or extensions to existing properties, in accordance with the Buildings Research Establishment (BRE) publication BR211, basic radon protection measures are required.

### Ground Workings

The survey states there are two historical surface ground working features, they are 132m to the east and is listed as a pond. There are no historical underground working features within 250m of the site. The survey also indicates there are no current ground workings within 250m of the site.

### Mining, Extraction & Natural Cavities

There are no records of active or historical coal mining within 1km of the site boundary. There is no data held by Johnson, Poole and Bloomer within 1km of the site boundary.

According to the GeoInsight Report the site could be in an area that was used for occasional and minor vein mineral mining. In our opinion, the risk to the site from this is very low and can be discounted.

The site is not within 1km of areas affected by non-coal mining (bar minor vein mining mentioned previously), rock salt or brine extraction, natural cavities, gypsum extraction, tin mining or clay mining. There is no suggestion that there are other underground cavities associated with non-coal mining activities, brine extraction, gypsum extraction, tin or clay mining.

### Natural Ground Subsidence

The report states that the site has a very low hazard rating of, landslides, ground dissolution of soluble rocks, natural subsidence from shrink-swell clays or running sands. The site has a negligible hazard rating relating to collapsible deposits and a moderate hazard rating for compressible deposits.

### Railways and Tunnels

There are no active or historical rail tracks or tunnels within the site boundary or within 250m of it.

The site is not within 5km or 500m of the High Speed 2 rail project or Crossrail project respectively.

## **2.3 Environmental Appraisal**

The environmental appraisal is based on the appended Groundsure EnviroInsight Report (ref. CMAPS-CM-389440-4199-060115EDR).

### IPC/ IPPC/ Part 1(A) Authorisations

The environmental data report indicates that there are no IPC and no IPPC or Part 1(A) Authorisations within 500m of the site boundary.

### Potentially Harmful Discharges

According to the environmental data report there are no records of potentially harmful discharges to public sewers or controlled waters within 500m of the site boundary.

### List 1 and List 2 Dangerous Substances Inventory Sites

The environmental data report indicates that there are no records of List 1 or List 2 Dangerous Substances Inventory Sites within 500m of the site boundary.

### Part A(2) and Part B Authorisations

According to the environmental data report there are no Part A(2) or Part B (formerly LAPC/ LAPPC) authorisations within 500m of the site boundary.

### Radioactive Substance Licences

The environmental data report indicates that there are no records of Category 3 or Category 4 Radioactive Substance Licences within 500m of the site boundary.

### Discharges

According to the environmental data report there are two licensed discharge consents within 500m of the site boundary. These licenses are related to sewage discharges for storm sewer overflows and sewage pumping and are no longer active or revoked.

### Planning Hazardous Substances Consents and Enforcements

There are no records of Planning Hazardous Substances Consents and Enforcements within 500m of the site boundary according to the environmental data report.

### Dangerous or Hazardous Sites

Records of COMAH and NIHHS indicate that there are no dangerous or hazardous sites within 500m of the site boundary.

### Pollution Incidents

The environmental data report indicates that there have been five pollution incidents within 500m of the site boundary.

The environmental data report indicates that there have been five pollution incidents within 500 metres of the site boundary. The closest of these is 171m away to the SE ranging to 413m to the NE of the site. The contamination involved crude sewage, atmospheric and contaminated waters that are related to sewage works and fire and firefighting runoff in 2001 and 2003. In our opinion, the effect on the site from this would be negligible.

### Contaminated Land

There are no sites determined as contaminated under Section 78R of the Environmental Protection Act (1990) within 500m of the site boundary.

### Registered Landfill Sites

According to the environmental data report there are no registered landfill sites within 1000m of the site boundary. Historic landfill sites are listed as 441m to the South West at Waddington Brick Works, licenses held by Clitheroe Metropolitan Borough.

### Unregistered Landfill Sites

The historical appraisal has identified no unregistered landfills in the form of quarries, pits and ponds infilled with unknown material which may be a source of ground gas.

### Other Waste Treatment, Transfer and Disposal Sites

According to the environmental data, report there are was one licensed waste treatment, transfer and disposal sites a distance of 1004m to the south east and not thought to pose any risk or impact to the site.

### Current Land Use

Current potentially contaminative industrial land uses are recorded by the environmental data report. Within 250m of the site boundary there is one potentially contaminative industrial site. This is an Electrical Sub Station 174m to the south east. A high pressure underground pipeline is within 500m of the site, 410m to the SE, owned and operated by Sabic UK Petrochemicals.



### Past Land Use

Past potentially contaminative land uses are identified in the historical appraisal.

### Hydrogeology and Hydrology

Designation of aquifers in the environmental data report are in accordance with the Environment Agency's April 2010 Groundwater Protection Policy.

The superficial/ drift deposits comprise alluvium which are indicated to be an Secondary A aquifer.

The bedrock comprise limestone and mudstones which are indicated to be a Secondary A aquifer.

A Secondary A aquifer comprises permeable layers capable of supporting water supplies at a local scale and in some cases forming an important source of base flow to rivers.

According to the environmental data report there are four surface water abstraction licences within 1000m of the site boundary, seven groundwater abstraction licences within 2000m of the site boundary, and five potable water abstraction licences within 1000m of the site boundary. Groundwater abstraction licenses are a minimum 924m from the site boundary and are concerned with commercial drinking, cooking and sanitation.

There are no Source Protection Zones, set up to protect a water source within 500m of the site of boundary, present according to the environmental data report.

The environmental data report indicates that there is a watercourse about 24m to the north of the site boundary, the West Bradford Brook. Many other secondary rivers, culverts surround the site up to 500m away and a tertiary river is present 246m to the north.

There are no Flood Defences and/ or Flood Storage Areas present within the 250m of the site boundary according to the environmental data. A Zone 2 and Zone 3 Floodplain is 18m to the north and 43m to the east.

According to the environmental data report the British Geological Survey indicate that the site has a moderate susceptibility to groundwater flooding. There is also a potential for groundwater flooding at surface based on the underlying geological conditions. There is a moderate confidence in these ratings.

### Environmental Sensitivity

According to the environmental data report the site is within a Nitrate Vulnerable Zone.

According to the environmental data report the site is not within 500m of a Designated Environmentally Sensitive Site. The site is not within 1000m of a site of Special Scientific Interest, National Nature Reserves, Special Area of Conservation, Special Protected Area, Ramsar Site or Ancient Woodland.

The site is within 2000m zone that includes areas of Special Scientific Interest, Ancient Woodland and a Local Nature Reserve. There areas are at least 500m from the sites boundary.

The site is on the boundary of being within the Forest of Bowland, an Area of Outstanding Natural Beauty.

## **2.4 Conceptual Ground Model**

A conceptual ground model of a site and its environs uses available information to form a preliminary assessment of contamination sources, pathways and receptors, and the significance of hazards that exist or will potentially exist on the site. Its purpose is to identify the relationships between sources of contamination, pathways and receptors to allow exposure scenarios to be determined and thereby aid in the design of any intrusive investigation. It also forms the basis of the risk assessment.

### Sources

Potential sources of contamination identified in the desk study are:

- Possibility of general contaminants from past local construction activities and landscaping
- Possibility of fuel and oil spillage from sites now a car park.

### Pathways

Potential pathways between sources and receptors for the proposed development are:

- Direct contact with contaminated soil and inhalation of dust by site workers during construction and demolition and by end users of the site in garden areas and soft landscaping.
- Inhalation of vapours by site workers during construction and demolition and by the end users of the site in enclosed spaces.
- Uptake of contaminated groundwater by plants grown in the gardens and landscaped areas.
- Migration of contaminants to the underlying aquifer.

### Receptors

Potential receptors for the proposed development are:

- Site workers during the construction phases.
- The residents who will be the end users of the site.
- Controlled waters including the underlying aquifer.
- Plants grown in the garden landscaped areas (if present).

### Conclusions

An appraisal of the sources, pathways and receptors has been considered and we have produced a conceptual ground model based upon the available information, as follows:

TABLE 3 CONCEPTUAL GROUND MODEL

Potential Source	Nature of Hazard	Contaminants Associated with the Source	Pathway	Receptor	Preliminary Risk Rating
Made Ground	Contaminants in Made Ground	<u>Gen. Contaminants</u> Arsenic Cadmium Chromium Lead Mercury Nickel Selenium Boron Copper Zinc Cyanide Sulphide Sulphate pH Phenols Polynuclear Aromatic Hydrocarbons (PAH) Total Petroleum Hydrocarbons (TPH)	Ingestion of soil	Site Operatives	Low
			Ingestion of dust	End Users	
			Dermal contact		
			Inhalation of dust		
			Inhalation of vapours		
			Uptake via contaminated groundwater	Vegetation	Low
			Vertical and lateral movement of mobile contaminants to surface water and groundwater	Controlled Waters	Low
			Direct contact	Structures and Services	Low
Asbestos on/ in ground	Asbestos fibres	Asbestos fibres	Inhalation of fibres	Site Operatives End Users	Low
Tanks/ Machinery/ Vehicles using car park area	Fuel/ oil spillage and/or leakage from machinery and/or fuel/oil tanks and/or vehicles	Total Petroleum Hydrocarbons (TPH)  Benzene/ Toluene/ Ethylbenzene/ Xylene (BTEX)  Chlorinated Solvents	Ingestion of soil  Ingestion of dust  Ingestion of contaminated vegetable produce  Dermal contact  Inhalation of dust  Inhalation of vapours	Site Operatives End Users	Moderate
			Uptake via contaminated groundwater	Vegetation	Moderate
			Vertical and lateral movement of mobile contaminants to surface water and groundwater	Controlled Waters	Moderate
			Direct contact	Structures and Services	Moderate
Radioactive minerals	Ground Gas (Carcinogen)	Radon Gas	Inhalation of gas	End Users	Moderate

The conceptual ground model indicates that a nominal intrusive ground investigation is required to assess the ground conditions. The ground investigation should also obtain soil and, where possible, water samples for contamination analysis.

Should fibres or friable asbestos material be found on site during the investigation it should also be sampled and analysed.

## 2.5 General

No consideration has been given to flora and fauna as this was outside our brief.

We recommend that when developing a “brownfield site” a phased investigation is undertaken in order that each phase informs the next. A typical phased investigation comprises the following:

- Phase I: walkover survey and desk study report
- Phase II: ground investigation with report(s)
- Phase III: remediation statement report
- Phase IV: validation with report(s).

An options appraisal might also be of benefit between the ground investigation and remediation statement.

This Phase I walkover survey and desk study report is to be followed by a Phase II ground investigation with report. It should be noted that dependent upon the findings a Phase III remediation statement and Phase IV validation with report may be required.

We trust that this report fulfils your present requirements but if you have any queries or we can be of further assistance please contact the undersigned or Miss Anna Marsden at our Preston Office.

SUB SURFACE CONSULTANTS LIMITED  
REPORT No. 5981  
JANUARY 2015

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For and on behalf of  
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C. A. Marsden B.Sc.(Hons.), C.Eng., M.I.C.E.  
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## PHOTOGRAPHS



# SUB SURFACE

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## Photographs

Site: THREE MILLSTONES INN, W.BRADFORD, BB7 4SX

Client: MATTHEW FROST

Engineer: 3D.G DESIGN

Job No.

5981

Sheet

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Survey Date

22/01/15

### WALKOVER SURVEY PHOTOGRAPHS



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3



4



5



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### WALKOVER SURVEY PHOTOGRAPHS



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Sheet

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Survey Date

22/01/15

### WALKOVER SURVEY PHOTOGRAPHS



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## **GEOINSIGHT REPORT**



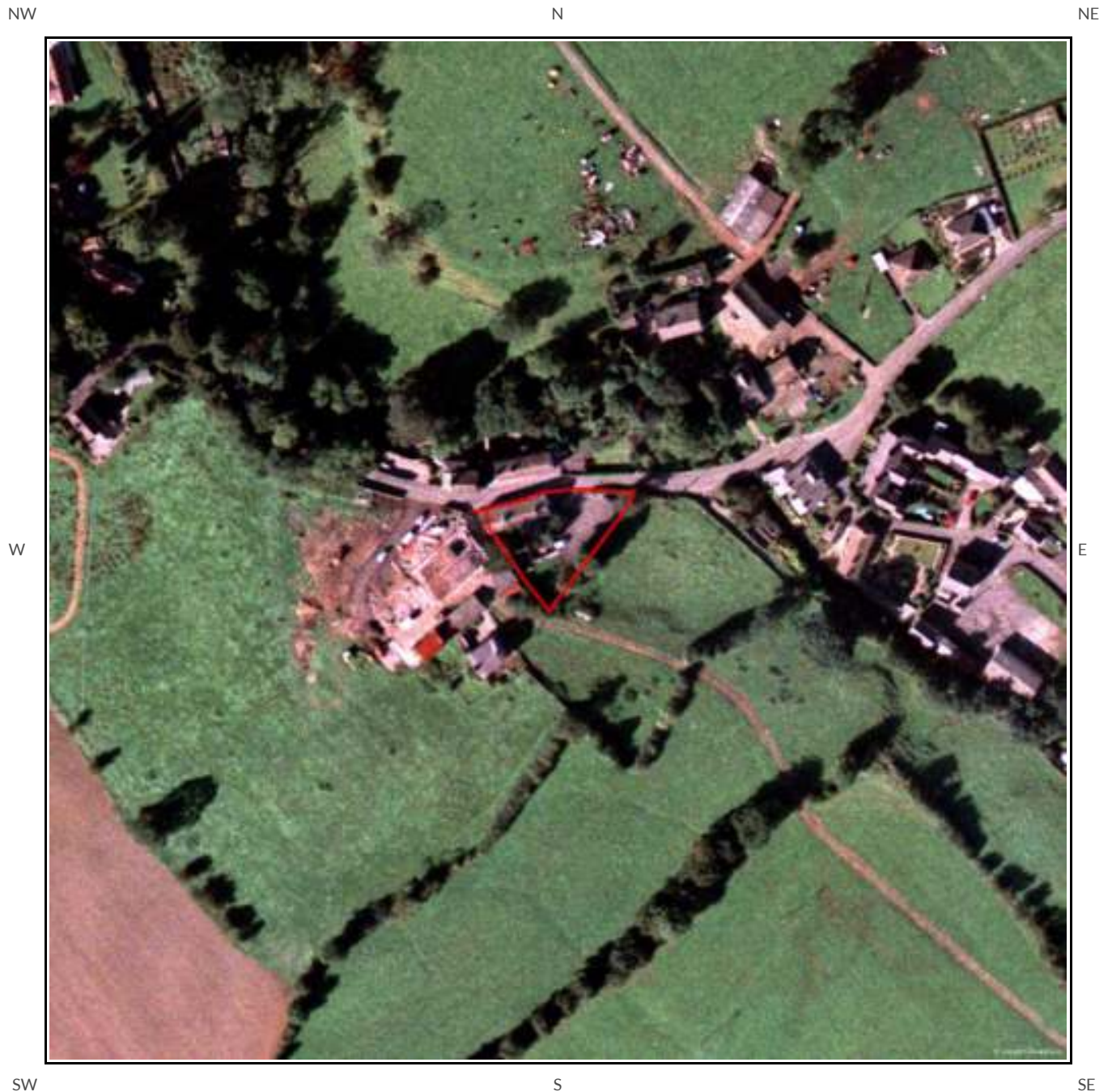
# GroundSure GeoInsight

Address: Three Millstones Inn, West Bradford, Lancashire, BB7 4SX

Date: 6 Jan 2015

Reference: CMAPS-CM-389440-4199-060115GEO

Client: CENTREMAPS



Aerial Photograph Capture date: 07-May-2001  
Grid Reference: 374163,444402  
Site Size: 0.12ha

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# Overview of Findings

The GroundSure GeoInsight 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 Digital Geological Map of Great Britain, BGS Geosure data; BRITPITS database; Shallow 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

1.1 Artificial Ground	1.1.1 Is there any Artificial Ground/ Made Ground present beneath the study site?	No
	1.1.2 Are there any records relating to permeability of artificial ground within the study site* boundary?	No
1.2 Superficial Geology and Landslips	1.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site?	Yes
	1.2.2 Are there any records relating to permeability of superficial geology within the study site boundary?	Yes
	1.2.3 Are there any records of landslip within 500m of the study site boundary?	No
	1.2.4 Are there any records relating to permeability of landslips within the study site boundary?	No
1.3 Bedrock, Solid Geology & Faults	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 relating to permeability of bedrock within the study site boundary?	Yes
	1.3.3 Are there any records of faults within 500m of the study site boundary?	Yes
1.4 Radon data	1.4.1 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 in a Radon Affected Area, as between 3 and 5% of properties are above the Action Level
	1.4.2 Is the property in an area where Radon Protection Measures are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment?	Basic radon protective measures are necessary

Section 2:Ground Workings	On-site	0-50m	51-250	251-500	501-1000
2.1 Historical Surface Ground Working Features from Small Scale Mapping	0	0	2	Not Searched	Not Searched
2.2 Historical Underground Workings from Small Scale Mapping	0	0	0	0	0
2.3 Current Ground Workings	0	0	0	1	1
Section 3:Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
3.1 Historical Mining	0	0	0	0	0

Section 3: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
3.2 Coal Mining	0	0	0	0	0
3.3 Johnson Poole and Bloomer Mining Area	0	0	0	0	0
3.4 Non-Coal Mining	1	0	0	0	3
3.5 Non-Coal Mining Cavities	0	0	0	0	0
3.6 Natural Cavities	0	0	0	0	0
3.7 Brine Extraction	0	0	0	0	0
3.8 Gypsum Extraction	0	0	0	0	0
3.9 Tin Mining	0	0	0	0	0
3.10 Clay Mining	0	0	0	0	0

Section 4: Natural Ground Subsidence	On-site
4.1 Shrink Swell Clay	Very Low
4.2 Landslides	Low
4.3 Ground Dissolution of Soluble Rocks	Very Low
4.4 Compressible Deposits	Moderate
4.5 Collapsible Deposits	Very Low
4.6 Running Sand	Low

Section 5: Borehole Records	On-site	0-50m	51-250
5 BGS Recorded Boreholes	0	0	0

Section 6: Estimated Background Soil Chemistry	On-site	0-50m	51-250
6 Records of Background Soil Chemistry	1	2	9

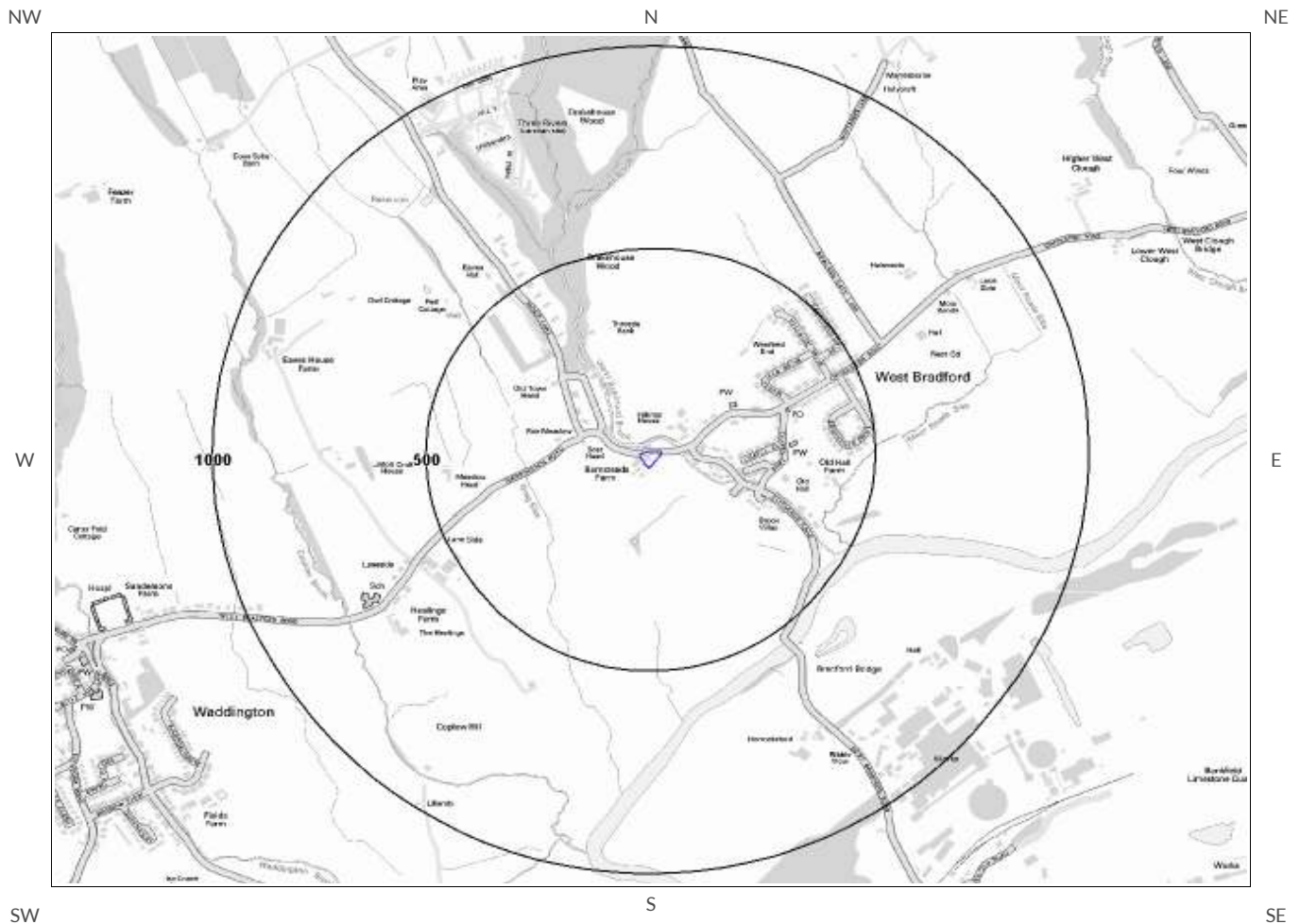
Section 7: Railways and Tunnels	On-site	0-50m	51-250	251-500
7.1 Tunnels	0	0	0	Not Searched
7.2 Historical Railway and Tunnel Features	0	0	0	Not Searched
7.3 Historical Railways	0	0	0	Not Searched
7.4 Active Railways	0	0	0	Not Searched

Section 7:Railways and Tunnels	On-site	0-50m	51-250	251-500
7.5 Railway Projects	0	0	0	0



# 1 Geology

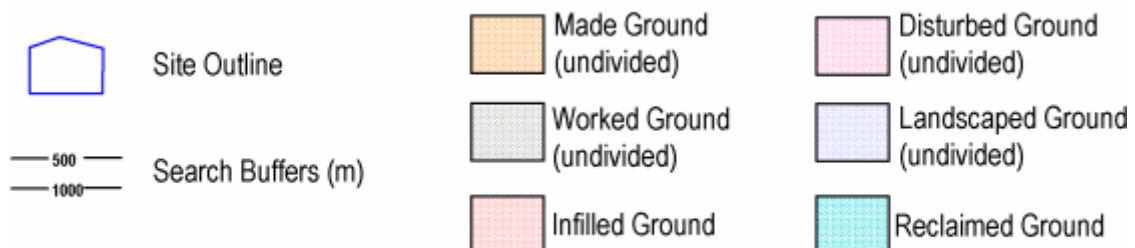
## 1.1 Artificial Ground Map



Artificial Ground Legend



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# 1 Geology

## 1.1 Artificial Ground

### 1.1.1 Artificial/ Made Ground

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No:068

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

Database searched and no data found.

---

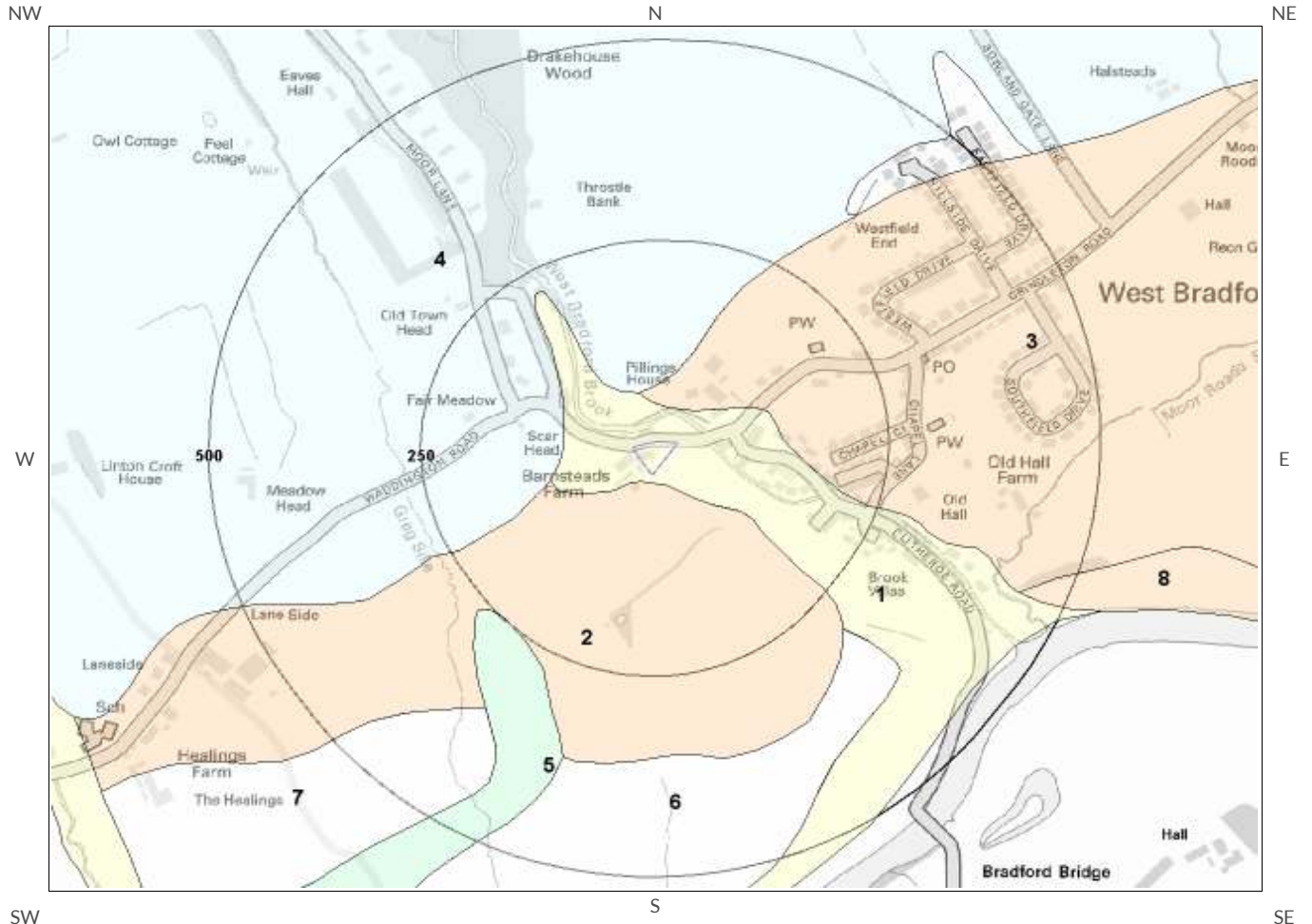
### 1.1.2 Permeability of Artificial Ground

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

Database searched and no data found.

---

# 1.2 Superficial Deposits and Landslips Map



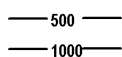
Superficial Deposits and Landslips  
Legend



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Site Outline



Search Buffers (m)

# 1.2 Superficial Deposits and Landslips

## 1.2.1 Superficial Deposits/ Drift Geology

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

ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	ALV-CSSG	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL
2	9.0	S	RTD2-SAGR	RIVER TERRACE DEPOSITS, 2	SAND AND GRAVEL
3	42.0	N	T2T3-SAGR	RIVER TERRACE DEPOSITS, 2 TO 3	SAND AND GRAVEL
4	64.0	N	TILLD-DMTN	TILL, DEVENSAN	DIAMICTON
5	248.0	SW	HMGDD-DMTN	HUMMOCKY (MOUNDY) GLACIAL DEPOSITS, DEVENSAN	DIAMICTON
6	295.0	SE	GLLDD-CLSI	GLACIOLACUSTRINE DEPOSITS, DEVENSAN	CLAY AND SILT
7	350.0	SW	GLLDD-CLSI	GLACIOLACUSTRINE DEPOSITS, DEVENSAN	CLAY AND SILT
8	444.0	SE	RTD1-SAGR	RIVER TERRACE DEPOSITS, 1	SAND AND GRAVEL

## 1.2.2 Permeability of Superficial Ground

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

Distance (m)	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Intergranular	High	Very Low
9.0	S	Intergranular	Very High	High
42.0	N	Intergranular	Very High	High

## 1.2.3 Landslip

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

Database searched and no data found.

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.

