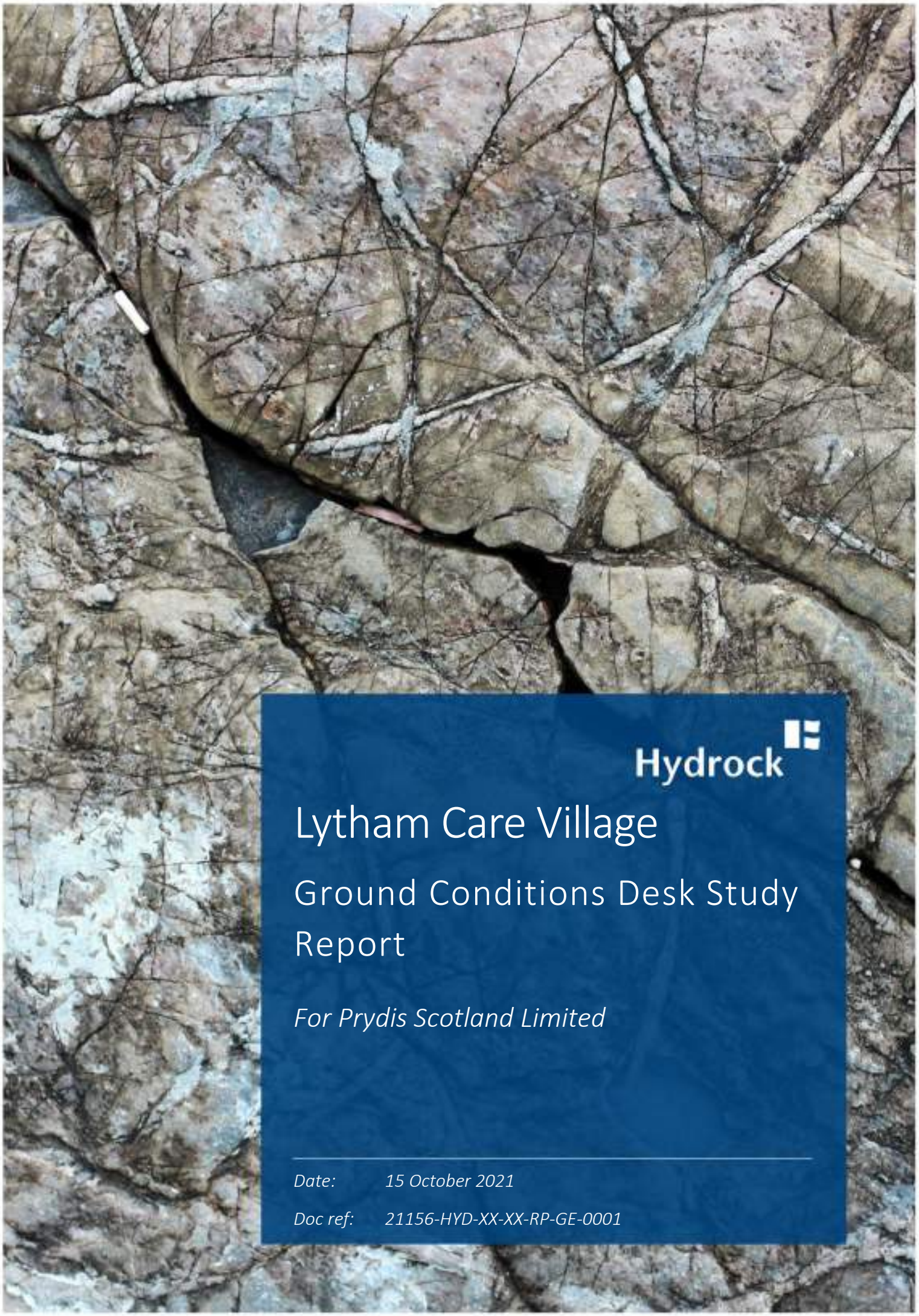

Hydrock

Lytham Care Village

Ground Conditions Desk Study Report

For Prydis Scotland Limited

Date: *15 October 2021*

Doc ref: *21156-HYD-XX-XX-RP-GE-0001*

DOCUMENT CONTROL SHEET

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Executive Summary

SITE INFORMATION AND SETTING	
Objectives	Ground Conditions Desk Study Report.
Client	Prydis Scotland Limited.
Site name and location	Great Birchwood, Lytham Road, Warton, Preston, Lancashire. The nearest post code is PR4 1TE.
Proposed development	The site development proposals are understood to comprise 77 residential dwellings with associated infrastructure and landscaping.
PHASE 1 (DESK STUDY AND SITE RECONNIASANCE)	
Ground Model	The site currently comprises an old caravan and country park with associated disused buildings including a derelict motel and equestrian centre. The site is approximately 8.45 ha in area and is largely covered by unkempt vegetation and trees. The site appears relatively flat and three ponds are present at the site at an elevation approximately one metre below the rest of the site. Some buildings on site may have used potentially asbestos containing building materials in their construction. Review of historical Ordnance Survey mapping indicates: • The site comprised open fields and part of Great Birch Wood until the 1970s when paths and a disused camp was shown on the fields. Two ponds are shown on 1909 plan of the site; the one on the eastern boundary has increased in size and is still present while the one on the west appears to have been backfilled between 2010 and 2021. • In 1989, buildings were shown to have been constructed on site. • The site was shown to be further developed with more paths and buildings in 2021. A non-specialist UXO assessment indicates a moderate bomb risk. The geology at the site consists of Glacial Till overlying the Breckells Mudstone Member. Made Ground is anticipated at the site associated with the current and previous land use. The superficial deposits are classified as a Secondary Undifferentiated aquifer and the Breckells Mudstone Member a Secondary B aquifer. The site is not within a Source Protection Zone (SPZ) and there are no active licensed groundwater abstractions within 1km of the site. The River Ribble flows from east to west towards Ribble and Alt Estuaries, approximately 2km south of the site.
ASSESSMENT AND CONCLUSIONS	
Preliminary Geotechnical Hazards	The following plausible geotechnical risks are identified: • Variable Made Ground - settlement or differential settlement of foundations, floor slabs, roads and infrastructure elements. • Low strength, compressible ground - risk of shear failure and excessive settlement of foundations, roads and infrastructure elements. • Shrinkage / swelling of clay - settlement / heave of foundations, especially where it is located within the influence of trees and vegetation. • Attack of buried concrete by aggressive ground conditions – the development site may contain Made Ground and potentially sulphate bearing soils. • Potential for obstructions and the risk of instability of excavations with the impact on construction staff, vehicles and plant operators. • Risk from groundwater and surface water flooding. • Running sands, loose Made Ground and shallow groundwater, leading to difficulty with excavation due to trench instability.

<table>
<tr><td></td><td>

- Potential for unforeseen ground conditions and risks associated with limited data.

</td></tr>
<tr><td>Preliminary Geo-environmental Conclusions</td><td>

Based on historical land uses and its current operational use, the overall risk from land contamination at the site is considered to be low to moderate for the current development, and moderate (with some specific high risks) identified for a redeveloped site, but would need to be confirmed by appropriate intrusive investigation, testing and assessment of the results of the investigation.
It is considered that it is unlikely that the site would be classified as Contaminated Land under Part 2A of the EPA 1990.
The possible pollutant linkages on an unremediated site determined by desk study and walk-over are summarised below for risk levels of moderate or greater.

<table>
<tr><th>Source(s)</th><th>◄ potential Impact on ►</th><th>Receptor(s)</th></tr>
<tr><td colspan="2">Made Ground associated with historical construction activities and imported fill, fly-tipped and general waste in and around the equestrian centre and stables, and ash associated with the burning of materials and waste to the west of the motel, possibly including elevated concentrations of metals, metalloids, asbestos fibres, Asbestos Containing Materials, PAH and petroleum hydrocarbons.</td><td>Site users.
Groundwater.
Aquatic ecosystems.
Surface water.</td></tr>
<tr><td colspan="2">Asbestos fibres from insulation or Asbestos Containing Materials in the buildings.</td><td>Site users.</td></tr>
<tr><td colspan="2">Ground gases (carbon dioxide and methane) from organic materials in the Made Ground below the site.</td><td>Site Users.
Buildings.
Neighbours.</td></tr>
</table>

</td></tr>
<tr><td colspan="2">FUTURE CONSIDERATIONS</td></tr>
<tr><td>Further work</td><td>

In order to confirm the actual risks to receptors and confirm the ground conditions with respect to potential geotechnical and geo-environmental risks, an appropriate intrusive investigation will need to be undertaken. This investigation will need to:

- determine the depth and distribution of Made Ground and natural strata across the site;
- determine the soil strength/density profile beneath the site;
- determine the depth/level of groundwater beneath the site;
- determine the ground gas concentrations beneath the site;
- determine CBRs to assist with pavement design;
- assess trench stability, over break potential and ‘diggability’;
- allow soil infiltration rate testing;
- allow sampling for chemical and geotechnical laboratory testing;
- allow soil classification to allow geotechnical characterisation and determine suitability for reuse of soils within earthworks;
- obtain information in terms of Aggressive Chemical Environment for Concrete Class (ACEC Class).
- Following investigation, assessment will be required to:
- update the Ground Model;
- update the Geotechnical Risk Register;
- provide Geotechnical Design recommendations;
- update the Conceptual Site Model (CSM), including identification of plausible pollution linkages;
- undertake generic quantitative risk assessment of potential chemical contaminants to establish ‘suitability for use’ under the current planning regime;
- discuss potential environmental liabilities associated with land contamination (soil, water and gas); and

</td></tr>
</table>

	• provide outline mitigation recommendations to ensure the site is 'suitable for use'.

This Executive Summary forms part of Hydrock Consultants Limited report number 21156-HYD-XX-XX-RP-GE-0001 and should not be used as a separate document.

1. INTRODUCTION

1.1 Terms of reference

In September 2021, Hydrock Consultants Limited (Hydrock) was commissioned by Prydis Scotland Limited (the Client) to undertake a Phase 1 desk study at Great Birchwood, Lytham Road, Warton, Preston, Lancashire. The nearest post code is PR4 1TE.

The site currently consists of a caravan park comprising static caravans, open ground with caravan pitches and buildings including a former restaurant, workshops and internal site infrastructure. The buildings however are now redundant and are becoming dilapidated.

Hydrock understands that the proposed development is to comprise 77 residential dwellings with associated infrastructure and landscaping. An illustrative site layout plan (KTA Architects, Drawing 2110-KTA-SM-XX-SK-A-1002), is presented in Appendix A.

The works have been undertaken in accordance with Hydrock's proposal referenced (C-21156-FP-GE-0001 dated 6th September 2021) and the Client's instructions to proceed via email.

1.2 Objectives

The works have been commissioned to support the planning application and to assist with the design of the development.

The objective of the Phase 1 Desk Study and field reconnaissance (walkover) is to formulate a Preliminary Conceptual Ground Model of the site to identify key geo-environmental and geotechnical risks to the proposed development.

1.3 Scope

The scope of the Phase 1 Desk Study comprises:

- a field reconnaissance (walkover) to determine the nature of the site and its surroundings including current and former land uses, topography, geology and hydrology;
- acquisition and review of:
  - historical Ordnance Survey maps, to identify former potentially contaminative uses shown at the site and immediately surrounding it, and an assessment of the associated contamination risks;
  - a third-party environmental report to identify flooding warning areas, local landfills, pollution incidents, abstractions, environmental permits etc. which may have had the potential to have environmental impact on the site;
  - topographical, geological and hydrogeological maps;
  - British Geological Survey (BGS) archive records;
  - regional UXB risk maps;
- development of an outline Conceptual Model (oCM), including identification of potential pollution linkages;
- a qualitative assessment of any risks identified;
- identification of possible geo-environmental risks to the development;

- commentary on UXO risk; and
- identification of possible geotechnical development constraints.

1.4 Available information

The following documents, reports etc., have been provided to Hydrock by the Client for use in the preparation of this report:

- KTA Architects. February 2021. 'Concept Proposal', Ref: SK100 (KTA, 2021a);
- KTA Architects. 15th September 2021. 'Illustrative Site Layout', Ref: 2110-KTA-SM-XX-SK-A-1002 (KTA, 2021b);
- KTA Architects. September 2021. 'Schematic Site Layout', Ref: 2110-KTA-SM-XX-SK-A-1003 (KTA, 2021c);
- Savills. 3rd September 2020. Letter to the Planning Department of Flyde Council on the Partial Review of the Flyde Local Plan; and
- Various contributors. May 2021. 'Great Birchwood, Lytham Road, Lytham: Pre-Application Proposal' presentation.

The Client has commissioned or obtained assignment of the above documents and Hydrock is entitled to full reliance upon their contents.

1.5 Regulatory context and guidance

The geo-environmental section of this report is written in broad accordance with BS 10175:2011+ A2:2017, 'Land Contamination: Risk Management' (LCRM, 2020) and the AGS (2006) 'Good Practice Guidelines for Site Investigations'.

The methods used follow a risk-based approach, the first stage of which is a Phase 1 desk study and field reconnaissance (this report), with the potential geo-environmental risk assessed qualitatively using the 'source-pathway-receptor contaminant linkage' concept to assess risk as introduced in the Environmental Protection Act 1990 (EPA, 1990).

The geotechnical section of this report is prepared in general accordance with BS EN 1997 (EC7) and BS 8004:2015. This report forms the Preliminary Sources Study Report (PSSR) as defined by DMRB CD622.

Where relevant the NHBC Standards (2021), have also been applied.

Remaining uncertainties and recommendations for further work are listed in Section 5 and Section 6.

Reference to the details of the approach and the methodologies adopted are provided in Appendix E.

2. PHASE 1 STUDY (DESK STUDY AND FIELD RECONNAISSANCE)

2.1 Data

A number of desk study sources have been used to assemble the following information. These are presented in Appendix C and Appendix D and include:

- Third-party environmental report (Groundsure report, reference HYD-8217978);
- Historical Ordnance Survey mapping;
- Zetica UXB Risk Maps (https://zeticauxo.com/downloads-and-resources/risk-maps/);

2.2 Site referencing

The site is referenced in Table 2.1 and the location is indicated in Figure 2.1 and Figure 2.2.

Table 2.1: Site referencing information

Item	Brief Description
Site name	Great Birchwood.
Site address	Lytham Road, Warton, Preston, Lancashire. The nearest postcode is PR4 1TE.
Site location and grid reference	The site is located on the north side of the A584 Lytham Road, 2km north of the River Ribble and 2.15km north east of Lytham Hospital. The National Grid Reference of the approximate centre of the site is 339499E, 428192N.

Figure 2.1: Site location
(Reproduced with permission from Groundsure)

Figure 2.2: Extract from the Ordnance Survey Map.
(OS licence 100035207).

A site location plan (Hydrock Drawing 21156-HYD-XX-XX-RP-GE-1001) is presented in Appendix A

2.3 Site description and field reconnaissance survey

A field reconnaissance survey was undertaken on 4th October 2021 to visually assess potential geotechnical hazards, contaminant sources and receptors. The weather during the field reconnaissance survey was sunny with occasional light showers.

A basic site description is presented in Table 2.2 and selected photographs are presented in Figure 2.3 to Figure 2.6. Additional photographs are presented in Appendix B.

Table 2.2: Site description

Item	Brief Description
Site access	The site was accessed from Lytham Road at the south of the site.
Site area	The site is approximately rectangular in shape and has an area of approximately 8.45 ha.
Elevation, topography and any geomorphic features	The site appears relatively flat, and there is a slight slope down from the north 9m OD to south 7m OD. Three ponds are present at the site, with the water level at an elevation approximately one metre below the rest of the site.
Present land use	The site is currently an old caravan and country park with associated disused buildings including a motel, an equestrian centre and stables. There are currently seven occupants on site.

Item	Brief Description
	The motel and the equestrian centre appear derelict and are constructed from timber and steel / corrugates metal, respectively. A workshop is present at the north of the site containing several propane cannisters and other items. The skip and recycling area are also located at the north of the site, and there is some evidence of fly tipping / site waste at some areas of the site, particularly within the stables in the equestrian centre. A building is present at the north of the site, in relatively good condition and used by the local Lytham Gun Club. Street lights and wooden electricity pylons are present on the site. Manholes and several electricity metres are also present across the site. Possible burrows are present in the equestrian centre.
Vegetation	The site is heavily vegetated, with trees / brambles / bushes / soft landscaping covering majority of the site apart from paths and roads. Vegetation on site is generally overgrown and unkempt but appears to be in a healthy condition.
General site sensitivity	The site is surrounded by fields, with the closest housing estate some 500m east of the site, a farm 300m West and the HM Land Registry office 150m south east. The site is within a designated Green Belt area and Site of Special Scientific Interest (SSSI) Impact Risk Zone.
Site boundaries and surrounding land	The entire site boundary is largely bound by trees. Beyond the north and east site boundary are fields, beyond the south is Lytham Road and another field, and beyond the west site boundary is Lytham Golf Academy. An old quale farm is present beyond the south-eastern site boundary.

A site features plan (Hydrock Drawing 21156-HYD-XX-XX-DR-GE-1002) is presented in Appendix A.

Figure 2.3: Pond present at the east of the site

Figure 2.4: Workshop with propane and butane canisters present at the north of the site

Figure 2.5: Derelict motel in the northern section of the site

Figure 2.6: Possible burrows within the equestrian centre

2.4 Site history

A study of historical Ordnance Survey maps (Appendix C) has been undertaken to identify any former land uses at the site and surrounding areas which may have geotechnical or geo-environmental implications for the proposed development. The key findings are summarised in Table 2.3.

Table 2.3: Site history review

Reference	Key features on site	Key features off-site
County Series 1845 - 1847 and 1892 1:10,560	The site comprises open fields with three ponds and part of Great Birch Wood forming the north west of the site.	Several ponds are present surrounding the site. Brook Bridge is present 295m south and Swillcot Bridge is present 362m north of the site, over Wrea Brook. Salt marshes are present south east, south and south west of the site between 485m and 800m. Mudflats are present beyond the salt marshes south of the site.
County Series 1930 1:10,560	No significant changes.	North Shoot Wood is now labelled beyond the south west of the site. The salt marshes south west and south of the site are now interconnected and have expanded southwards into the mudflats.
Provisional 1951 - 1955 1:10,560	No significant changes.	An airfield is now present 495m south east of the site. The salt marshes have further extended south east and southwards.
National Grid 1971 - 1973 1:10,000	Paths are present on site and a cycle track is present along the southern site boundary. The site is now shown as a disused RAF camp.	Poultry Farm is present beyond the south eastern site boundary. Sewage Works are present 441m south of the site. RAF camps are now present replacing the airfield 495m south east of the site.
National Grid 1989	Another pond is now present on site.	A disused campsite is present 220m west of the site.

Reference	Key features on site	Key features off-site
1:10,000	Buildings including an Equestrian and Kennelling Centre are now present on site.	The RAF camps are now shown as disused.
National Grid 2001 1:10,000	No significant changes.	The disused RAF camps are now shown as government offices.
National Grid 2021 1:10,000	The northern section of the site appears to have been developed, with more paths and buildings.	No significant changes.

2.5 Geology

The general geology of the site area is shown on the 1:10,000 British Geological Survey (BGS) map extract reproduced as part of the Groundsure report and is summarised in Table 2.4. Extracts from the map are shown in Figure 2.7 and Figure 2.8.

Table 2.4: Geology

Ref. for Figures	Location	Stratigraphic Name	Description
Artificial and Made Ground			
1	95m south	Made Ground (undivided)	Artificial deposit.
Superficial Deposits (Figure 2.7)			
1	On site	Glacial Till	Clay, sandy, gravelly, silty.
2	41m south east	Tidal Flat Deposits	Silt, clay and sand.
Solid Geology (Figure 2.8)			
1	On site.	Breckells Mudstone Member	Carnian - Ladinian age mudstone

Figure 2.7: Superficial deposits.
(Reproduced with permission from Groundsure)

Figure 2.8: Solid geology.
(Reproduced with permission from Groundsure)

Made Ground is anticipated at the site associated with the existing and previous land uses.

Borehole logs from the BGS archive in close vicinity to the site are marked as confidential and therefore, have not been available for review.

A borehole is present approximately 700m to the southeast of the site in the same geological sequence, and this shows 20.4m of Glacial Till comprising sandy clay, with sand lenses, over weathered Mudstone with traces of gypsum.

2.6 Hydrogeology

2.6.1 Aquifer designations

Based on the inferred geological sequence presented in Section 2.5 and the Environment Agency's interactive aquifer designation map, the aquifer system presented in Table 2.5 applies.

Table 2.5: Aquifer system

Stratum	Aquifer Designation	Comments
Made Ground	Unclassified/unproductive	Artificial ground not included in the classification system. Likely to be moderate to high porosity because of unconsolidated nature, but permeability is likely to be constrained to low, or low to moderate because of poor sorting.
Superficial Deposits		
Till	Secondary undifferentiated Aquifer	Variable permeability with a generally unconsolidated mixture of low permeability clay and higher permeability sand, gravel and boulders. Mixed flow type.
Solid Geology		
Breckells Mudstone Member	Secondary B Aquifer	Low permeability mudstone with fracture flow type.

2.6.2 Groundwater abstraction

There are no active licensed groundwater abstractions within 1km of the site.

2.6.3 Groundwater source protection zones and groundwater vulnerability

The site is not within a groundwater Source Protection Zone (SPZ).

2.6.4 Groundwater levels, recharge, and flow

Shallow groundwater is likely to be present within the Till, with a deeper groundwater body within the Breckells Mudstone Member. Low permeability clays within the Till and the low permeability nature of the Breckells Mudstone Member may inhibit vertical connection between these two potential groundwater bodies.

Recharge to the shallow groundwater may occur directly from the surface through areas of open grassland, however areas of the site covered in hardstanding may limit direct recharge to the aquifer. Anthropogenic sources of recharge (i.e., leaky sewers / water mains) may also be of local significance.

Groundwater beneath the site is likely to drain towards the mudflats south of the site. However, the generally low permeability of the mudstone is such that the flux of water is likely to be small.

2.6.5 Groundwater quality

The groundwater body beneath the site (West Lancashire Quaternary Sand and Gravel Aquifers) is currently (2019 Cycle 2) classified under the Water Framework Directive as 'good'.

2.6.6 Groundwater flooding

The environmental data report indicates a low risk of groundwater flooding over the majority of the site, with a moderate to high risk of groundwater flooding in a small area in the south east corner of the site.

2.7 Hydrology

2.7.1 Surface water system and drainage

The surface water features in the vicinity of the site are listed in Table 2.6.

Table 2.6: Surface water features

Feature	Location Relative to Site
Pond	On site and surrounding site.
Drains	North west corner of site and 288m west.
Wrea Brook	Closest point is 350m south east.
Multiple drains leading to River Ribble	800m to 1.5km south.
Main drain leading to River Ribble	1.1km south west.
River Ribble leading to the Ribble and Alt Estuaries	2km south.

2.7.2 Surface water abstractions and discharges

There are no active licensed surface water abstractions within 1km of the site.

There are four active licensed surface water discharges within 1km of the site. They are listed in Table 2.7.

Table 2.7: Surface water discharges

Location Relative to Site	Purpose of Discharge	
267m south east	Sewage Storm Overflow	Sewage discharges Receiving water: Wrea Brook
	Pumping Station	
419m east	Sewage Storm Overflow	Sewage discharges Receiving water: River Ribble
	Pumping Station	

2.7.3 *Surface water quality*

Reference to the Environment Agency web site shows the site is located within the catchment of Savick Brook and Flyde South Drains, with the specific river water body being Wrea Brook. The current (2019 cycle 2) overall status under the Water Framework Directive is 'moderate'.