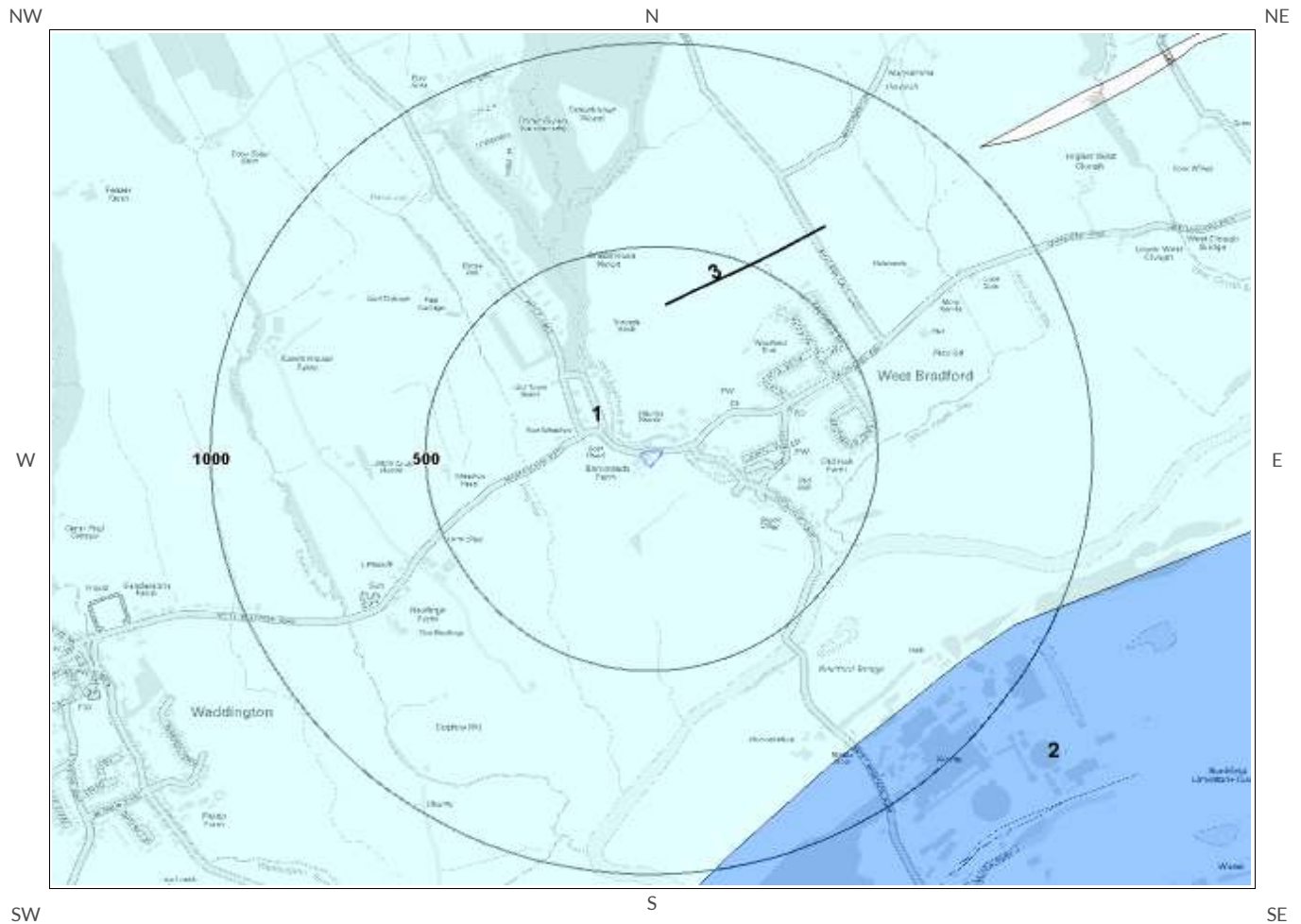
## 1.2.4 Landslip Permeability

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

Database searched and no data found.

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

# 1.3 Bedrock and Faults Map



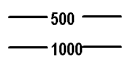
Bedrock and Faults Legend



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Site Outline



Search Buffers (m)

# 1.3 Bedrock, Solid Geology & Faults

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No:068

## 1.3.1 Bedrock/ Solid Geology

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

ID	Distance (m)	Direction	LEX Code	Description	Rock Age
1	0.0	On Site	CLHOM-MDST	Clitheroe Limestone Formation And Hodder Mudstone Formation (undifferentiated) - Mudstone	Holkerian / Chadian

## 1.3.2 Permeability of Bedrock Ground

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

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

## 1.3.3 Faults

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

ID	Distance (m)	Direction	Category Description	Feature Description
3	358.0	N	FAULT	Fault, inferred, displacement unknown

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 nationwide coverage.

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

# 1.4 Radon Data

## 1.4.1 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 in a Radon Affected Area, as between 3 and 5% of properties are above the Action Level

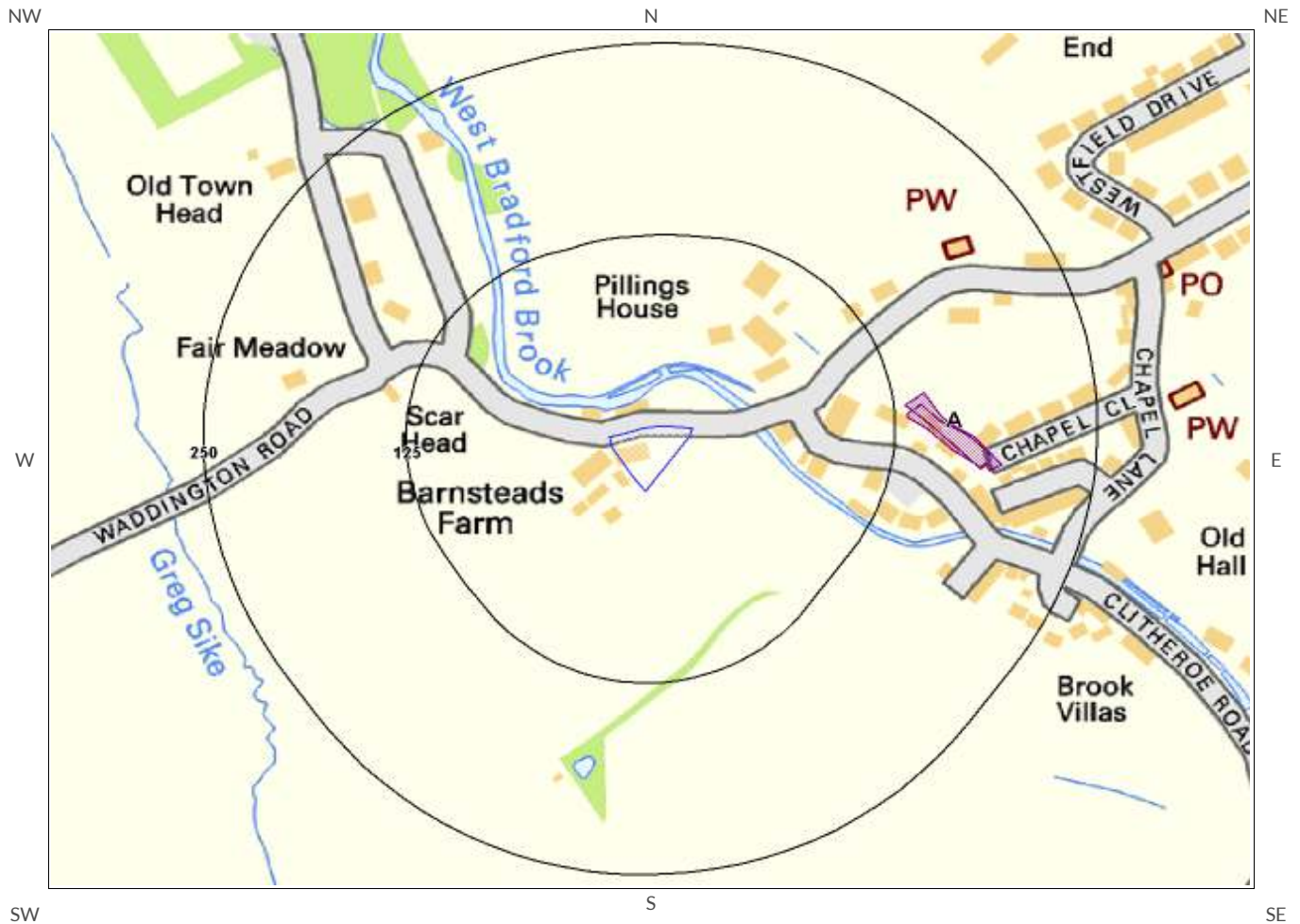
---

## 1.4.2 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? Basic radon protective measures are necessary

---



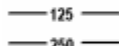


# 2 Ground Workings Map



Ground Workings Legend



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





## 2 Ground Workings

### 2.1 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

The following Historical Surface Ground Working Features are provided by GroundSure:

ID	Distance (m)	Direction	NGR	Use	Date
1A	132.0	E	374350 444420	Pond	1950
2A	133.0	E	374347 444417	Pond	1971

### 2.2 Historical Underground Working Features derived from Historical Mapping

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

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

Database searched and no data found.

### 2.3 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.

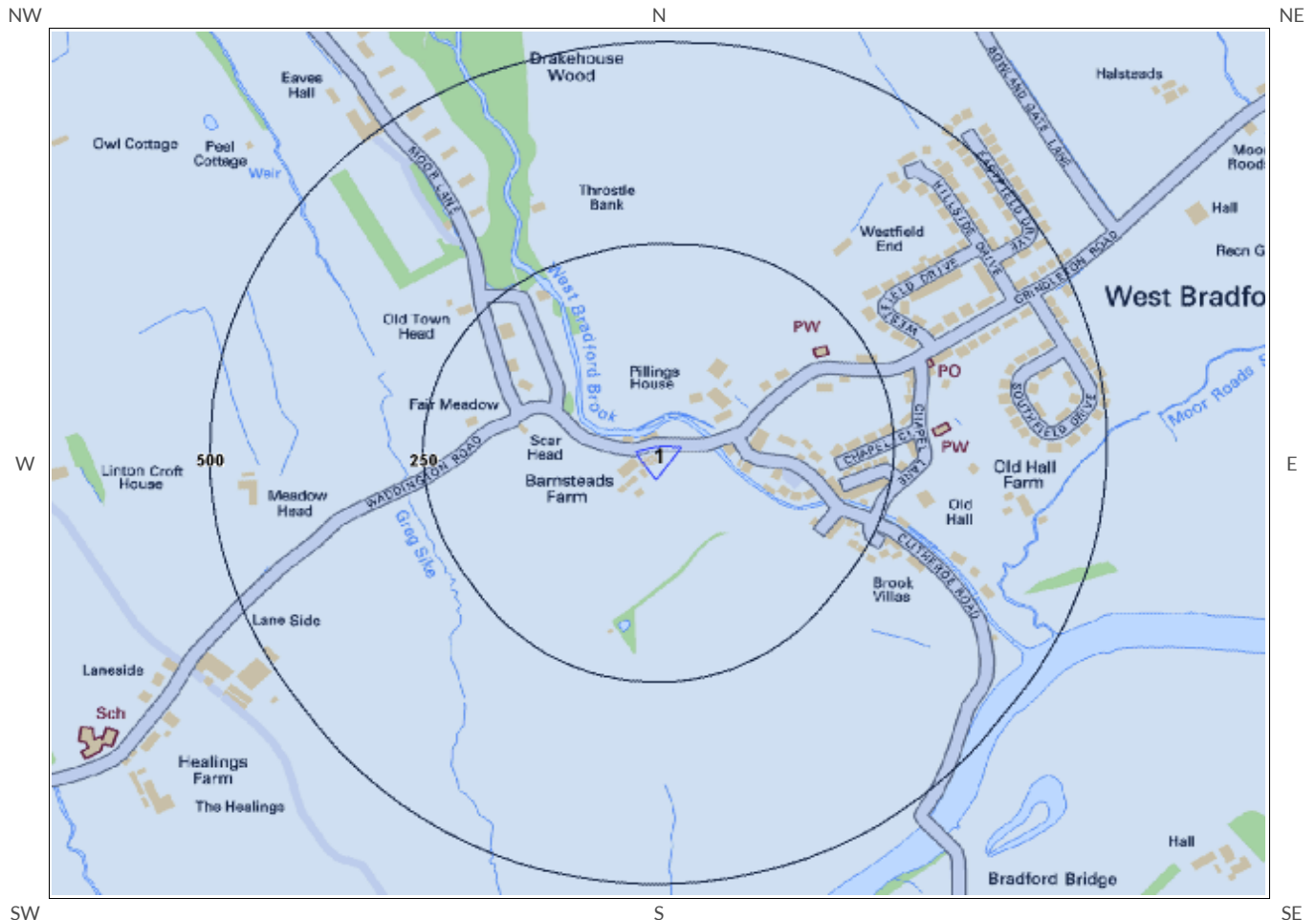
Are there any BGS Current Ground Workings within 1000m of the study site boundary? Yes

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	317.0	NW	373975 444689	Clay & Shale	Eaves Hall	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	547.0	SW	373864 443921	Clay & Shale	Waddington Brick & Tile Works	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased






# 3 Mining, Extraction & Natural Cavities Map



Mining, Extraction and  
Natural Cavities Legend






Mapping  
sourced from  
**Ordnance  
Survey**

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 Site Outline  
 250  
 500 Search Buffers (m)

 Historical Mining  
 Non-Coal Mining Cavities  
 Natural Cavities

## Non-Coal Mining

 Highly likely  
 Likely  
 Unlikely  
 Highly unlikely  
 Rare



# 3 Mining, Extraction & Natural Cavities

## 3.1 Historical Mining

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

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

Database searched and no data found.

## 3.2 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.

## 3.3 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.

## 3.4 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	Rare and localised small scale mining may have occurred.
Not shown	577.0	N	Not available	Vein Mineral	Rare and localised small scale mining may have occurred.
Not shown	811.0	E	Not available	Vein Mineral	Rare and localised small scale mining may have occurred.
Not shown	996.0	NE	Not available	Vein Mineral	Rare and localised small scale mining may have occurred.

---

### 3.5 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.

---

### 3.6 Natural Cavities

This dataset provides information based on Peter Brett Associates natural cavities database.

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

Database searched and no data found.

---

### 3.7 Brine Extraction

This data provides information from the Coal Authority issued on behalf of 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.

---

### 3.8 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.

---

### 3.9 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.

---

### 3.10 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?

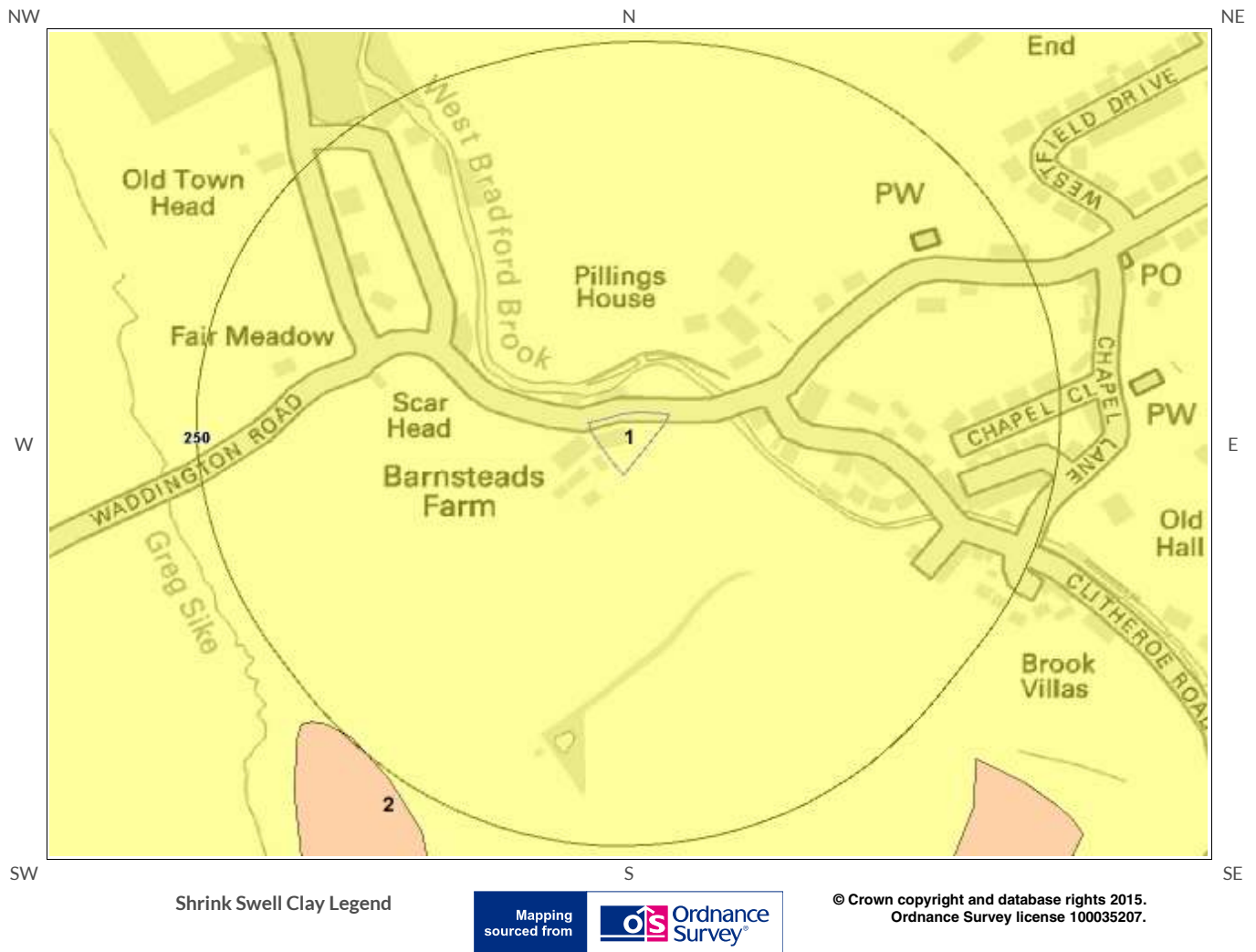
No

Database searched and no data found.

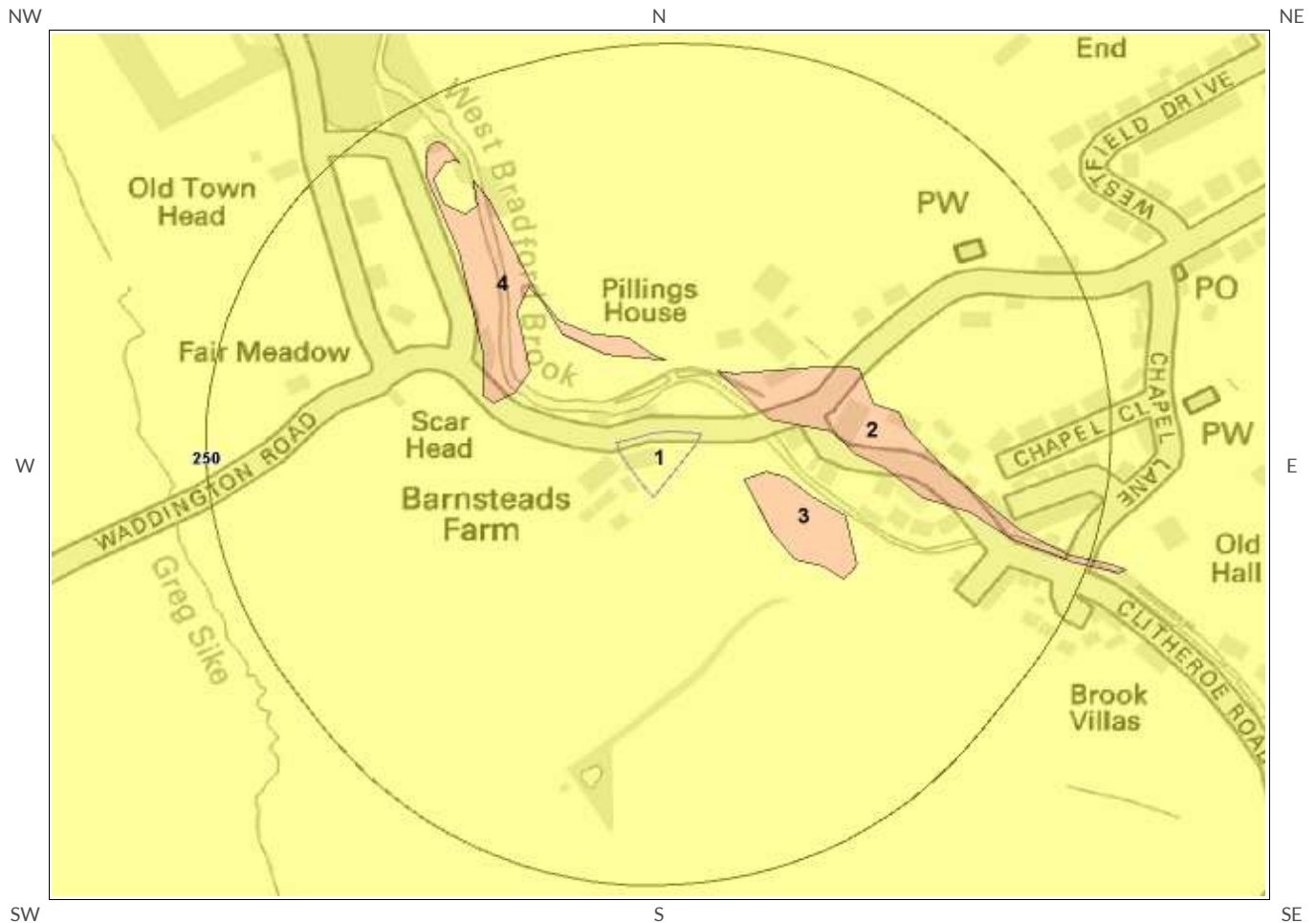
---

# 4 Natural Ground Subsidence

## 4.1 Shrink-Swell Clay Map



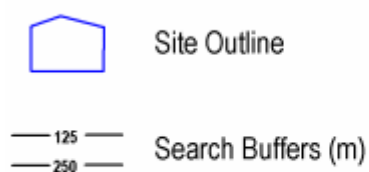
## 4.2 Landslides Map



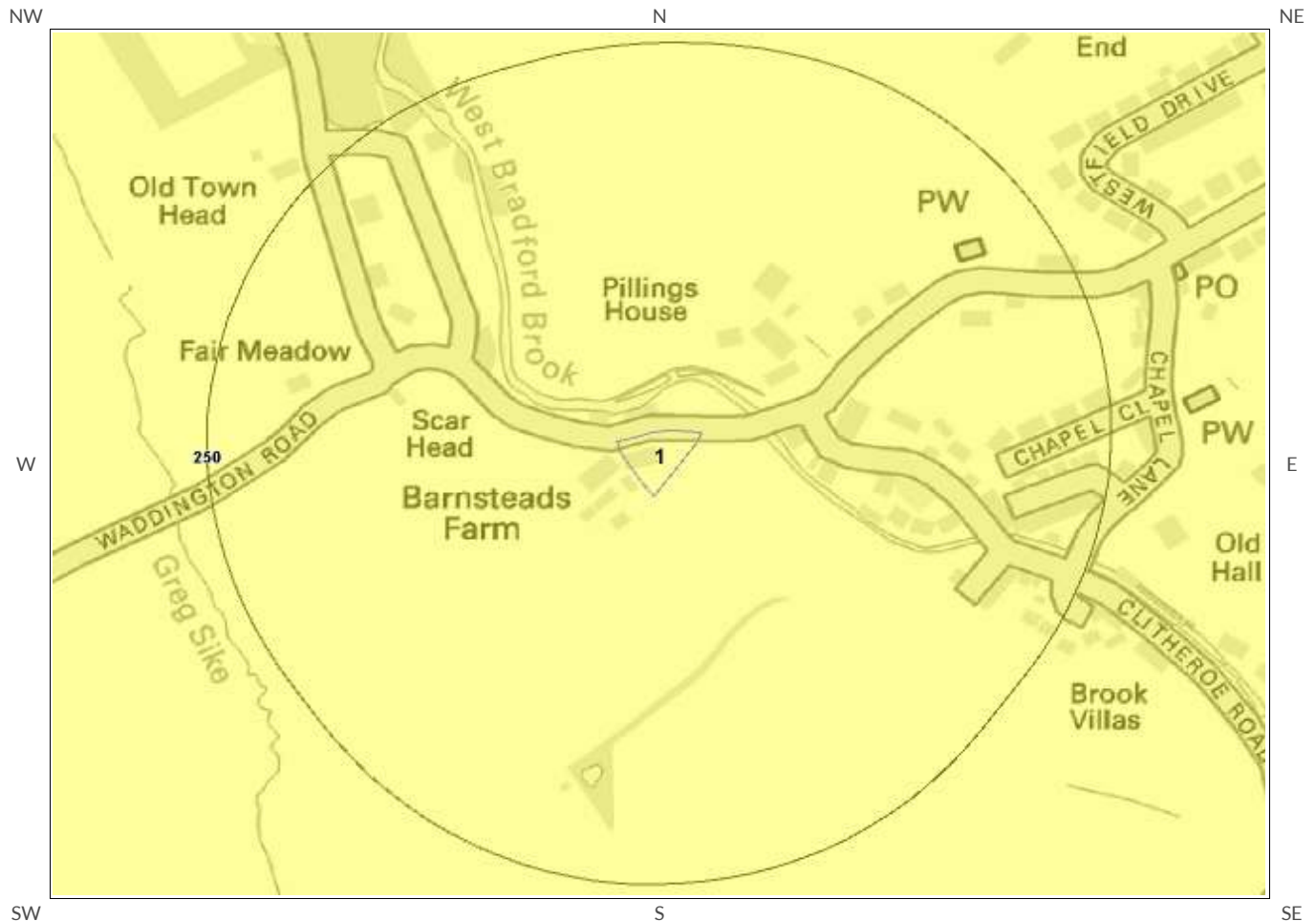
Landslides Legend



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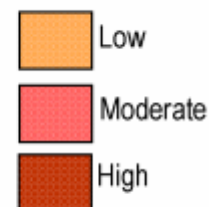
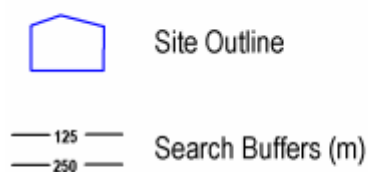
# 4.3 Ground Dissolution Soluble Rocks Map



Ground Dissolution  
Soluble Rocks Legend

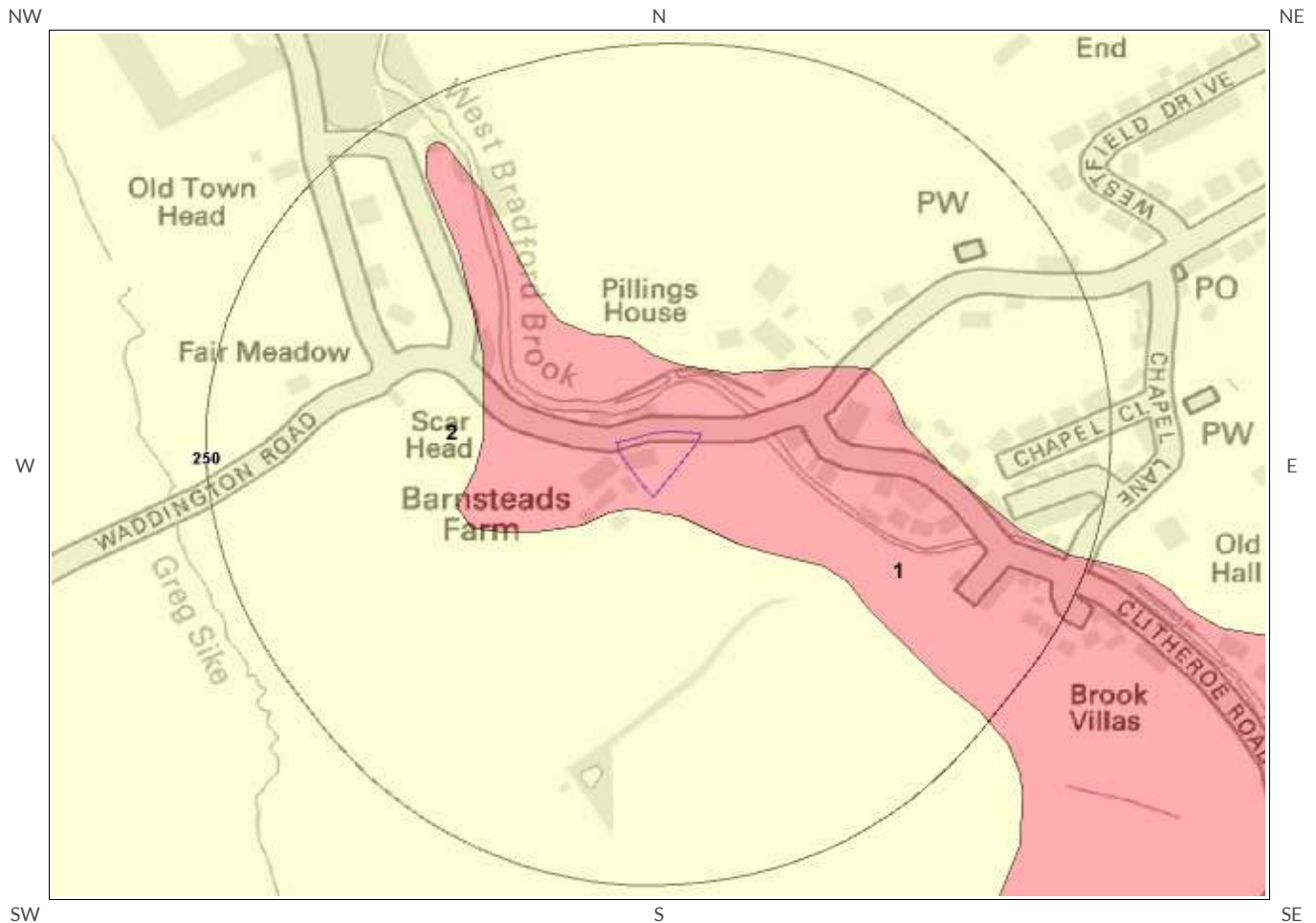


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## 4.4 Compressible Deposits Map



Compressible Deposits Legend

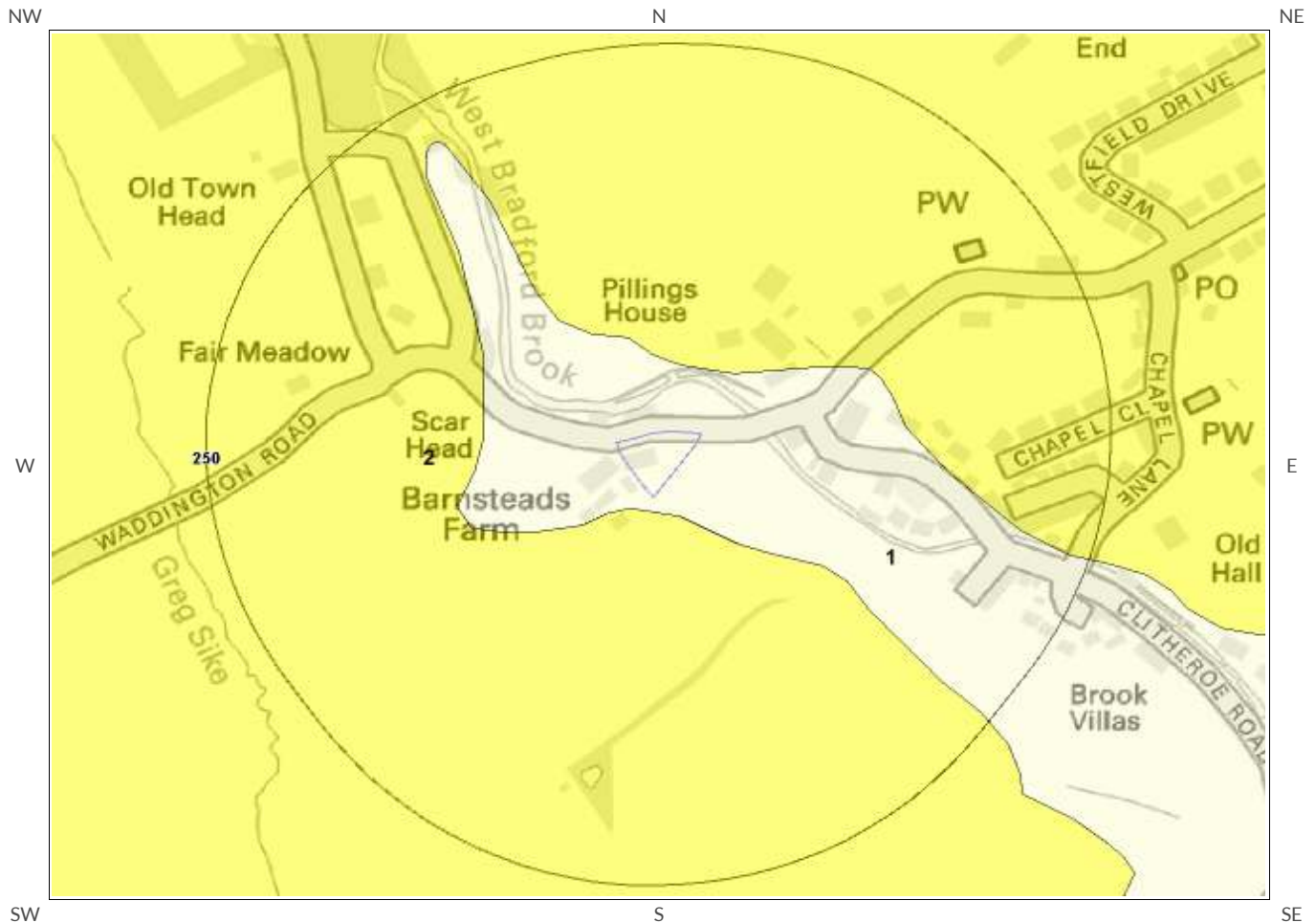


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# 4.5 Collapsible Deposits Map



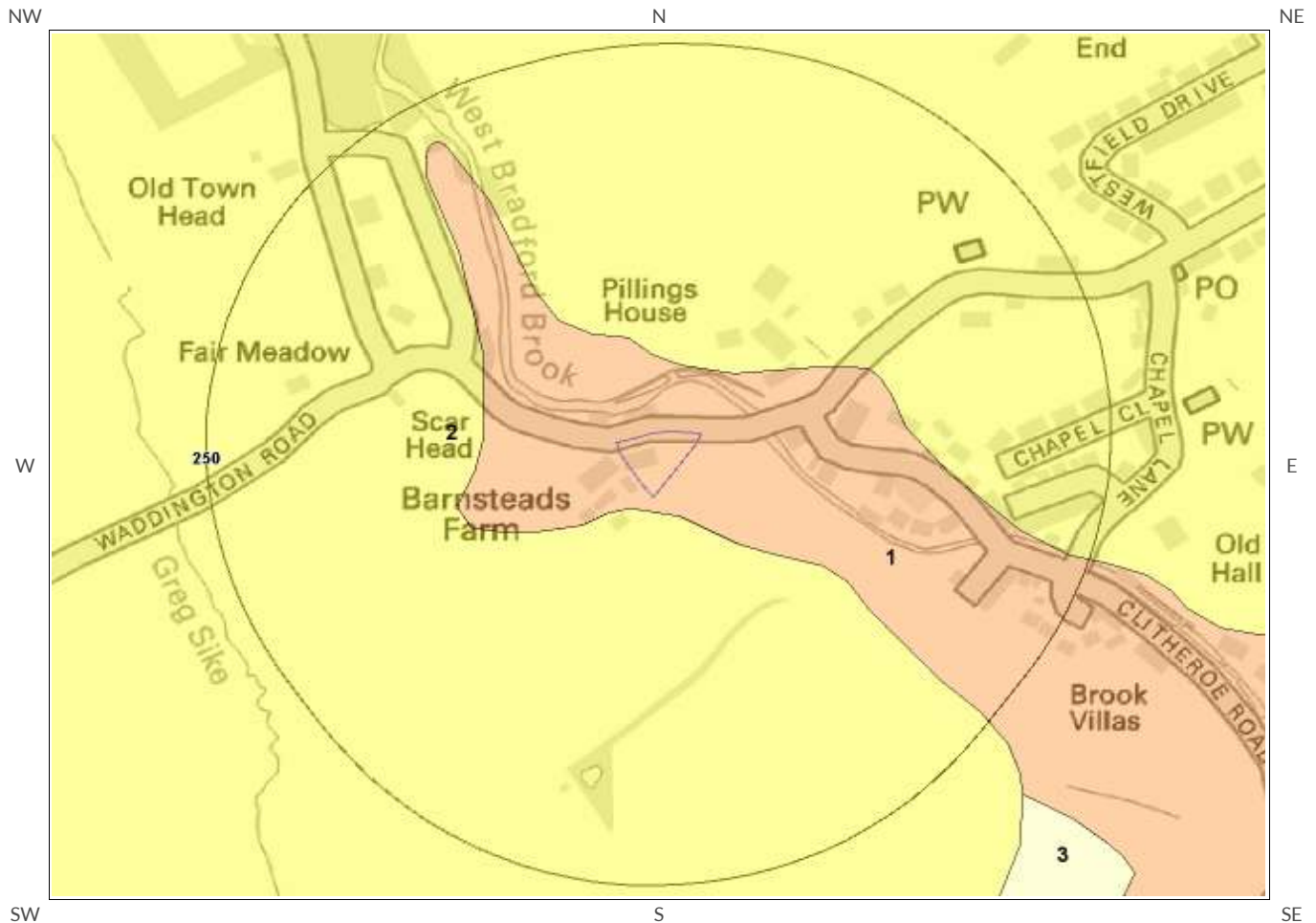
Collapsible Deposits Legend



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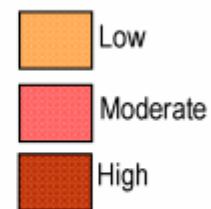
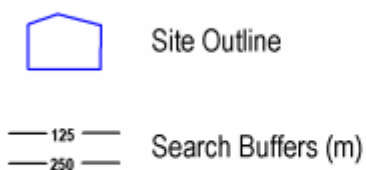
## 4.6 Running Sand Map



Running Sand Legend



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## 4 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? **Moderate**

### 4.1 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.

### 4.2 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.
2	36.0	NE	Low	Possibility of slope instability problems after major changes in ground conditions. Consideration should be given to stability if changes to drainage or excavations take place. Possible increase in construction cost to reduce potential slope stability problems. Existing property - no significant increase in insurance risk due to natural slope instability problems.
3	37.0	SE	Low	Possibility of slope instability problems after major changes in ground conditions. Consideration should be given to stability if changes to drainage or excavations take place. Possible increase in construction cost to reduce potential slope stability problems. Existing property - no significant increase in insurance risk due to natural slope instability problems.
4	47.0	N	Low	Possibility of slope instability problems after major changes in ground conditions. Consideration should be given to stability if changes to drainage or excavations take place. Possible increase in construction cost to reduce potential slope stability problems. Existing property - no significant increase in insurance risk due to natural slope instability problems.

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

## 4.3 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	Very Low	Significant soluble rocks are present. Problems unlikely except with considerable surface or subsurface water flow. No special actions required to avoid problems due to soluble rocks. No special ground investigation required or increased construction costs are likely. An increase in financial risk due to potential problems with soluble rocks is unlikely.

## 4.4 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	Moderate	Significant potential for compressibility problems. Avoid large differential loadings of ground. Do not drain or de-water ground near the property without technical advice. For new build - consider possibility of compressible ground in ground investigation, construction and building design. Consider effects of groundwater changes. Extra construction costs are likely. For existing property - possible increase in insurance risk from compressibility, especially if water conditions or loading of the ground change significantly.
2	9.0	S	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.

## 4.5 Collapsible Deposits

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

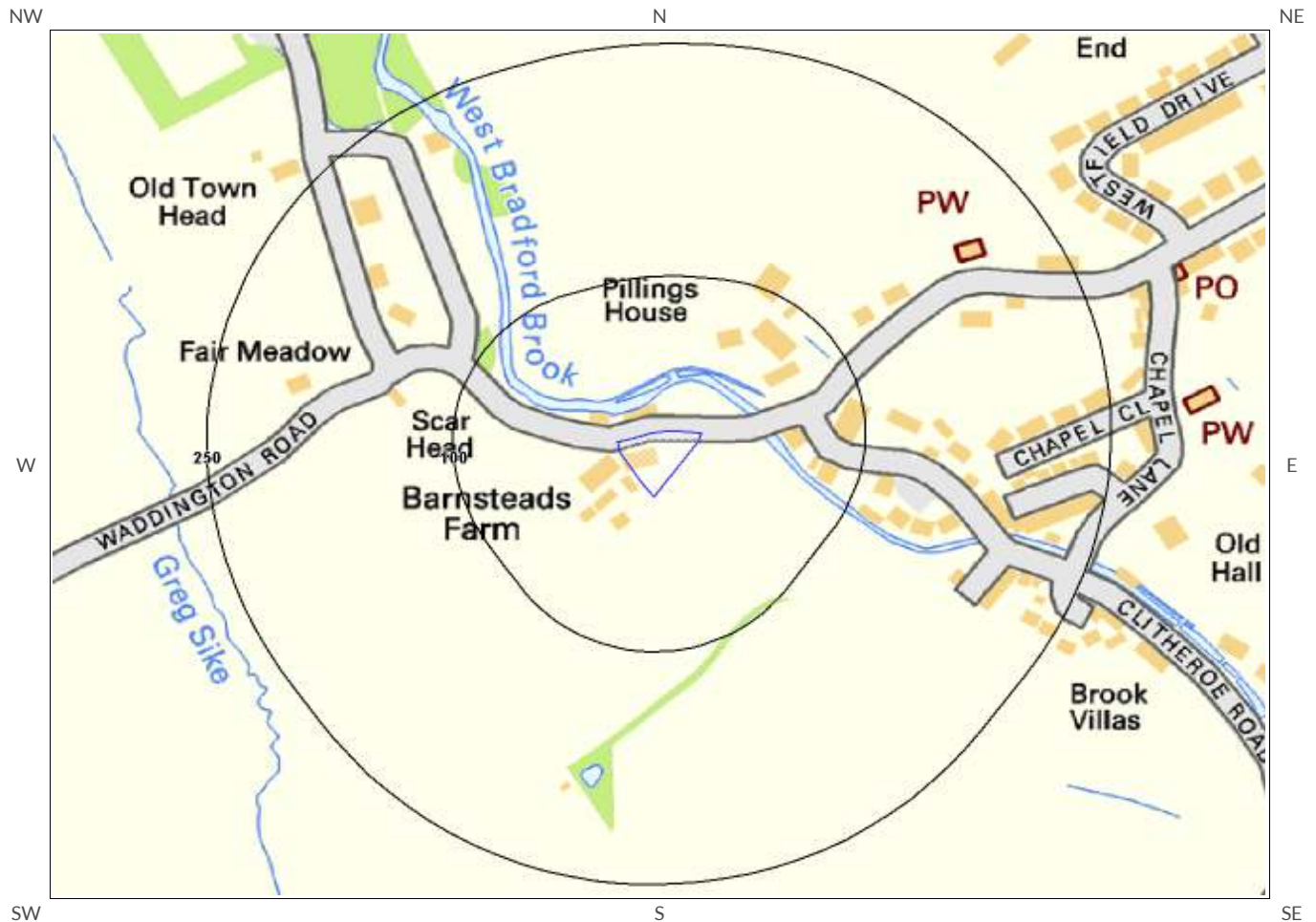
ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	No indicators for collapsible deposits identified. No actions required to avoid problems due to collapsible deposits. No special ground investigation required, or increased construction costs or increased financial risk due to potential problems with collapsible deposits.
2	9.0	S	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.

## 4.6 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	Low	Possibility of running sand problems after major changes in ground conditions. Normal maintenance to avoid leakage of water-bearing services or water bodies (ponds, swimming pools) should reduce likelihood of problems due to running sand. For new build - consider possibility of running sand into trenches or excavations if water table is high or sandy strata are exposed to water. Avoid concentrated water inputs to site. Unlikely to be an increase in construction costs due to potential for running sand. For existing property - no significant increase in insurance risk due to running sand problems is likely.
2	9.0	S	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.

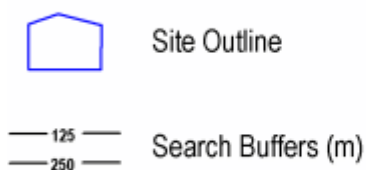
# 5 Borehole Records Map



Borehole Records Legend



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● Borehole Locations



## 5 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.

---





## 6 Estimated Background Soil Chemistry

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

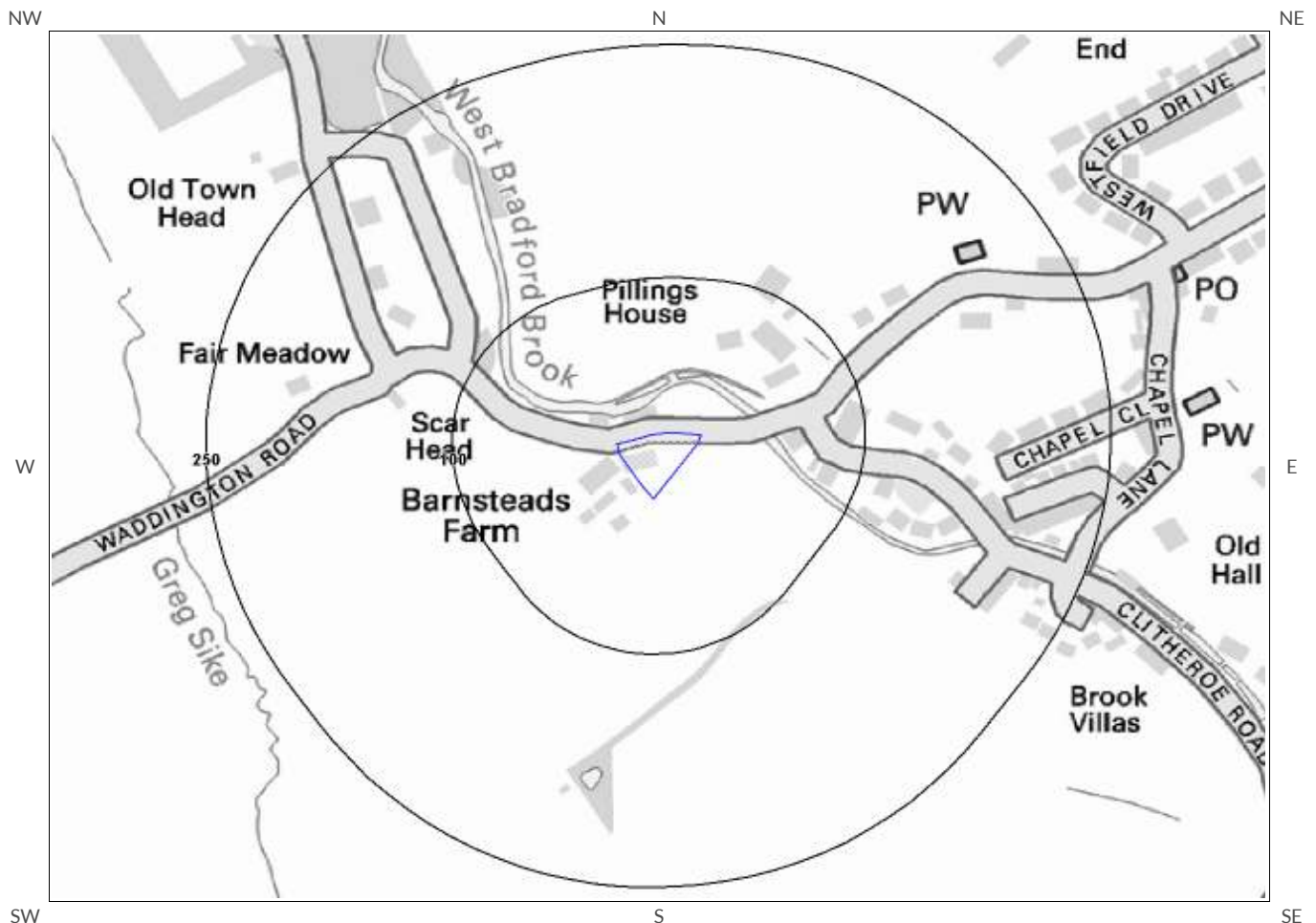
12

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

Distance (m)	Direction	Sample Type	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Nickel (Ni)	Lead (Pb)
0.0	On Site	Sediment	<15 mg/kg	3.0 - 6.0 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
9.0	S	Sediment	15 - 25 mg/kg	3.0 - 6.0 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
42.0	N	Sediment	15 - 25 mg/kg	3.0 - 6.0 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
64.0	N	Sediment	15 - 25 mg/kg	3.0 - 6.0 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg	<100 mg/kg
77.0	N	Sediment	15 - 25 mg/kg	3.0 - 6.0 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
77.0	N	Sediment	15 - 25 mg/kg	3.0 - 6.0 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg	<100 mg/kg
81.0	W	Sediment	15 - 25 mg/kg	3.0 - 6.0 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg	<100 mg/kg
93.0	NW	Sediment	<15 mg/kg	3.0 - 6.0 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
137.0	W	Sediment	15 - 25 mg/kg	3.0 - 6.0 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
160.0	SW	Sediment	15 - 25 mg/kg	3.0 - 6.0 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
161.0	NW	Sediment	15 - 25 mg/kg	3.0 - 6.0 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
248.0	SW	Sediment	15 - 25 mg/kg	3.0 - 6.0 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg

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

# 7 Railways and Tunnels Map



## Railways and Tunnels Legend



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	Underground or Partially Underground Railway / Subway System		Railway Track (OpenStreetMap)
	Site Outline		Railway Tunnel (OS Mapping)
	Search Buffers (m)		High Speed 2
			Crossrail
			Railway and/or Tunnel Feature from Historical Mapping
			Railway Track (OS Mapping)
			Railway and/or Tunnel Feature from Historical Mapping



# 7 Railways and Tunnels

## 7.1 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.*

---

## 7.2 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.*

---

## 7.3 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.

Note: 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.*

---

## 7.4 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.

Note: 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.*

---

## 7.5 Railway Projects

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

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 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 Report.*

---

# Contact Details



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groundsure@centremaps.co.uk  
CENTREMAPS, Brockamin House, Leigh, Worcester, London, WR6 5JU

**centremapslive.com**  
the mapping portal from Laser Surveys

Directors: M C Walker, MInst C.E.S., C M Walker,  
S J Hawkins BSc (Hons), S E Stewart BSc (Hons)  
Registered No. 1890261 Registered in England and Wales  
Registered Company: Laser Surveys Limited

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Web: [www.bgs.ac.uk](http://www.bgs.ac.uk)



**British Geological Survey**  
NATURAL ENVIRONMENT RESEARCH COUNCIL

BGS Geological Hazards Reports and general geological enquiries

## British Gypsum

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LE12 6HX



## The Coal Authority

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

Report Reference: CMAPS-CM-389440-4199-060115GEO  
Client Reference: 4199

## **ENVIROINSIGHT REPORT**





# GroundSure EnviroInsight

Address: Three Millstones Inn, West Bradford, Lancashire, BB7 4SX  
Date: 6 Jan 2015  
Reference: CMAPS-CM-389440-4199-060115EDR  
Client: CENTREMAPS

NW

N

NE

W

E



SW

S

SE

Aerial Photograph Capture date: 07-May-2001  
Grid Reference: 374163,444402  
Site Size: 0.12ha



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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.

Section 1: Environmental Permits, Incidents and Registers		On-site	0-50m	51-250	251-500		
1.1 Industrial Sites Holding Environmental Permits and/or Authorisations							
1.1.1	Records of historic IPC Authorisations	0	0	0	0		
1.1.2	Records of Part A(1) and IPPC Authorised Activities	0	0	0	0		
1.1.3	Records of Water Industry Referrals (potentially harmful discharges to the public sewer)	0	0	0	0		
1.1.4	Records of Red List Discharge Consents (potentially harmful discharges to controlled waters)	0	0	0	0		
1.1.5	Records of List 1 Dangerous Substances Inventory sites	0	0	0	0		
1.1.6	Records of List 2 Dangerous Substances Inventory sites	0	0	0	0		
1.1.7	Records of Part A(2) and Part B Activities and Enforcements	0	0	0	0		
1.1.8	Records of Category 3 or 4 Radioactive Substances Authorisations	0	0	0	0		
1.1.9	Records of Licensed Discharge Consents	0	0	0	2		
1.1.10	Records of Planning Hazardous Substance Consents and Enforcements	0	0	0	0		
1.2	Records of COMAH and NIHHS sites	0	0	0	0		
1.3 Environment Agency Recorded Pollution Incidents							
1.3.1	National Incidents Recording System, List 2	0	0	2	3		
1.3.2	National Incidents Recording System, List 1	0	0	0	0		
1.4	Sites Determined as Contaminated Land under Part 2A EPA 1990	0	0	0	0		
Section 2: Landfill and Other Waste Sites		On-site	0-50m	51-250	251-500	501-1000	1000-5000
2.1 Landfill Sites							
2.1.1	Environment Agency Registered Landfill Sites	0	0	0	0	0	Not searched
2.1.2	Environment Agency Historic Landfill Sites	0	0	0	1	0	1
2.1.3	BGS/DoE Landfill Site Survey	0	0	0	0	0	1
2.1.4	GroundSure Local Authority Landfill Sites Data	0	0	0	0	0	2
2.2 Landfill and Other Waste Sites Findings							
2.2.1	Operational and Non-Operational Waste Treatment, Transfer and Disposal Sites	0	0	0	0	Not searched	Not searched
2.2.2	Environment Agency Licensed Waste Sites	0	0	0	0	0	2

Section 3: Current Land Use	On-site	0-50m	51-250	251-500
3.1 Current Industrial Sites Data	0	0	1	Not searched
3.2 Records of Petrol and Fuel Sites	0	0	0	0
3.3 Underground High Pressure Oil and Gas Pipelines	0	0	0	1

Section 4: Geology	
4.1 Are there any records of Artificial Ground and Made Ground present beneath the study site?	No
4.2 Are there any records of Superficial Ground and Drift Geology present beneath the study site?	Yes
4.3 For records of Bedrock and Solid Geology beneath the study site see the detailed findings section.	

Section 5: Hydrogeology and Hydrology	0-500m					
5.1 Are there any records of Strata Classification in the Superficial Geology within 500m of the study site?	Yes					
5.2 Are there any records of Strata Classification in the Bedrock Geology within 500m of the study site?	Yes					
	On-site	0-50m	51-250	251-500	501-1000	1000-2000
5.3 Groundwater Abstraction Licences (within 2000m of the study site)	0	0	0	0	5	2
5.4 Surface Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	4	0
5.5 Potable Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	5	0
5.6 Source Protection Zones (within 500m of the study site)	0	0	0	0	Not searched	Not searched
5.7 Source Protection Zones within Confined Aquifer	0	0	0	0	Not searched	Not searched
5.8 Groundwater Vulnerability and Soil Leaching Potential (within 500m of the study site)	1	1	0	0	Not searched	Not searched
	On-site	0-50m	51-250	251-500	501-1000	1000-1500
5.9 Is there any Environment Agency information on river quality within 1500m of the study site?	No	No	No	No	No	No
5.10 Detailed River Network entries within 500m of the site	0	8	2	8	Not searched	Not searched
5.11 Surface water features within 250m of the study site	No	Yes	Yes	Not searched	Not searched	Not searched

## Section 6: Flooding

6.1 Are there any Environment Agency Zone 2 floodplains within 250m of the study site?	Yes
6.2 Are there any Environment Agency Zone 3 floodplains within 250m of the study site?	Yes
6.3 Are there any Flood Defences within 250m of the study site?	No
6.4 Are there any areas benefiting from Flood Defences within 250m of the study site?	No
6.5 Are there any areas used for Flood Storage within 250m of the study site?	No
6.6 What is the maximum BGS Groundwater Flooding susceptibility within 50m of the study site?	Potential at Surface
6.7 What is the BGS confidence rating for the Groundwater Flooding susceptibility areas?	Moderate

## Section 7: Designated Environmentally Sensitive Sites

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
7.1 Records of Sites of Special Scientific Interest (SSSI)	0	0	0	0	0	1
7.2 Records of National Nature Reserves (NNR)	0	0	0	0	0	0
7.3 Records of Special Areas of Conservation (SAC)	0	0	0	0	0	0
7.4 Records of Special Protection Areas (SPA)	0	0	0	0	0	0
7.5 Records of Ramsar sites	0	0	0	0	0	0
7.6 Records of Ancient Woodlands	0	0	0	0	1	5
7.7 Records of Local Nature Reserves (LNR)	0	0	0	0	1	0
7.8 Records of World Heritage Sites	0	0	0	0	0	0
7.9 Records of Environmentally Sensitive Areas	0	0	0	0	0	0
7.10 Records of Areas of Outstanding Natural Beauty (AONB)	0	1	0	0	0	0
7.11 Records of National Parks	0	0	0	0	0	0
7.12 Records of Nitrate Sensitive Areas	0	0	0	0	0	0
7.13 Records of Nitrate Vulnerable Zones	0	0	0	0	0	0

## Section 8: Natural Hazards

8.1 What is the maximum risk of natural ground subsidence?	Moderate
8.1.1 What is the maximum Shrink-Swell hazard rating identified on the study site?	Very Low
8.1.2 What is the maximum Landslides hazard rating identified on the study site?	Low
8.1.3 What is the maximum Soluble Rocks hazard rating identified on the study site?	Very Low
8.1.4 What is the maximum Compressible Ground hazard rating identified on the study site?	Moderate
8.1.5 What is the maximum Collapsible Rocks hazard rating identified on the study site?	Very Low
8.1.6 What is the maximum Running Sand hazard rating identified on the study site?	Low

## Section 9: Mining

9.1 Are there any coal mining areas within 75m of the study site?	No
9.2 What is the risk of subsidence relating to shallow mining within 150m of the study site?	Negligible
9.3 Are there any brine affected areas within 75m of the study site?	No

# 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. 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.

## 2. 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.

## 3. 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 underground oil and gas pipelines.

## 4. Geology

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

## 5. Hydrogeology and Hydrology

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

## 6. Flooding

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

## 7. 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.

## 8. 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.

## 9. Mining

Provides information on areas of coal and shallow mining.

## 10. 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

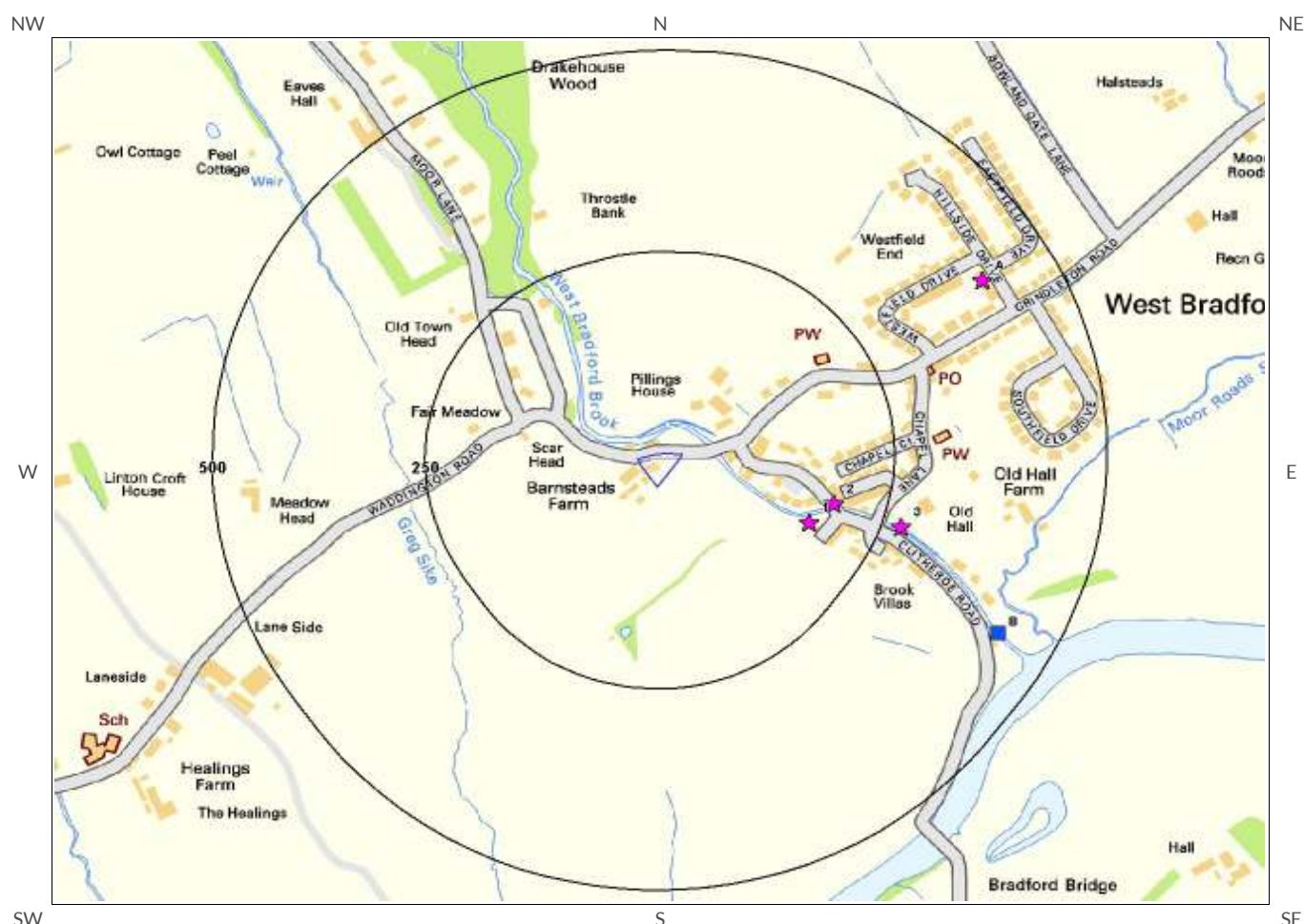
Only certain features are placed on the maps within the report. All features represented on maps found within this search are given an identification number. This number identifies the feature on the mapping and correlates it to the additional information provided below. This identification number precedes 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. Environmental Permits, Incidents and Registers Map



Environmental Permits,  
Incidents and Registers Legend

Mapping  
sourced from  
**Ordnance  
Survey**

© Crown copyright and database rights 2015.  
Ordnance Survey license 100035207.