The water body is currently 'moderate' status due to moderate or less Mitigation Measures Assessment, and failed Mercury and its Compounds and Polybrominated Diphenyl Ethers (PBDE) levels. The objective is for Mitigation Measures Assessment to be 'good' by 2027, while the objectives for chemical levels have not been set yet.

2.7.4 *Surface water flooding*

The desk study information indicates the southern-most section of the proposed development along the site boundary is in Flood Zone 3 (with a high/significant probability of flooding from rivers or the sea).

No further consideration of flood risk is undertaken in this report. A separate flood risk assessment has been undertaken (ref: 21156-HYD-XX-XX-RP-FR-0001).

2.8 Coastal / Tidal Waters

Salt marshes are present south of the site from 560m with drains leading to the River Ribble, which subsequently leads to the Ribble and Alt Estuaries.

Groundwater beneath the site may be affected by saline waters from the Ribble and Alt Estuaries and groundwater levels may vary under tidal influence from the Irish Sea.

2.9 Mining and mineral extraction

The site is not within an area of recorded mining and mining risk is not considered further in this report.

2.10 Natural ground instability

The Groundsure report indicates a very low risk of ground instability as a result of shrink swell clays, running sands, collapsible deposits and landslides, and a negligible risk of ground instability as a result of compressible deposits and ground dissolution of soluble rocks at the site.

Trees are present around the site boundaries and sporadically across the site. Cohesive deposits in the Glacial Till may be affected by potential for shrink-swell ground movements in clays as a result of changes in moisture content from removal or growth of trees.

Made Ground is anticipated beneath the site relating to the sites use as a caravan park with associated buildings and infrastructure. This represents a geotechnical risk due to the presence of heterogeneous Made Ground and foundations will need to be deepened to below the Made Ground.

2.11 Waste management

There are no current waste management sites recorded within 250m of the site.

There is one historical waste management sites recorded within 250m of the site, as detailed in Table 2.8.

Table 2.8: Waste management sites

Site Name and Location	Details
29m south	Status: Closed. Operational dates: 1989 Type: Scrap yard

2.12 Regulatory Information

Information in the GroundSure report (Appendix D), relating to various regulatory controls has been reviewed, with a summary presented below in Table 2.9.

Table 2.9: Regulatory information within 500m of the site

Regulatory Data	Distance from Site	Details	Potential Risk	Comment
Discharge Consents	N/A	No entries on pollutant discharges were recorded within 500m of the site.	No	-
Local Authority Pollution Prevention and Controls	N/A	No entries on Local Authority Pollution releases were recorded within 500m of the site.	No	-
Pollution Incidents	127m south	September 2009, storm sewage, Category 2 - Significant incident to land and water and Category 3 - Minor incident to air.	No	Due to being downgradient of the site
	234m south east	July 2005, crude sewage, Category 2 - Significant incident to water and Category 4 - no impact to land and air.	No	Due to its distance from the site and due to being downgradient of the site
	280m south east	July 2003, hydraulic oils, Category 3 - Minor impact to water and Category 4 - no impact to land and air.		
	293m north east	April 2014, silage liquors, Category 2 - Significant incident to water, Category 3 - Minor incident to land, and Category 4 - no impact to air.	No	Due to its distance from the site.
Trade Directory Entries	4m east 95m west	Electricity substation.	Yes	Due to its proximity to the site.
	52m east	Poultry farm	No	Unlikely to be a major source of contamination.
	52m south 220m south east	Unspecified works and disused sewage works.	No	Due to being downgradient of the site
	225m south east	Sewage pumping station	No	
Fuel Station Entries	46m south east	Closed Petrol station	No	Due to being downgradient of the site
Control of major accident	N/A	No entries on COMAH sites were recorded within 500m of the site.	No	-

Regulatory Data	Distance from Site	Details	Potential Risk	Comment
hazards sites (COMAH)				
Registered radioactive substances	N/A	No entries on registered radioactive substances were recorded within 500m of the site.	No	-
Notification of installations handling hazardous substances	N/A	No entries on notification of installations handling hazardous substances were recorded within 500m of the site.	No	-

2.13 Natural soil chemistry

Information contained within the environmental report (Appendix D) gives indicative (estimated) concentration values for the natural soils at the site for a selection of Contaminants of Potential Concern (CoPC). These have been reproduced in Table 2.10.

Table 2.10: Natural soil chemistry

Element	Arsenic	Cadmium	Chromium	Lead	Nickel
Concentration (mg/kg)	15	1.8	90 - 120	100	15 - 30

2.14 Evidence of contamination

2.15 Radon

The radon risk is reported in the environmental report.

The guidance indicates that the site is not in a Radon Affected Area and no radon protection measures are required.

2.16 Unexploded ordnance (UXO)

In general accordance with CIRIA Report C681 (Stone et al 2009) a non-specialist UXO screening exercise has been undertaken for the purposes of ground investigation and is presented in Table 2.11 .

Table 2.11: Non-specialist UXO screening (for the purposes of ground investigation)

Data	Comment	Further Assessment Required
Site History	The site is a former RAF camp. A former airfield and RAF camp was present 495m south east of the site, but these were present post WWII.	Yes
Post War Development	There is no potential bomb damage noted on the post war OS mapping.	No
Geology Type	The ground conditions comprise Glacial Till over the Breckells Mudstone Member. There is the potential that UXO, if present, would remain undetected.	Yes

Data	Comment	Further Assessment Required
Surface Cover during WWI	The surface cover during WWII comprised open fields and woodland. There is the potential that UXO, if present, would remain undetected.	Yes
Indicator of Aerial Delivered UXO	Screening against the regional bomb risk map (Preston) **Appendix D** indicates the site to be in an area where the bomb risk is low.	No

The non-specialist UXO screening exercise has indicated further assessment is required. A specialist UXO risk assessment in accordance with CIRIA Report C681 is recommended.

A copy of the unexploded bomb risk map is included in Appendix D.

3. OUTLINE CONCEPTUAL MODEL

3.1 Introduction

The outline Conceptual Model (oCM) incorporates evidence from the site walkover and the Desk Study. The formulation of an outline Conceptual Model is a key component of the LCRM methodology. The oCM incorporates a ground model of the site physical conditions and an exposure model of the possible contaminant linkages; it forms the basis for Generic Quantitative Risk Assessment (GQRA) in accordance with current guidelines.

3.2 Ground model

The preliminary ground model presented in Section 2 provides an understanding of the ground conditions and is the basis for preparing the preliminary geotechnical hazard assessment (Section 3.3) and the preliminary geo-environmental exposure model (Section 3.4).

3.3 Geotechnical hazard identification

3.3.1 Context

The preliminary geotechnical hazard identification has been undertaken in accordance with the general requirements of ICE/DETR Document 'Managing Geotechnical Risk' and the HE documents HD 41/15 and CD 622.

The following section sets out the identified geotechnical hazards and the development elements potentially affected (see Table F.1 in **Appendix F** for further information).

3.3.2 Plausible geotechnical hazards

Plausible geotechnical hazards identified at the site are:

- Uncontrolled Made Ground (variable strength and compressibility).
- Soft / loose compressible ground (low strength and high settlement potential).
- Shrinkage / swelling of the clay fraction of soils under the influence of vegetation.
- Variable lateral and vertical changes in ground conditions.
- Attack of buried concrete by aggressive ground conditions.

- Obstructions.
- Shallow groundwater.
- Changing groundwater conditions.
- Risk from flooding.
- Running sands and / or loose Made Ground, leading to difficulty with excavation and collapse of side walls.

3.3.3 Potential development elements affected

Development elements potentially affected by geotechnical hazards are:

- Buildings – foundations.
- Buildings – floor Slabs
- Roads and pavements.
- Services.
- Gardens
- Construction staff, vehicles and plant operators.
- Concrete below ground.

Health and safety risks to site Contractors and maintenance workers have not been assessed during these works and will need to be considered separately during design.

The above plausible geotechnical hazards and development elements affected have been carried forward for investigation and assessment.

3.4 Geo-environmental exposure model

3.4.1 Context

The preliminary exposure model is used to identify geo-environmental hazards and to establish potential pollution linkages, based on the source-pathway-receptor (SPR) approach.

A viable pollution linkage requires all the components of an SPR to be present. If only one or two are present, there is no linkage and no further assessment is required.

3.4.2 Potential contaminants

For the purpose of this assessment the potential contaminants have been separated according to whether they are likely to have originated from an on-site or off-site source.

3.4.2.1 Potential on-site sources of contamination

- Made Ground associated with historical construction activities and imported fill, fly-tipped and general waste in and around the equestrian centre and stables, and ash associated with the burning of materials and waste to the west of the motel, possibly including elevated concentrations of metals, metalloids, asbestos fibres, Asbestos Containing Materials, PAH and petroleum hydrocarbons (S01).
- Asbestos Containing Materials within existing buildings present on site (S02).
- Ground gases (carbon dioxide and methane) from organic materials in the Made Ground (S03).

- Naturally occurring elevated concentrations of metal (arsenic and vanadium) within soils (S04).

3.4.2.2 *Potential off-site sources of contamination*

- PCBs and oils from transformers in the electricity sub-station 4m east and 95m west of the site (S05).
- Organic contaminants and pathogenic contaminants such as faecal coliforms from the Poultry Farm 52m east of the site (S06).

3.4.3 *Potential receptors*

The following potential receptors in relation to the proposed land use have been identified.

- People (neighbours, site end users) (R01).
- Development end use (buildings, utilities and landscaping) (R02).
- Groundwater: Secondary undifferentiated aquifer status of the Glacial Till and Secondary B aquifer status of the Breckells Mudstone Member (R03).
- Surface water: on-site pond and drain and surrounding ponds, drains and the River Ribble (R04).
- Aquatic ecosystems (R05)
- Water supply pipes (R06)

3.4.4 *Potential pathways*

The following potential pathways have been identified.

- Ingestion, skin contact, inhalation of dust and outdoor air by people (P01).
- Methane and carbon dioxide ingress via permeable soils and/or construction gaps (P02).
- VOC and petroleum hydrocarbon vapour ingress via permeable soils and/or construction gaps (P03).
- Migration of contaminant via leachate migration through the unsaturated zone in the Glacial Till (P04).
- Migration of contaminant from the groundwater within the Glacial Till to the groundwater within the Breckells Mudstone Member aquifer (P05).
- Abstraction and consumption by people (or other utilisation) of groundwater (P06).
- Surface water via overland flow (P07).
- Surface water via base flow from groundwater (P08).

Health and safety risks to site development contractors and maintenance workers have not been assessed as part of this study and will need to be considered separately.

The above sources, pathways and receptors have been considered as part of the Preliminary Risk Assessment in accordance with LCRM (2019), are considered to be plausible in the context of this site and have been carried forward for investigation and assessment. An assessment of the Source – Pathway – Receptor linkages is undertaken following the assessment is presented in Appendix G (Table G.2).

4. DESK STUDY CONCLUSIONS

4.1 Geotechnical conclusions

The following plausible geotechnical risks are identified:

- Variable Made Ground - settlement or differential settlement of foundations, floor slabs, roads and infrastructure elements.
- Low strength, compressible ground - risk of shear failure and excessive settlement of foundations, roads and infrastructure elements.
- Shrinkage / swelling of clay - settlement / heave of foundations, especially where cohesive deposits are located within the influence of trees and vegetation.
- Attack of buried concrete by aggressive ground conditions – the development site may contain Made Ground and potentially sulphate bearing soils.
- Potential for buried obstructions and the risk of instability of excavations with the impact on construction staff, vehicles and plant operators.
- Risk from groundwater and surface water flooding.
- Running sands within the Glacial Till, loose Made Ground and shallow groundwater, leading to difficulty with excavation due to trench instability.
- Potential for unforeseen ground conditions and risks associated with limited data.

These plausible risks require further investigation and assessment (see Section 6).

4.2 Geo-environmental conclusions

Based on historical and current land uses and in accordance with the processes set out in Appendix E:

- It is considered that it is unlikely that the site would be classified as Contaminated Land under Part 2A of the EPA 1990.
- The overall risk from land contamination at the site is considered to be low to moderate for the current development, as parts of the site are covered by soft landscaping which allows for contact with soils and significant rainwater infiltration leading to leaching.
- The overall risk for a redeveloped site is assessed to be moderate, with some specific potentially high risks, but this would need to be confirmed by appropriate intrusive investigation, testing and assessment of the results of the investigation.

The possible pollutant linkages (for risk levels of moderate or greater) in an unremediated redeveloped site, as determined by the desk study and walk-over, are summarised in Table 4.1.

Table 4.1: Possible Pollutant Linkages (for Risk Levels of Moderate or Greater)

Source(s)	◄ potential Impact on ►	Receptor(s)
Made Ground associated with historical construction activities and imported fill, fly-tipped and general waste in and around the equestrian centre and stables, and ash associated with the burning of materials and waste to the west of the motel, possibly including elevated concentrations of metals, metalloids, asbestos fibres, Asbestos Containing Materials, PAH and petroleum hydrocarbons.		Site users. Groundwater. Aquatic ecosystems. Surface water.
Asbestos fibres from insulation or Asbestos Containing Materials in the buildings.		Site users.
Ground gases (carbon dioxide and methane) from organic materials in the Made Ground below the site.		Site Users. Buildings. Neighbours.

These possible pollutant linkages require further investigation and assessment (see Section 6).

5. UNCERTAINTIES AND LIMITATIONS

5.1 Site-specific comments

5.2 General comments

Hydrock Consultants Limited (Hydrock) has prepared this report in accordance with the instructions of Prydis Scotland Limited (the Client), by e-mail dated 20th September 2021 under the terms of appointment for Hydrock, for the sole and specific use of the Client and parties commissioned by them to undertake work where reliance is placed on this report. Any third parties who use the information contained herein do so at their own risk. Hydrock shall not be responsible for any use of the report or its contents for any purpose other than that for which it was prepared or for use of the report by any parties not defined in Hydrock's appointment.

This report details the findings of work carried out in October 2021. The report has been prepared by Hydrock on the basis of available information obtained during the study period. Although every reasonable effort has been made to gather all relevant information, not all potential environmental constraints or liabilities associated with the site may have been revealed.

Information provided by third parties has been used in good faith and is taken at face value; however, Hydrock cannot guarantee its accuracy or completeness.

Where the existing report(s) prepared by others have been provided by the Client, it is assumed that these have been either commissioned by the Client, or can be assigned to the Client, and can be relied upon by Hydrock. Should this not be the case Hydrock should be informed immediately as additional work may be required. Hydrock is not responsible for any factual errors or omissions in the supplied data, or for the opinions and recommendations of others. It is possible that the conditions described may have since changed through natural processes or later activities.

The work has been carried out in general accordance with recognised best practice. The various methodologies used are referenced in Appendix E. Unless otherwise stated, no assessment has been made for the presence of radioactive substances or unexploded ordnance. Where the phrase 'suitable for use' is used in this report, it is in keeping with the terminology used in planning control and does not imply any specific warranty or guarantee offered by Hydrock.

Whilst the preliminary risk assessment process has identified potential risks to construction workers, consideration of occupational health and safety issues is beyond the scope of this report.

The non-specialist UXO screening has been undertaken for the purposes of ground investigation only (i.e., low risk activity in accordance with CIRIA Report C681). Further assessment should be undertaken with regards to other higher risk activities e.g., construction.

Please note that notwithstanding any site observations concerning the presence or otherwise of archaeological sites, asbestos-containing materials or invasive weeds, this report does not constitute a formal survey of these potential constraints and specialist advice should be sought.

Any site boundary line depicted on plans does not imply legal ownership of land.

6. RECOMMENDATIONS FOR FURTHER WORK

6.1 Ground investigation objectives

In order to confirm the actual risks to receptors and confirm the ground conditions with respect to potential geotechnical and geo-environmental risks, an appropriate intrusive investigation will need to be undertaken. This investigation will need to:

- determine the depth and distribution of Made Ground and natural strata across the site;
- determine the soil strength/density profile beneath the site;
- determine the depth/level of groundwater beneath the site;
- determine the ground gas concentrations beneath the site;
- determine CBRs to assist with pavement design;
- assess trench stability, over break potential and 'diggability';
- allow soil infiltration rate testing;
- allow sampling for chemical and geotechnical laboratory testing;
- allow soil classification to allow geotechnical characterisation and determine suitability for reuse of soils within earthworks;
- obtain information in terms of Aggressive Chemical Environment for Concrete Class (ACEC Class).

Following investigation, assessment will be required to:

- update the Ground Model;
- update the Geotechnical Risk Register;
- provide preliminary Geotechnical Design recommendations;
- update the Conceptual Site Model (CSM), including identification of plausible pollution linkages;
- undertake generic quantitative risk assessment of potential chemical contaminants to establish 'suitability for use' under the current planning regime;
- discuss potential environmental liabilities associated with land contamination (soil, water and gas); and
- provide outline mitigation recommendations to ensure the site is 'suitable for use'.

Appendix A Drawings

3-bedroom
Units: 36 (50%)*

4 bedroom
Units: 27 (37.5%)

5 Bedroom
Units: 9 (12.5%)

Total Units: 72
Total GIFA: 106,298ft²

*To meet policy requirements

Contractors to check all dimensions on drawings.

Any discrepancies must be reported to KTA Architects Ltd or the contract administrator before proceeding.

Do not scale except for planning purposes, work to figured dimensions.

This drawing must be read in conjunction with all relevant consultants drawings.

Revision Schedule

Revision Number	Revision Date	Revision Description	Issued/ Authorised by
A	Sep 2021	Public Consultation	

WORK IN PROGRESS

KTA
Architects | Urban Designers

Kensington Court, Woodwater Park, Pynes Hill, Exeter, EX2 5TY

Tel: 01392 360338
Email: kt@kta.uk.com
Web: www.kta.uk.com

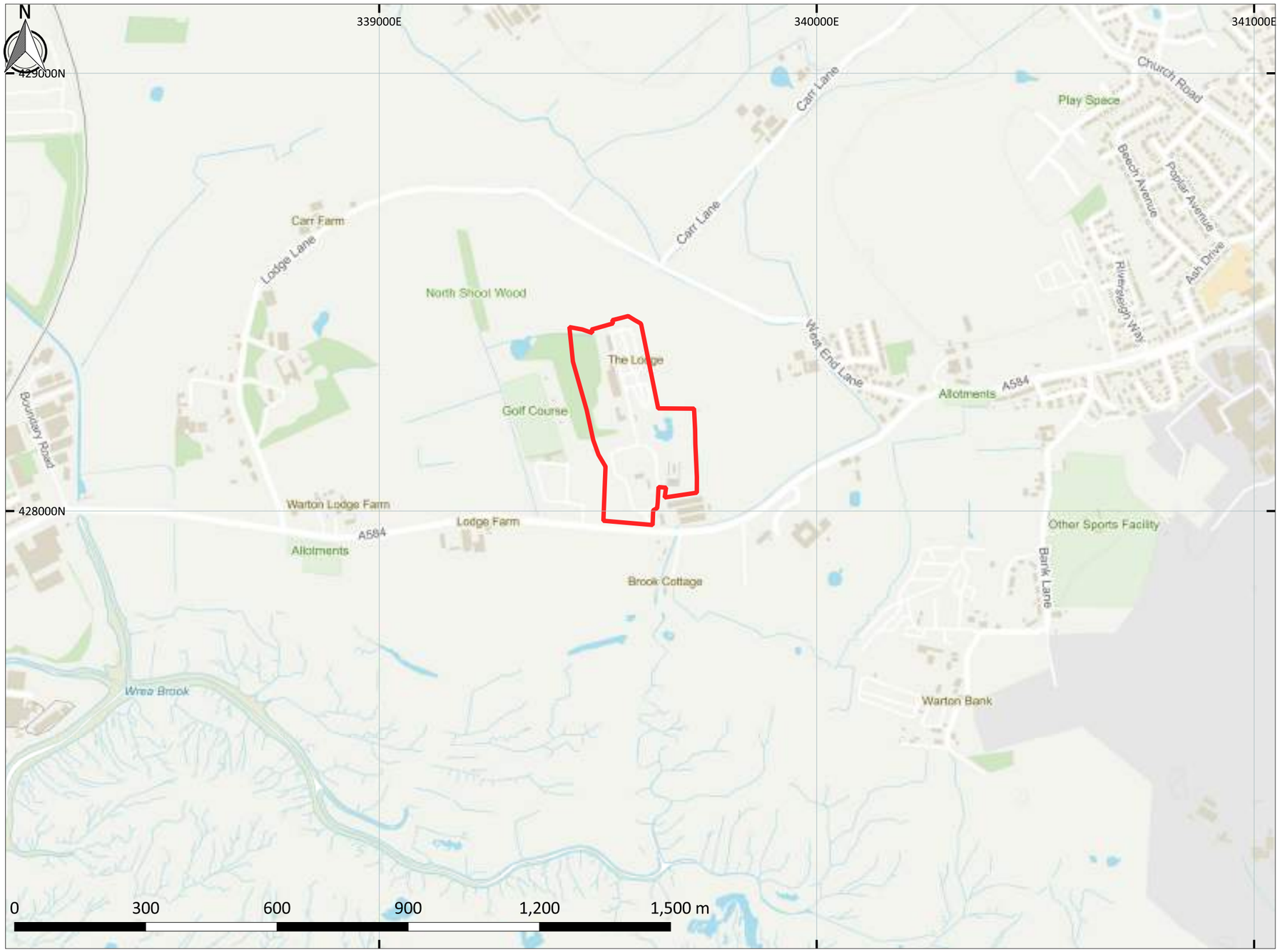
Project
Prydis - Lytham St Annes

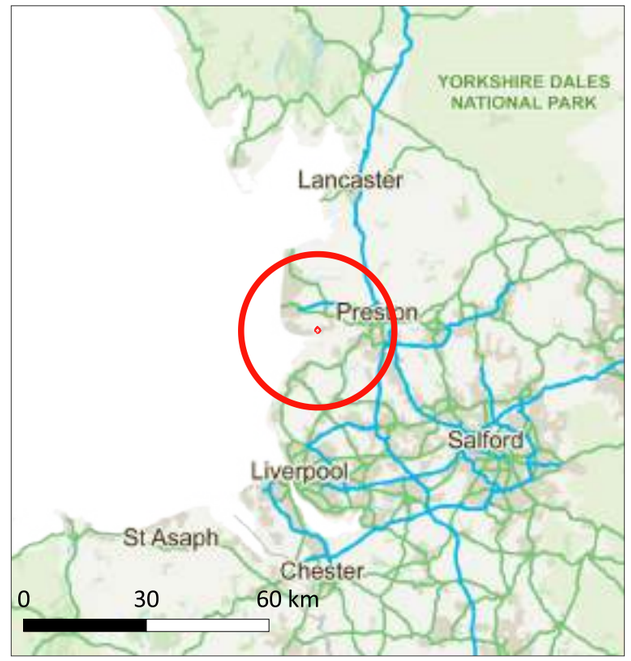
Title
Schematic Site Layout

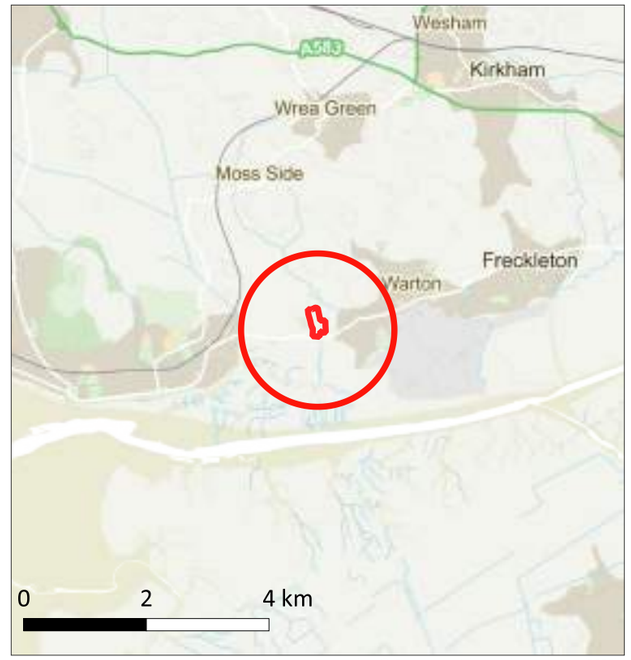
Author	Chckd by	Scale	
TG	AC	1 : 1000	@ A1