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



# 1. Environmental Permits, Incidents and Registers

## 1.1 Industrial Sites Holding Licences and/or Authorisations

Searches of information provided by the Environment Agency and Local Authorities reveal the following information:

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

0

Database searched and no data found.

---

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

0

Database searched and no data found.

---

### 1.1.3 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.

---

### 1.1.4 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.

---

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

0

Database searched and no data found.

---

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

0

Database searched and no data found.

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

0

Database searched and no data found.

1.1.8 Records of Category 3 or 4 Radioactive Substances Authorisations:

0

Database searched and no data found.

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

2

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

ID	Distance	Direction	NGR	Details
6B	432.0	SE	374560 444200	Address: Sewage Ps, West Bradford, Nr Clitheroe, Lancashire Effluent Type: Sewage Discharges - Sewer Storm Overflow - Water Company Permit Number: 01LA1538 Permit Version: 1 Receiving Water: West Bradford Brook Status: Revoked - Unspecified Issue date: - Effective Date: 11/4/1967 Revocation Date: 11/4/1967
7B	432.0	SE	374560 444200	Address: West Bradford Ps, Clitheroe Rd, Ribble Valley, Lancashire Effluent Type: Sewage Discharges - Pumping Station - Water Company Permit Number: 01RIB0031 Permit Version: 1 Receiving Water: - Status: Post Nra Legislation Where Issue Date > 31-aug-89 (historic Only) Issue date: - Effective Date: 1/4/1991 Revocation Date: -

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

0

Database searched and no data found.

## 1.2 Dangerous or Hazardous Sites

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

0

Database searched and no data found.

## 1.3 Environment Agency Recorded Pollution Incidents

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

5

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

ID	Distance	Direction	NGR	Details	
1	171.0	SE	374338 444337	Incident Date: 20/12/2001 Incident Identification: 49171 Pollutant: Sewage Materials Pollutant Description: Crude Sewage	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
2	188.0	E	374367 444361	Incident Date: 16/04/2003 Incident Identification: 151593 Pollutant: Sewage Materials Pollutant Description: Crude Sewage	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
3	272.0	E	374446 444332	Incident Date: 24/07/2006 Incident Identification: 419997 Pollutant: Contaminated Water Pollutant Description: Firefighting Run-Off	Water Impact: Category 2 (Significant) Land Impact: Category 3 (Minor) Air Impact: Category 3 (Minor)
4A	413.0	NE	374541 444638	Incident Date: 07/04/2003 Incident Identification: 149222 Pollutant: Atmospheric Pollutants and Effects Pollutant Description: Chemical Odour	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)
5A	413.0	NE	374541 444638	Incident Date: 25/06/2003 Incident Identification: 168654 Pollutant: Atmospheric Pollutants and Effects Pollutant Description: Chemical Odour: Effects on Humans	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)

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

0

Database searched and no data found.

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

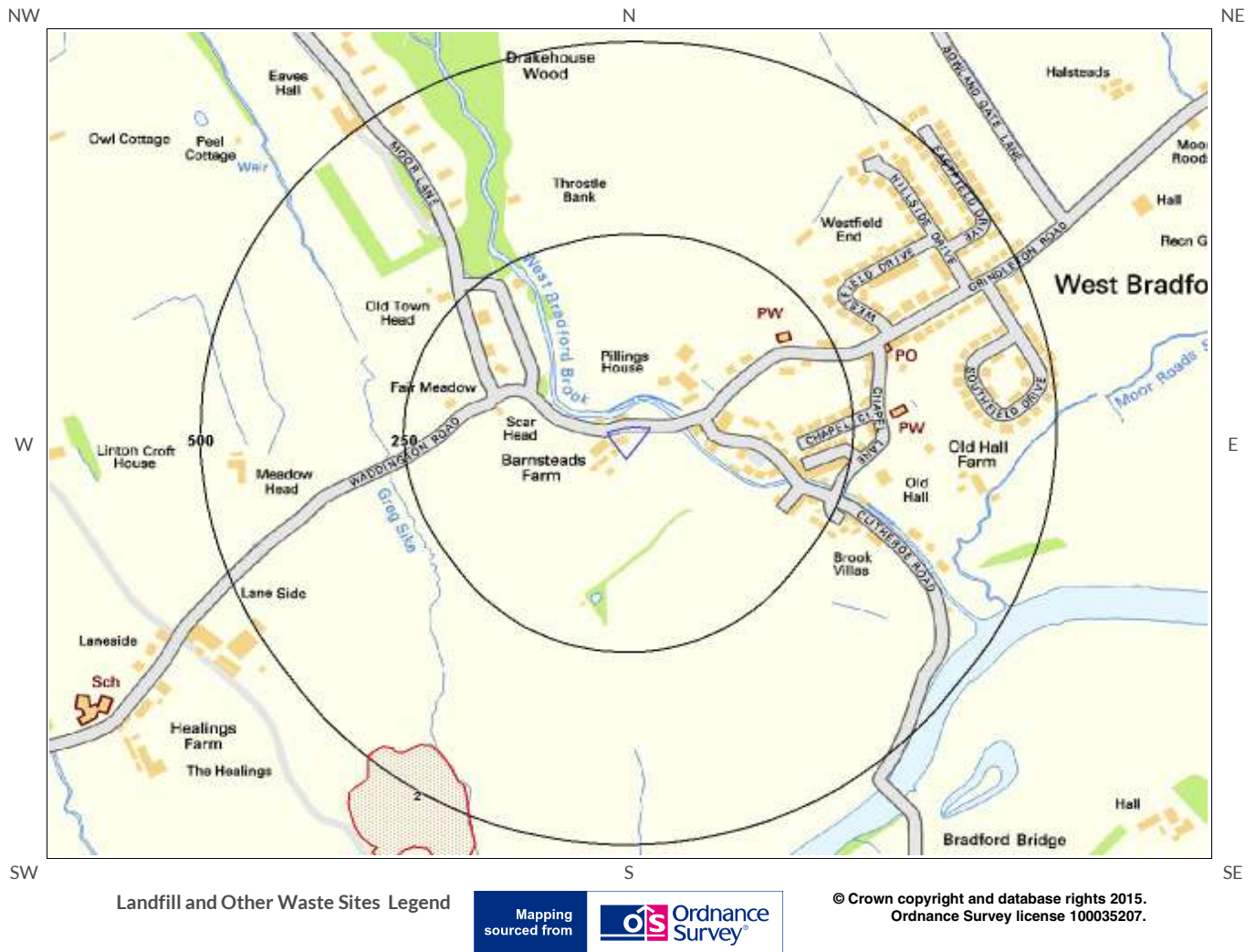
How many records of sites determined as contaminated land under Section 78R of the Environmental Protection Act 1990 are there within 500m of the study site?

0

Database searched and no data found.

---

## 2. Landfill and Other Waste Sites Map





## 2. Landfill and Other Waste Sites

### 2.1 Landfill Sites

#### 2.1.1 Records from Environment Agency landfill data within 1000m of the study site:

0

Database searched and no data found.

#### 2.1.2 Records of Environment Agency 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
2	441.0	SW	373800 443900	Site Address: Waddington Brickworks, Waddington Road, West Bradford, Lancashire Waste Licence: - Site Reference: K1/03/049 Waste Type: Household, Environmental Permitting Regulations (Waste) Reference: - Licence Issue: Licence Surrendered: Licence Hold Address: - Operator: -
Not shown	1126.0	S	374600 443300	Site Address: Crosshills Quarry, West Bradford Road, Pimlico, Clitheroe, Lancashire Waste Licence: - Site Reference: K1/03/006 Waste Type: Inert, Industrial, Household, Environmental Permitting Regulations (Waste) Reference: - Licence Issue: Licence Surrendered: Licence Hold Address: - Operator: Clitheroe Metropolitan Borough

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

1

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

ID	Distance (m)	Direction	NGR	Details
Not shown	1075.0	SE	37460 0.0 44340 0.0	Address: Crosshills Tip, West Bradford Rd, Clitheroe, Lancs BGS Number: 1917.0 Risk: No risk to aquifer Waste Type: N/A



#### 2.1.4 Records of Local Authority landfill sites within 1500m of the study site:

2

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

ID	Distance (m)	Direction	NGR	Site Address	Source	Data Type
Not shown	1188.0	SE		Refuse Tip	1976 mapping	Polygon
Not shown	1188.0	SE		Refuse Tip	1964 mapping	Polygon

## 2.2 Other Waste Sites

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

0

Database searched and no data found.

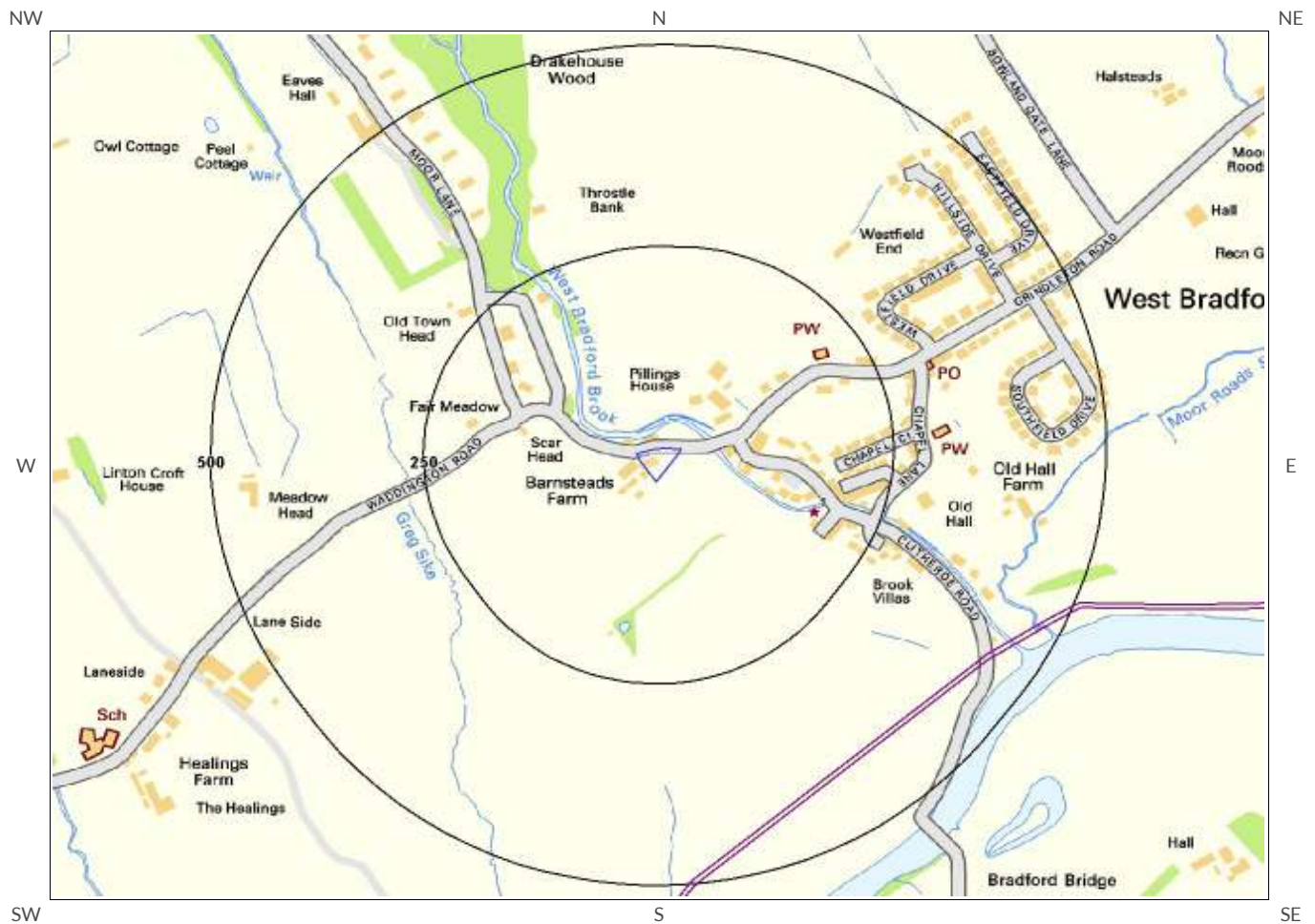
#### 2.2.2 Records of Environment Agency licensed waste sites within 1500m of the study site:

2

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

ID	Distance (m)	Direction	NGR	Details
Not shown	1004.0	SE	374839 443642	Site Address: West Bradford Street, Clitheroe, Lancashire, BB7 4QF Type: - Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: CAS003 EPR reference: - Operator: Castle Cement Ltd Waste Management licence No: 54486 Annual Tonnage: 0.0 Issue Date: 05/01/2007 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: IPPC Site Name: Ribblesdale Works Correspondence Address: -, Birmingham Business Park, Park Square, 3160, Solihull Parkway, Birmingham, West Midlands, B37 7YN
Not shown	1004.0	SE	374839 443642	Site Address: West Bradford Street, Clitheroe, Lancashire, BB7 4QF Type: Co-Disposal Landfill Site Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: CAS003 EPR reference: EA/EPR/LP3993ZS/A001 Operator: Castle Cement Ltd Waste Management licence No: 54486 Annual Tonnage: 1.0 Issue Date: 05/01/2007 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: IPPC Site Name: Ribblesdale Works Correspondence Address: -, -

# 3. Current Land Use Map



Current Land Use Legend



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Site Outline



Search Buffers (m)



Current Industrial Sites



Petrol & Fuel Sites



Underground High Pressure Oil & Fuel Pipelines



## 3. Current Land Uses

### 3.1 Current Industrial Data

Records of potentially contaminative industrial sites within 250m of the study site: 1

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

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1	174.0	SE	Electricity Sub Station	374345 444344	BB7	Electrical Features	Infrastructure and Facilities

### 3.2 Petrol and Fuel Sites

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

Database searched and no data found.

### 3.3 Underground High Pressure Oil and Gas Pipelines

Records of high pressure underground pipelines within 500m of the study site: 1

The following Underground High Pressure Oil and Gas pipeline records provided by Linewatch are represented as linear features on the Current Land Use map:

ID	Distance (m)	Direction	Address	Operator	Telephone
2	410.0	SE	Sabir UK Petrochemicals (formerly Huntsman Petrochemicals (UK) Ltd), Wilton Site, Redcar, TS10 4YA	Sabir UK (West) pipelines	01928 512677



## 4. Geology

### 4.1 Artificial Ground and Made Ground

Database searched and no data found.

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

### 4.2 Superficial Ground and Drift Geology

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

Lex Code	Description	Rock Type
ALV-CSSG	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL
RTD2-SAGR	RIVER TERRACE DEPOSITS, 2	SAND AND GRAVEL
T2T3-SAGR	RIVER TERRACE DEPOSITS, 2 TO 3	SAND AND GRAVEL

### 4.3 Bedrock and Solid Geology

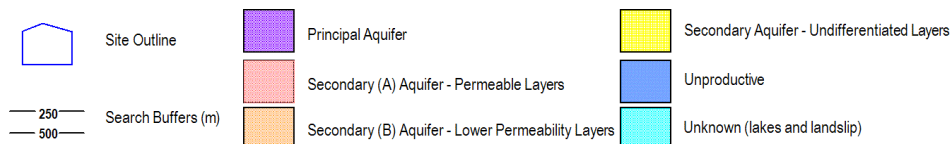
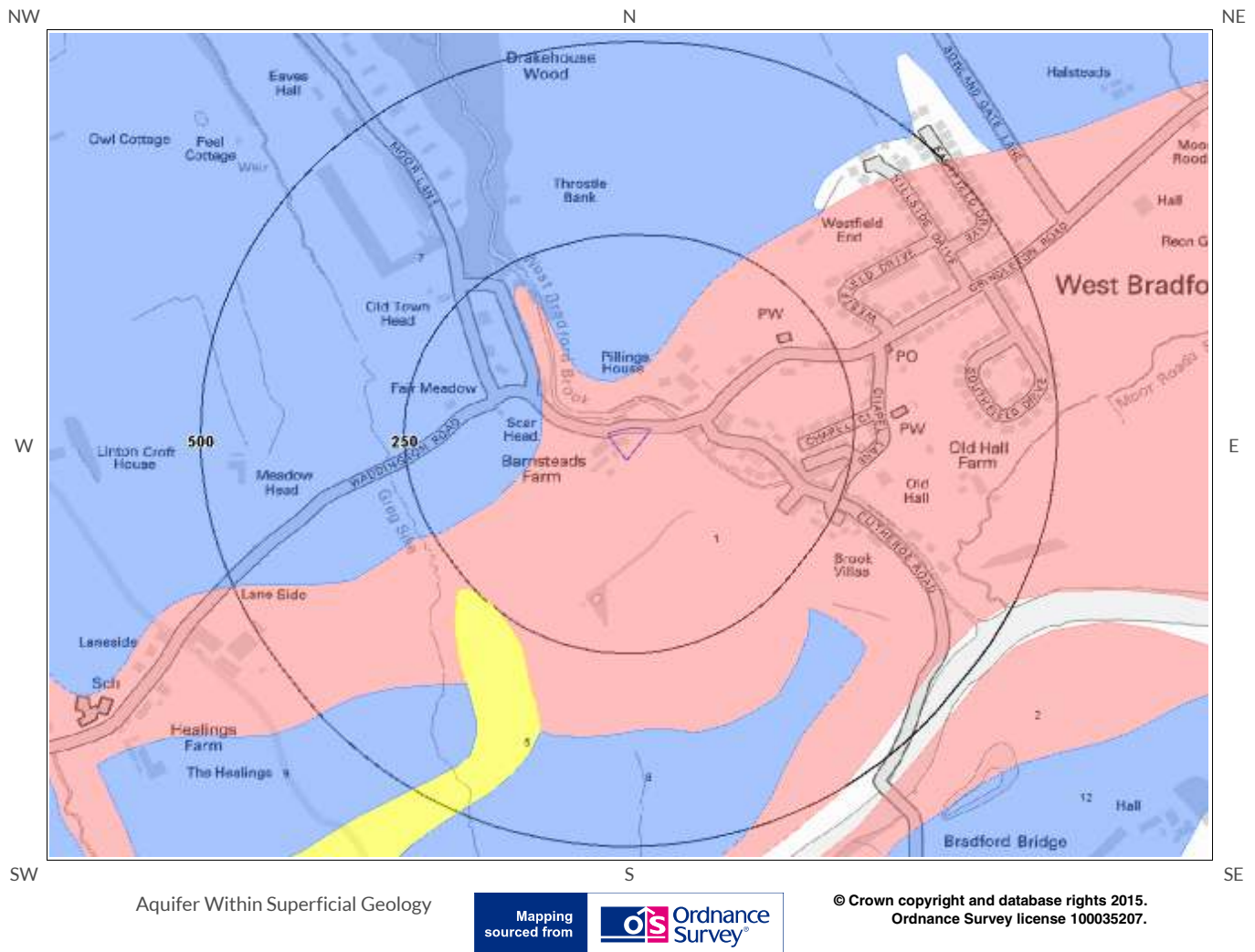
The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
CLHOM-MDST	CLITHEROE LIMESTONE FORMATION AND HODDER MUDSTONE FORMATION (UNDIFFERENTIATED)	MUDSTONE

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

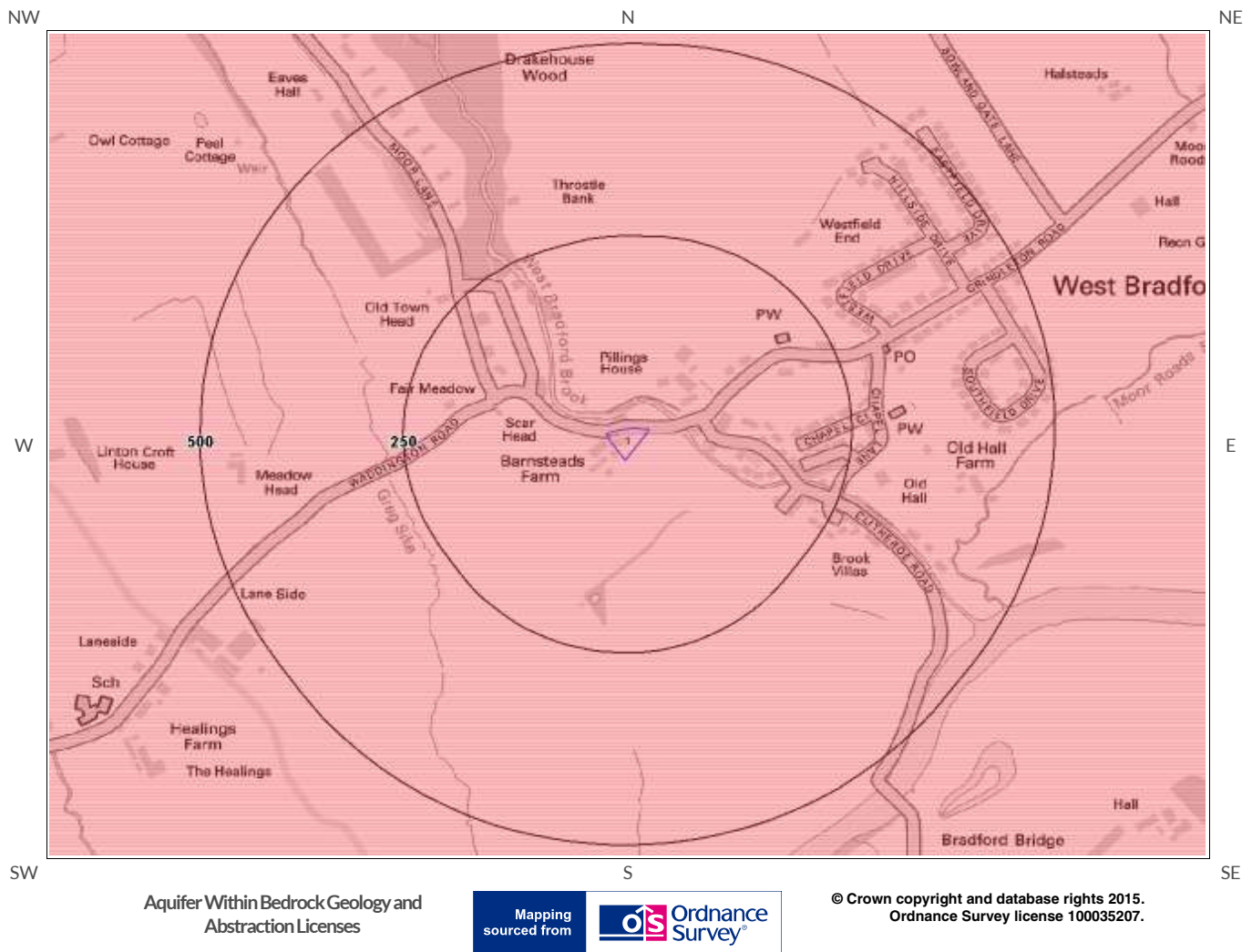
# 5. Hydrogeology and Hydrology

## 5a. Aquifer Within Superficial Geology

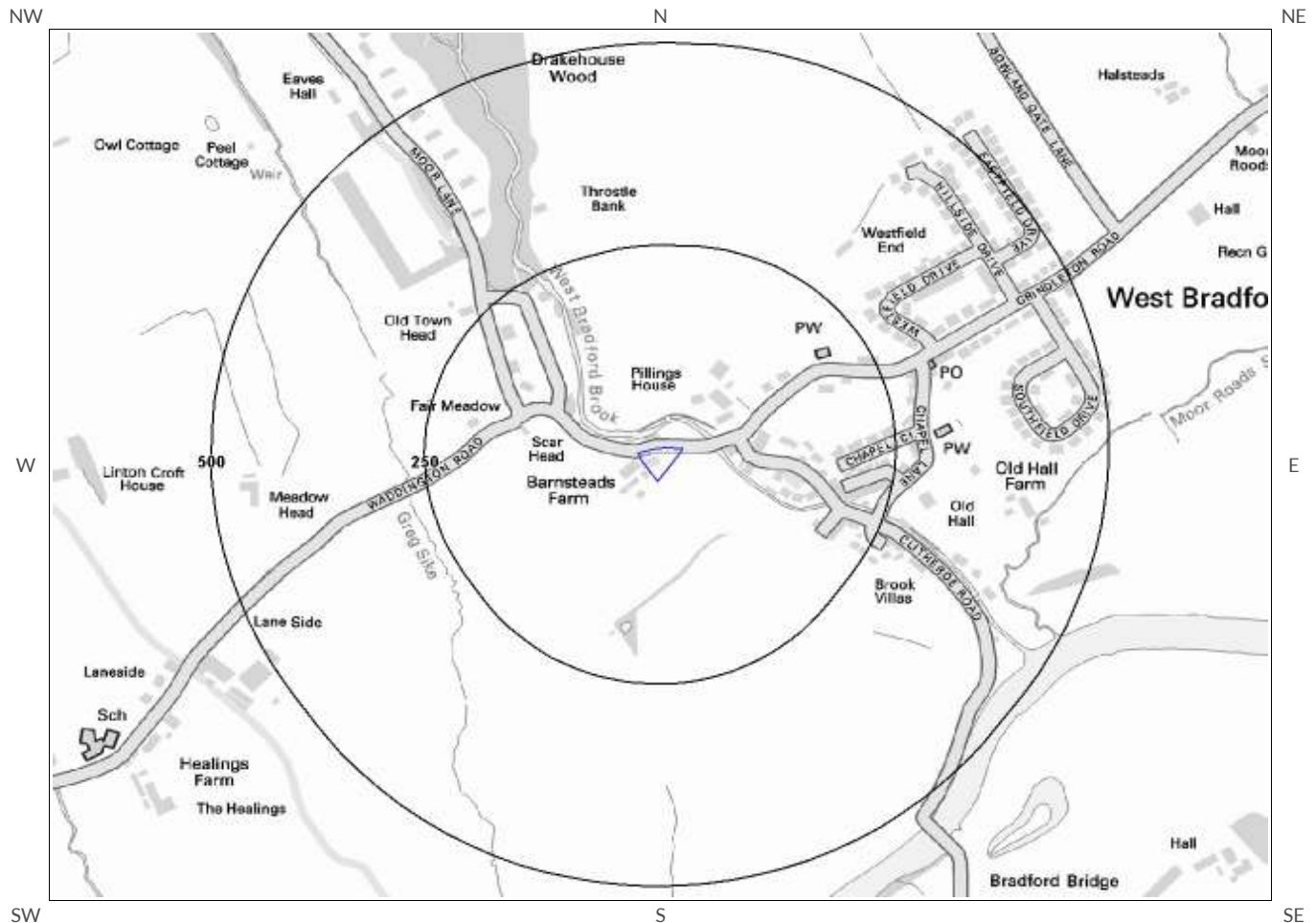




# 5b. Aquifer Within Bedrock Geology and Abstraction Licenses



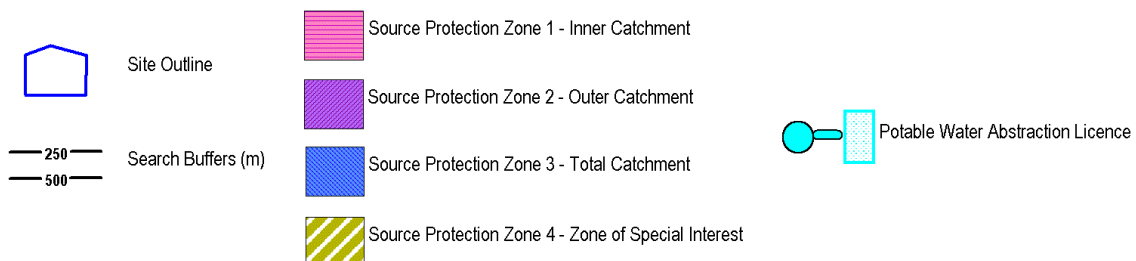
# 5c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licenses