Project 2110 | Status Pre-Construction

Drawing number
2110-KTA-SM-XX-SK-A-1003 | A







KEY PLAN

Site Boundary

NOTES

1. Contains OS data © Crown copyright and database right (2021)

REVISIONS

REV.	DRAWN BY INITIALS	CHECKED BY INITIALS	DATE	REVISION NOTES/COMMENTS
P01	LH	AC	29/09/21	First issue

Hydrock

TITLE
SITE LOCATION PLAN

HYDROCK PROJECT NO.
21156

SCALE @ A3
1:10,000

CLIENT
Prydis Scotland Limited

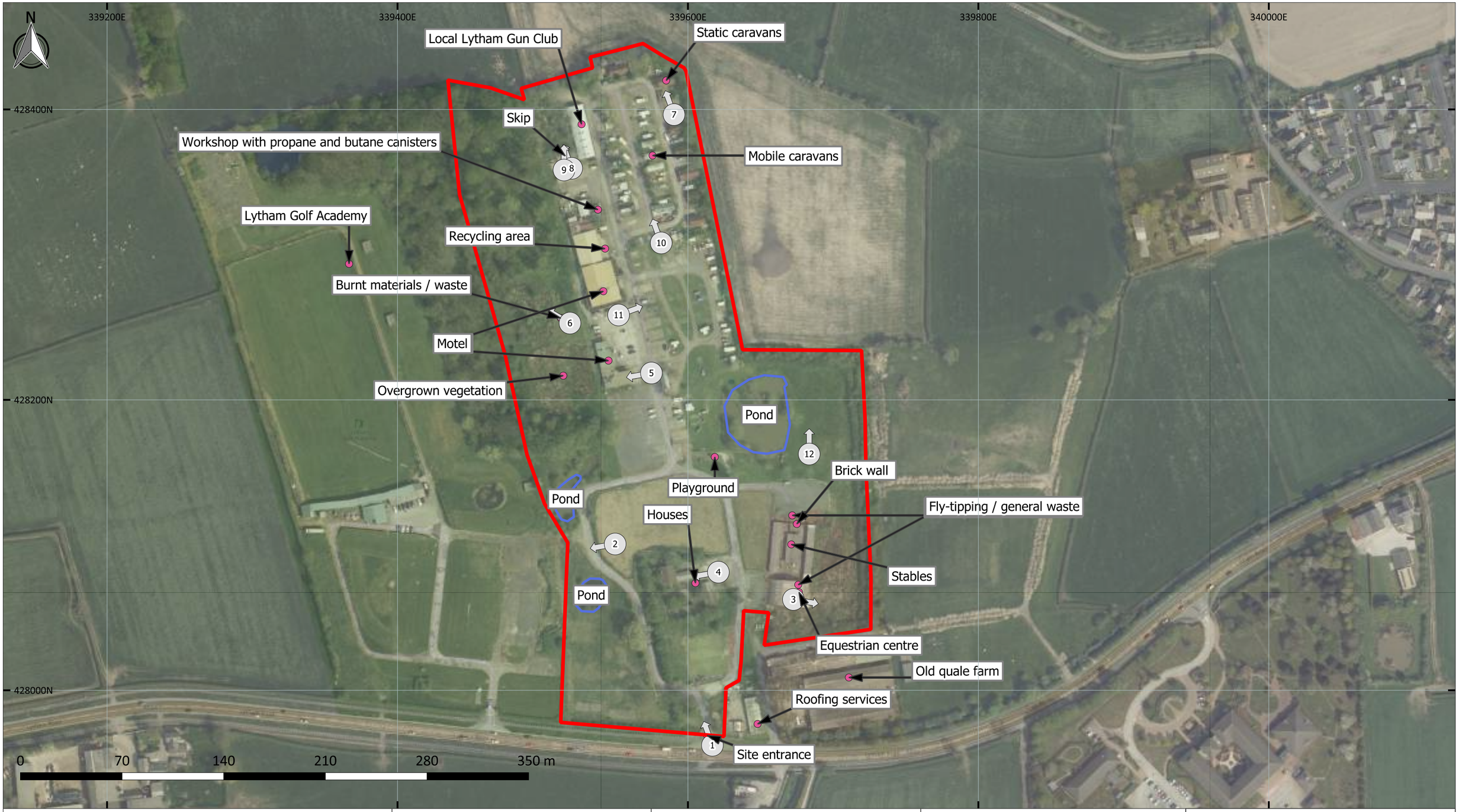
PURPOSE OF ISSUE
SUITABLE FOR INFORMATION

STATUS
S2

PROJECT
Lytham Care Village

DRAWING NO.
21156-HYD-XX-XX-DR-GE-1001

REVISION
P01



KEY PLAN

Photo Locations

Current Site Features (Points)

NOTES

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REVISIONS

REV.	DRAWN BY INITIALS	CHECKED BY INITIALS	DATE	REVISION NOTES/COMMENTS
P01	LH	AC	04/10/21	First issue

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TITLE
SITE FEATURES PLAN

HYDROCK PROJECT NO.
21156

SCALE @ A3
1:2,500

CLIENT
Prydis Scotland Limited

PURPOSE OF ISSUE
SUITABLE FOR INFORMATION

STATUS
S2

PROJECT
Lytham Care Village

DRAWING NO.
21156-HYD-XX-XX-RP-GE-1002

REVISION
P01

Appendix B Field Reconnaissance Photographs

Desk Study Photograph 1	
Date: 04/10/2021	
Direction Photograph Taken: Looking north from south	
Description: Site entrance off Lytham Road	

Desk Study Photograph 2	
Date: 04/10/2021	
Direction Photograph Taken: Looking west from east	
Description: Electricity box	

Desk Study Photograph 3	
Date: 04/10/2021	
Direction Photograph Taken: Looking east from west	
Description: Fly tipping / site waste in the equestrian centre	

Desk Study Photograph 4	
Date: 04/10/2021	
Direction Photograph Taken: Looking west from east	
Description: Outside toilet as part of disused houses on site.	

Desk Study Photograph 5	
Date: 04/10/2021	
Direction Photograph Taken: Looking west from east	
Description: Building in poor condition on site	

Desk Study Photograph 6	
Date: 04/10/2021	
Direction Photograph Taken: Looking north west from south east	
Description: Site waste on site with evidence of burning	

Desk Study Photograph 7	
Date: 04/10/2021	
Direction Photograph Taken: Looking north from south	
Description: Chickens on site belonging to an occupant	

Desk Study Photograph 8	
Date: 04/10/2021	
Direction Photograph Taken: Looking north from south	
Description: Derelict infrastructure on site	

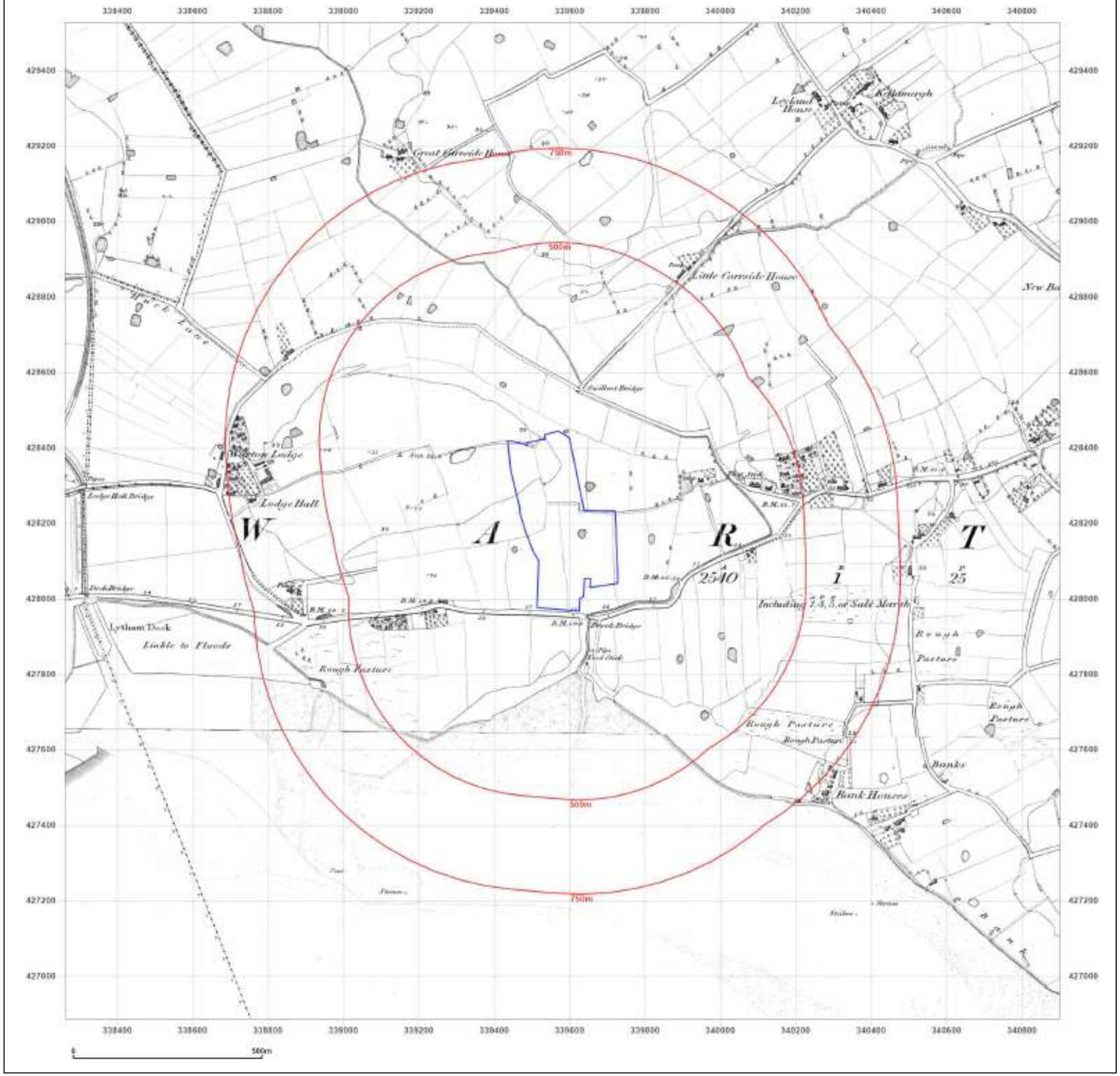
Desk Study Photograph 9	
Date: 04/10/2021	
Direction Photograph Taken: Looking north from south	
Description: Skip on site	

Desk Study Photograph 10	
Date: 04/10/2021	
Direction Photograph Taken: Looking north from south	
Description: Storage sheds on site	

Desk Study Photograph 11	
Date: 04/10/2021	
Direction Photograph Taken: Looking east from west	
Description: Wooden pylons on site	

Desk Study Photograph 12	
Date: 04/10/2021	
Direction Photograph Taken: Looking north from south	
Description: Overgrown vegetation on site	

Appendix C Historical Ordnance Survey Maps



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Report Ref: HYD-8217977
Grid Ref: 339580, 428206

Map Name: County Series

Map date: **1845-1847**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed 1844
Revised N/A
Edition 1847
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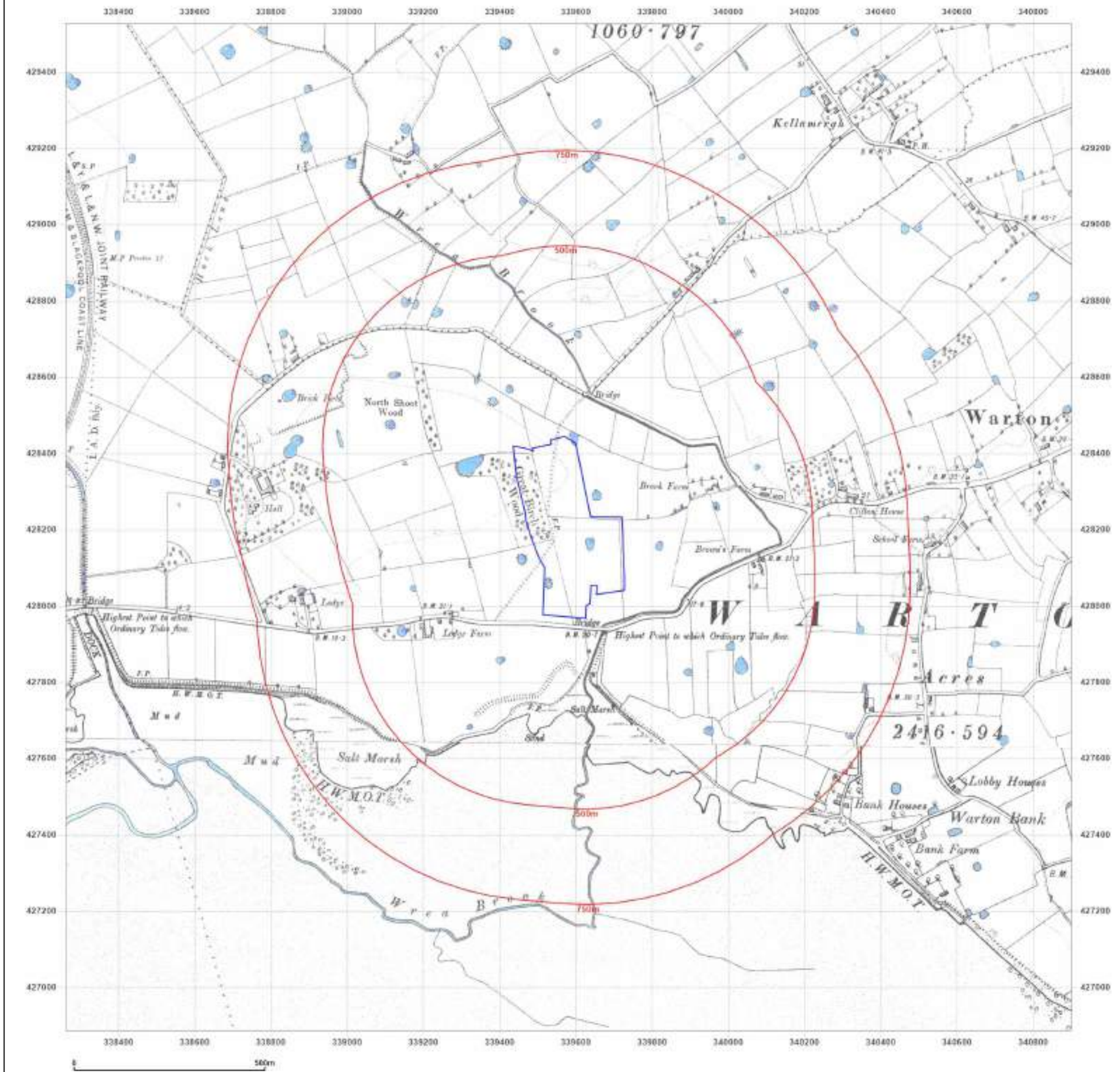

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Edition N/A
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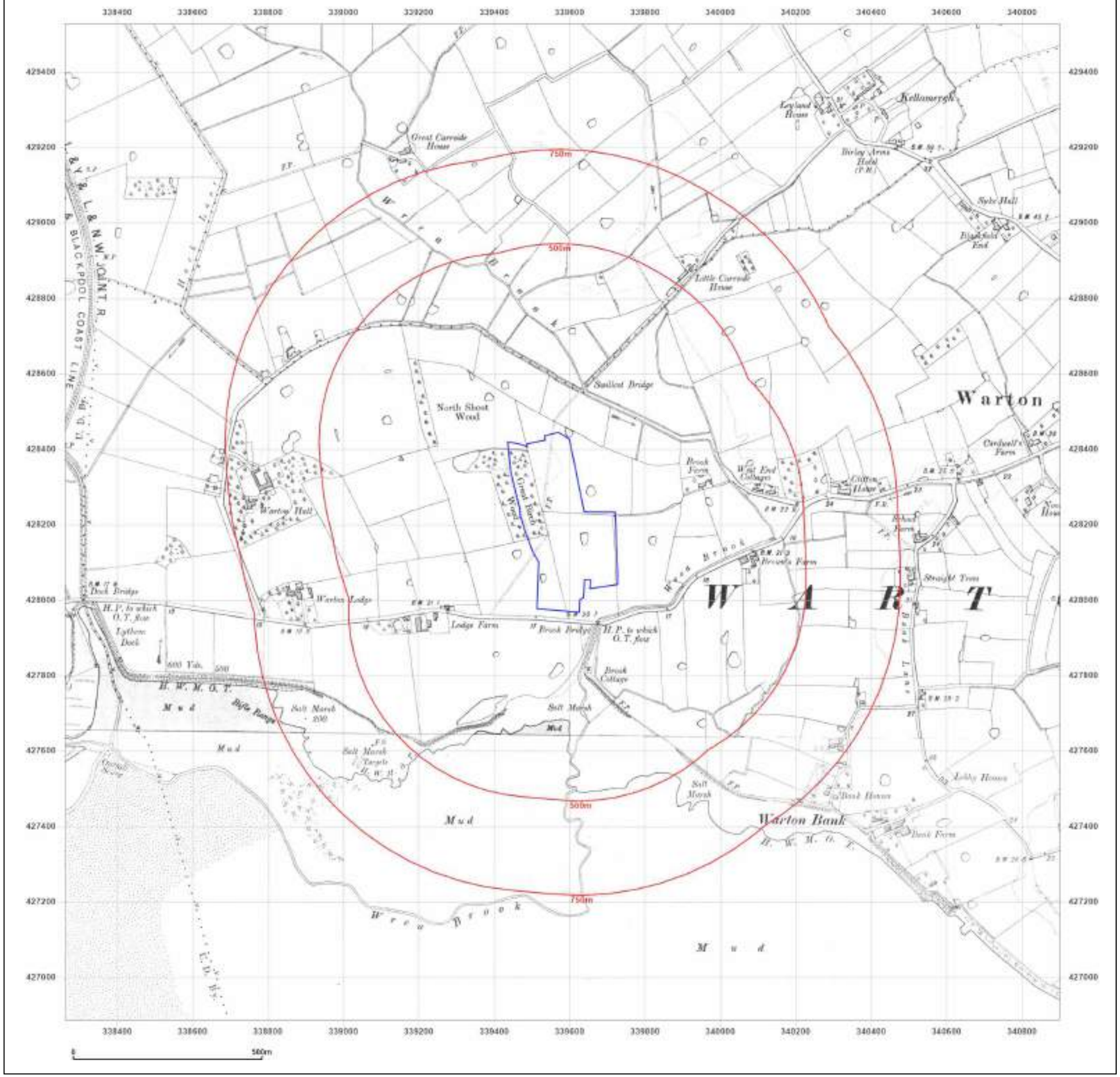

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Report Ref: HYD-8217977
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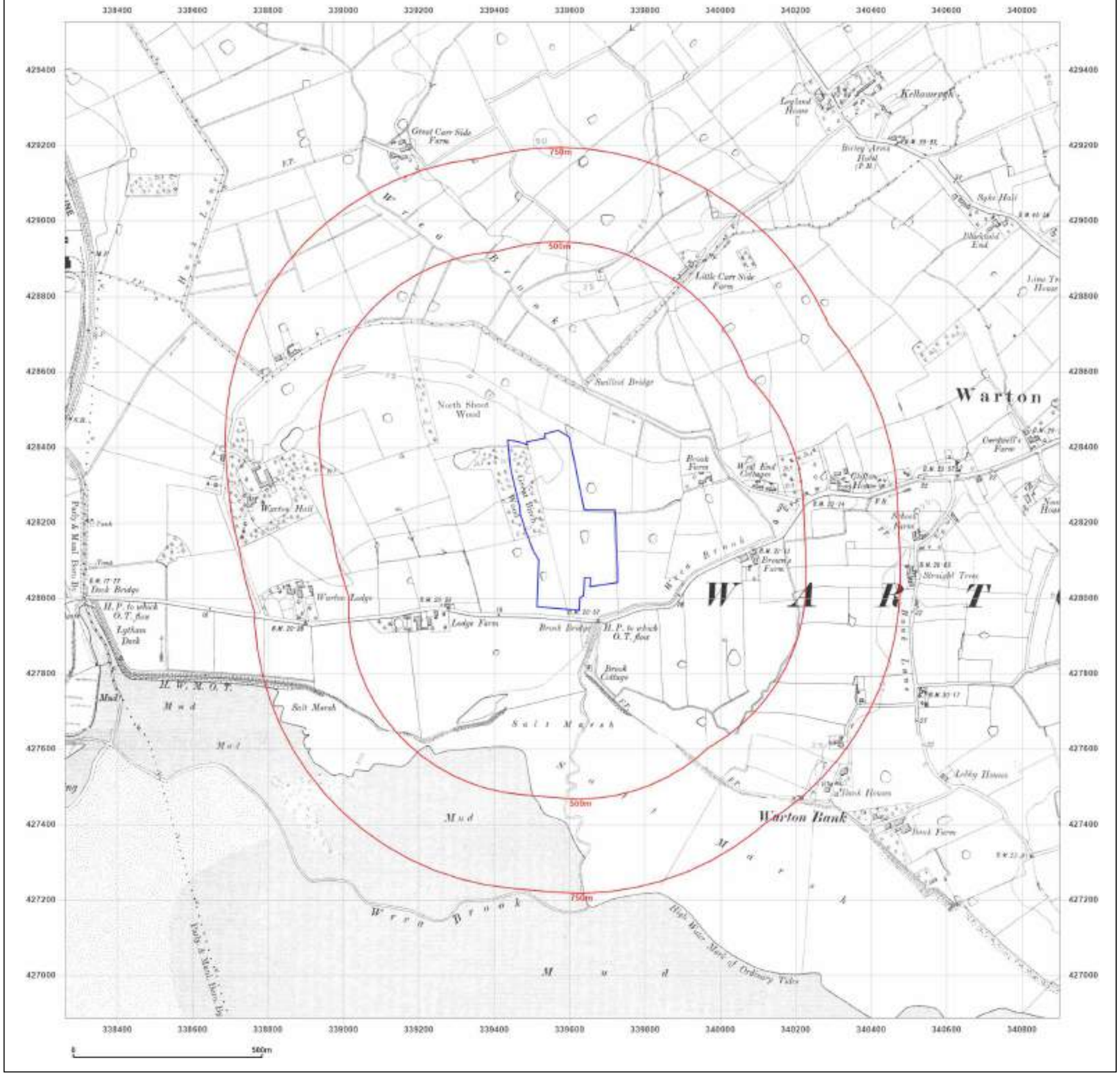

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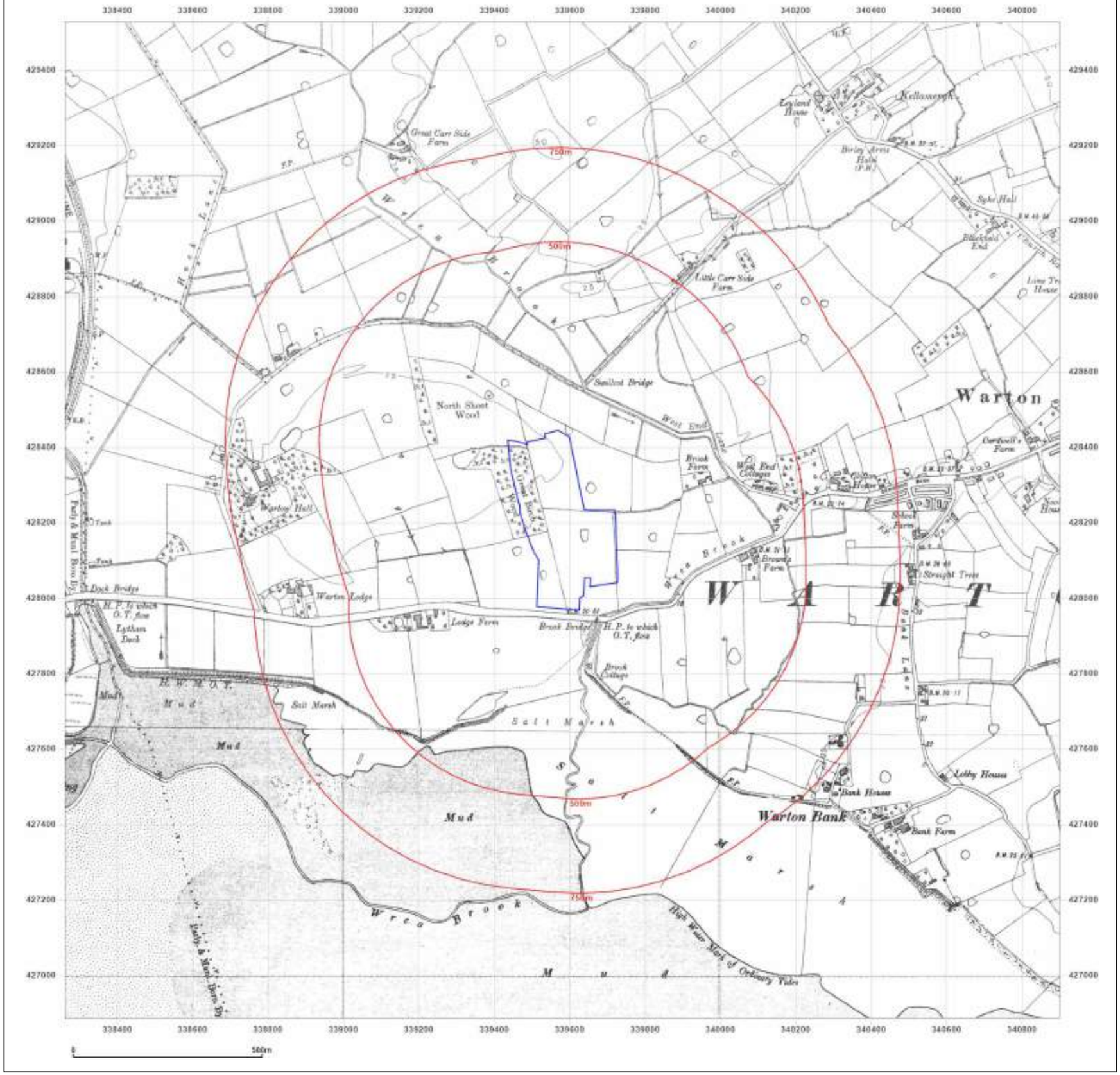

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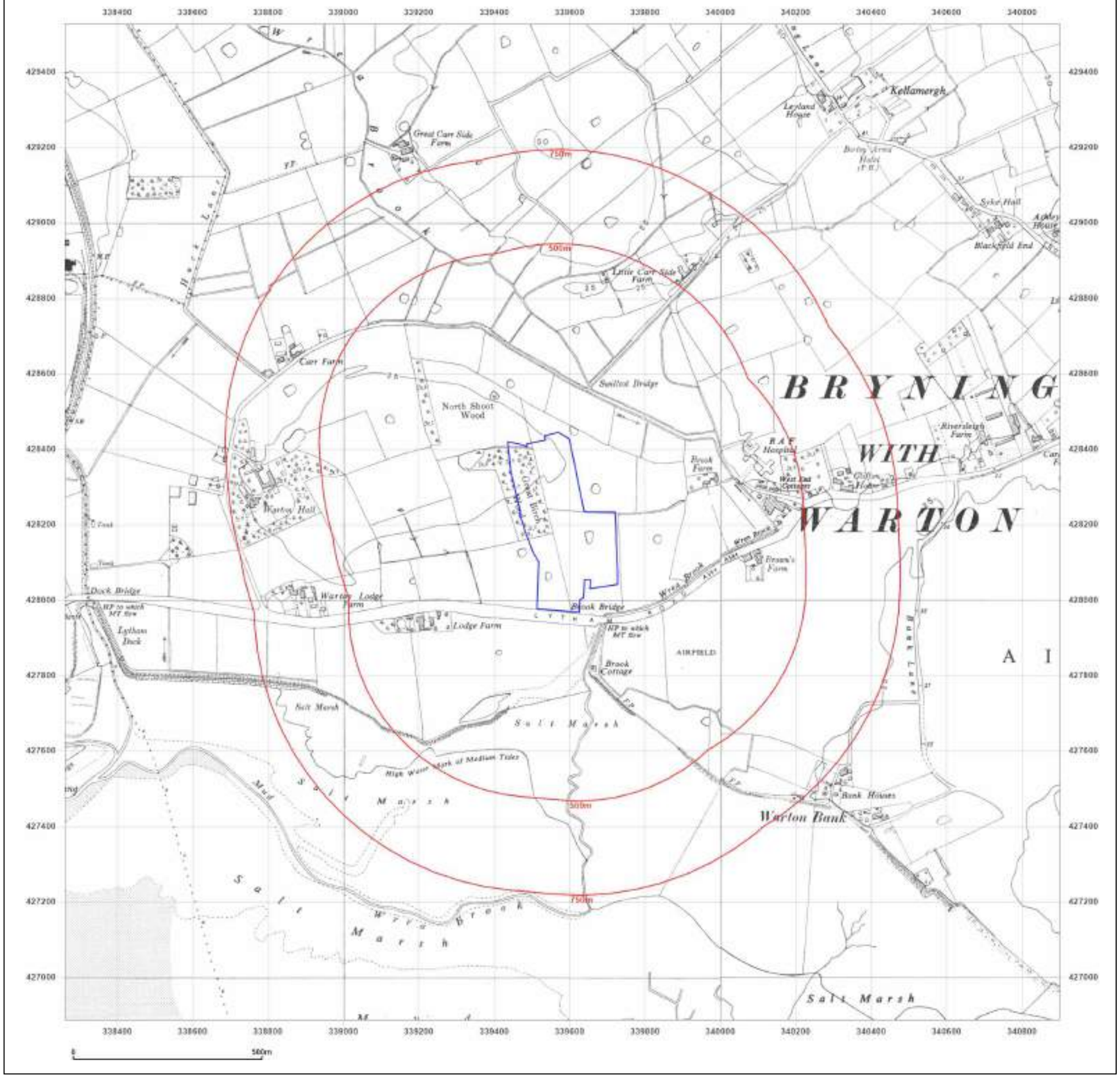

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Surveyed 1951
Revised 1951
Edition N/A
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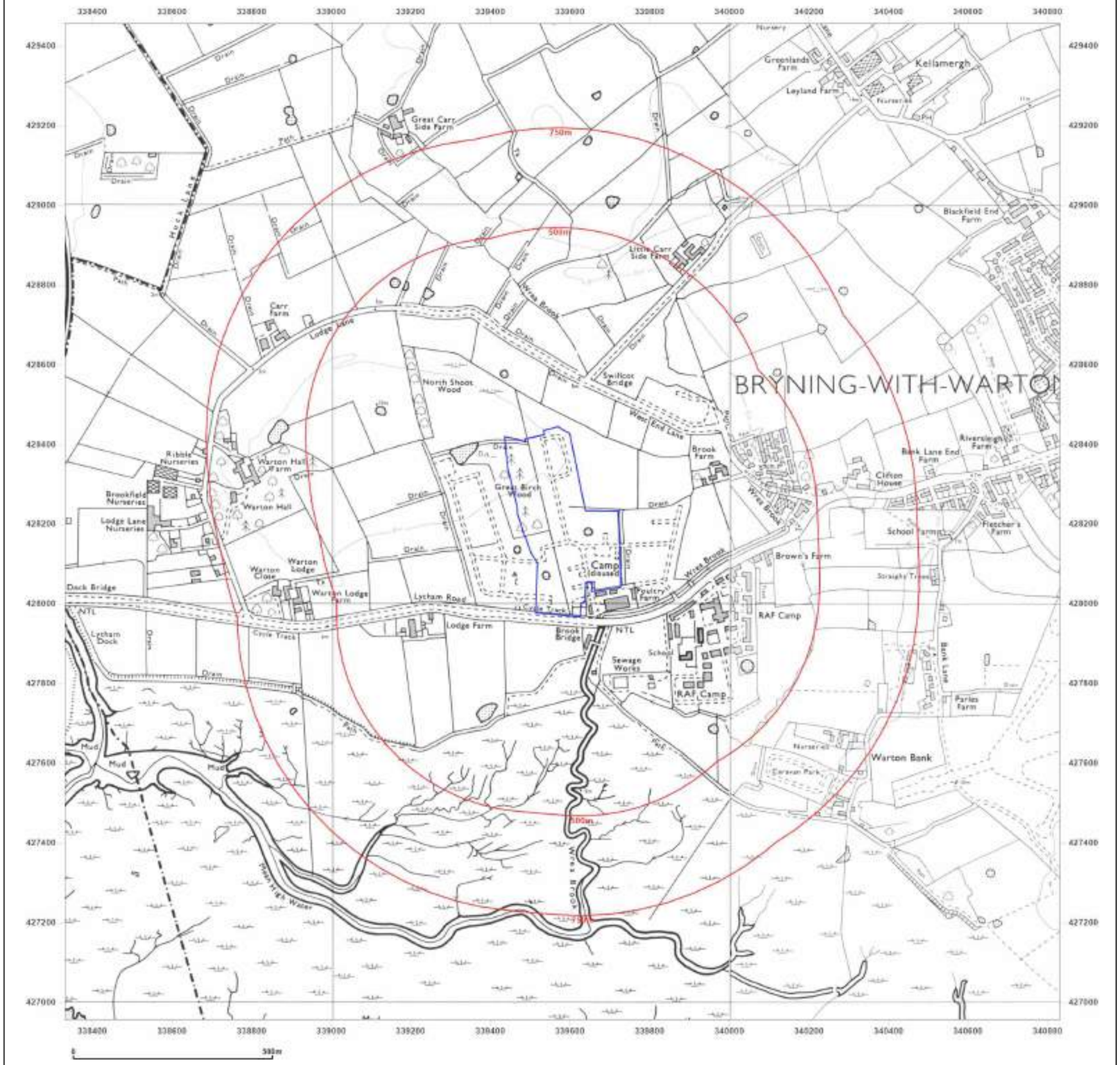

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Lytham Care Village, Preston, Lancashire

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Printed at: 1:10,000

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Edition N/A	Edition N/A
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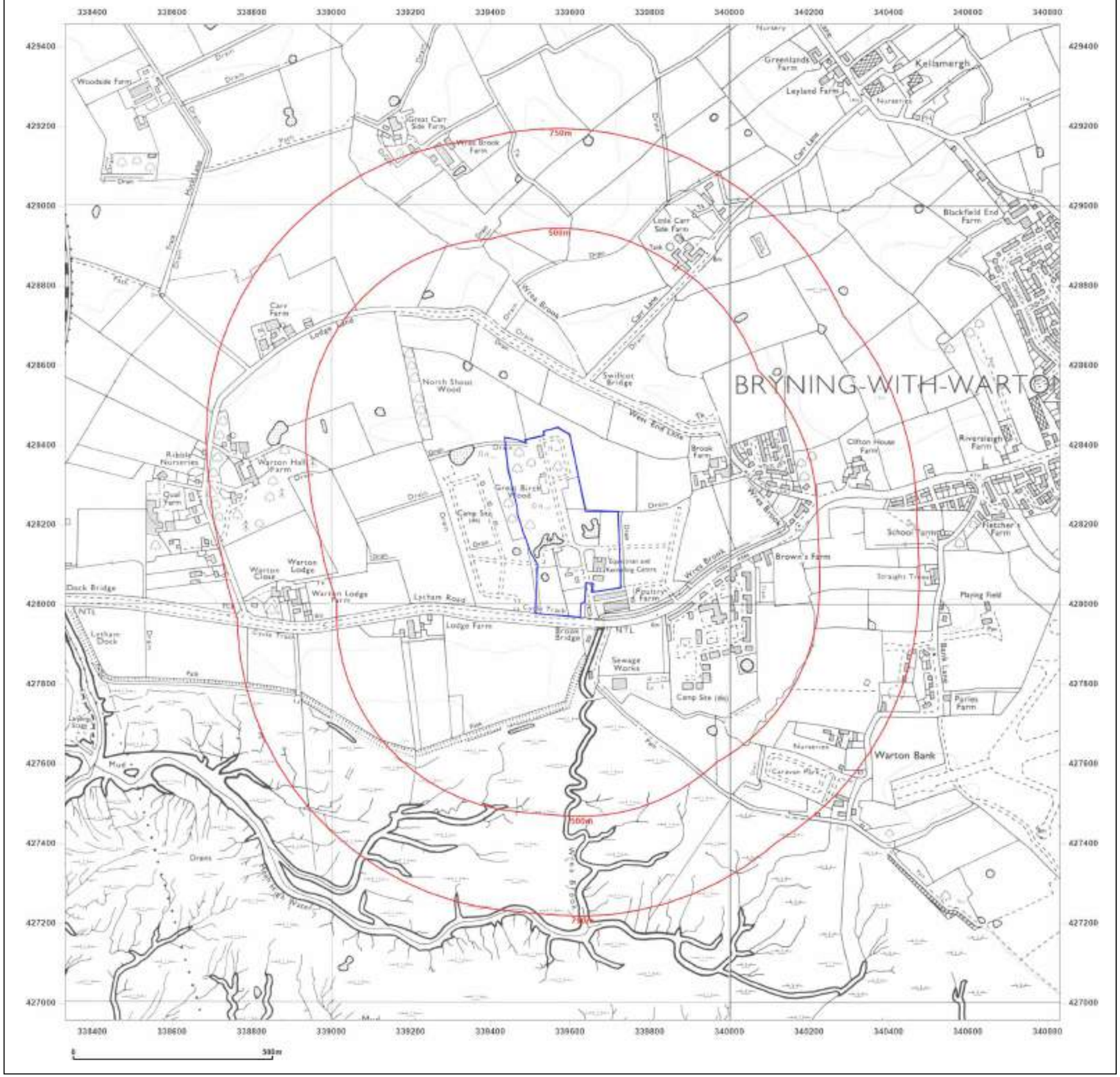

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Groundsure INSIGHTS

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Report Ref: HYD-8217977
Grid Ref: 339580, 428206

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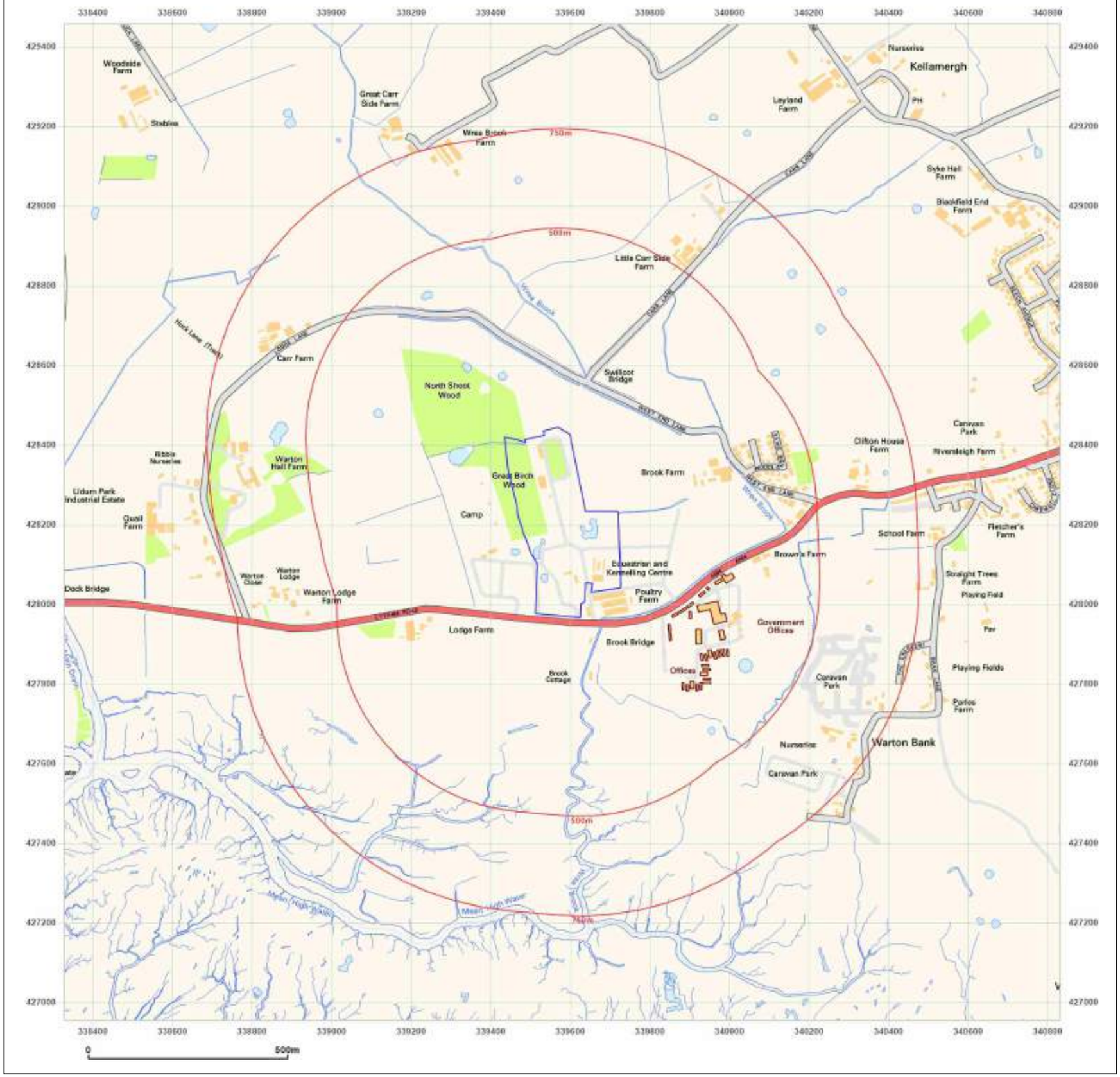

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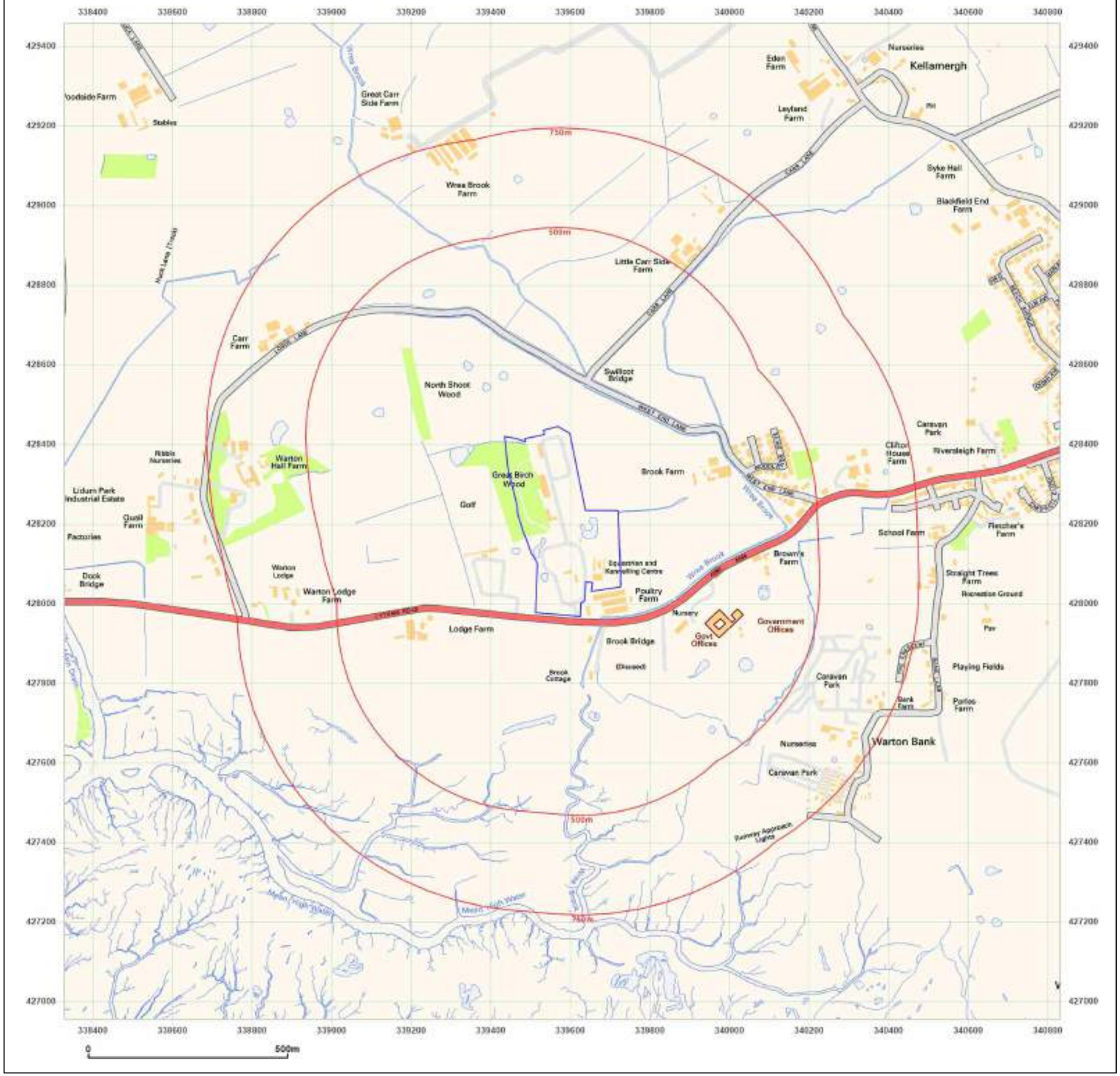

Groundsure INSIGHTS

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Lytham Care Village, Preston, Lancashire

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Site Details:

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Report Ref: HYD-8217977
Grid Ref: 339580, 428206