Map Legend Source Protection Zones and Potable Water Abstraction Licenses

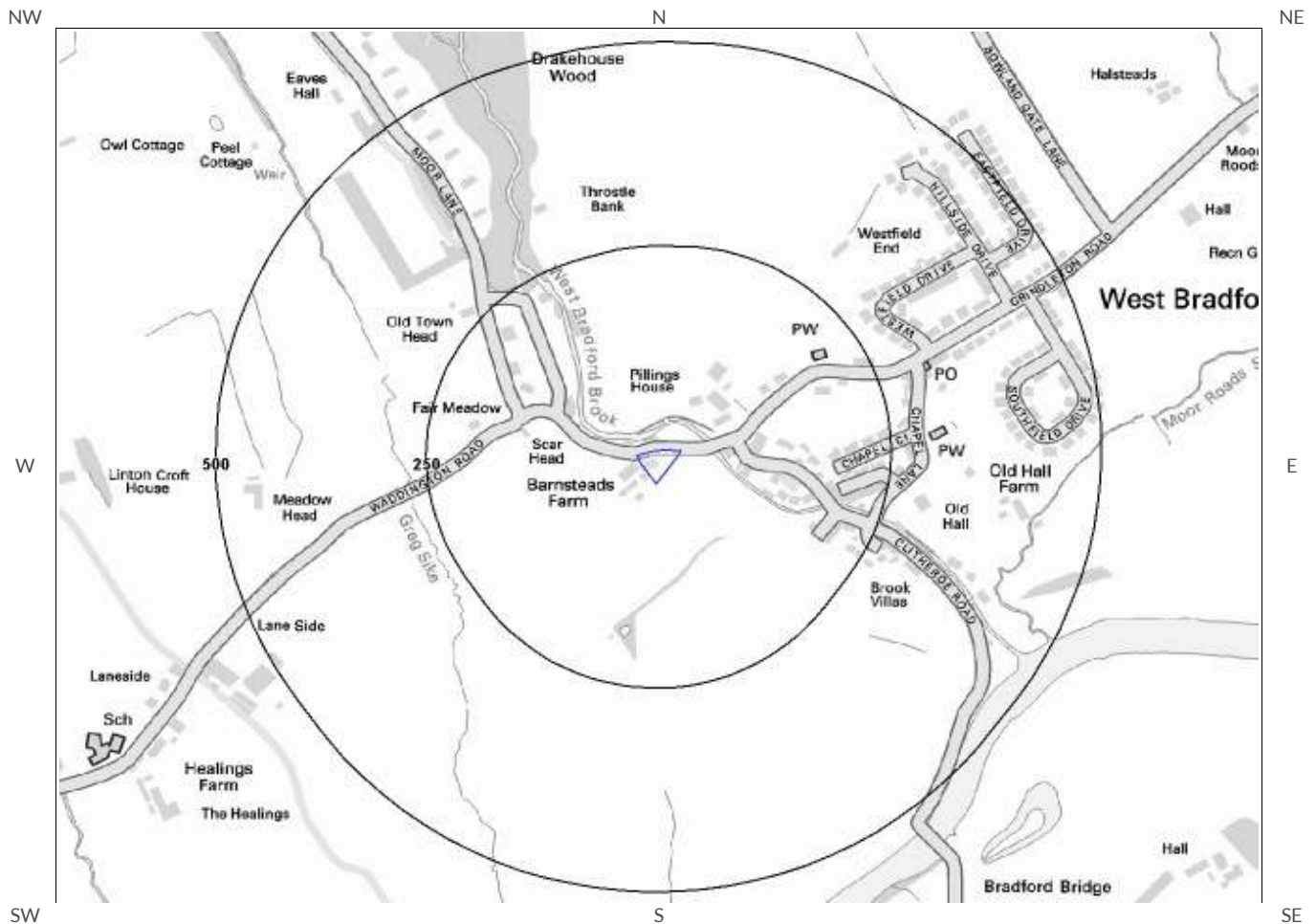


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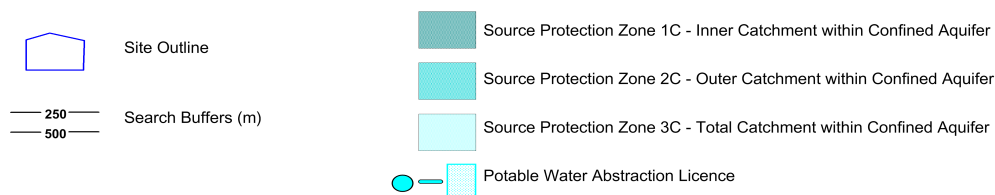
# 5d. Hydrology Source Protection Zones within confined aquifer



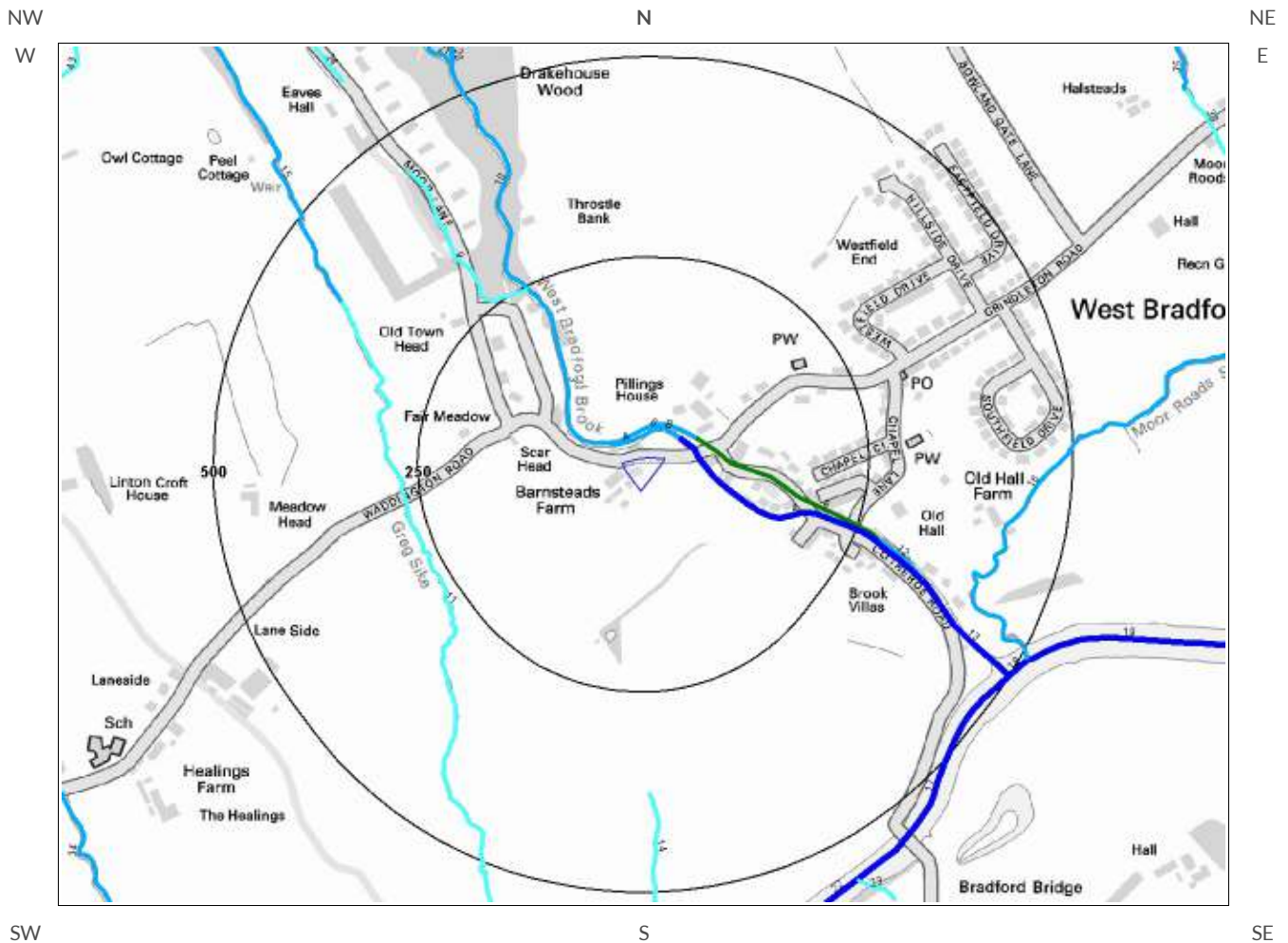
Hydrology Source Protection Zones



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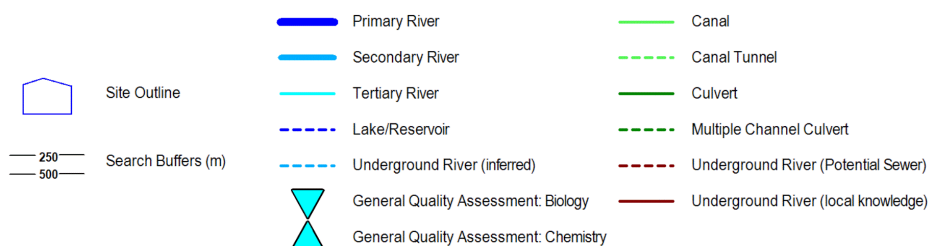
# 5 e. Hydrology – Detailed River Network and River Quality

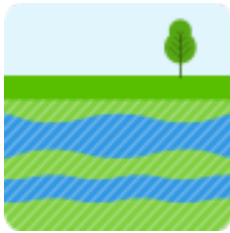


Hydrology – Detailed River Network and River Quality



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# 5. Hydrogeology and Hydrology

## 5.1 Aquifer within Superficial Deposits

Are there records of strata classification within the superficial geology at or in proximity to the property? Yes

From 1 April 2010, the Environment Agency'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 Enviroinsight User Guide.

The following aquifer records are shown on the Aquifer within Superficial Geology Map (5a):

ID	Distance (m)	Direction	Designation	Description
1	0.0	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
7	64.0	N	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
5	248.0	SW	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
8	295.0	SE	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
9	350.0	SW	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow

## 5.2 Aquifer within Bedrock Deposits

Are there records of strata classification within the bedrock geology at or in proximity to the property? Yes

From 1 April 2010, the Environment Agency'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 Enviroinsight User Guide.

The following aquifer records are shown on the Aquifer within Bedrock Geology Map (5b):

ID	Distance (m)	Direction	Designation	Description
1	0.0	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

## 5.3 Groundwater Abstraction Licences

Are there any Groundwater Abstraction Licences within 2000m of the study site?

Yes

The following Abstraction Licences records are represented as points, lines and regions on the Aquifer within Bedrock Geology Map (5b):

ID	Distance (m)	Direction	NGR	Details
Not shown	924.0	NW	373740 445250	<p>Licence No: 2671309051  Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services  Direct Source: Ground Water - North West Region  Point: Underground Strata In West Bradford  Data Type: Point</p> <p>Annual Volume (m³): 20000  Max Daily Volume (m³): 150  Original Application No: 8553  Original Start Date: 13/5/1999  Expiry Date: 12/5/2009  Issue No: 101  Version Start Date: 28/4/2000  Version End Date:</p>
Not shown	924.0	NW	373740 445250	<p>Licence No: NW/071/0309/002  Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services  Direct Source: Ground Water - North West Region  Point: Underground Strata In West Bradford  Data Type: Point</p> <p>Annual Volume (m³): 20000  Max Daily Volume (m³): 150  Original Application No: NPS/WR/001371  Original Start Date: 27/8/2009  Expiry Date: 31/3/2025  Issue No: 1  Version Start Date: 27/8/2009  Version End Date:</p>
Not shown	973.0	NW	373730 445300	<p>Licence No: 2671309051  Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services  Direct Source: Ground Water - North West Region  Point: Underground Strata At West Bradford  Data Type: Point</p> <p>Annual Volume (m³): 20000  Max Daily Volume (m³): 150  Original Application No: 8553  Original Start Date: 13/5/1999  Expiry Date: 12/5/2009  Issue No: 101  Version Start Date: 28/4/2000  Version End Date:</p>
Not shown	973.0	NW	373730 445300	<p>Licence No: NW/071/0309/002  Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services  Direct Source: Ground Water - North West Region  Point: Underground Strata At West Bradford  Data Type: Point</p> <p>Annual Volume (m³): 20000  Max Daily Volume (m³): 150  Original Application No: NPS/WR/001371  Original Start Date: 27/8/2009  Expiry Date: 31/3/2025  Issue No: 1  Version Start Date: 27/8/2009  Version End Date:</p>
Not shown	973.0	NW	373730 445300	<p>Licence No: 2671309051  Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services  Direct Source: Ground Water - North West Region  Point: Underground Strata At West Bradford  Data Type: Point</p> <p>Annual Volume (m³): -  Max Daily Volume (m³): -  Original Application No: 8553  Original Start Date: -  Expiry Date: 12/5/2009  Issue No: 101  Version Start Date: 28/4/2000  Version End Date:</p>
Not shown	1430.0	SE	375200 443400	<p>Licence No: 2671309038  Details: Dust suppression  Direct Source: Ground Water - North West Region  Point: "bankfield Quarry, Clitheroe, Lancs"  Data Type: Point</p> <p>Annual Volume (m³): -  Max Daily Volume (m³): -  Original Application No: 4989  Original Start Date: 15/12/1976  Expiry Date: -  Issue No: 102  Version Start Date: 19/10/2001  Version End Date:</p>
Not shown	1430.0	SE	375200 443400	<p>Licence No: 2671309038  Details: Dust Suppression  Direct Source: Ground Water - North West Region  Point: Bankfield Quarry, Clitheroe, Lancs  Data Type: Point</p> <p>Annual Volume (m³): 159113  Max Daily Volume (m³): 818  Original Application No: NPS/WR/014615  Original Start Date: 15/12/1976  Expiry Date: -  Issue No: 104  Version Start Date: 26/9/2013  Version End Date:</p>

## 5.4 Surface Water Abstraction Licences

Are there any Surface Water Abstraction Licences within 2000m of the study site?

Yes

The following Surface Water Abstraction Licences records are represented as points, lines and regions on the Aquifer within Bedrock Geology Map (5b):

ID	Distance (m)	Direction	NGR	Details
Not shown	745.0	E	374900 444200	Licence No: 2671309016 Details: Process water Direct Source: "surface, Non-tidal - North West Region" Point: "r Ribble At Clitheroe, Lancs" Data Type: Point Annual Volume (m³): - Max Daily Volume (m³): - Application No: 3114 Original Start Date: 18/11/1966 Expiry Date: - Issue No: 100 Version Start Date: 1/11/1986 Version End Date:
Not shown	745.0	E	374900 444200	Licence No: 2671309016 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: "surface, Non-tidal - North West Region" Point: "r Ribble At Clitheroe, Lancs" Data Type: Point Annual Volume (m³): - Max Daily Volume (m³): - Application No: 3114 Original Start Date: 18/11/1966 Expiry Date: - Issue No: 100 Version Start Date: 1/11/1986 Version End Date:
Not shown	745.0	E	374900 444200	Licence No: 2671309016 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Surface, Non-tidal - North West Region Point: R Ribble At Clitheroe, Lancs Data Type: Point Annual Volume (m³): 2000240 Max Daily Volume (m³): 13092.48 Application No: NPS/WR/011727 Original Start Date: 18/11/1966 Expiry Date: - Issue No: 101 Version Start Date: 18/12/2012 Version End Date:
Not shown	745.0	E	374900 444200	Licence No: 2671309016 Details: Process Water Direct Source: Surface, Non-tidal - North West Region Point: R Ribble At Clitheroe, Lancs Data Type: Point Annual Volume (m³): 2000240 Max Daily Volume (m³): 13092.48 Application No: NPS/WR/011727 Original Start Date: 18/11/1966 Expiry Date: - Issue No: 101 Version Start Date: 18/12/2012 Version End Date:



## 5.5 Potable Water Abstraction Licences

Are there any Potable Water Abstraction Licences within 2000m of the study site?

Yes

The following Potable Water Abstraction Licences records are represented as points, lines and regions on the SPZ and Potable Water Abstraction Licences Map (5c):

ID	Distance (m)	Direction	NGR	Details	
Not shown	924.0	NW	373740 445250	Licence No: 2671309051 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Ground Water - North West Region Point: Underground Strata In West Bradford Data Type: Point	Annual Volume (m³): 20000 Max Daily Volume (m³): 150 Original Application No: 8553 Original Start Date: 13/5/1999 Expiry Date: 12/5/2009 Issue No: 101 Version Start Date: Version End Date:
Not shown	924.0	NW	373740 445250	Licence No: NW/071/0309/002 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Ground Water - North West Region Point: Underground Strata In West Bradford Data Type: Point	Annual Volume (m³): 20000 Max Daily Volume (m³): 150 Original Application No: NPS/WR/001371 Original Start Date: 27/8/2009 Expiry Date: 31/3/2025 Issue No: 1 Version Start Date: Version End Date:
Not shown	973.0	NW	373730 445300	Licence No: 2671309051 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Ground Water - North West Region Point: Underground Strata At West Bradford Data Type: Point	Annual Volume (m³): 20000 Max Daily Volume (m³): 150 Original Application No: 8553 Original Start Date: 13/5/1999 Expiry Date: 12/5/2009 Issue No: 101 Version Start Date: Version End Date:
Not shown	973.0	NW	373730 445300	Licence No: 2671309051 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Ground Water - North West Region Point: Underground Strata At West Bradford Data Type: Point	Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: 8553 Original Start Date: - Expiry Date: 12/5/2009 Issue No: 101 Version Start Date: Version End Date:
Not shown	973.0	NW	373730 445300	Licence No: NW/071/0309/002 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Ground Water - North West Region Point: Underground Strata At West Bradford Data Type: Point	Annual Volume (m³): 20000 Max Daily Volume (m³): 150 Original Application No: NPS/WR/001371 Original Start Date: 27/8/2009 Expiry Date: 31/3/2025 Issue No: 1 Version Start Date: Version End Date:

## 5.6 Source Protection Zones

Are there any Source Protection Zones within 500m of the study site?

No

Database searched and no data found.

## 5.7 Source Protection Zones within Confined Aquifer

Are there any Source Protection Zones within the Confined Aquifer within 500m of the study site?

No

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.

## 5.8 Groundwater Vulnerability and Soil Leaching Potential

Is there any Environment Agency information on groundwater vulnerability and soil leaching potential within 500m of the study site?

Yes

Distance (m)	Direction	Classification	Soil Vulnerability Category	Description
0	On Site	Minor Aquifer/Intermediate Leaching Potential	I1	Soils which can possibly transmit a wide range of pollutants.
46	NW	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.

## 5.9 River Quality

Is there any Environment Agency information on river quality within 1500m of the study site?

No

### 5.9.1 Biological Quality:

Database searched and no data found.



## 5.9.2 Chemical Quality:

Database searched and no data found.

---

## 5.10 Detailed River Network

Are there any Detailed River Network entries within 500m of the study site?

Yes

The following Detailed River Network records are represented on the Hydrology Map (5e):

ID	Distance (m)	Direction	Details
1A	24.0	N	River Name: West Bradford Brook Welsh River Name: - Alternative Name: -  River Type: Secondary River Main River Status: Currently Undefined
2A	27.0	N	River Name: - Welsh River Name: - Alternative Name: -  River Type: Secondary River Main River Status: Currently Undefined
3	31.0	NW	River Name: West Bradford Brook Welsh River Name: - Alternative Name: -  River Type: Secondary River Main River Status: Currently Undefined
4	32.0	NE	River Name: West Bradford Brook Welsh River Name: - Alternative Name: -  River Type: Primary River Main River Status: Currently Undefined
5B	32.0	NE	River Name: West Bradford Brook Welsh River Name: - Alternative Name: -  River Type: Secondary River Main River Status: Currently Undefined
6	35.0	N	River Name: - Welsh River Name: - Alternative Name: -  River Type: Secondary River Main River Status: Currently Undefined
7B	39.0	N	River Name: - Welsh River Name: - Alternative Name: -  River Type: Secondary River Main River Status: Currently Undefined
8	46.0	NE	River Name: - Welsh River Name: - Alternative Name: -  River Type: Culvert Main River Status: Currently Undefined
9	246.0	NW	River Name: - Welsh River Name: - Alternative Name: -  River Type: Tertiary River Main River Status: Currently Undefined
10	246.0	NW	River Name: West Bradford Brook Welsh River Name: - Alternative Name: -  River Type: Secondary River Main River Status: Currently Undefined
11	261.0	SW	River Name: Greg Sike Welsh River Name: - Alternative Name: -  River Type: Tertiary River Main River Status: Currently Undefined
12	281.0	E	River Name: - Welsh River Name: - Alternative Name: -  River Type: Secondary River Main River Status: Currently Undefined
13	348.0	SE	River Name: West Bradford Brook Welsh River Name: - Alternative Name: -  River Type: Primary River Main River Status: Currently Undefined
14	376.0	S	River Name: - Welsh River Name: - Alternative Name: -  River Type: Tertiary River Main River Status: Currently Undefined
15	397.0	NW	River Name: Greg Sike Welsh River Name: - Alternative Name: -  River Type: Secondary River Main River Status: Currently Undefined
16	405.0	E	River Name: Moor Roads Sike Welsh River Name: - Alternative Name: -  River Type: Secondary River Main River Status: Currently Undefined
17	488.0	SE	River Name: River Ribble Welsh River Name: - Alternative Name: -  River Type: Primary River Main River Status: Currently Undefined
18	500.0	SE	River Name: River Ribble Welsh River Name: - Alternative Name: -  River Type: Primary River Main River Status: Currently Undefined

## 5.11 Surface Water Features

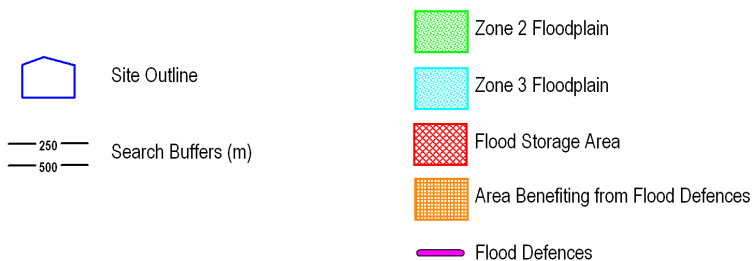
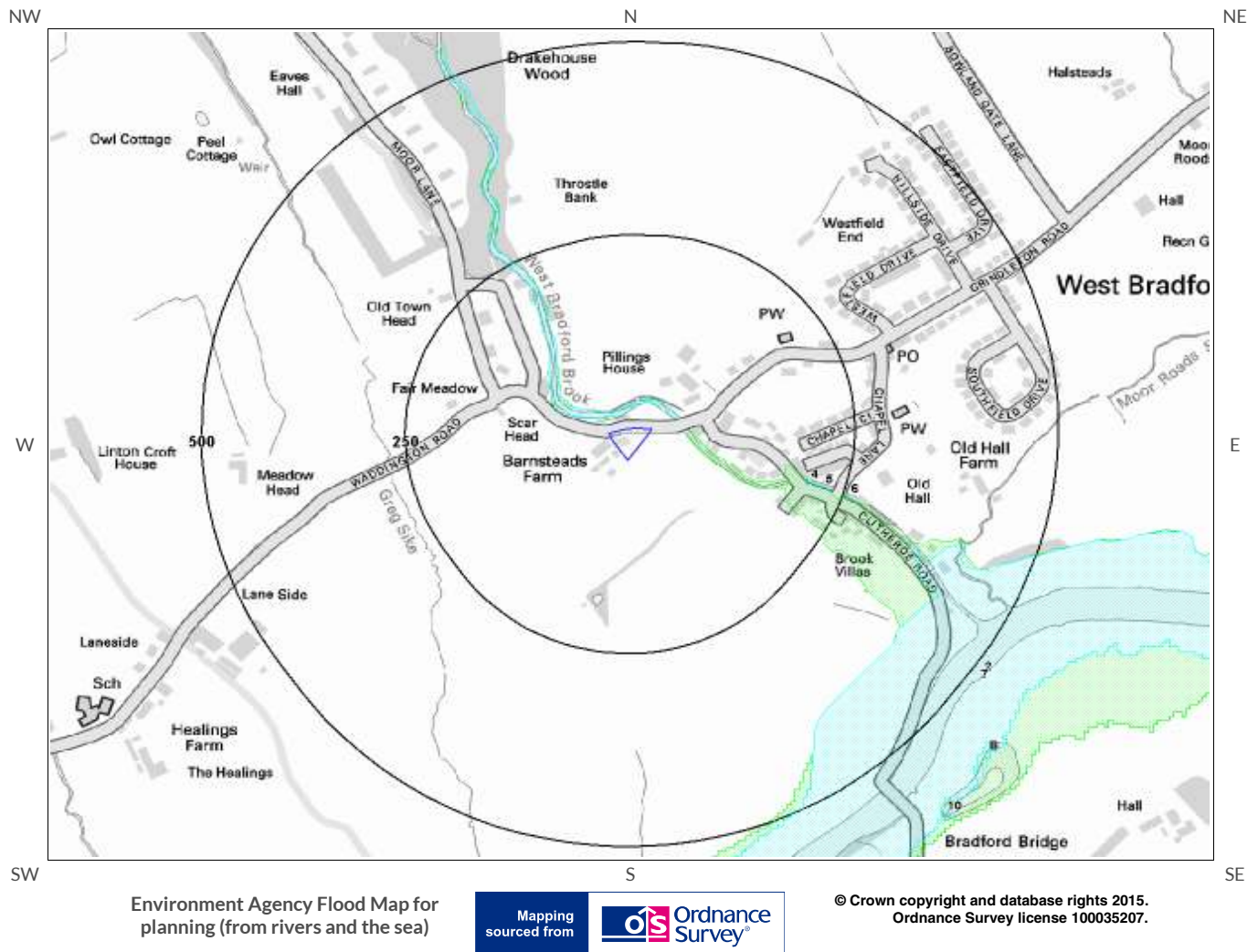
Are there any surface water features within 250m of the study site?

Yes

The following surface water records are not represented on mapping:

Distance (m)	Direction
19.0	N
36.0	E
192.0	E
248.0	E

# 6. Environment Agency Flood Map for planning (from rivers and the sea)





## 6. Flooding

### 6.1 Zone 2 Flooding

Environment Agency 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 1 – Environment Agency Flood Map for Planning:

Is the site within 250m of an Environment Agency Zone 2 floodplain? Yes

The following floodplain records are represented as green shading on the Flood Map:

ID	Distance (m)	Direction	Update	Type
1A	18.0	N	03-Nov-2014	Zone 2 - (Fluvial Models )
2	43.0	E	03-Nov-2014	Zone 2 - (Fluvial Models )

### 6.2 Zone 3 Flooding

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 1 – Environment Agency Flood Map for Planning.

Is the site within 250m of an Environment Agency Zone 3 floodplain? Yes

The following floodplain records are represented as blue shading on the Flood Map:

ID	Distance (m)	Direction	Update	Type
3A	18.0	N	03-Nov-2014	Zone 3 - (Fluvial Models )
4	201.0	E	03-Nov-2014	Zone 3 - (Fluvial Models )
5	217.0	E	03-Nov-2014	Zone 3 - (Fluvial Models )

### 6.3 Flood Defences

Are there any Flood Defences within 250m of the study site? No

Database searched and no data found.

## 6.4 Areas benefiting from Flood Defences

Are there any areas benefiting from Flood Defences within 250m of the study site?

No

## 6.5 Areas benefiting from Flood Storage

Are there any areas used for Flood Storage within 250m of the study site?

No

## 6.6 Groundwater Flooding Susceptibility Areas

6.6.1 Are there any British Geological Survey groundwater flooding susceptibility areas within 50m of the boundary of the study site?

Yes

Does this relate to Clearwater Flooding or Superficial Deposits Flooding?

Superficial Deposits Flooding

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

6.6.2 What is the highest susceptibility to groundwater flooding in the search area based on the underlying geological conditions?

Potential at Surface

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

## 6.7 Groundwater Flooding Confidence Areas

What is the British Geological Survey confidence rating in this result?

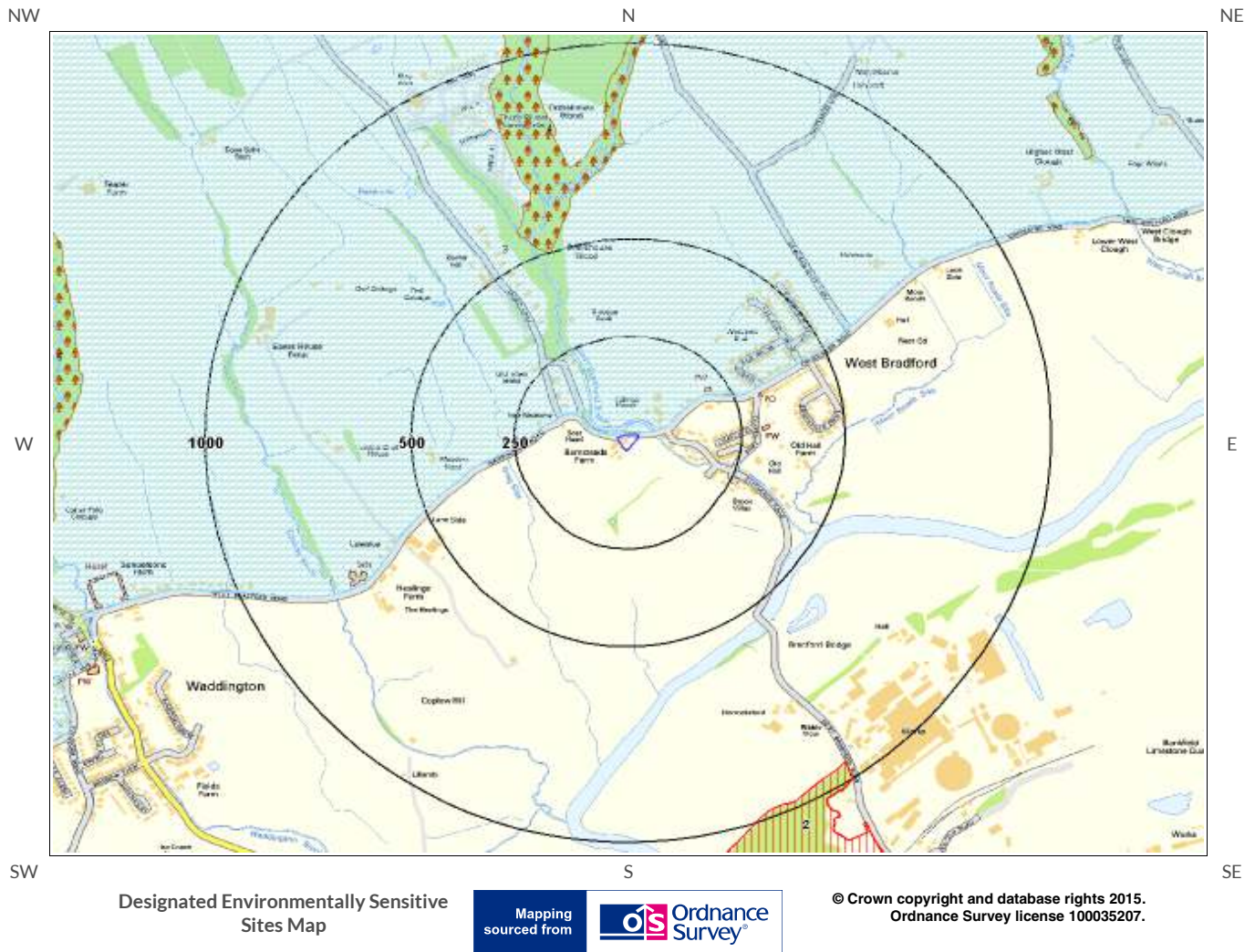
Moderate

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

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



# 7. Designated Environmentally Sensitive Sites Map







## 7. Designated Environmentally Sensitive Sites

Presence of Designated Environmentally Sensitive Sites within 2000m of the study site?

Yes

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

1

The following Site of Special Scientific Interest (SSSI) records provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	SSSI Name	Data Source
Not shown	1399.0	SE	Coplow Quarry	Natural England

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

## 7.6 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
4	507.0	N	UNKNOWN	Ancient and Semi-Natural Woodland
5	1291.0	NE	UNKNOWN	Ancient and Semi-Natural Woodland
6	1306.0	W	UNKNOWN	Ancient and Semi-Natural Woodland
7	1336.0	NE	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	1577.0	N	UNKNOWN	Ancient Replanted Woodland
Not shown	1695.0	NW	UNKNOWN	Ancient and Semi-Natural Woodland

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

1

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

ID	Distance (m)	Direction	LNR Name	Data Source
2	953.0	SE	Cross Hill Quarry	Natural England

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

1

The following Area of Outstanding Natural Beauty (AONB) records provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	AONB/NSA Name	Data Source
3	5.0	N	Forest Of Bowland	Natural England

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.



## 8. Natural Hazards Findings

### 8.1 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 GeoInsight**, available from our [website](#). The following information has been found:

#### 8.1.1 Shrink Swell

What is the 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.

#### 8.1.2 Landslides

What is the maximum Landslide\* hazard rating identified on the study site?

Low

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

##### Hazard

Possibility of slope instability problems after major changes in ground conditions. Consideration should be given to stability if changes to drainage or excavations take place. Possible increase in construction cost to reduce potential slope stability problems. Existing property no significant increase in insurance risk due to natural slope instability problems.

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

### 8.1.3 Soluble Rocks

What is the maximum Soluble 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

---

Significant soluble rocks are present. Problems unlikely except with considerable surface or subsurface water flow. No special actions required to avoid problems due to soluble rocks. No special ground investigation required or increased construction costs are likely. An increase in financial risk due to potential problems with soluble rocks is unlikely.

---

---

### 8.1.4 Compressible Ground

What is the maximum Compressible Ground\* hazard rating identified on the study site?

Moderate

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

---

#### Hazard

---

Significant potential for compressibility problems. Avoid large differential loadings of ground. Do not drain or de-water ground near the property without technical advice. For new build consider possibility of compressible ground in ground investigation, construction and building design. Consider effects of groundwater changes. Extra construction costs are likely. For existing property possible increase in insurance risk from compressibility, especially if water conditions or loading of the ground change significantly.

---

---

### 8.1.5 Collapsible Rocks

What is the 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.

---

## 8.1.6 Running Sand

What is the maximum Running Sand\*\* hazard rating identified on the study site?

Low

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

---

### Hazard

---

Possibility of running sand problems after major changes in ground conditions. Normal maintenance to avoid leakage of water-bearing services or water bodies (ponds, swimming pools) should reduce likelihood of problems due to running sand. For new build consider possibility of running sand into trenches or excavations if water table is high or sandy strata are exposed to water. Avoid concentrated water inputs to site. Unlikely to be an increase in construction costs due to potential for running sand. For existing property no significant increase in insurance risk due to running sand problems is likely.

---



---

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



## 9. Mining

### 9.1 Coal Mining

Are there any coal mining areas within 75m of the study site?

No

Database searched and no data found.

---

### 9.2 Shallow Mining

What is the subsidence hazard relating to shallow mining on-site\*?

Negligible

\*Please note this data is searched with a 150m buffer.

---

### 9.3 Brine Affected Areas

Are there any brine affected areas within 75m of the study site?

No

Guidance: No Guidance Required.

---



# Contact Details

**CENTREMAPS**  
Telephone: 01886 832972  
groundsure@centremaps.co.uk  
CENTREMAPS, Brockamin House, Leigh, Worcester, London, WR6 5JU

Directors: M C Walker, MInst C.E.S., C M Walker,  
S J Hawkins BSc (Hons), S E Stewart BSc (Hons)  
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Registered Company: Laser Surveys Limited  
Brockamin House, Leigh, Worcester, WR6 5JU.

## 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

## Environment Agency

National Customer Contact Centre, PO Box 544  
Rotherham, S60 1BY  
Tel: 08708 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  
<https://www.gov.uk/government/organisations/public-health-england>  
Email: [enquiries@phe.gov.uk](mailto:enquiries@phe.gov.uk)  
Main switchboard: 020 7654 8000

## The Coal Authority

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

## Ordnance Survey

Adanac Drive, Southampton  
SO16 0AS  
Tel: 08456 050505

## Local Authority

Authority: Ribble Valley Borough Council  
Phone: 01200 425111  
Web: [www.ribblevalley.gov.uk](http://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

centremapslive.com  
the mapping portal from Laser Surveys



**British  
Geological Survey**

NATURAL ENVIRONMENT RESEARCH COUNCIL



**Environment  
Agency**



**Public Health  
England**



**The Coal  
Authority**



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 who retain the Copyright and Intellectual Property Rights for the data. PointX © Database Right/Copyright, Thomson Directories Limited © Copyright Link Interchange Network Limited © Database Right/Copyright and Ordnance Survey © Crown Copyright and/or Database Right. All Rights Reserved. Licence Number [03421028]. This report has been prepared in accordance with the GroundSure Ltd standard Terms and Conditions of business for work of this nature.

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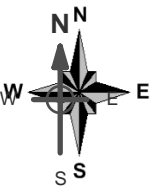
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Grid Ref: 374163, 444402

Map Name: County Series

Map date: 1847

Scale: 1:10,560

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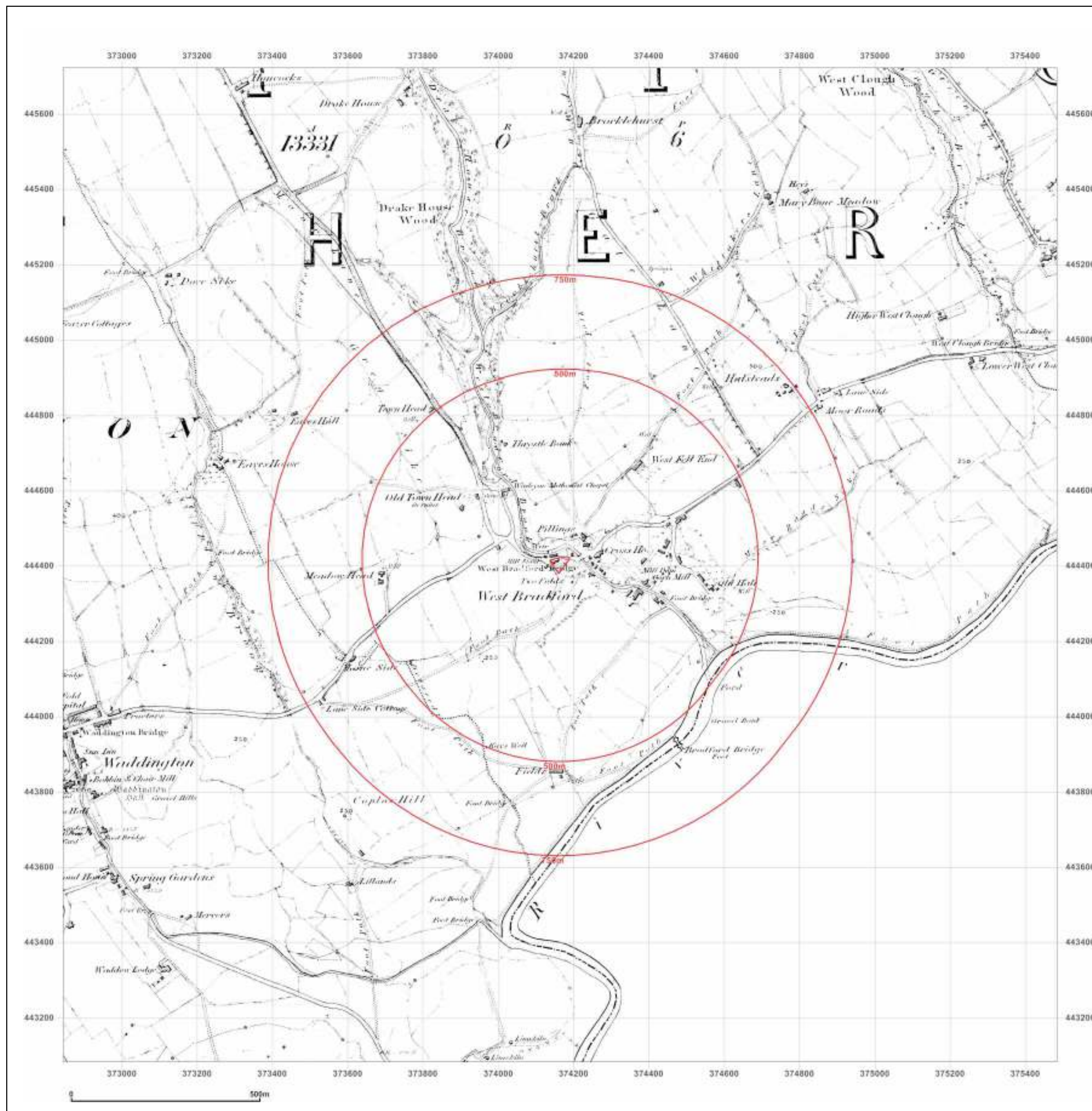


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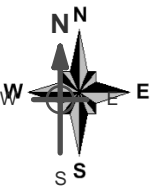
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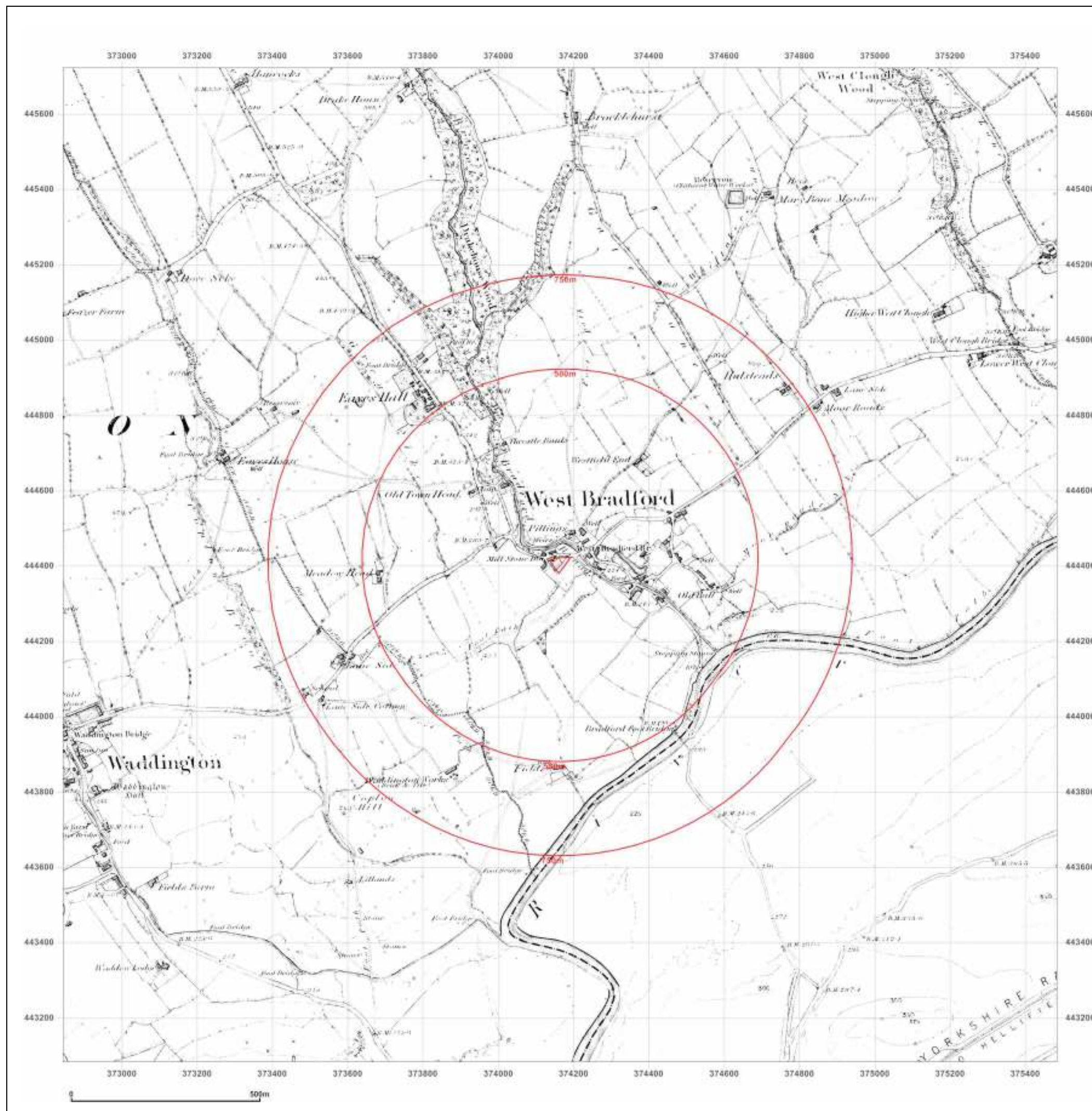


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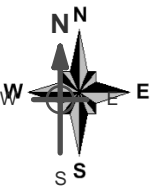
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Map Name: County Series

Map date: 1906-1910

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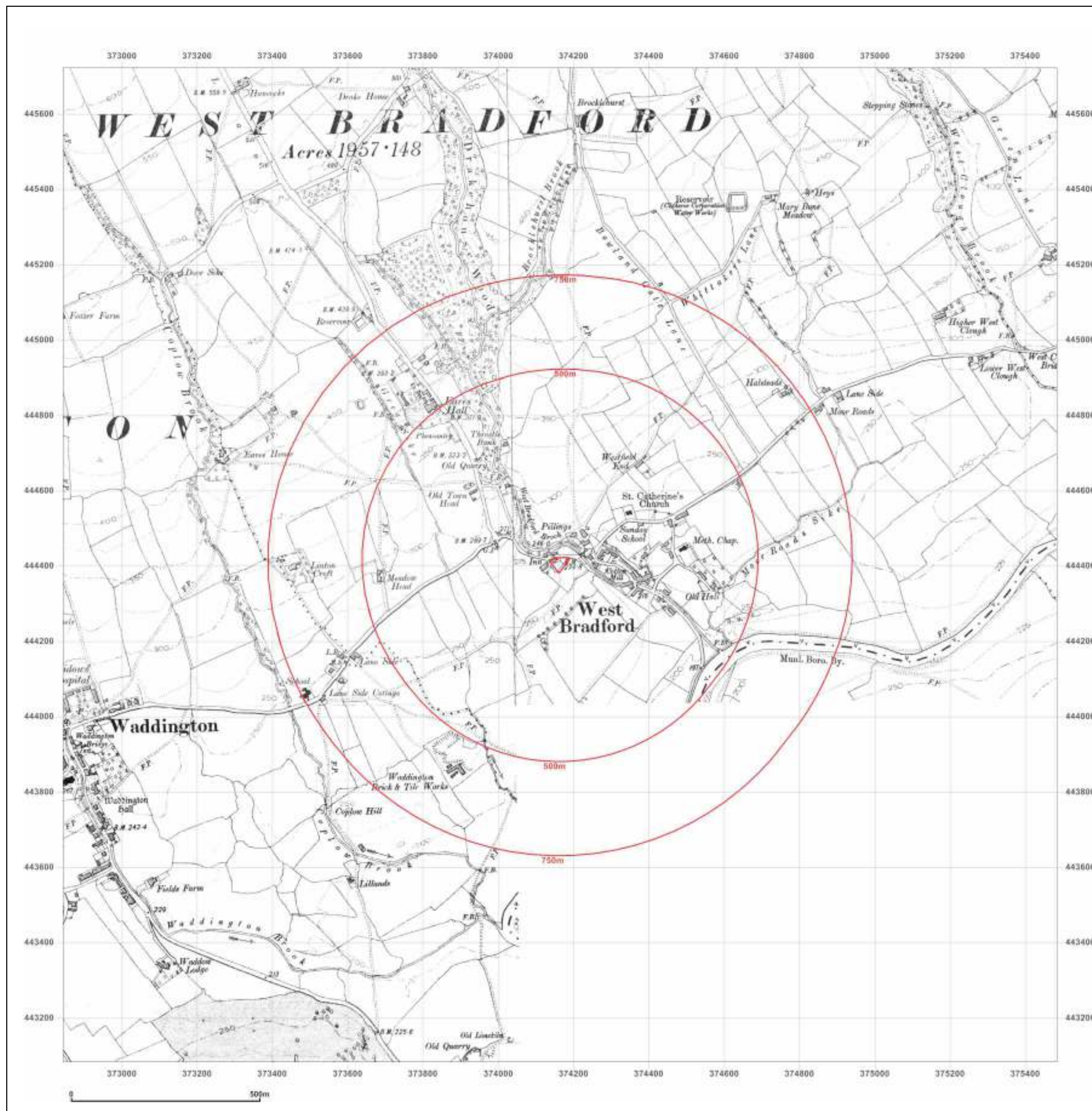


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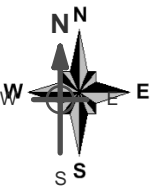
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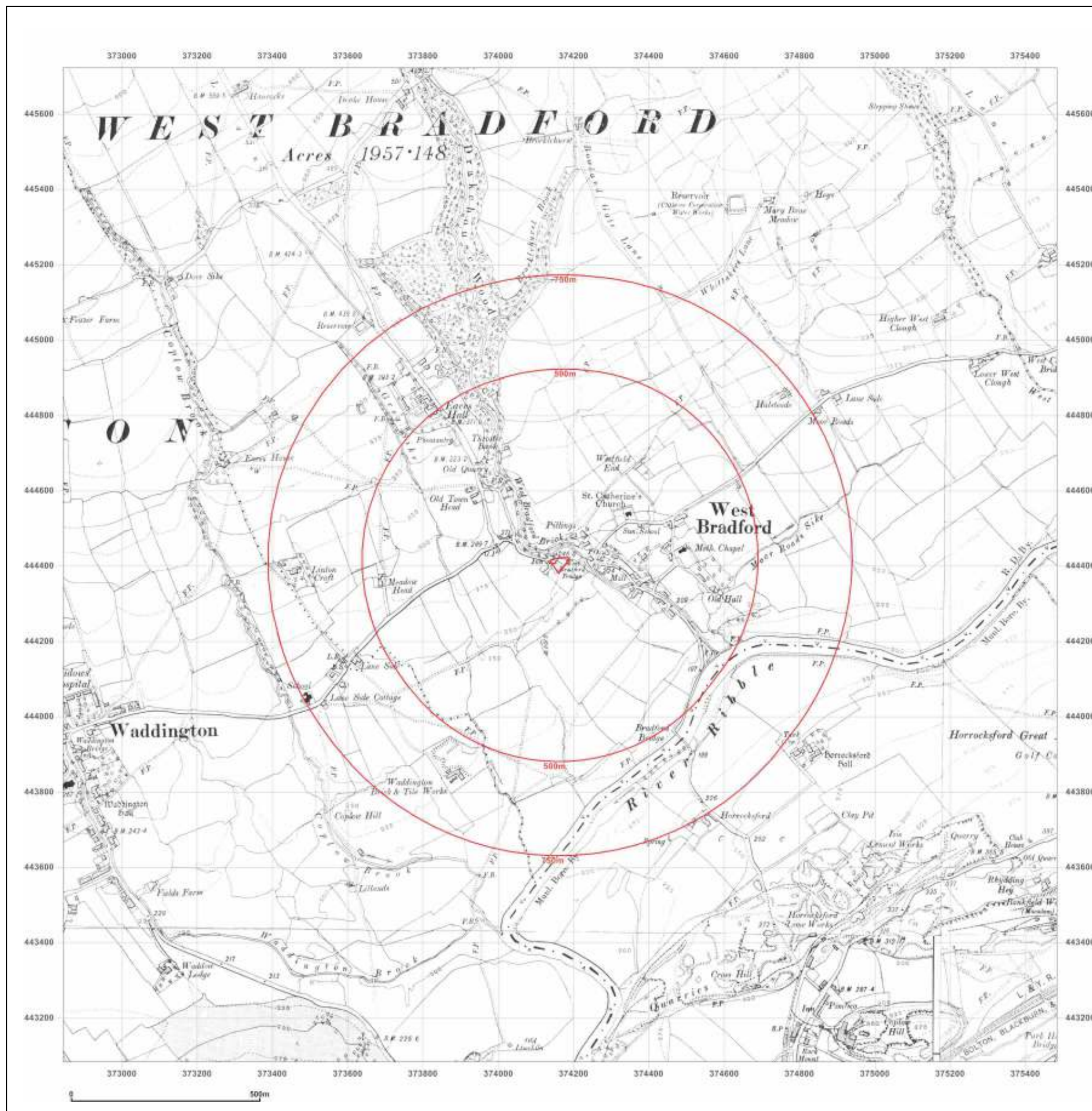


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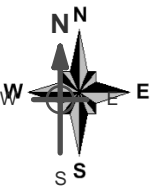
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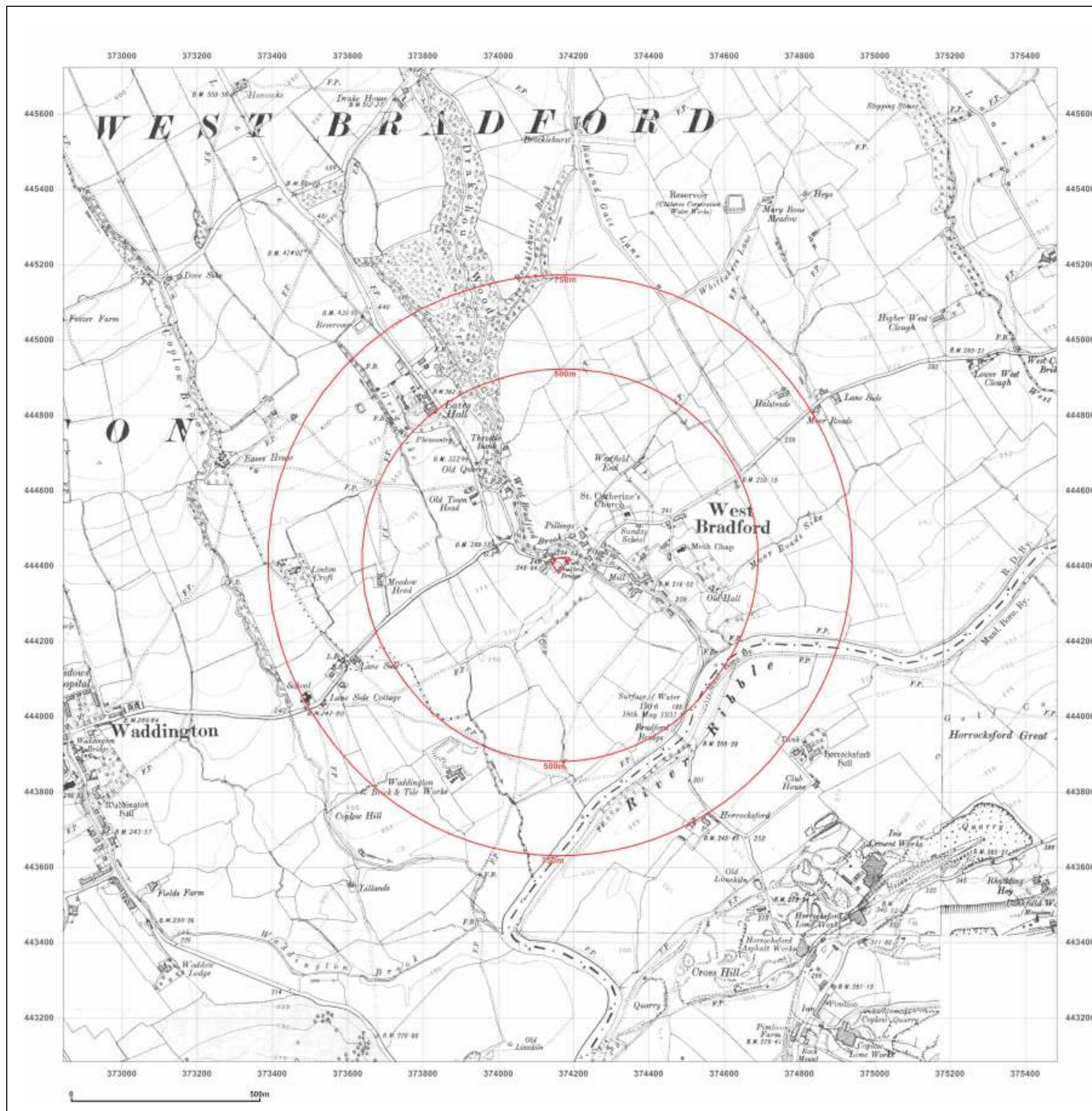
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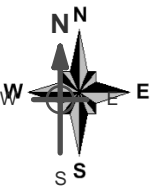
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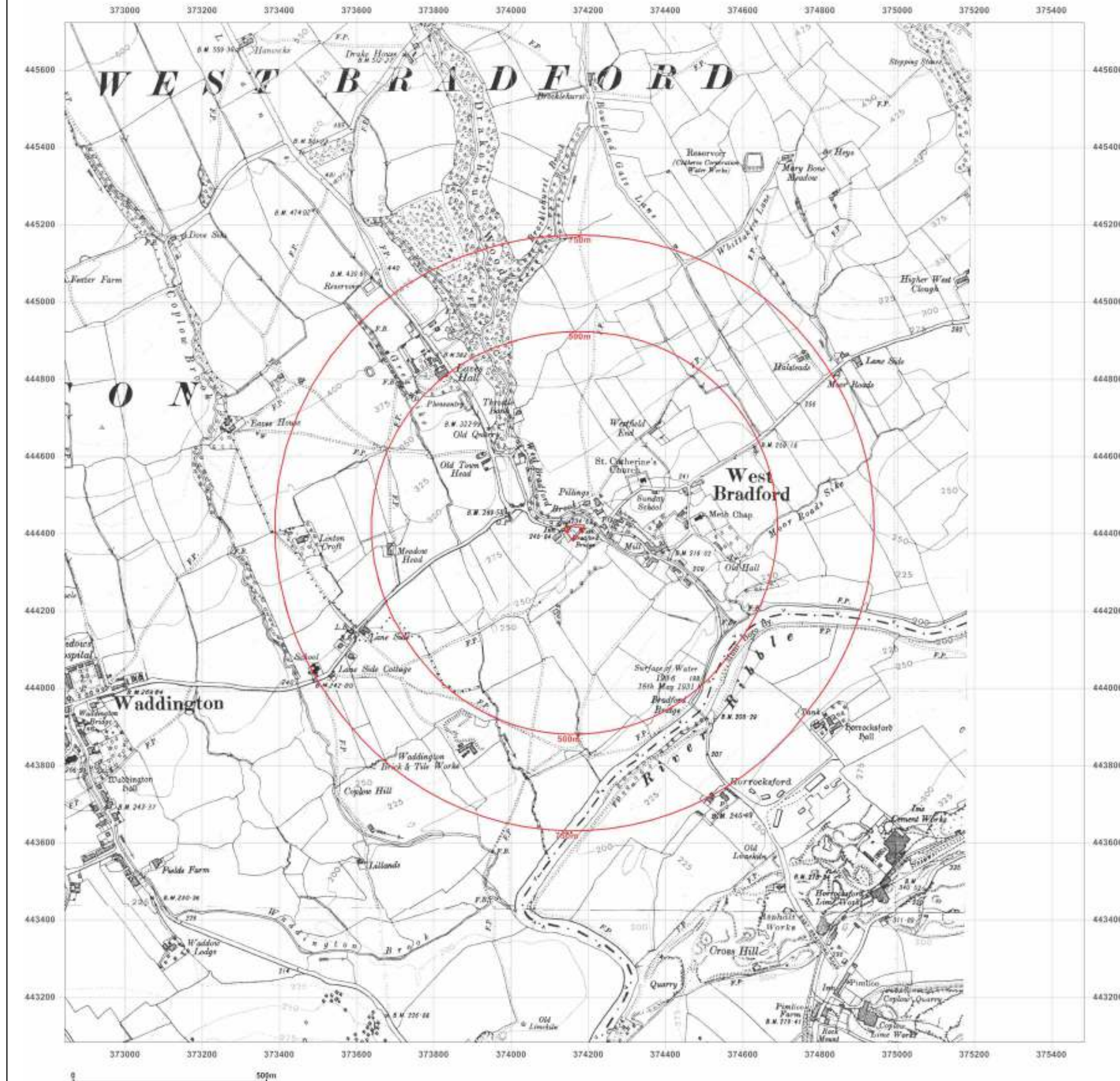