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Map date: **2021**

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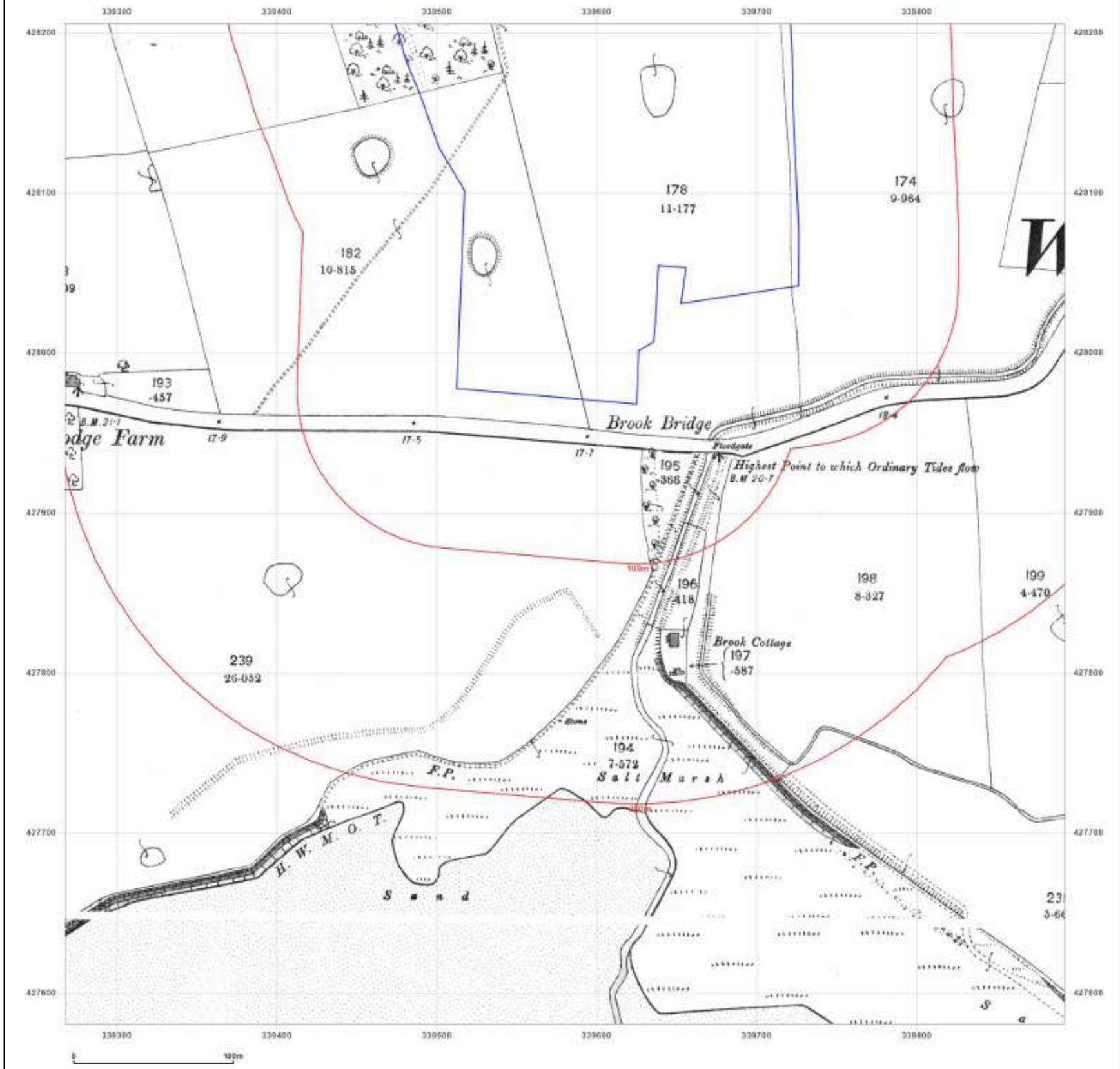

Groundsure INSIGHTS

Site Details:

Lytham Care Village, Preston, Lancashire

Client Ref: PO10148
Report Ref: HYD-8217977_LS_1_1
Grid Ref: 339580, 427893

Map Name: County Series

Map date: **1891-1892**

Scale: 1:2,500

Printed at: 1:2,500

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

Surveyed 1891
Revised 1891
Edition N/A
Copyright N/A
Levelled N/A

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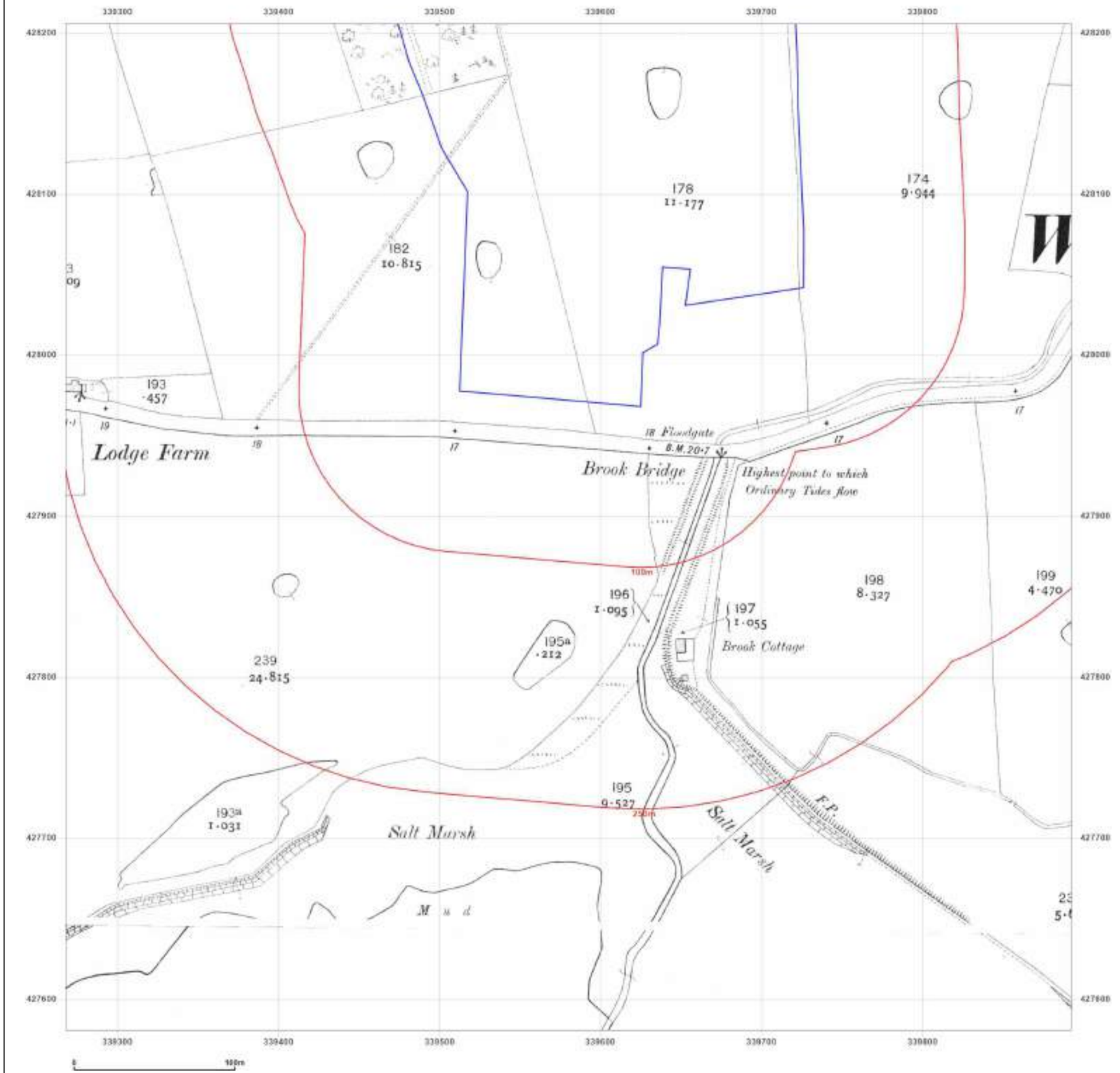
Production date: 27 September 2021

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



Groundsure INSIGHTS

Site Details:

Lytham Care Village, Preston, Lancashire

Client Ref: PO10148
Report Ref: HYD-8217977_LS_1_1
Grid Ref: 339580, 427893

Map Name: County Series

Map date: **1911**

Scale: 1:2,500

Printed at: 1:2,500

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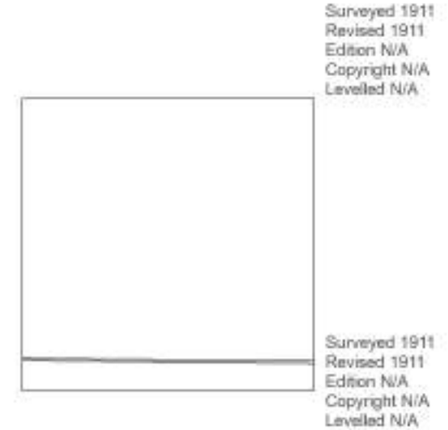

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Production date: 27 September 2021

Map legend available at:
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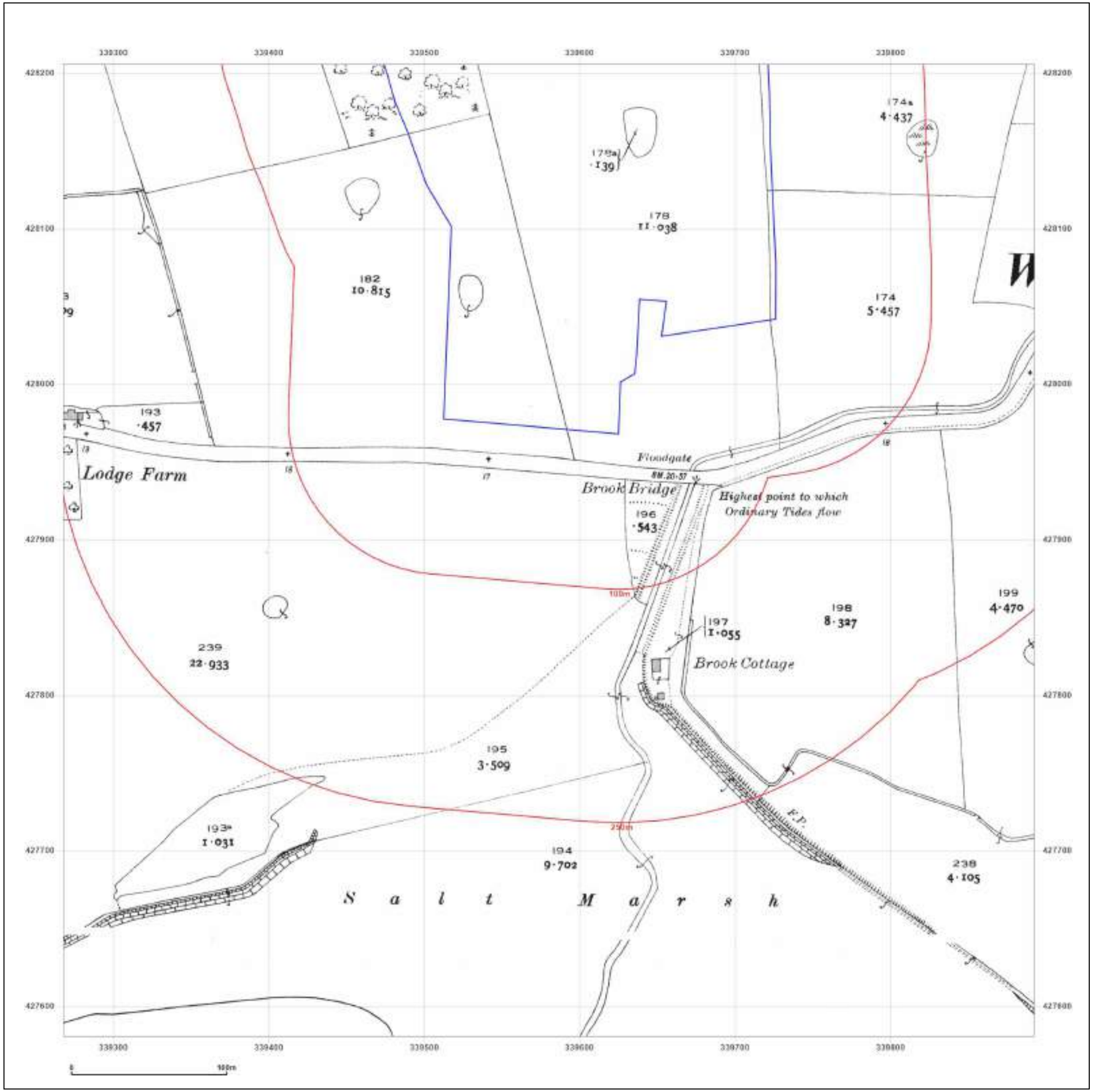

Groundsure INSIGHTS

Site Details:

Lytham Care Village, Preston, Lancashire

Client Ref: PO10148
Report Ref: HYD-8217977_LS_1_1
Grid Ref: 339580, 427893

Map Name: County Series

Map date: **1932**

Scale: 1:2,500

Printed at: 1:2,500

N
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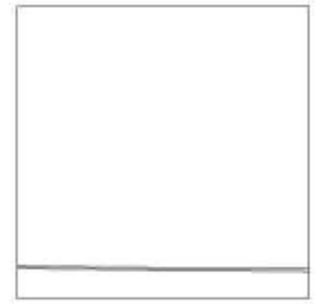
Surveyed 1932
Revised 1932
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1932
Revised 1932
Edition N/A
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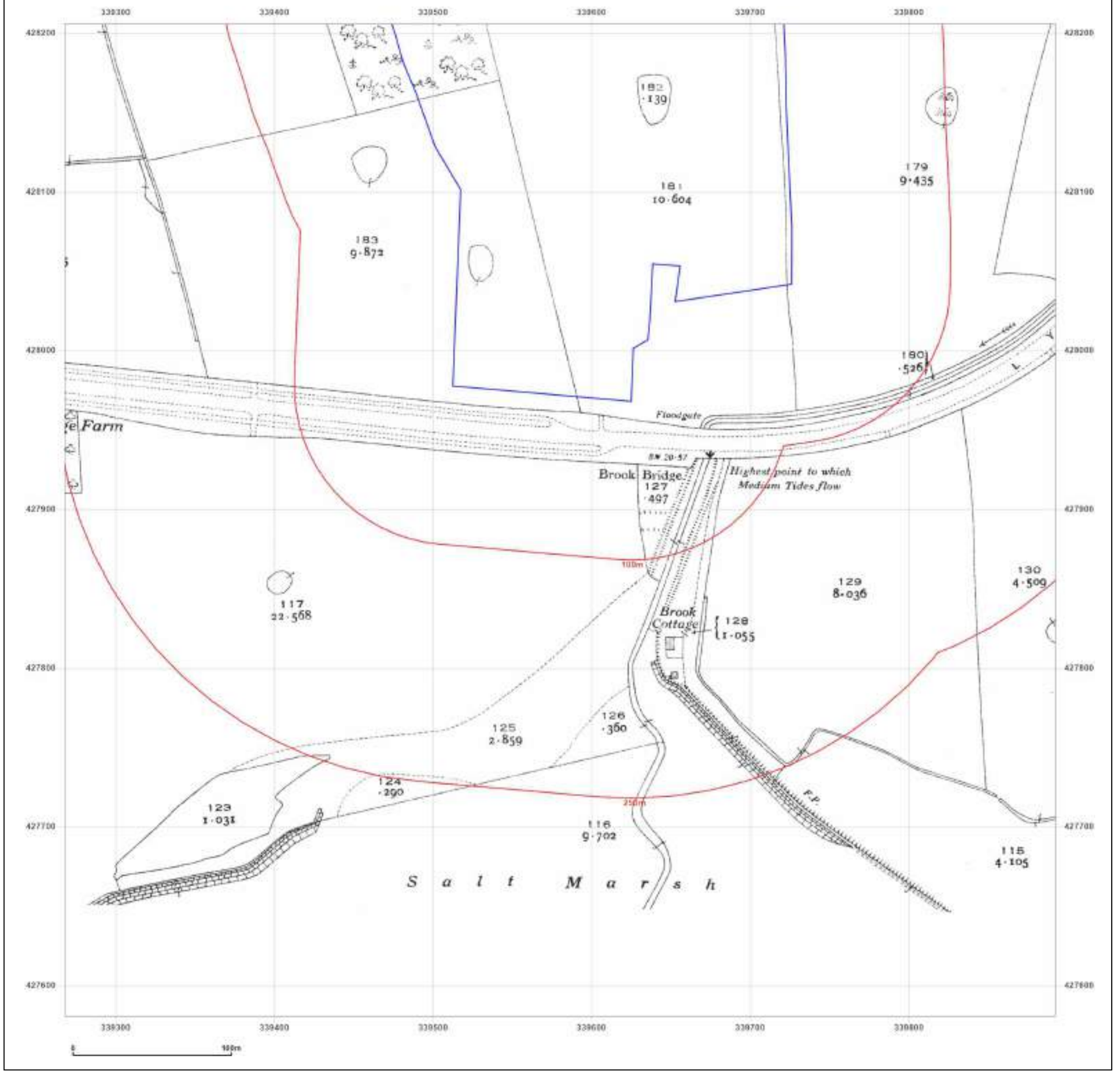

Groundsure INSIGHTS

Site Details:

Lytham Care Village, Preston, Lancashire

Client Ref: PO10148
Report Ref: HYD-8217977_LS_1_1
Grid Ref: 339580, 427893

Map Name: County Series
Map date: **1937**
Scale: 1:2,500
Printed at: 1:2,500

N
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Surveyed 1937
Revised 1937
Edition N/A
Copyright N/A
Levelled N/A

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Production date: 27 September 2021

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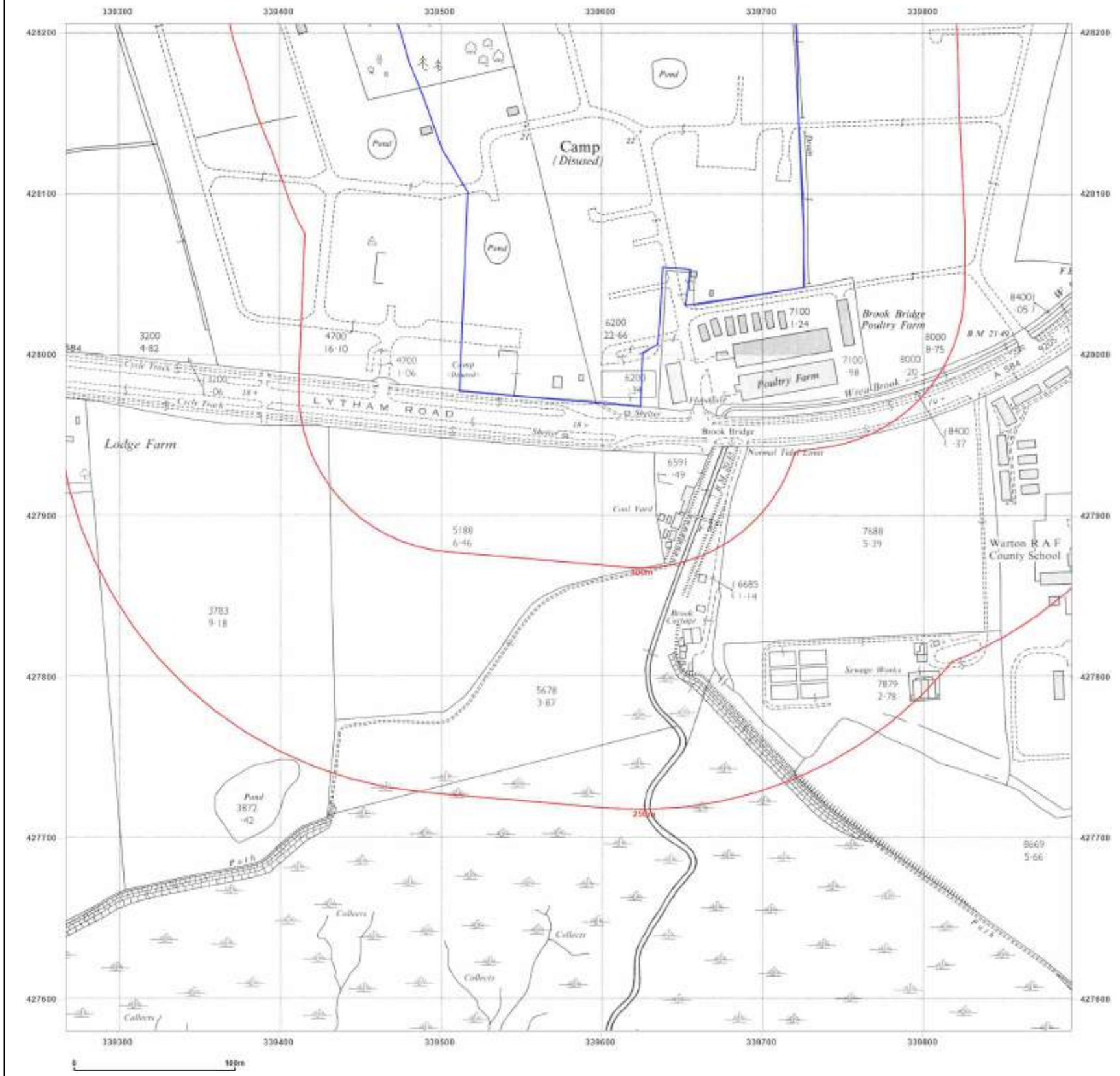

Groundsure INSIGHTS

Site Details:

Lytham Care Village, Preston, Lancashire

Client Ref: PO10148
Report Ref: HYD-8217977_LS_1_1
Grid Ref: 339580, 427893

Map Name: National Grid

Map date: **1967**

Scale: 1:2,500

Printed at: 1:2,500

N
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Surveyed 1967
Revised 1967
Edition N/A
Copyright 1968
Levelled 1960