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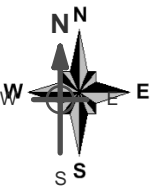
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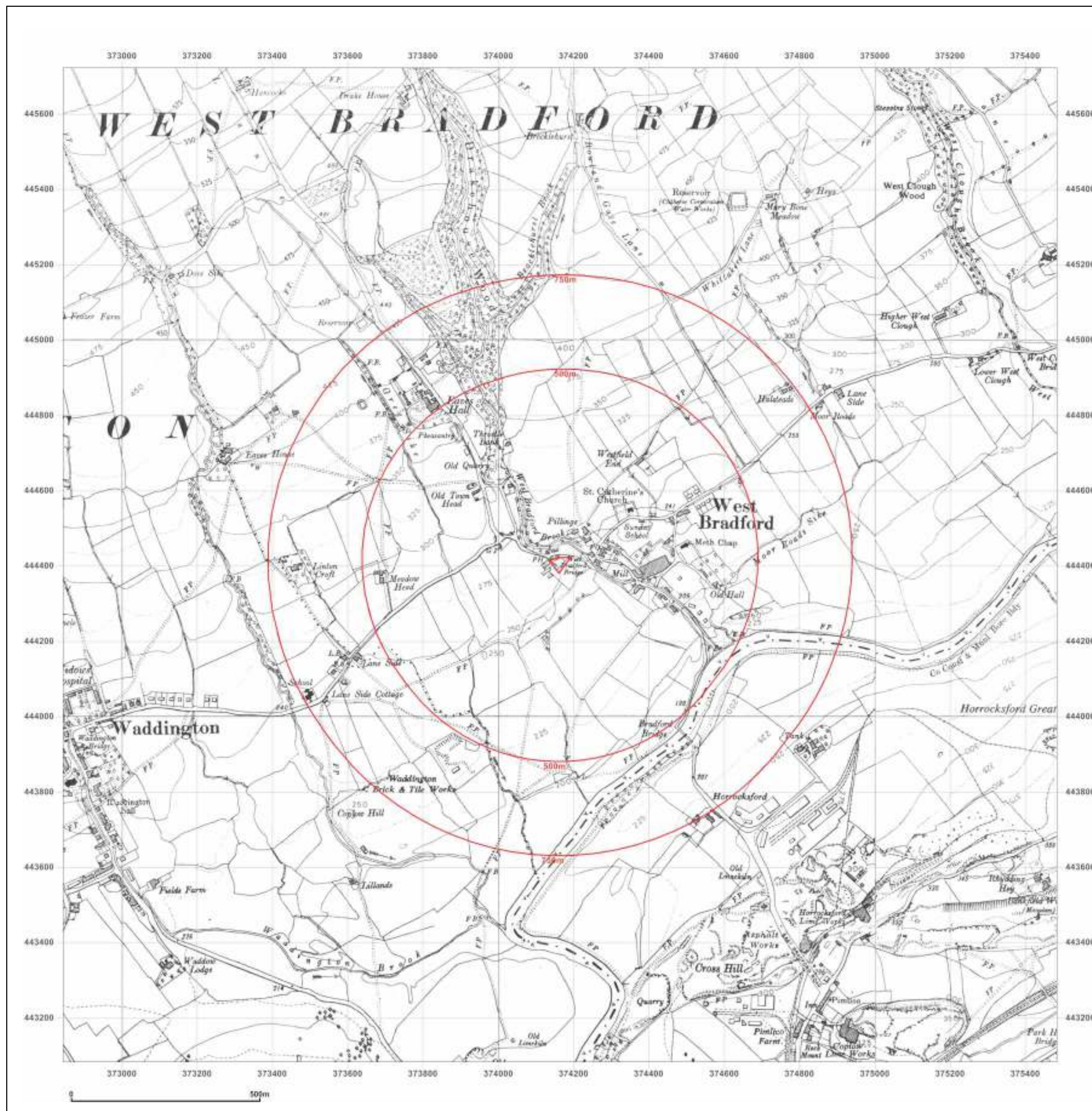
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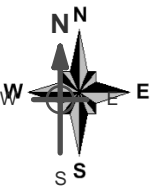
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**Map Name:** National Grid

**Map date:** 1971-1974

**Scale:** 1:10,000

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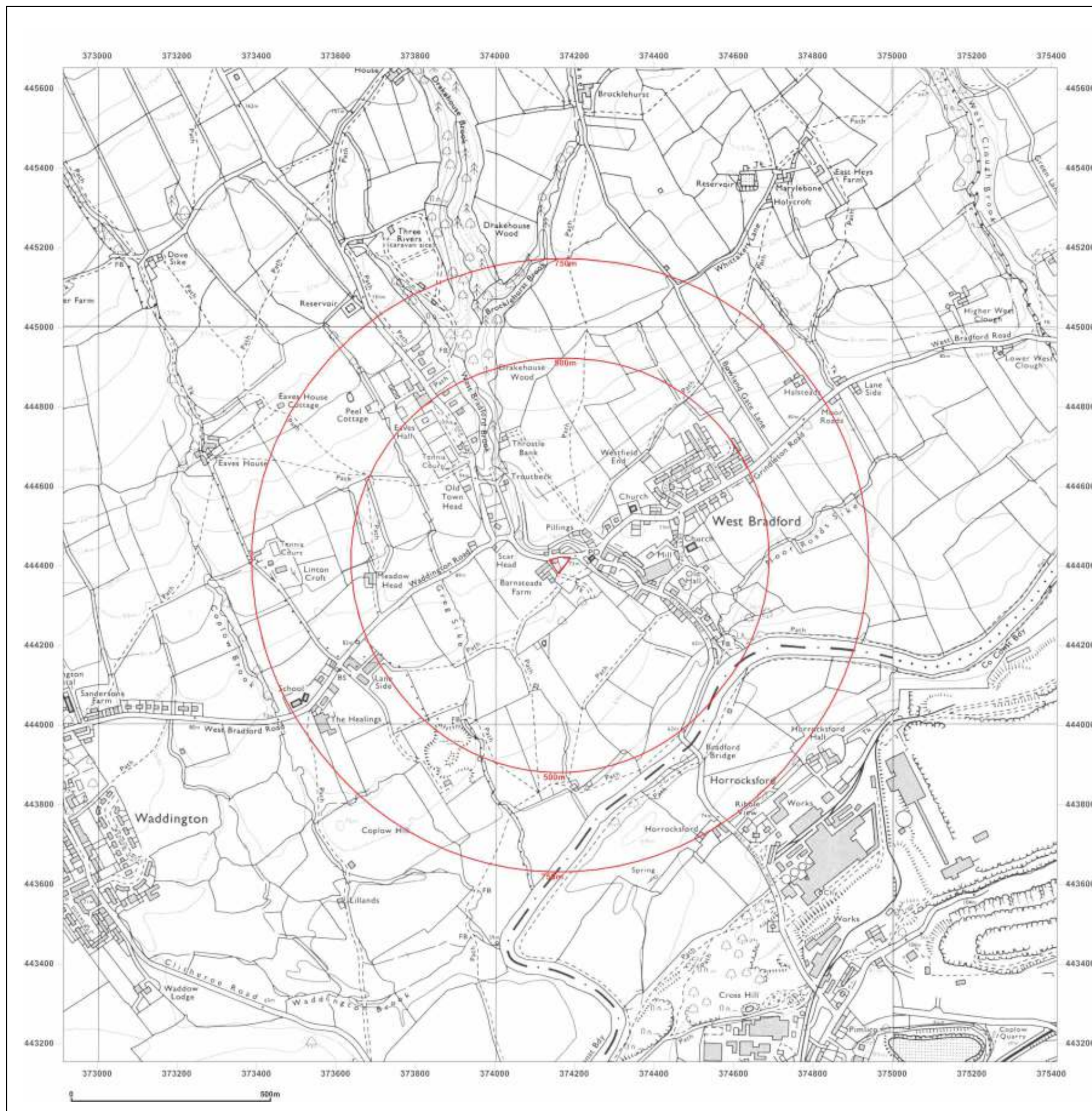


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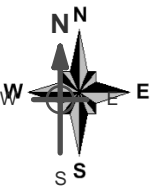
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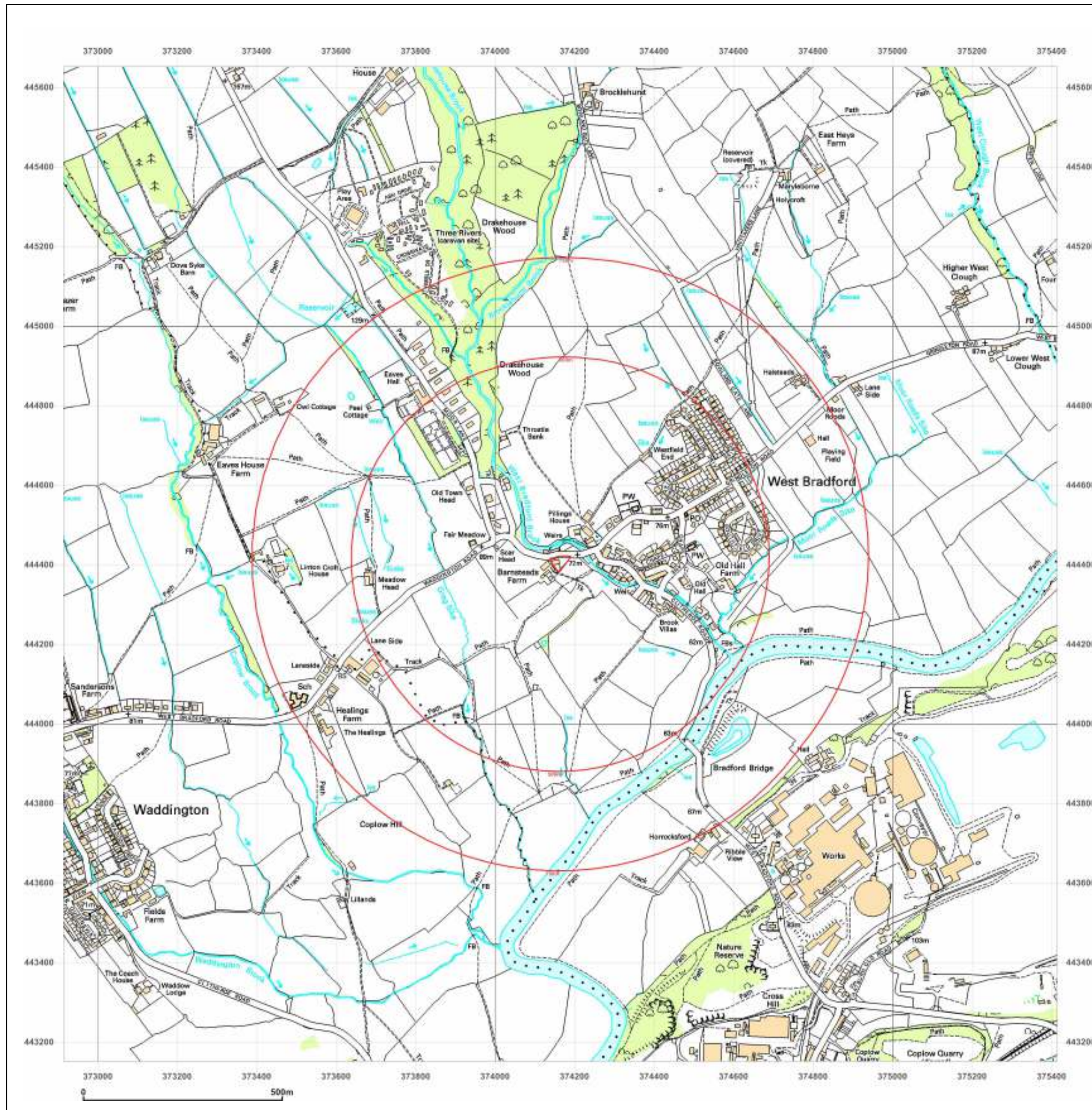
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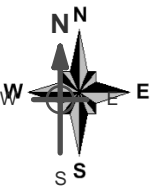
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Map Name: National Grid

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Scale: 1:10,000

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2010



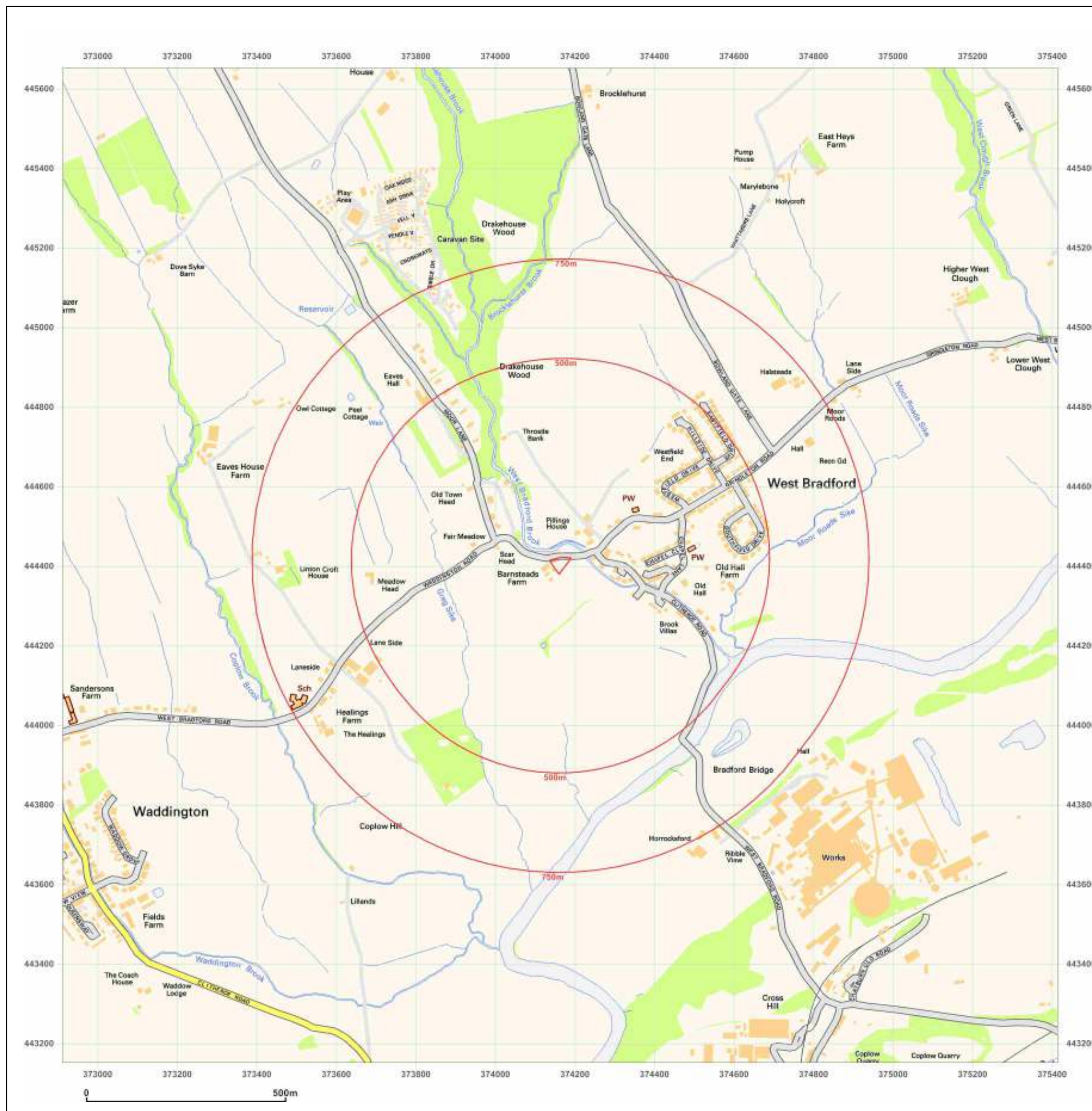
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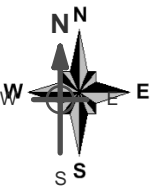
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Grid Ref: 374163, 444402

Map Name: National Grid

Map date: 2014

Scale: 1:10,000

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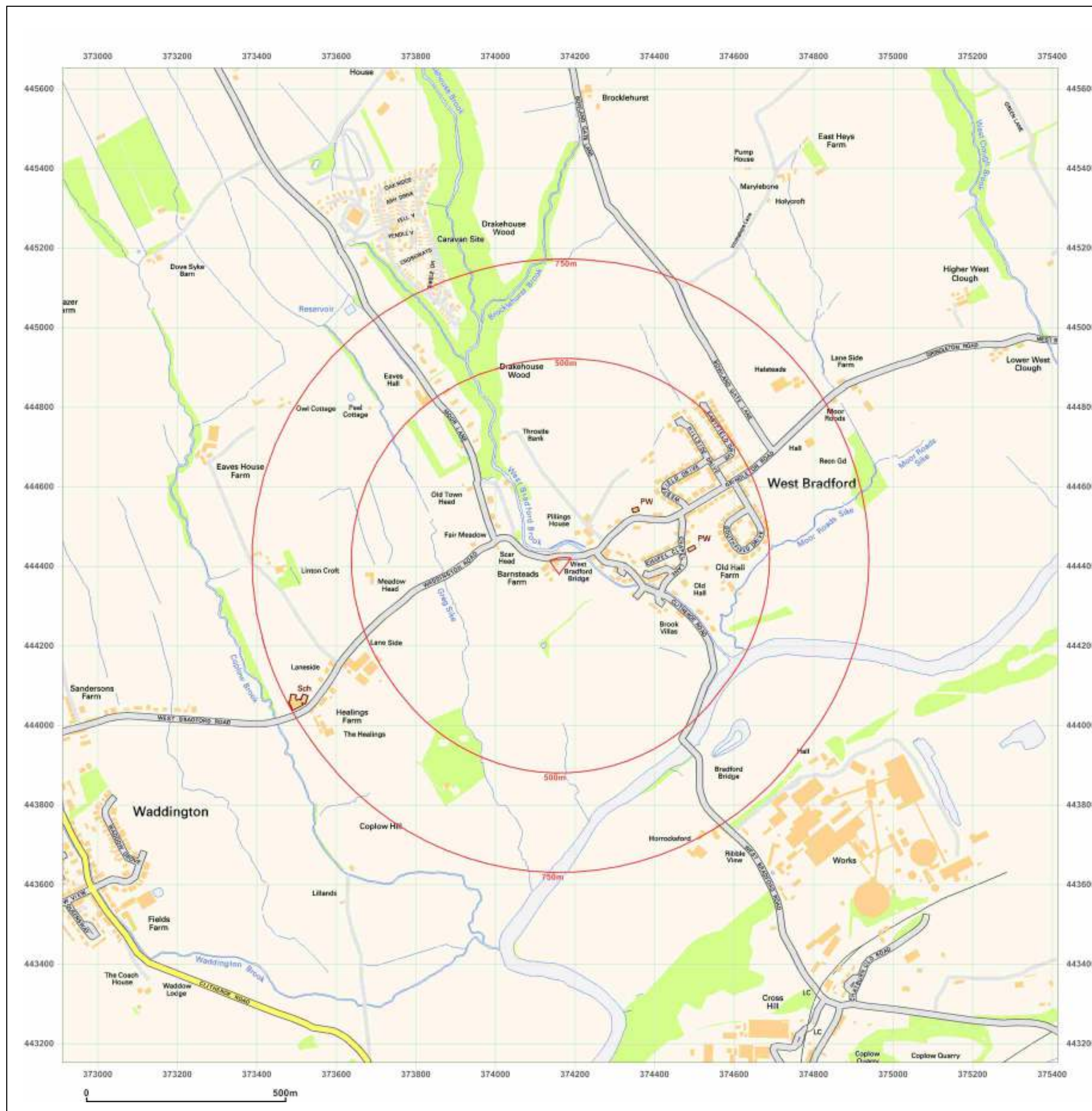


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## **LARGE SCALE SURVEY PLANS**



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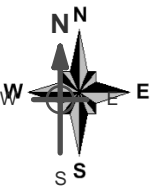
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Grid Ref: 374163, 444402

Map Name: County Series

Map date: 1884

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1884  
Revised 1884  
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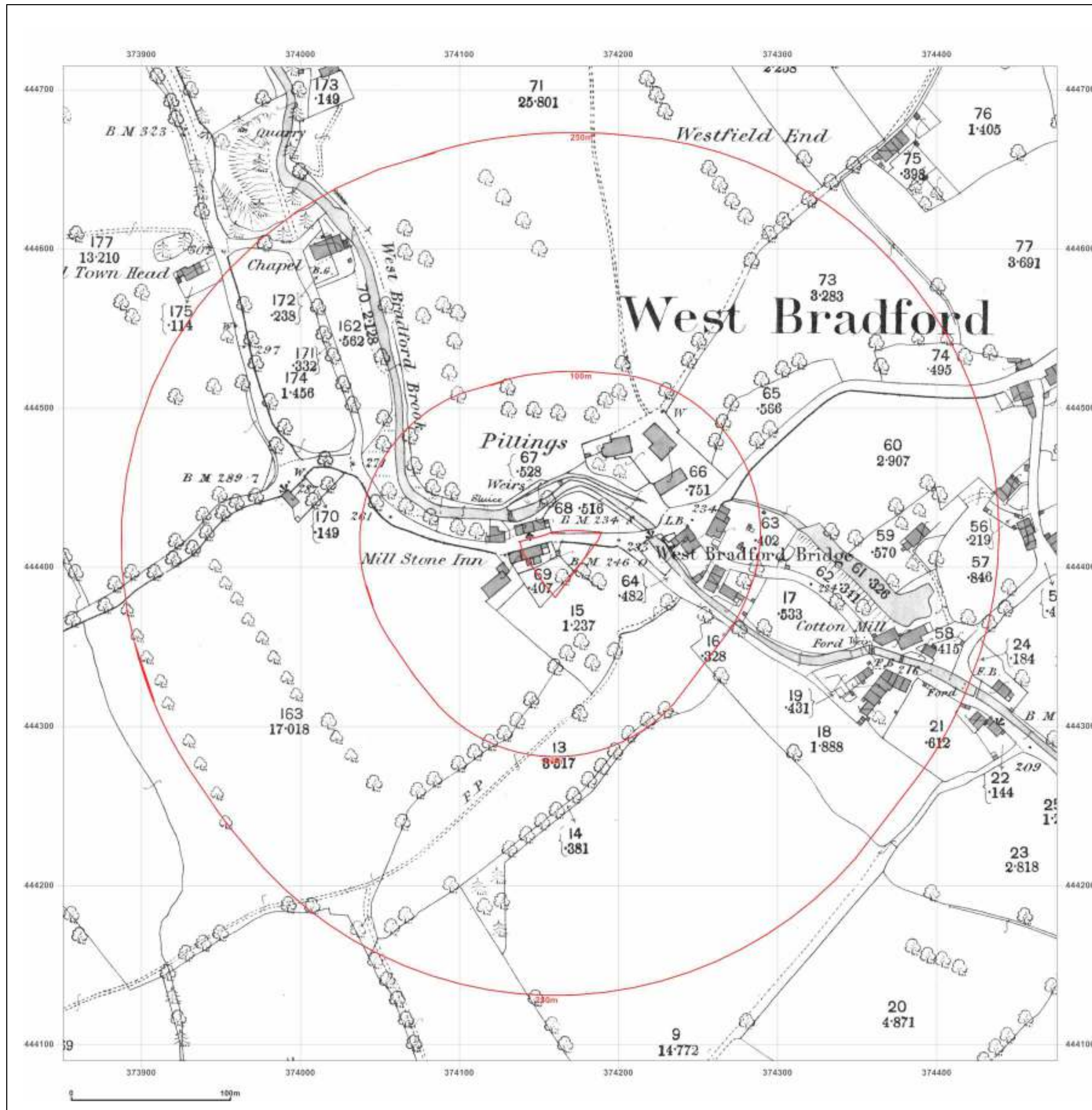


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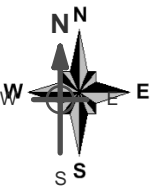
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Grid Ref: 374163, 444402

Map Name: County Series

Map date: 1886

Scale: 1:2,500

Printed at: 1:2,500



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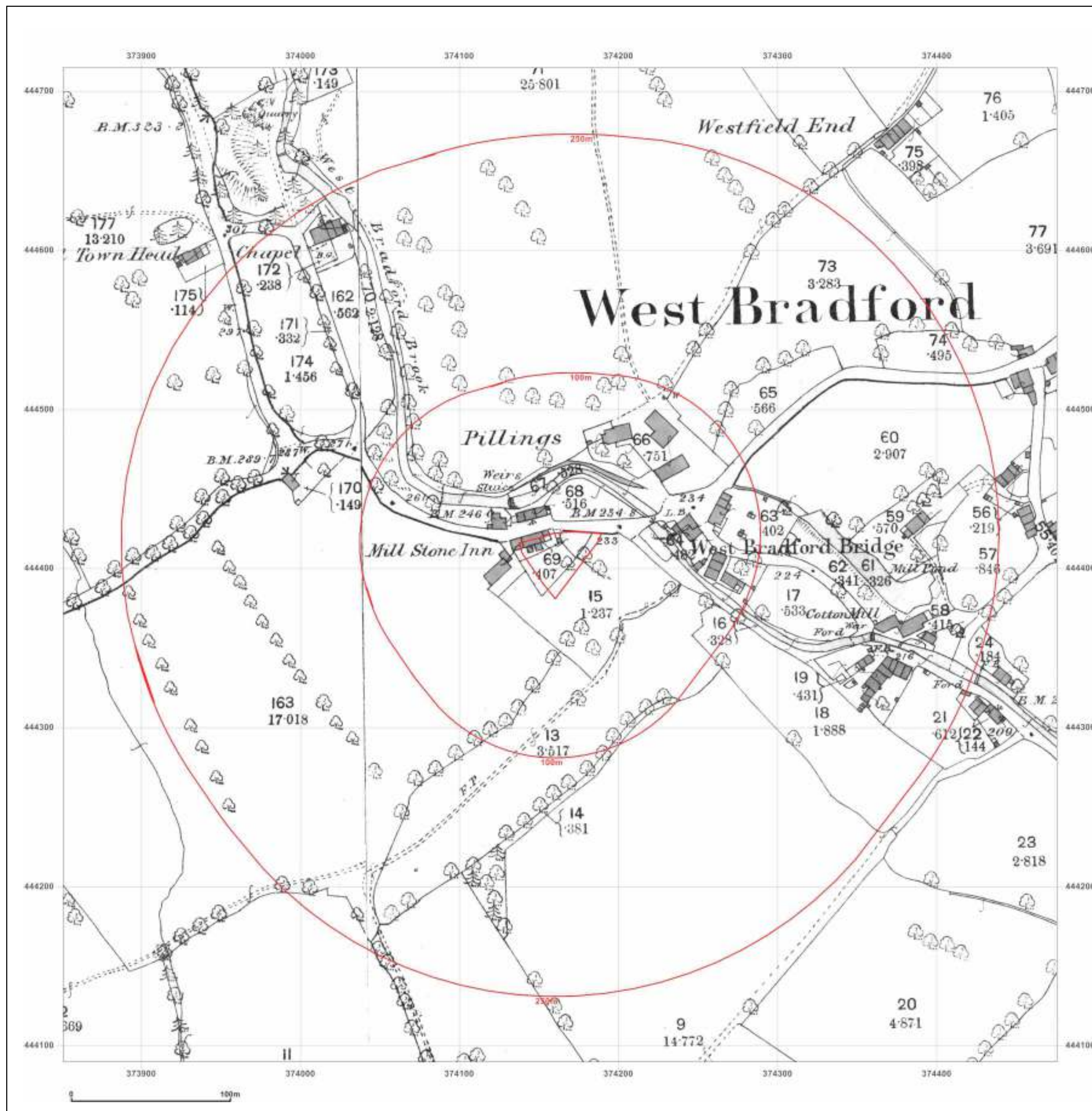


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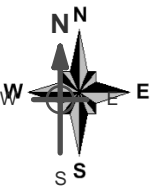
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Map Name: County Series

Map date: 1908

Scale: 1:2,500

Printed at: 1:2,500



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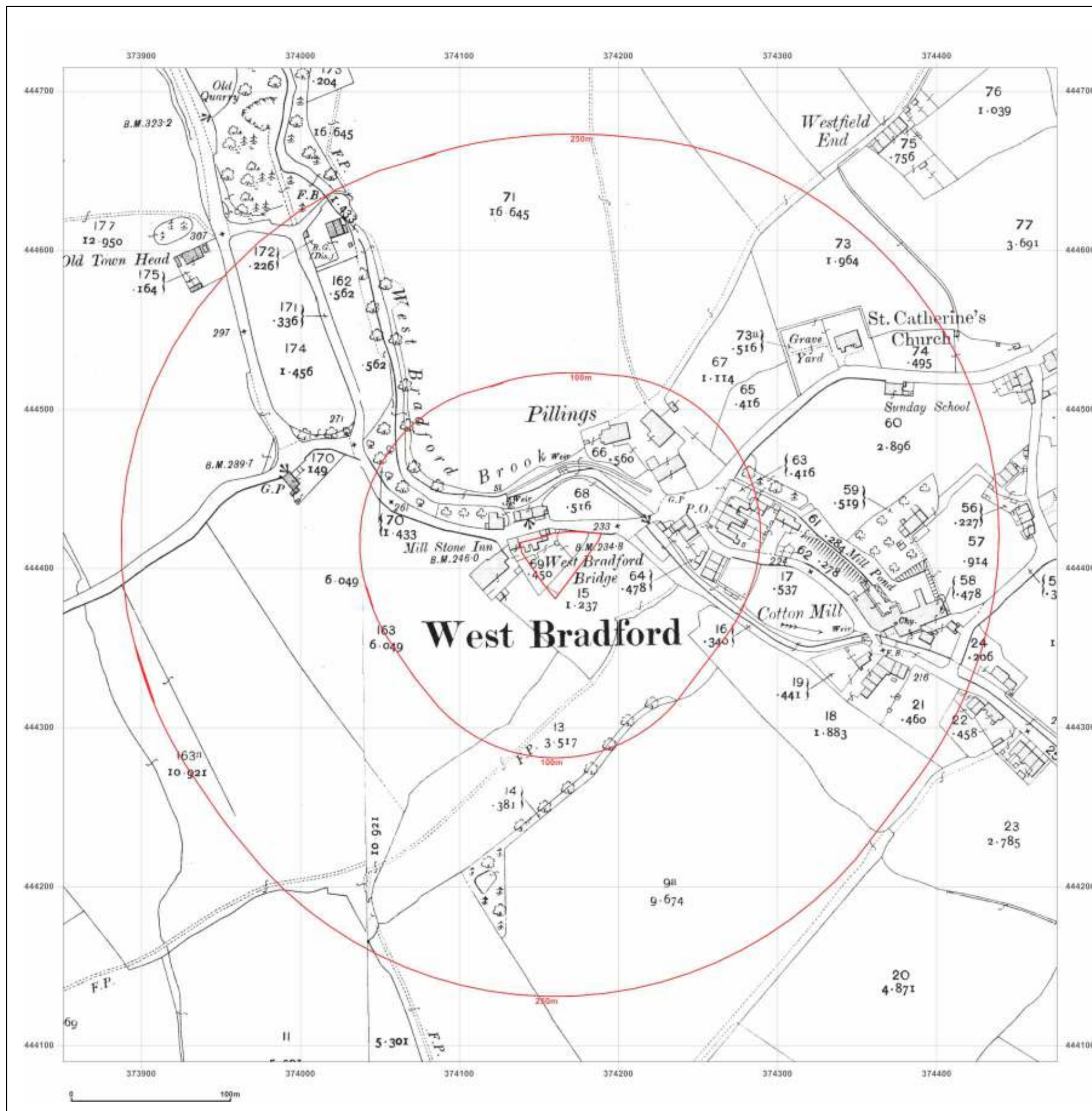


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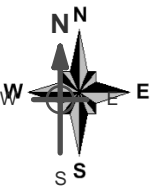
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Grid Ref: 374163, 444402

Map Name: County Series

Map date: 1912

Scale: 1:2,500

Printed at: 1:2,500



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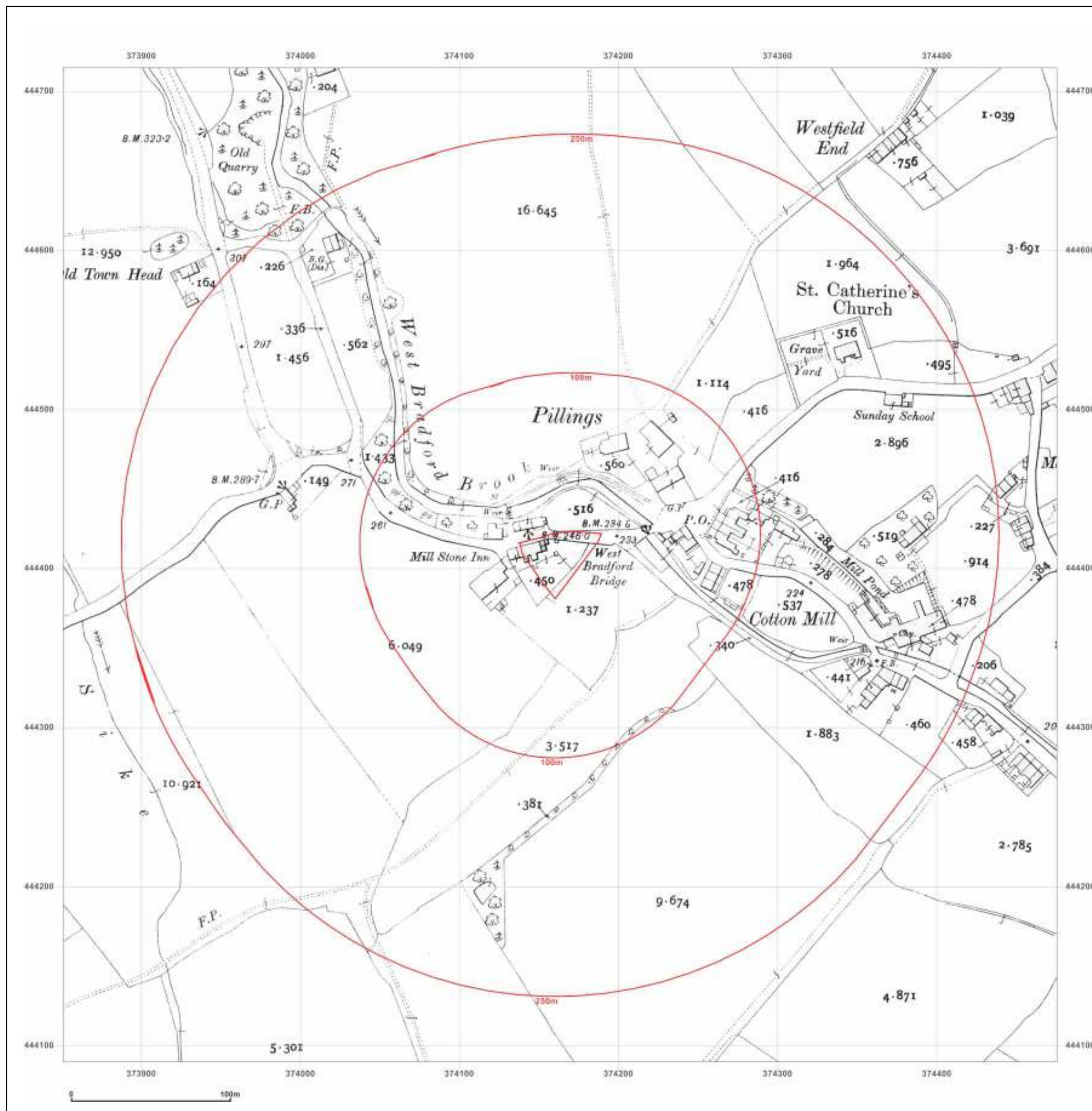


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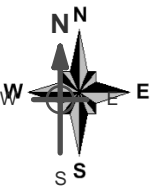
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**Map Name:** National Grid

**Map date:** 1967-1970

**Scale:** 1:2,500

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



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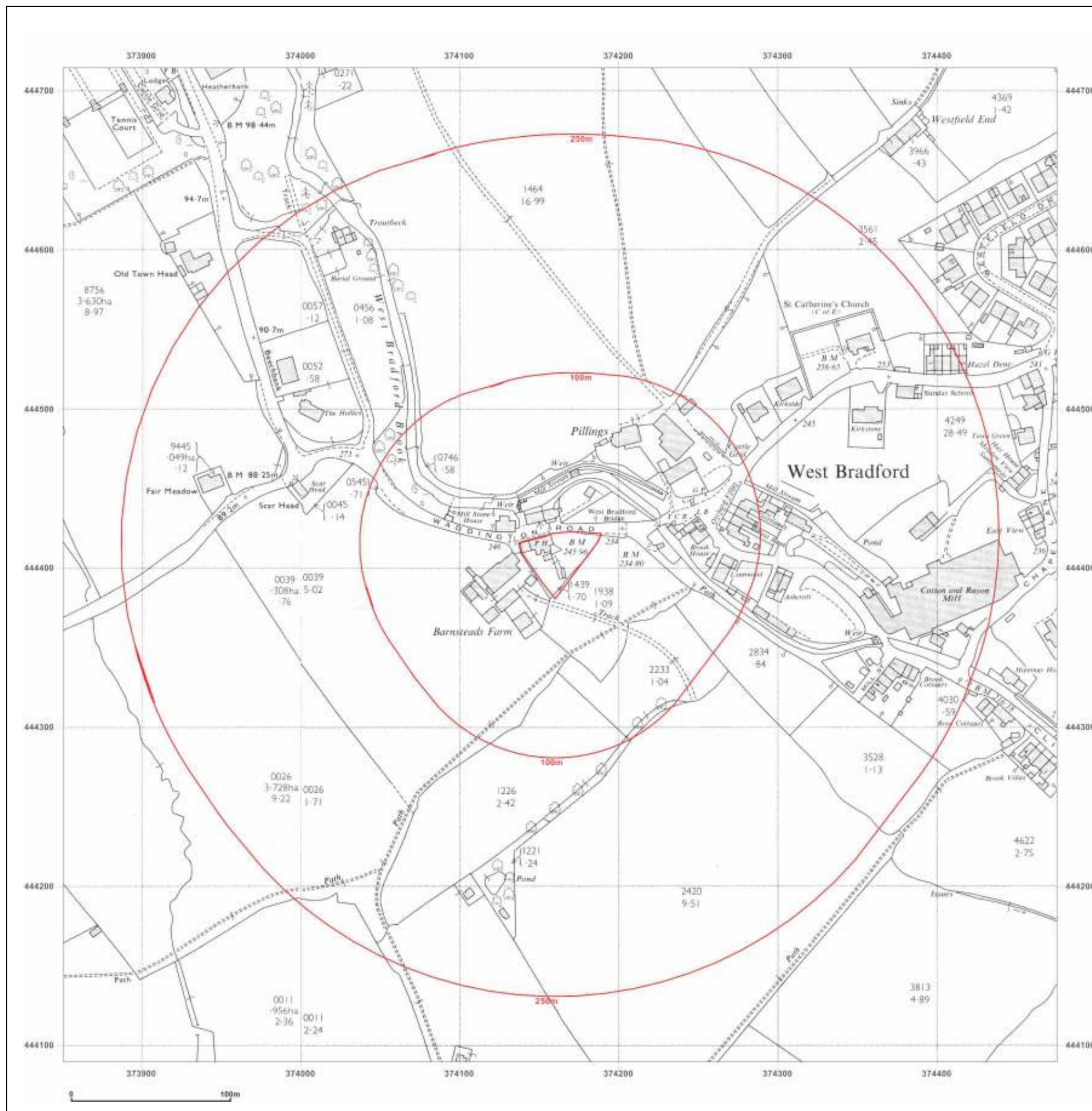


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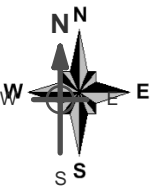
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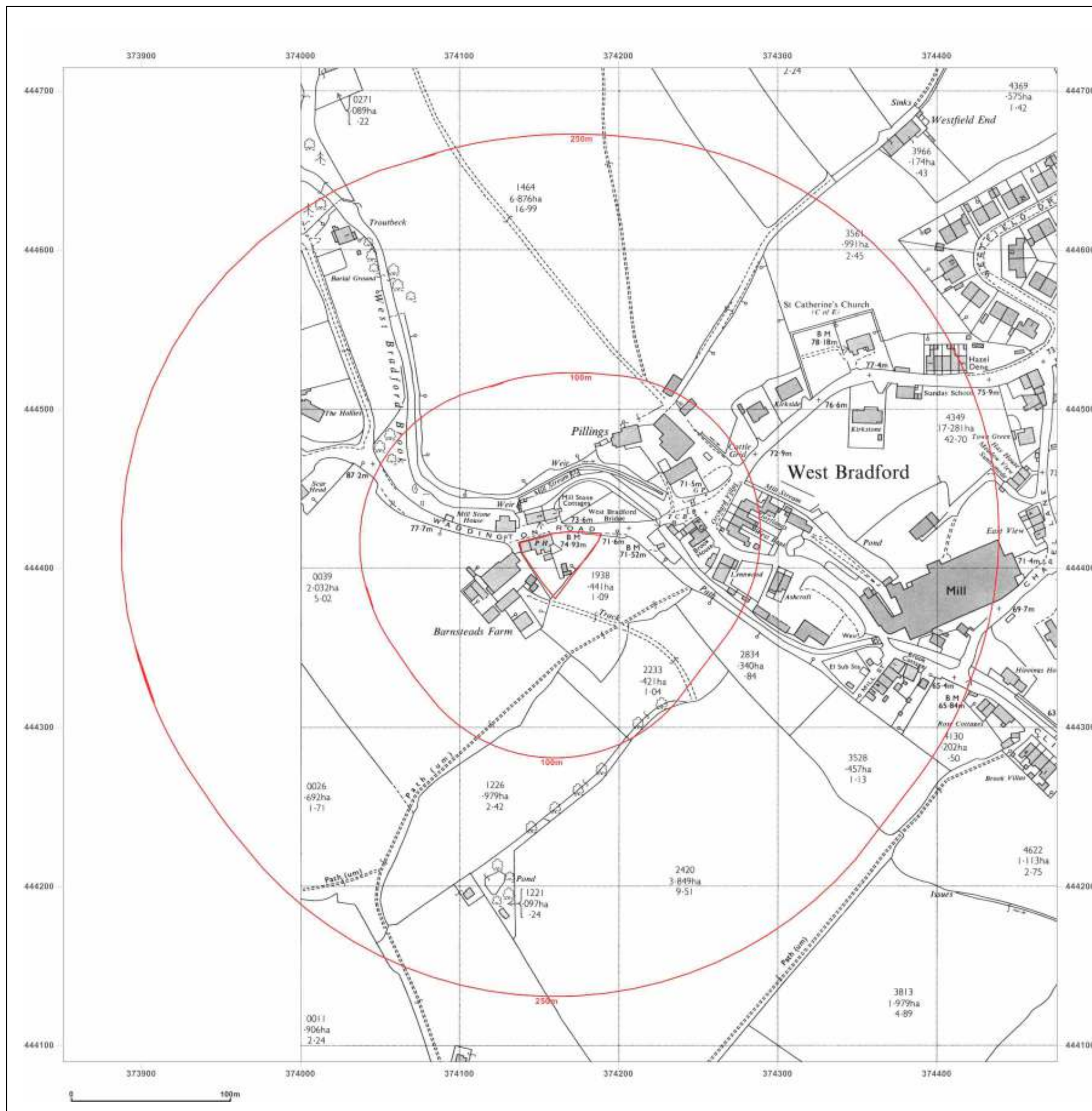
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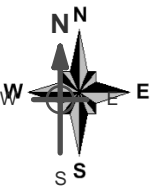
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**Printed at:** 1:2,500



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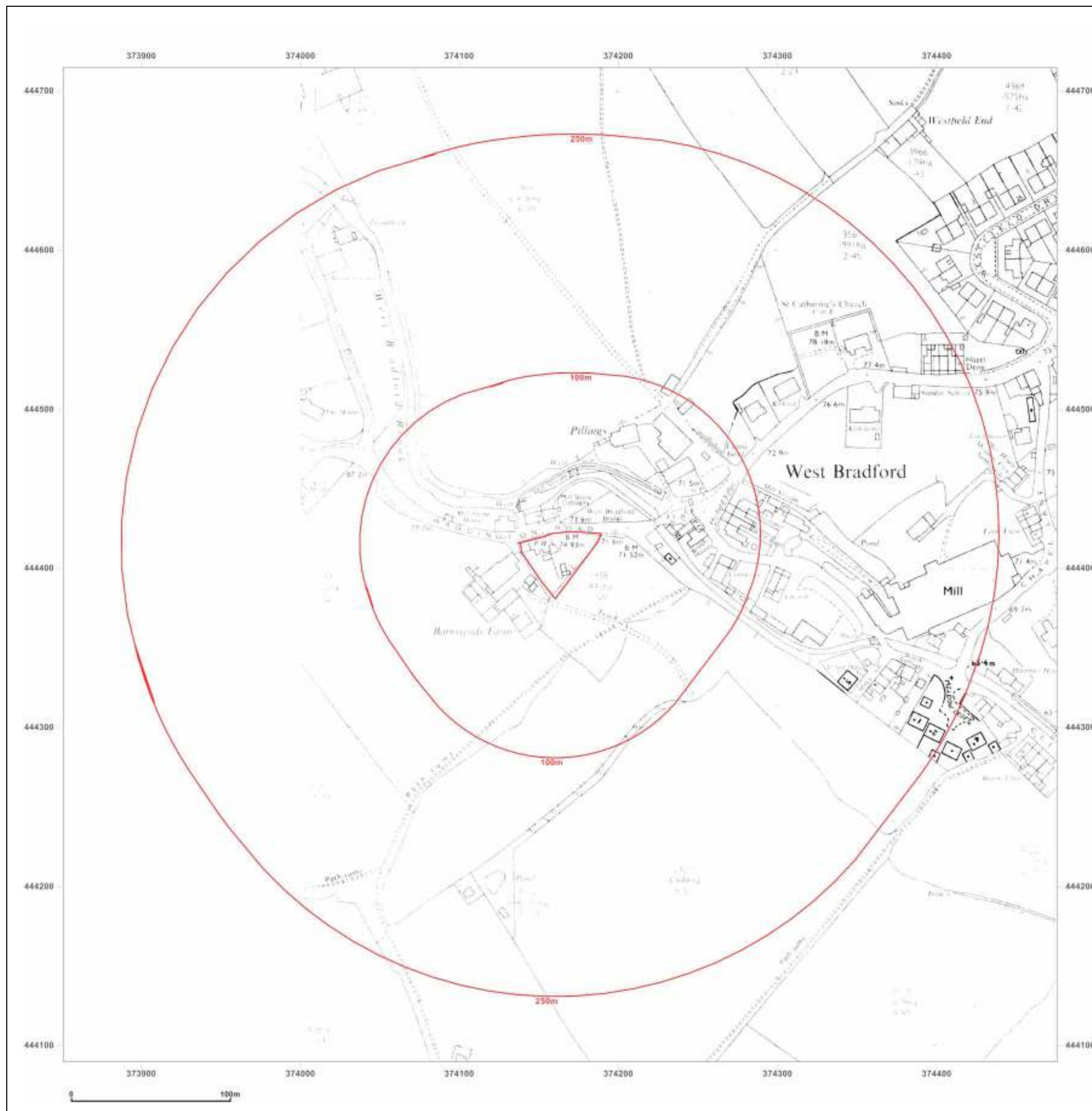


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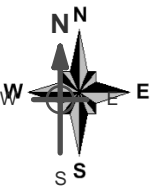
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**Map date:** 1993

**Scale:** 1:2,500

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



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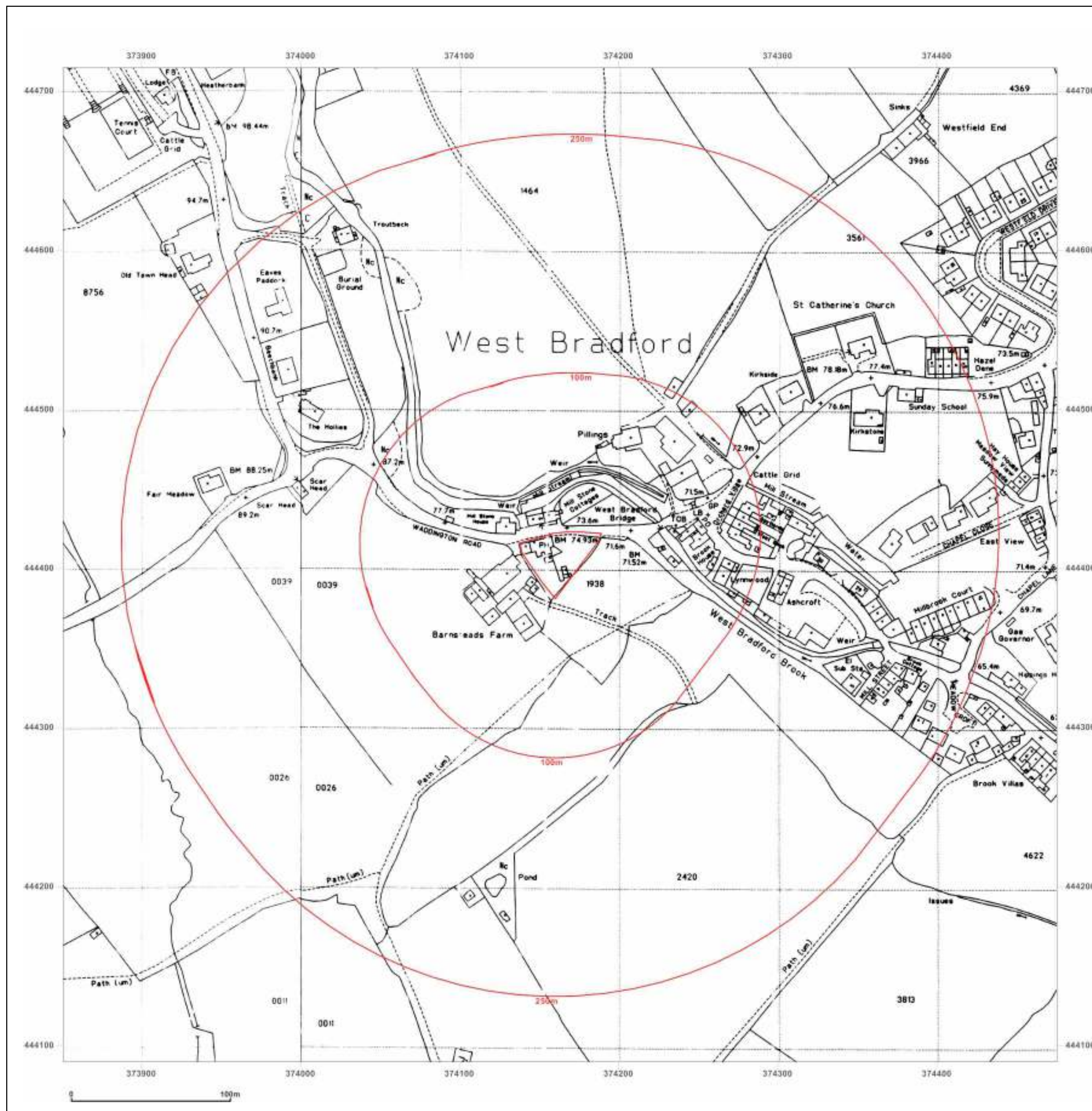
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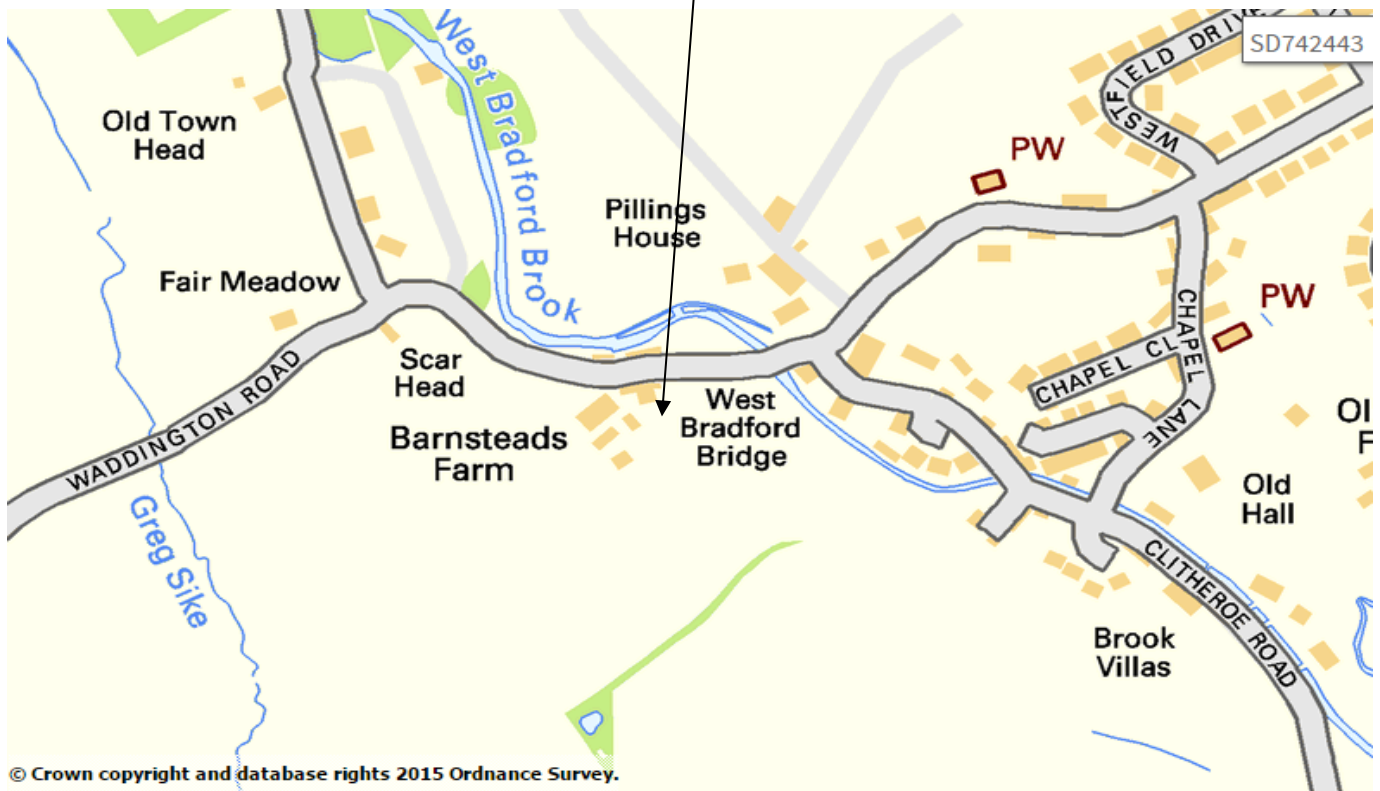
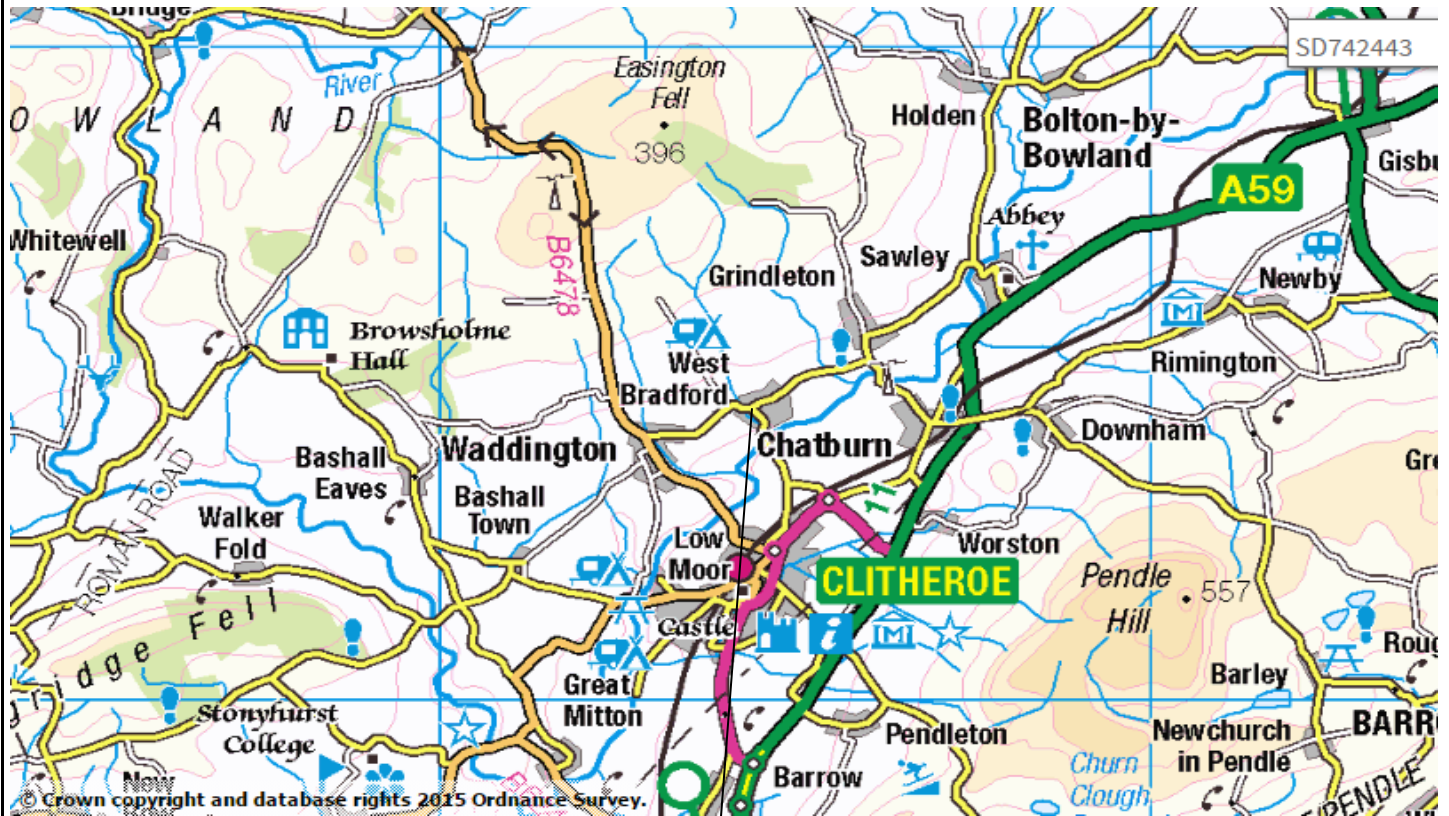
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## FIGURES





 <b>SUB SURFACE</b> SITE INVESTIGATION AND SPECIALIST GEOTECHNICAL CONSULTANTS 3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907	Location Map			
Site <b>THREE MILLSTONES INN, W.BRADFORD, BB7 4SX</b>	Date Drawn 16-Jan-15	Date Checked 19-Jan-15	Sheet 1 / 1	Job No. 5981
Client <b>MATTHEW FROST</b>	Drawn By MDS	Checked By CAM	Scale NTS	Figure No. 1