Surveyed 1967
Revised 1967
Edition N/A
Copyright 1969
Levelled 1960

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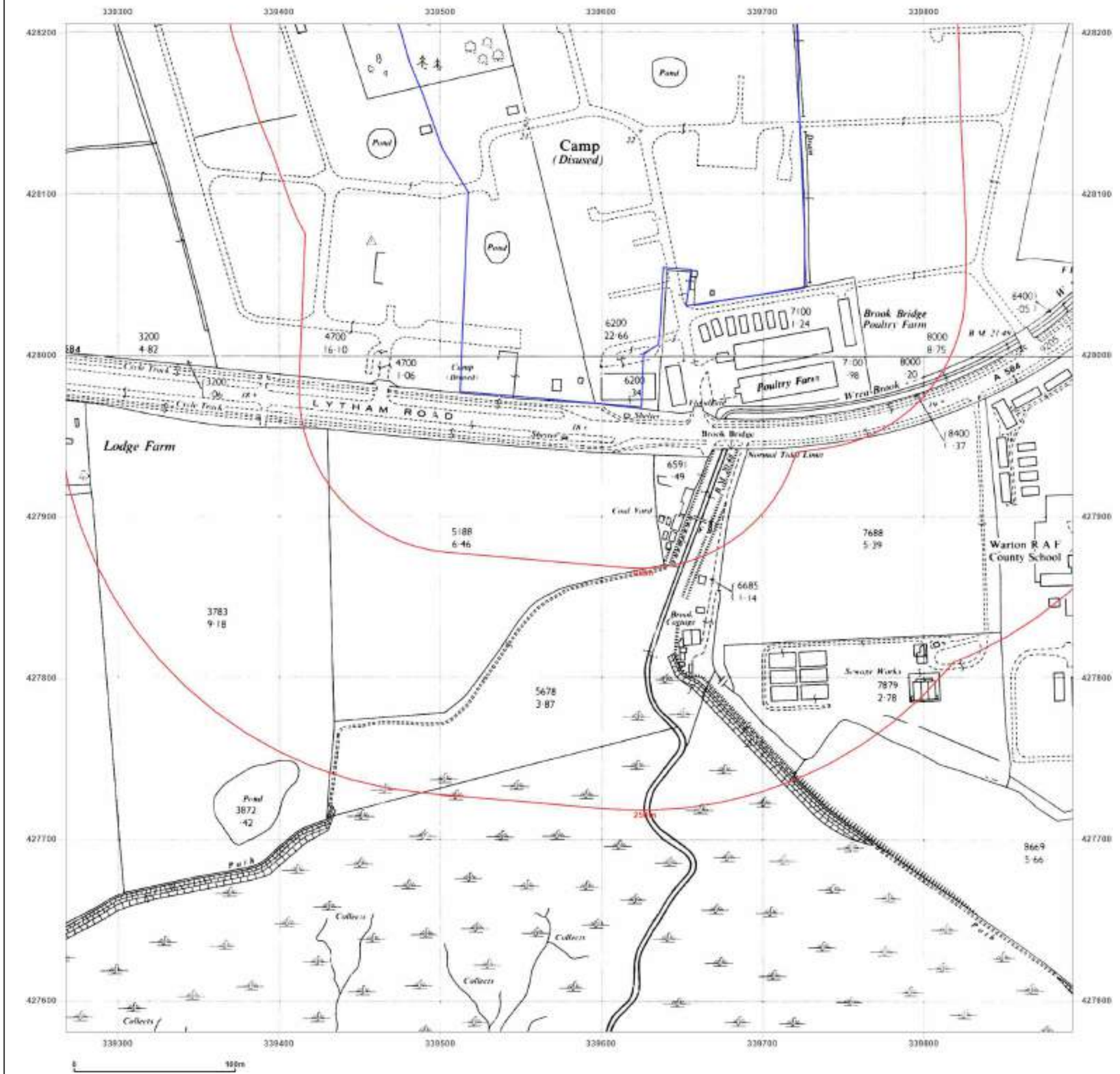

Groundsure INSIGHTS

Site Details:

Lytham Care Village, Preston, Lancashire

Client Ref: PO10148
Report Ref: HYD-8217977_LS_1_1
Grid Ref: 339580, 427893

Map Name: National Grid

Map date: **1968-1969**

Scale: 1:2,500

Printed at: 1:2,500

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

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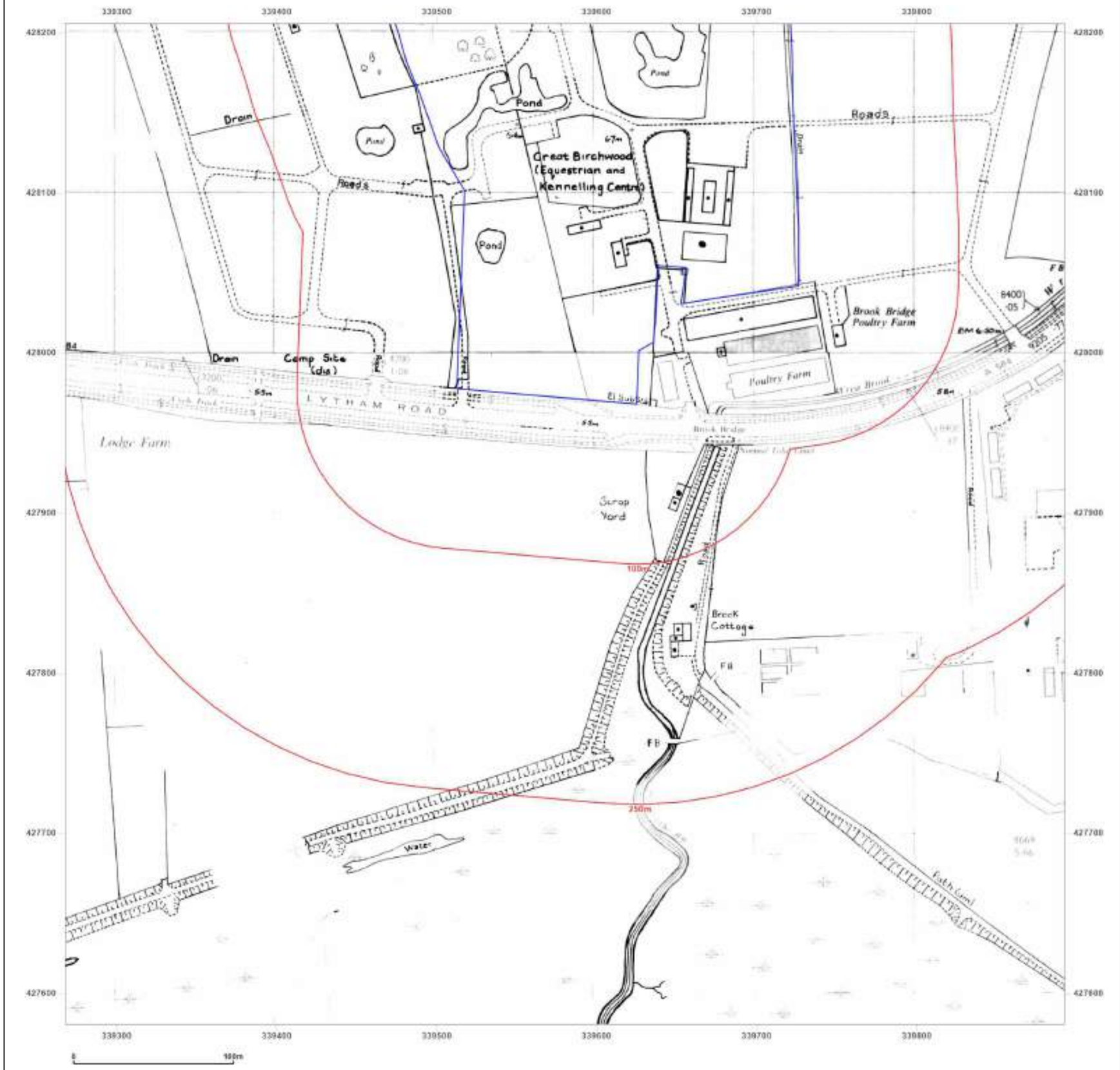

Groundsure INSIGHTS

Site Details:

Lytham Care Village, Preston, Lancashire

Client Ref: PO10148
Report Ref: HYD-8217977_LS_1_1
Grid Ref: 339580, 427893

Map Name: National Grid

Map date: **1989**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1960
Revised 1989
Edition N/A
Copyright 1989
Levelled 1960

Surveyed 1959
Revised 1989
Edition N/A
Copyright 1989
Levelled 1959

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Production date: 27 September 2021

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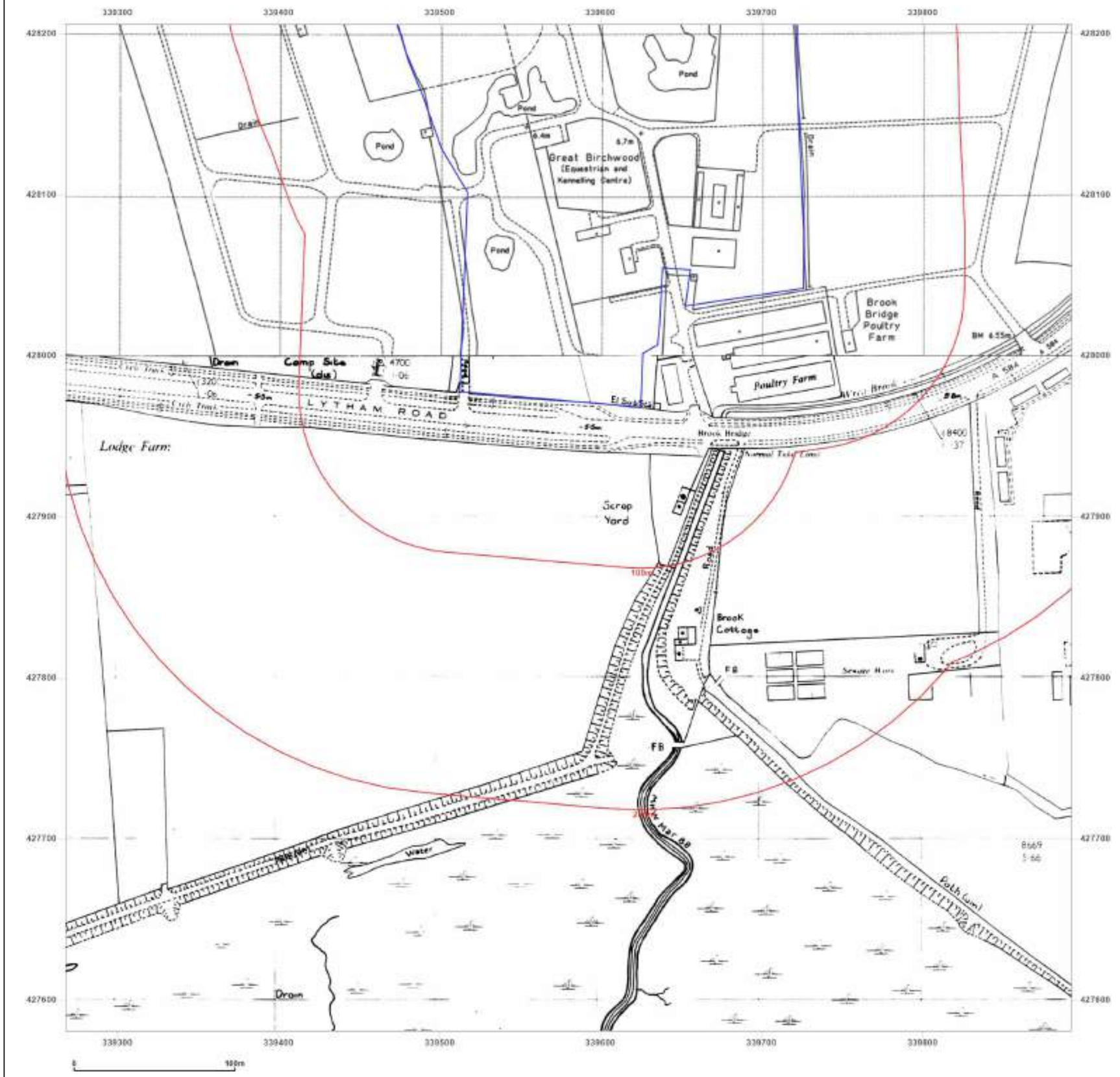

Groundsure INSIGHTS

Site Details:

Lytham Care Village, Preston, Lancashire

Client Ref: PO10148
Report Ref: HYD-8217977_LS_1_1
Grid Ref: 339580, 427893

Map Name: National Grid

Map date: **1989-1993**

Scale: 1:2,500

Printed at: 1:2,500

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

Surveyed 1959
Revised 1989
Edition N/A
Copyright 1989
Levelled 1959

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Production date: 27 September 2021

Map legend available at:
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Groundsure INSIGHTS

Site Details:

Lytham Care Village, Preston, Lancashire

Client Ref: PO10148
Report Ref: HYD-8217977_LS_1_1
Grid Ref: 339580, 427893

Map Name: National Grid

Map date: **1993**

Scale: 1:2,500

Printed at: 1:2,500

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

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W: www.groundsure.com

Production date: 27 September 2021

Map legend available at:
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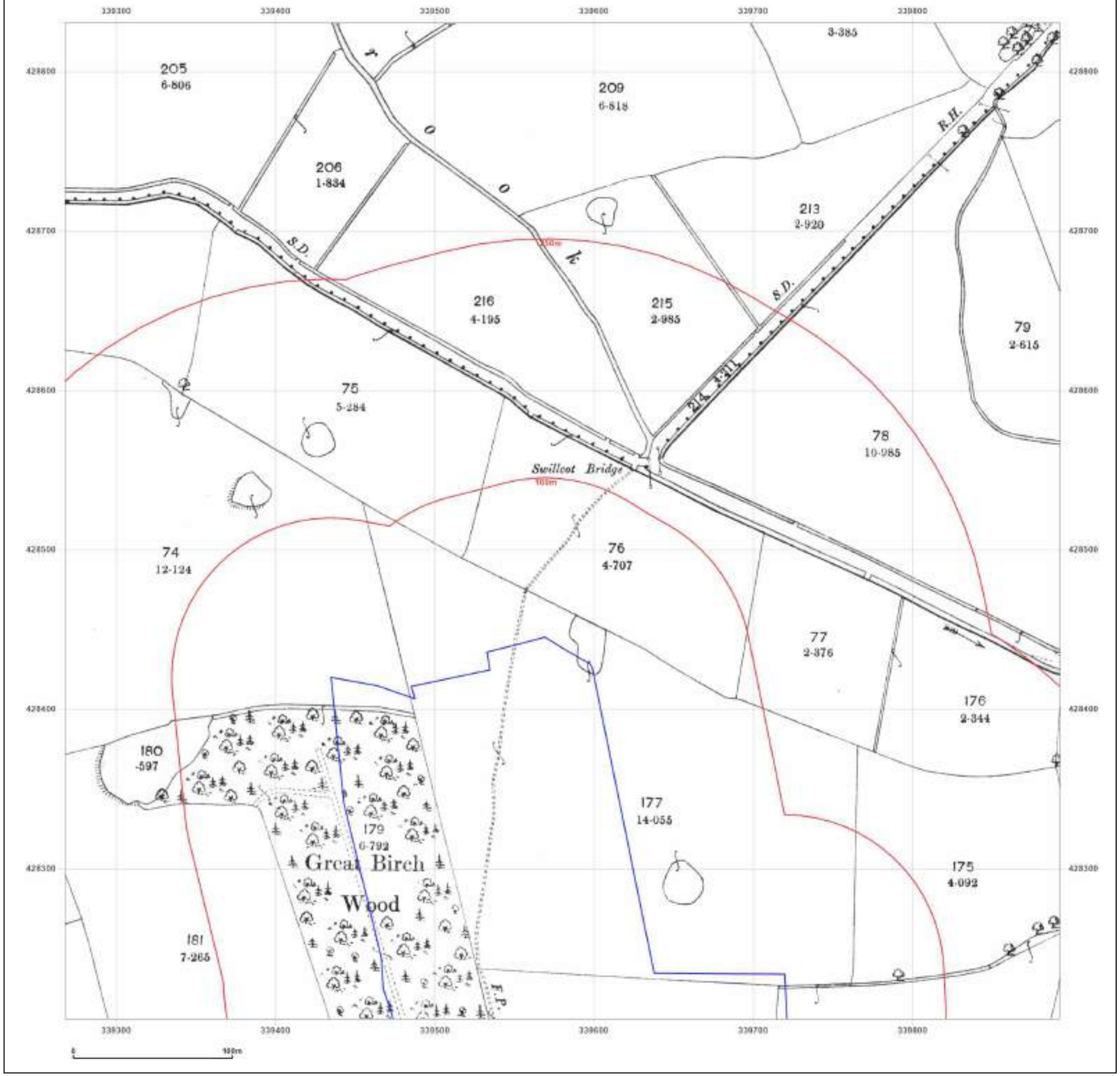

Groundsure INSIGHTS

Site Details:

Lytham Care Village, Preston, Lancashire

Client Ref: PO10148
Report Ref: HYD-8217977_LS_1_2
Grid Ref: 339580, 428518

Map Name: County Series

Map date: **1892**

Scale: 1:2,500

Printed at: 1:2,500

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

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Production date: 27 September 2021

Map legend available at:
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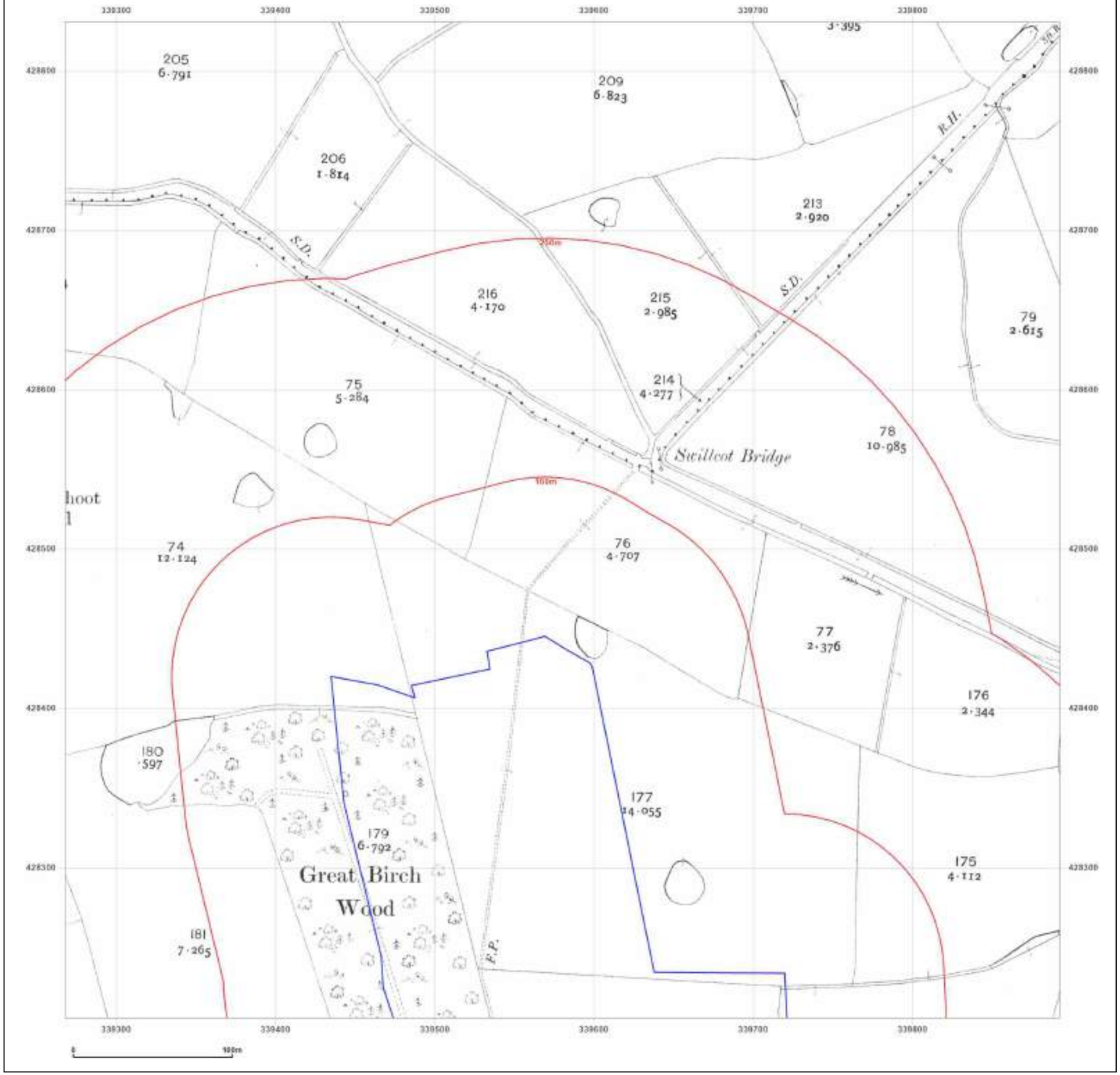

Groundsure INSIGHTS

Site Details:

Lytham Care Village, Preston, Lancashire

Client Ref: PO10148
Report Ref: HYD-8217977_LS_1_2
Grid Ref: 339580, 428518

Map Name: County Series

Map date: **1911**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1911
Revised 1911
Edition N/A
Copyright N/A
Levelled N/A

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Production date: 27 September 2021

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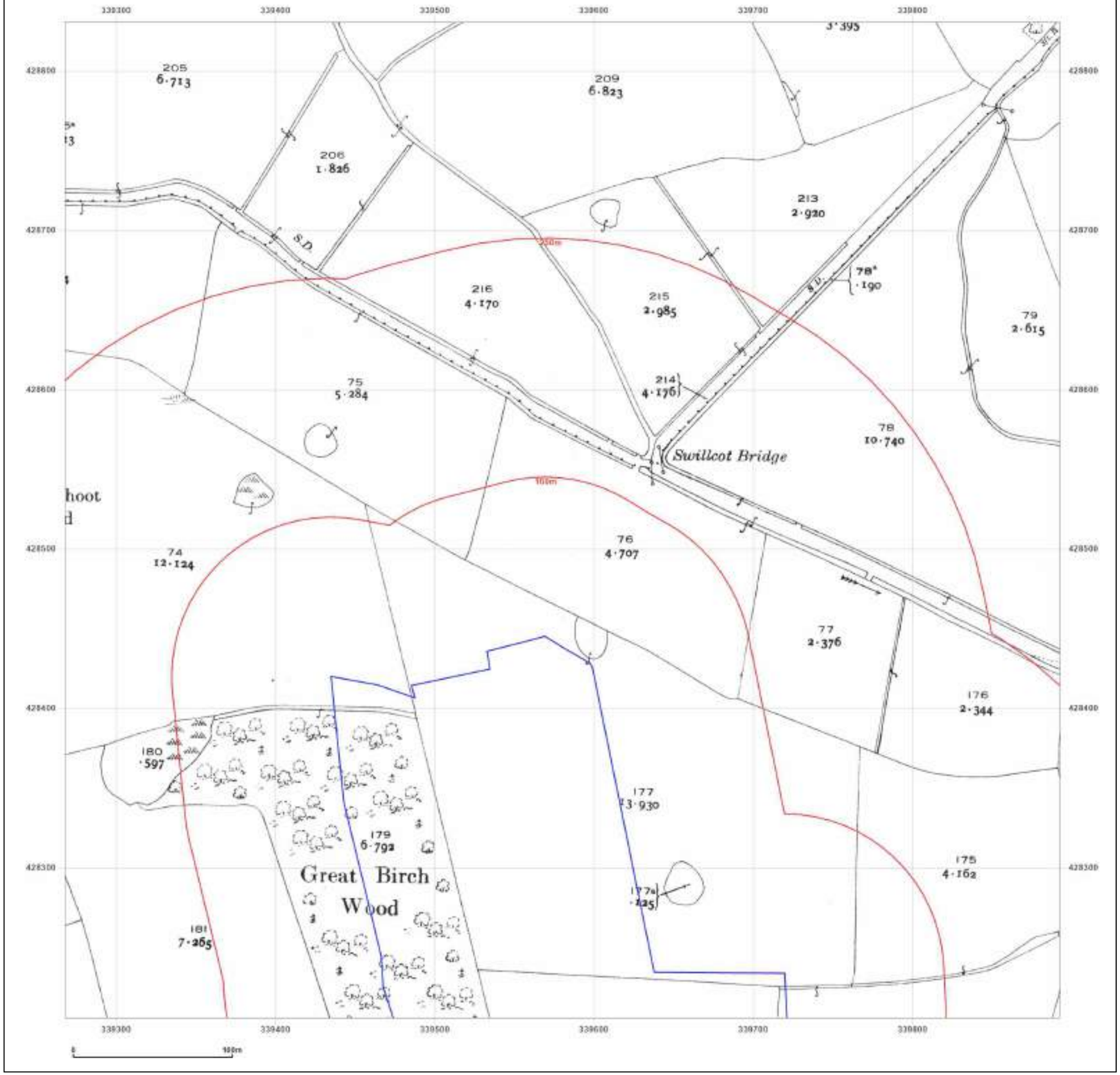

Groundsure INSIGHTS

Site Details:

Lytham Care Village, Preston, Lancashire

Client Ref: PO10148
Report Ref: HYD-8217977_LS_1_2
Grid Ref: 339580, 428518

Map Name: County Series

Map date: **1932**

Scale: 1:2,500

Printed at: 1:2,500

N
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Surveyed 1932
Revised 1932
Edition N/A
Copyright N/A
Levelled N/A

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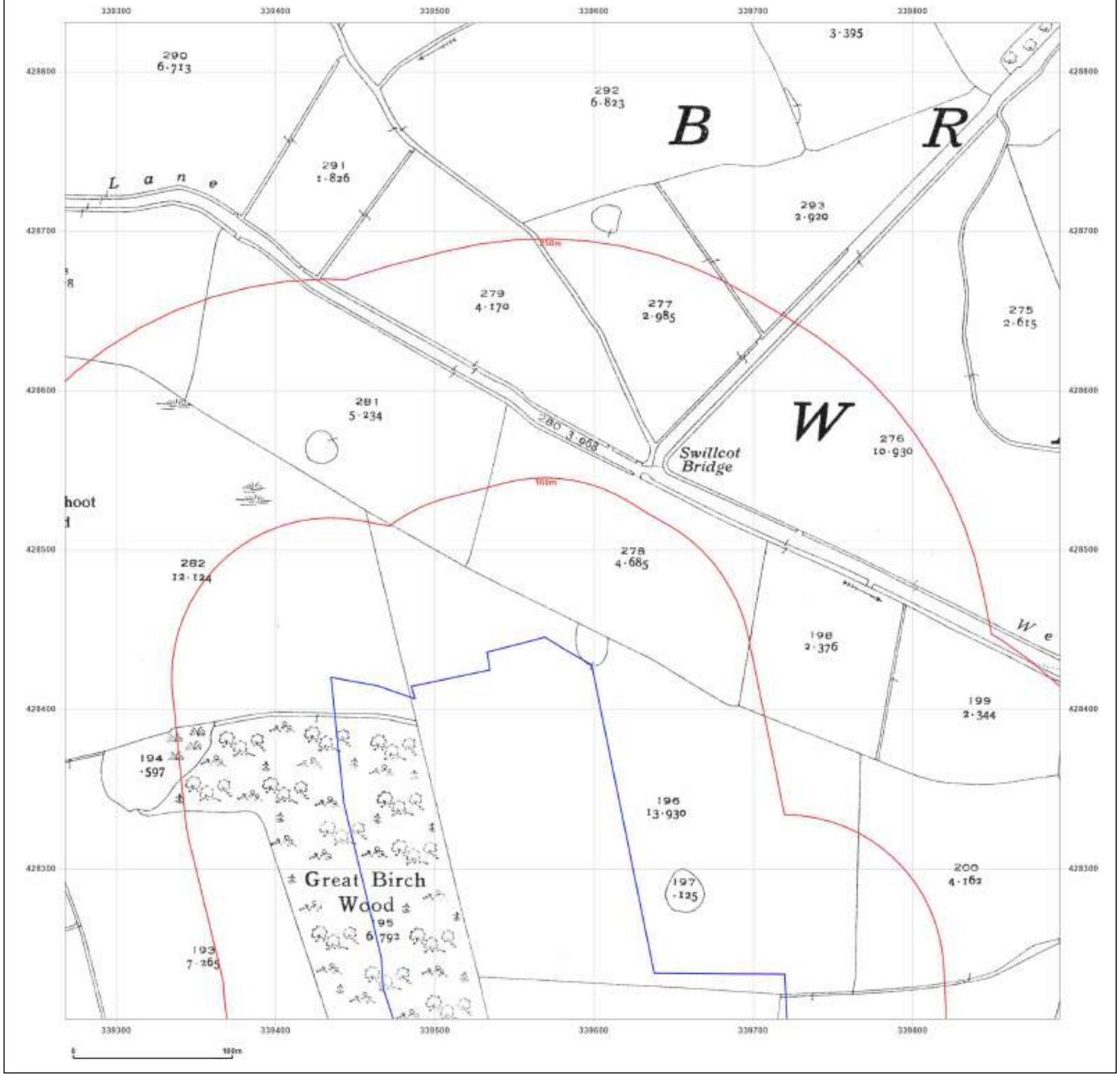

Groundsure INSIGHTS

Site Details:

Lytham Care Village, Preston, Lancashire

Client Ref: PO10148
Report Ref: HYD-8217977_LS_1_2
Grid Ref: 339580, 428518

Map Name: County Series
Map date: **1937**
Scale: 1:2,500
Printed at: 1:2,500

N
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Surveyed 1937
Revised 1937
Edition N/A
Copyright N/A
Levelled N/A

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Production date: 27 September 2021

Map legend available at:
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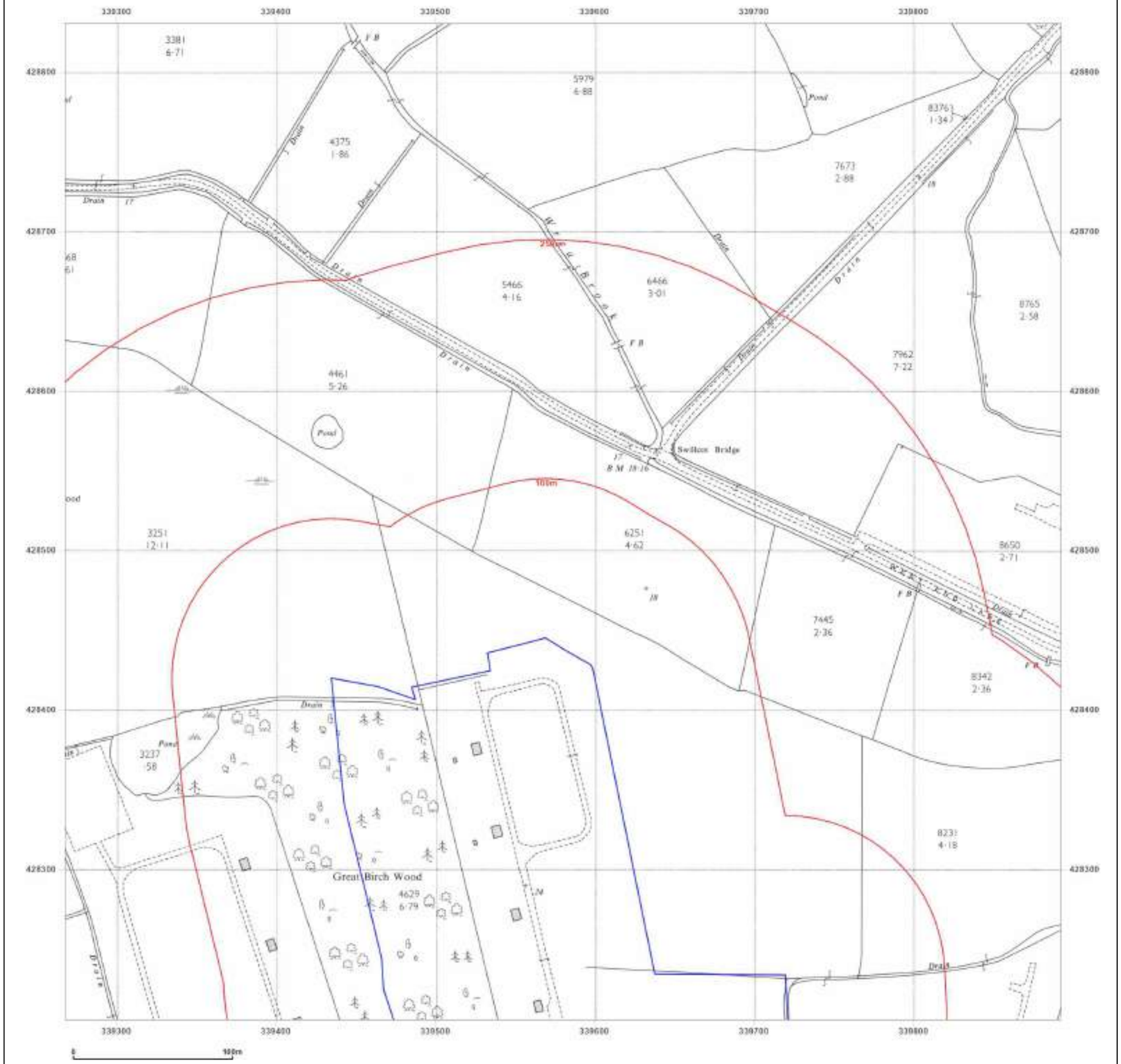

Site Details:

Lytham Care Village, Preston, Lancashire

Client Ref:	PO10148
Report Ref:	HYD-8217977_LS_1_2
Grid Ref:	339580, 428518
Map Name:	National Grid
Map date:	**1967**
Scale:	1:2,500
Printed at:	1:2,500

N
W E
S

Surveyed 1967
Revised 1967
Edition N/A
Copyright 1968
Levelled 1960

Produced by
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Production date: 27 September 2021

Map legend available at:
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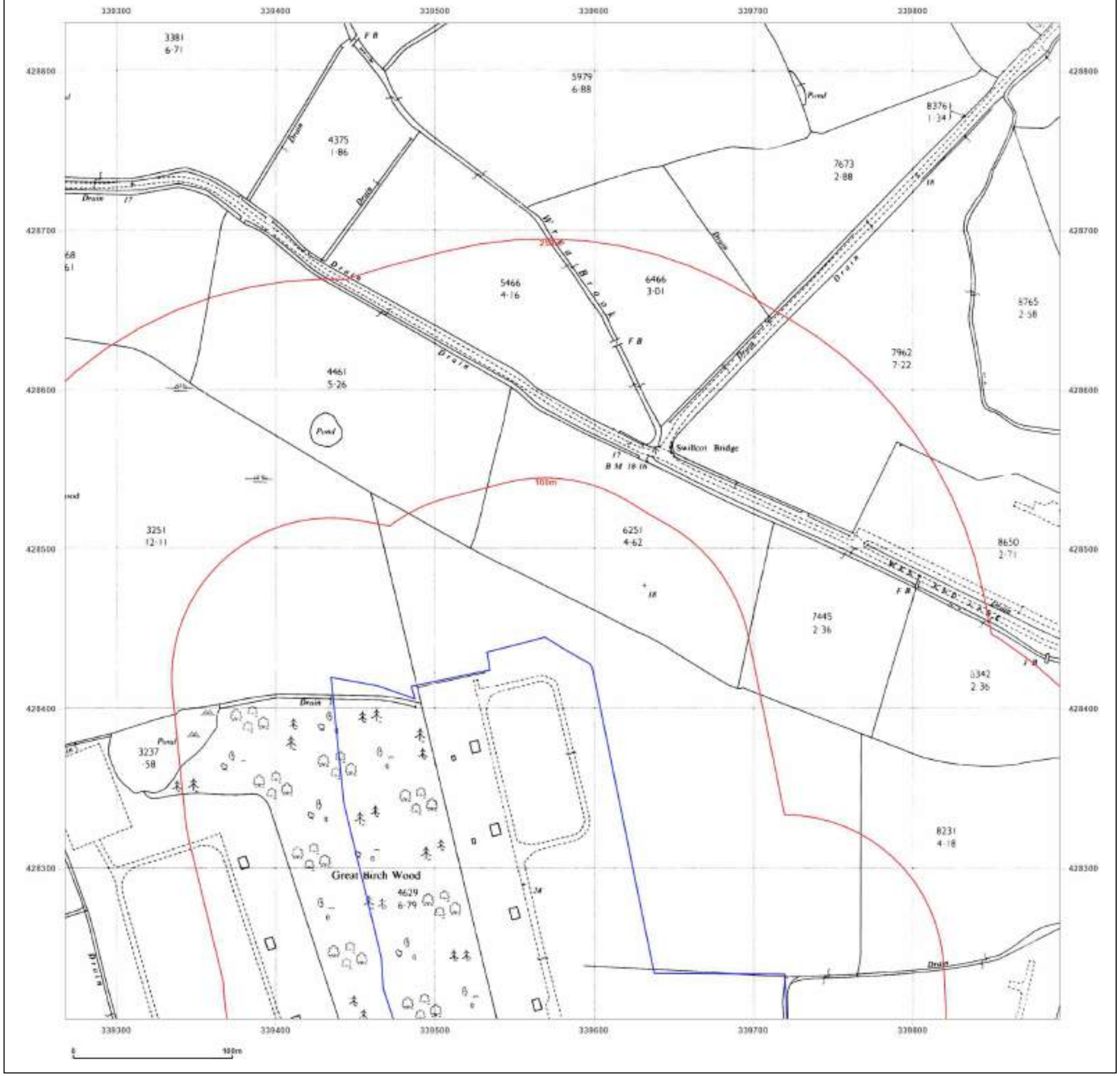

Groundsure INSIGHTS

Site Details:

Lytham Care Village, Preston, Lancashire

Client Ref: PO10148
Report Ref: HYD-8217977_LS_1_2
Grid Ref: 339580, 428518

Map Name: National Grid

Map date: **1968**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

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

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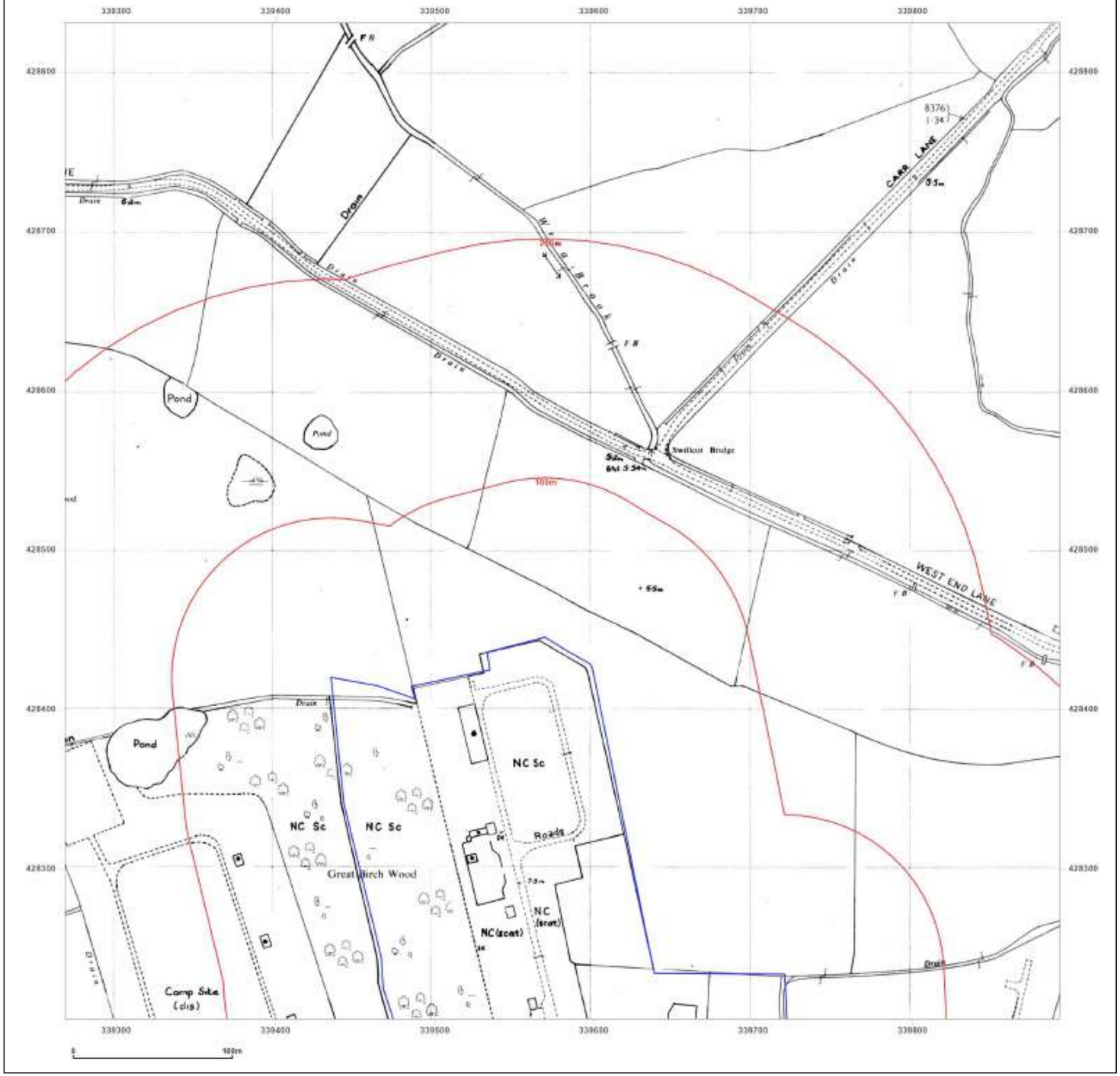

Groundsure INSIGHTS

Site Details:

Lytham Care Village, Preston, Lancashire

Client Ref: PO10148
Report Ref: HYD-8217977_LS_1_2
Grid Ref: 339580, 428518

Map Name: National Grid

Map date: **1989**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
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Surveyed 1960
Revised 1989
Edition N/A
Copyright 1989
Levelled 1960

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Production date: 27 September 2021

Map legend available at:
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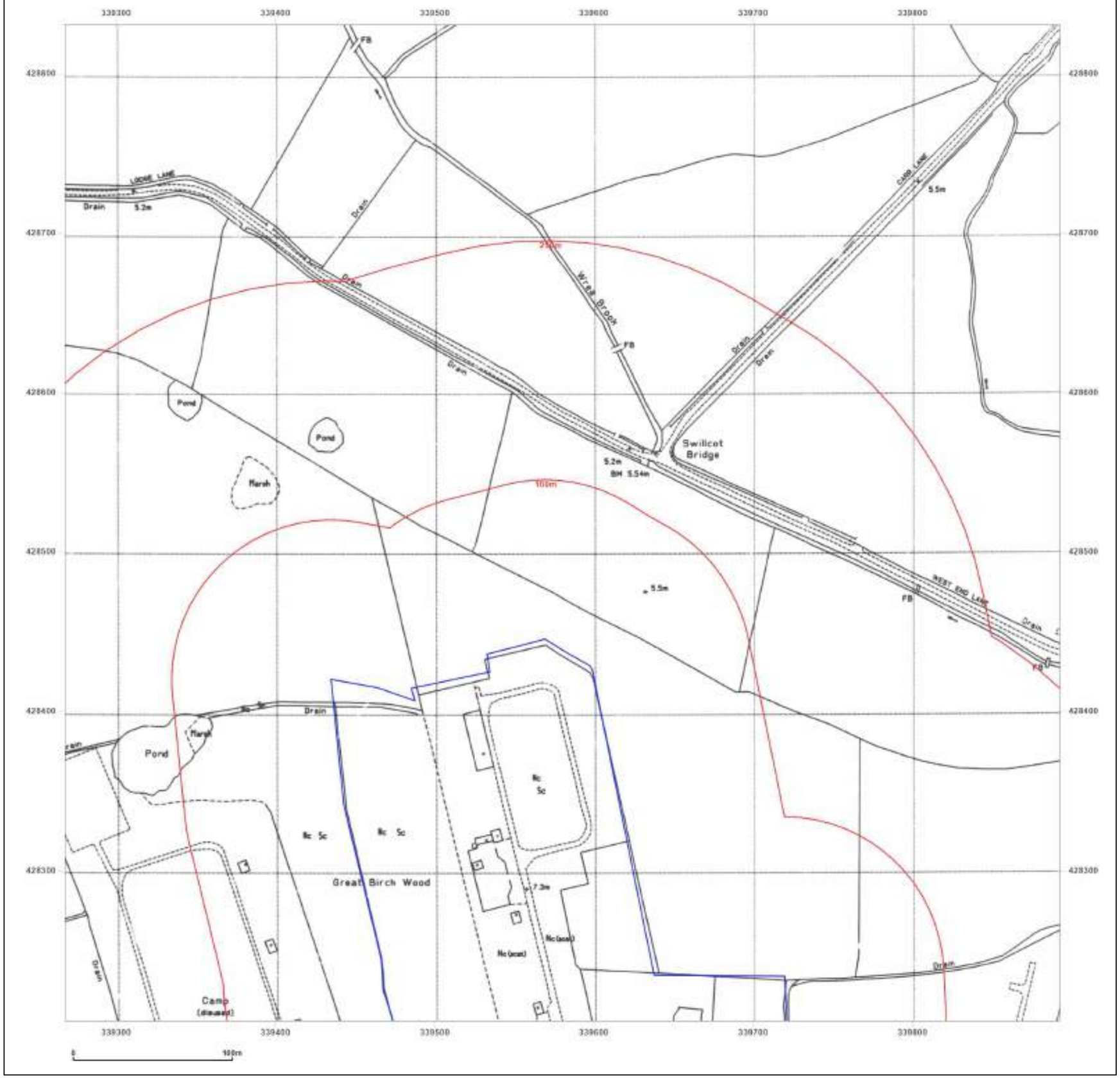

Groundsure INSIGHTS

Site Details:

Lytham Care Village, Preston, Lancashire

Client Ref: PO10148
Report Ref: HYD-8217977_LS_1_2
Grid Ref: 339580, 428518

Map Name: National Grid

Map date: **1993**

Scale: 1:2,500

Printed at: 1:2,500

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

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Production date: 27 September 2021

Map legend available at:
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Appendix D Desk Study Research Information

Groundsure

Database Report

Groundsure
LOCATION INTELLIGENCE

Enviro+Geo Insight

Lytham Care Village, Preston, Lancashire

Order Details

Date: 27/09/2021

Your ref: PO10148

Our Ref: HYD-8217978

Client: Hydrock Consultants Ltd

Site Details

Location: 339499 428192

Area: 8.45 ha

Authority: Fylde Borough Council

Contact us with any questions at:
info@groundsure.com
08444 159 000

Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
14	1.1	Historical industrial land uses	0	0	5	3	-
15	1.2	Historical tanks	0	0	0	2	-
15	1.3	Historical energy features	0	3	0	2	-
16	1.4	Historical petrol stations	0	0	0	2	-
16	1.5	Historical garages	0	0	0	1	-
17	1.6	Historical military land	0	0	0	0	-
Page	Section	Past land use - un-grouped	On site	0-50m	50-250m	250-500m	500-2000m
18	2.1	Historical industrial land uses	0	0	6	3	-
19	2.2	Historical tanks	0	0	0	3	-
19	2.3	Historical energy features	0	3	0	3	-
20	2.4	Historical petrol stations	0	0	0	3	-
20	2.5	Historical garages	0	0	0	4	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
22	3.1	Active or recent landfill	0	0	0	0	-
22	3.2	Historical landfill (BGS records)	0	0	0	0	-
23	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
23	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
23	3.5	Historical waste sites	0	2	0	0	-
24	3.6	Licensed waste sites	0	0	0	0	-
24	3.7	Waste exemptions	0	2	9	16	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
27	4.1	Recent industrial land uses	0	1	5	-	-
28	4.2	Current or recent petrol stations	0	1	0	0	-
28	4.3	Electricity cables	0	0	0	0	-
28	4.4	Gas pipelines	0	0	0	0	-
29	4.5	Sites determined as Contaminated Land	0	0	0	0	-

29	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
29	4.7	Regulated explosive sites	0	0	0	0	-
29	4.8	Hazardous substance storage/usage	0	0	0	0	-
29	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
30	**4.10**	**Licensed industrial activities (Part A(1))**	0	0	2	0	-
30	4.11	Licensed pollutant release (Part A(2)/B)	0	0	0	0	-
30	4.12	Radioactive Substance Authorisations	0	0	0	0	-
31	**4.13**	**Licensed Discharges to controlled waters**	0	0	1	17	-
33	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
33	4.15	Pollutant release to public sewer	0	0	0	0	-
34	4.16	List 1 Dangerous Substances	0	0	0	0	-
34	4.17	List 2 Dangerous Substances	0	0	0	0	-
34	**4.18**	**Pollution Incidents (EA/NRW)**	0	0	2	2	-
35	4.19	Pollution inventory substances	0	0	0	0	-
35	4.20	Pollution inventory waste transfers	0	0	0	0	-
35	4.21	Pollution inventory radioactive waste	0	0	0	0	-

Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
36	**5.1**	**Superficial aquifer**	Identified (within 500m)				
38	**5.2**	**Bedrock aquifer**	Identified (within 500m)				
40	**5.3**	**Groundwater vulnerability**	Identified (within 50m)				
41	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
41	5.5	Groundwater vulnerability- local information	None (within 0m)				
42	5.6	Groundwater abstractions	0	0	0	0	0
43	**5.7**	**Surface water abstractions**	0	0	0	0	2
43	5.8	Potable abstractions	0	0	0	0	0
44	5.9	Source Protection Zones	0	0	0	0	-
44	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-

Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
45	**6.1**	**Water Network (OS MasterMap)**	1	2	26	-	-

48	6.2	Surface water features	1	2	19	-	-
48	6.3	WFD Surface water body catchments	2	-	-	-	-
49	6.4	WFD Surface water bodies	0	0	2	-	-
49	6.5	WFD Groundwater bodies	1	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
50	7.1	Risk of Flooding from Rivers and Sea (RoFRaS)	High (within 50m)				
51	7.2	Historical Flood Events	0	1	0	-	-
51	7.3	Flood Defences	0	0	1	-	-
51	7.4	Areas Benefiting from Flood Defences	1	0	0	-	-
52	7.5	Flood Storage Areas	0	0	0	-	-
53	7.6	Flood Zone 2	Identified (within 50m)				
54	7.7	Flood Zone 3	Identified (within 50m)				
Page	Section	Surface water flooding					
55	8.1	Surface water flooding	1 in 30 year, 0.3m - 1.0m (within 50m)				
Page	Section	Groundwater flooding					
57	9.1	Groundwater flooding	High (within 50m)				
Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
58	10.1	Sites of Special Scientific Interest (SSSI)	0	0	1	0	3
59	10.2	Conserved wetland sites (Ramsar sites)	0	0	1	0	1
60	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
60	10.4	Special Protection Areas (SPA)	0	0	1	0	1
60	10.5	National Nature Reserves (NNR)	0	0	0	0	2
61	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
61	10.7	Designated Ancient Woodland	0	0	0	0	0
61	10.8	Biosphere Reserves	0	0	0	0	0
61	10.9	Forest Parks	0	0	0	0	0
62	10.10	Marine Conservation Zones	0	0	1	1	41
63	10.11	Green Belt	1	0	0	0	4
64	10.12	Proposed Ramsar sites	0	0	0	0	0

64	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
64	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
65	10.15	Nitrate Sensitive Areas	0	0	0	0	0
65	**10.16**	**Nitrate Vulnerable Zones**	0	0	0	0	1
66	**10.17**	**SSSI Impact Risk Zones**	3	-	-	-	-
69	**10.18**	**SSSI Units**	0	0	1	0	9
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
76	11.1	World Heritage Sites	0	0	0	-	-
76	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
76	11.3	National Parks	0	0	0	-	-
76	11.4	Listed Buildings	0	0	0	-	-
77	11.5	Conservation Areas	0	0	0	-	-
77	11.6	Scheduled Ancient Monuments	0	0	0	-	-
77	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
78	**12.1**	**Agricultural Land Classification**	Grade 4 (within 250m)				
79	12.2	Open Access Land	0	0	0	-	-
79	12.3	Tree Felling Licences	0	0	0	-	-
80	**12.4**	**Environmental Stewardship Schemes**	1	0	0	-	-
80	**12.5**	**Countryside Stewardship Schemes**	0	2	3	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
81	**13.1**	**Priority Habitat Inventory**	6	0	22	-	-
83	**13.2**	**Habitat Networks**	2	0	2	-	-
83	13.3	Open Mosaic Habitat	0	0	0	-	-
83	13.4	Limestone Pavement Orders	0	0	0	-	-
Page	Section	Geology 1:10,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
84	**14.1**	**10k Availability**	Identified (within 500m)				
85	**14.2**	**Artificial and made ground (10k)**	0	0	2	2	-
87	**14.3**	**Superficial geology (10k)**	1	1	3	7	-

88	14.4	Landslip (10k)	0	0	0	0	-
89	**14.5**	**Bedrock geology (10k)**	1	0	0	1	-
90	14.6	Bedrock faults and other linear features (10k)	0	0	0	0	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
91	**15.1**	**50k Availability**	Identified (within 500m)				
92	**15.2**	**Artificial and made ground (50k)**	0	0	1	1	-
93	15.3	Artificial ground permeability (50k)	0	0	-	-	-
94	**15.4**	**Superficial geology (50k)**	1	1	3	6	-
95	**15.5**	**Superficial permeability (50k)**	Identified (within 50m)				
95	15.6	Landslip (50k)	0	0	0	0	-
96	15.7	Landslip permeability (50k)	None (within 50m)				
97	**15.8**	**Bedrock geology (50k)**	1	0	1	0	-
98	**15.9**	**Bedrock permeability (50k)**	Identified (within 50m)				
98	15.10	Bedrock faults and other linear features (50k)	0	0	0	0	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
99	**16.1**	**BGS Boreholes**	1	0	4	-	-
Page	Section	Natural ground subsidence					
101	**17.1**	**Shrink swell clays**	Low (within 50m)				
102	**17.2**	**Running sands**	Moderate (within 50m)				
104	**17.3**	**Compressible deposits**	Moderate (within 50m)				
106	**17.4**	**Collapsible deposits**	Very low (within 50m)				
107	**17.5**	**Landslides**	Very low (within 50m)				
108	**17.6**	**Ground dissolution of soluble rocks**	Negligible (within 50m)				
Page	Section	Mining, ground workings and natural cavities	On site	0-50m	50-250m	250-500m	500-2000m
110	18.1	Natural cavities	0	0	0	0	-
111	18.2	BritPits	0	0	0	0	-
111	**18.3**	**Surface ground workings**	2	0	18	-	-
112	18.4	Underground workings	0	0	0	0	0
112	18.5	Historical Mineral Planning Areas	0	0	0	0	-

112	18.6	Non-coal mining	0	0	0	0	0
112	18.7	Mining cavities	0	0	0	0	0
113	18.8	JPB mining areas	None (within 0m)				
113	18.9	Coal mining	None (within 0m)				
113	18.10	Brine areas	None (within 0m)				
113	18.11	Gypsum areas	None (within 0m)				
113	18.12	Tin mining	None (within 0m)				
114	18.13	Clay mining	None (within 0m)				

Page	Section	Radon	
115	**19.1**	**Radon**	Less than 1% (within 0m)

Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
116	**20.1**	**BGS Estimated Background Soil Chemistry**	4	3	-	-	-
116	20.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
117	20.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-

Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
118	21.1	Underground railways (London)	0	0	0	-	-
118	21.2	Underground railways (Non-London)	0	0	0	-	-
118	21.3	Railway tunnels	0	0	0	-	-
118	21.4	Historical railway and tunnel features	0	0	0	-	-
118	21.5	Royal Mail tunnels	0	0	0	-	-
119	21.6	Historical railways	0	0	0	-	-
119	21.7	Railways	0	0	0	-	-
119	21.8	Crossrail 1	0	0	0	0	-
119	21.9	Crossrail 2	0	0	0	0	-
119	21.10	HS2	0	0	0	0	-

Recent aerial photograph

Capture Date: 22/04/2019

Site Area: 8.45ha

Recent site history - 2015 aerial photograph

Capture Date: 22/04/2015

Site Area: 8.45ha

Recent site history - 2012 aerial photograph

Capture Date: 26/03/2012

Site Area: 8.45ha

Recent site history - 2001 aerial photograph

Capture Date: 01/05/2001

Site Area: 8.45ha

Recent site history - 2000 aerial photograph

Capture Date: 25/08/2000

Site Area: 8.45ha

OS MasterMap site plan

Site Area: 8.45ha

1 Past land use

Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

Historical petrol stations

Historical garages

1.1 Historical industrial land uses

Records within 500m	8

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 1:10,560 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 14**

ID	Location	Land use	Dates present	Group ID
1	110m S	Pipe	1846	655393

ID	Location	Land use	Dates present	Group ID
2	113m S	Unspecified Heap	1892	649425
3	139m SE	Airfield	1951	654728
4	157m S	Sewage Works	1971 - 1989	755079
5	236m E	Unspecified Pump	1846	691897
6	321m NE	Hospital	1951	682566
8	424m NW	Brick Field	1892	668511
9	449m NW	Unspecified Ground Workings	1892	646180

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m	**2**

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 14**

ID	Location	Land use	Dates present	Group ID
B	265m E	Unspecified Tank	1993	80087
B	265m E	Tanks	1989	100880

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m	**5**

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 14**

ID	Location	Land use	Dates present	Group ID
A	8m E	Electricity Substation	1989	50087
A	8m E	Electricity Substation	1989	51908
A	11m E	Electricity Substation	1993	46808
C	354m E	Electricity Substation	1976 - 1988	58558
C	358m E	Electricity Substation	1988	44369

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m	**2**

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 14**

ID	Location	Land use	Dates present	Group ID
D	498m E	Filling Station	1976	1366
D	498m E	Filling Station	1988	1398

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m	**1**

Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 14**

ID	Location	Land use	Dates present	Group ID
7	409m E	Garage	1966 - 1988	19858

This data is sourced from Ordnance Survey / Groundsure.

1.6 Historical military land

Records within 500m	0

Areas of military land digitised from multiple sources including the National Archives, local records, MOD records and verified other sources, intelligently grouped into contiguous features.

This data is sourced from Ordnance Survey / Groundsure / other sources.

2 Past land use - un-grouped

Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

Historical petrol stations

Historical garages

2.1 Historical industrial land uses

Records within 500m	9

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 10,560 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 18**

ID	Location	Land Use	Date	Group ID
1	110m S	Pipe	1846	655393
2	113m S	Unspecified Heap	1892	649425
3	139m SE	Airfield	1951	654728

ID	Location	Land Use	Date	Group ID
B	157m S	Sewage Works	1971	755079
B	157m S	Sewage Works	1989	755079
4	236m E	Unspecified Pump	1846	691897
5	321m NE	Hospital	1951	682566
6	424m NW	Brick Field	1892	668511
7	449m NW	Unspecified Ground Workings	1892	646180

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m	**3**

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 18**

ID	Location	Land Use	Date	Group ID
C	265m E	Unspecified Tank	1993	80087
C	265m E	Tanks	1989	100880
C	265m E	Tanks	1989	100880

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m	**6**

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 18**

ID	Location	Land Use	Date	Group ID
A	8m E	Electricity Substation	1989	50087
A	8m E	Electricity Substation	1989	51908

ID	Location	Land Use	Date	Group ID
A	11m E	Electricity Substation	1993	46808
D	354m E	Electricity Substation	1976	58558
D	357m E	Electricity Substation	1988	58558
D	358m E	Electricity Substation	1988	44369

This data is sourced from Ordnance Survey / Groundsure.

2.4 Historical petrol stations

Records within 500m	**3**

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 18**

ID	Location	Land Use	Date	Group ID
F	498m E	Filling Station	1988	1398
F	498m E	Filling Station	1988	1398
F	498m E	Filling Station	1976	1366

This data is sourced from Ordnance Survey / Groundsure.

2.5 Historical garages

Records within 500m	**4**

Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 18**

ID	Location	Land Use	Date	Group ID
E	409m E	Garage	1988	19858
E	409m E	Garage	1988	19858
E	416m E	Garage	1976	19858
E	416m E	Garage	1966	19858

This data is sourced from Ordnance Survey / Groundsure.

3 Waste and landfill

Site Outline

Search buffers in metres (m)

Historical waste sites

Waste exemptions

3.1 Active or recent landfill

Records within 500m	0

Active or recently closed landfill sites under Environment Agency/Natural Resources Wales regulation.

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

3.2 Historical landfill (BGS records)

Records within 500m	0

Landfill sites identified on a survey carried out on behalf of the DoE in 1973. These sites may have been closed or operational at this time.

This data is sourced from the British Geological Survey.

3.3 Historical landfill (LA/mapping records)

Records within 500m	0

Landfill sites identified from Local Authority records and high detail historical mapping.

This data is sourced from the Ordnance Survey/Groundsure and Local Authority records.

3.4 Historical landfill (EA/NRW records)

Records within 500m	0

Known historical (closed) landfill sites (e.g. sites where there is no PPC permit or waste management licence currently in force). This includes sites that existed before the waste licensing regime and sites that have been licensed in the past but where a licence has been revoked, ceased to exist or surrendered and a certificate of completion has been issued.

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

3.5 Historical waste sites

Records within 500m	2

Waste site records derived from Local Authority planning records and high detail historical mapping.

Features are displayed on the Waste and landfill map on **page 22**

ID	Location	Address	Further Details	Date
B	29m S	Site Address: N/A	Type of Site: Scrap Yard Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1989
B	29m S	Site Address: N/A	Type of Site: Scrap Yard Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1989

This data is sourced from Ordnance Survey/Groundsure and Local Authority records.

3.6 Licensed waste sites

Records within 500m	0

Active or recently closed waste sites under Environment Agency/Natural Resources Wales regulation.

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

3.7 Waste exemptions

Records within 500m	27

Activities involving the storage, treatment, use or disposal of waste that are exempt from needing a permit. Exemptions have specific limits and conditions that must be adhered to.

Features are displayed on the Waste and landfill map on **page 22**

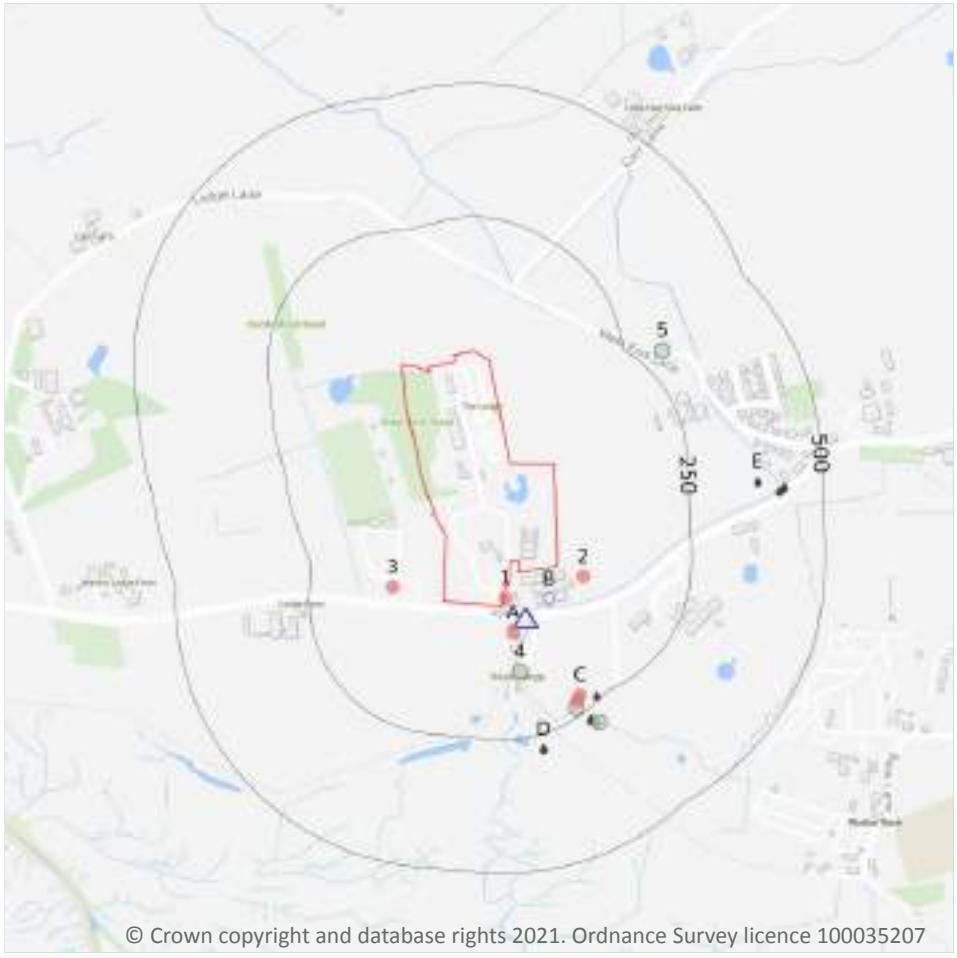
ID	Location	Site	Reference	Category	Sub-Category	Description
A	20m E	Brook Bridge Lytham Road Preston Lancashire PR4 1TE	EPR/TF0700PX/A001	Storing waste exemption	Non-Agricultural Waste Only	Storage of waste in a secure place
A	20m E	Brook Bridge Lytham Road Preston Lancashire PR4 1TE	EPR/TF0700PX/A001	Using waste exemption	Non-Agricultural Waste Only	Use of waste in construction
C	85m W	Lodge Farm Preston Road Lytham St. Annes Lancashire FY8 5RW	EPR/TH0177XL/A001	Disposing of waste exemption	Agricultural Waste Only	Deposit of waste from dredging of inland waters
C	85m W	Lodge Farm Preston Road Lytham St. Annes Lancashire FY8 5RW	EPR/TH0177XL/A001	Disposing of waste exemption	Agricultural Waste Only	Deposit of agricultural waste consisting of plant tissue under a Plant Health notice
C	85m W	Lodge Farm Preston Road Lytham St. Annes Lancashire FY8 5RW	EPR/TH0177XL/A001	Disposing of waste exemption	Agricultural Waste Only	Burning waste in the open
C	85m W	Lodge Farm Preston Road Lytham St. Annes Lancashire FY8 5RW	EPR/TH0177XL/A001	Treating waste exemption	Agricultural Waste Only	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
C	85m W	Lodge Farm Preston Road Lytham St. Annes Lancashire FY8 5RW	EPR/TH0177XL/A001	Treating waste exemption	Agricultural Waste Only	Recovery of scrap metal
C	85m W	Lodge Farm Preston Road Lytham St. Annes Lancashire FY8 5RW	EPR/TH0177XL/A001	Using waste exemption	Agricultural Waste Only	Use of waste in construction

ID	Location	Site	Reference	Category	Sub-Category	Description
C	85m W	Lodge Farm Preston Road Lytham St. Annes Lancashire FY8 5RW	EPR/TH0177XL/A001	Using waste exemption	Agricultural Waste Only	Spreading waste on agricultural land to confer benefit
C	85m W	Lodge Farm Preston Road Lytham St. Annes Lancashire FY8 5RW	EPR/TH0177XL/A001	Using waste exemption	Agricultural Waste Only	Use of waste for a specified purpose
1	237m NE	-	WEX234795	Storing waste exemption	On a farm	Storage of sludge
D	267m W	LODGE FARM, PRESTON ROAD, LYTHAM ST. ANNES, FY8 5RW	WEX177352	Using waste exemption	On a farm	Use of waste for a specified purpose
D	267m W	LODGE FARM, PRESTON ROAD, LYTHAM ST. ANNES, FY8 5RW	WEX177352	Treating waste exemption	On a farm	Recovery of scrap metal
D	267m W	LODGE FARM, PRESTON ROAD, LYTHAM ST. ANNES, FY8 5RW	WEX177352	Treating waste exemption	On a farm	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
D	267m W	LODGE FARM, PRESTON ROAD, LYTHAM ST. ANNES, FY8 5RW	WEX177352	Using waste exemption	On a farm	Spreading waste on agricultural land to confer benefit
D	267m W	LODGE FARM, PRESTON ROAD, LYTHAM ST. ANNES, FY8 5RW	WEX177352	Disposing of waste exemption	On a farm	Deposit of agricultural waste consisting of plant tissue under a Plant Health notice
D	267m W	LODGE FARM, PRESTON ROAD, LYTHAM ST. ANNES, FY8 5RW	WEX177352	Disposing of waste exemption	On a farm	Burning waste in the open
D	267m W	LODGE FARM, PRESTON ROAD, LYTHAM ST. ANNES, FY8 5RW	WEX177352	Disposing of waste exemption	On a farm	Deposit of waste from dredging of inland waters
D	267m W	LODGE FARM, PRESTON ROAD, LYTHAM ST. ANNES, FY8 5RW	WEX177352	Using waste exemption	On a farm	Use of waste in construction
D	267m W	LODGE FARM, PRESTON ROAD, LYTHAM ST. ANNES, FY8 5RW	WEX014603	Disposing of waste exemption	On a farm	Deposit of waste from dredging of inland waters
D	267m W	LODGE FARM, PRESTON ROAD, LYTHAM ST. ANNES, FY8 5RW	WEX014603	Disposing of waste exemption	On a farm	Deposit of agricultural waste consisting of plant tissue under a Plant Health notice

ID	Location	Site	Reference	Category	Sub-Category	Description
D	267m W	LODGE FARM, PRESTON ROAD, LYTHAM ST. ANNES, FY8 5RW	WEX014603	Disposing of waste exemption	On a farm	Burning waste in the open
D	267m W	LODGE FARM, PRESTON ROAD, LYTHAM ST. ANNES, FY8 5RW	WEX014603	Treating waste exemption	On a farm	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
D	267m W	LODGE FARM, PRESTON ROAD, LYTHAM ST. ANNES, FY8 5RW	WEX014603	Treating waste exemption	On a farm	Recovery of scrap metal
D	267m W	LODGE FARM, PRESTON ROAD, LYTHAM ST. ANNES, FY8 5RW	WEX014603	Using waste exemption	On a farm	Use of waste in construction
D	267m W	LODGE FARM, PRESTON ROAD, LYTHAM ST. ANNES, FY8 5RW	WEX014603	Using waste exemption	On a farm	Spreading waste on agricultural land to confer benefit
D	267m W	LODGE FARM, PRESTON ROAD, LYTHAM ST. ANNES, FY8 5RW	WEX014603	Using waste exemption	On a farm	Use of waste for a specified purpose

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

4 Current industrial land use



Site Outline

Search buffers in metres (m)

Recent industrial land uses

Current or recent petrol stations

Part A(1) industrial activities

Licensed Discharges to controlled waters

Pollution Incidents (EA/NRW)

4.1 Recent industrial land uses

Records within 250m	6

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 27**

ID	Location	Company	Address	Activity	Category
1	4m E	Electricity Sub Station	Lancashire, PR4	Electrical Features	Infrastructure and Facilities
2	52m E	Brook Bridge Poultry Farm	Lancashire, PR4	Poultry Farming, Equipment and Supplies	Farming

ID	Location	Company	Address	Activity	Category
A	52m S	Works	Lancashire, PR4	Unspecified Works Or Factories	Industrial Features
3	95m W	Electricity Sub Station	Lancashire, PR4	Electrical Features	Infrastructure and Facilities
C	220m SE	(Disused) Sewage Works	Lancashire, PR4	Waste Storage, Processing and Disposal	Infrastructure and Facilities
C	225m SE	Sewage Pumping Station	Lancashire, PR4	Waste Storage, Processing and Disposal	Infrastructure and Facilities

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m	**1**

Open, closed, under development and obsolete petrol stations.

Features are displayed on the Current industrial land use map on **page 27**

ID	Location	Company	Address	LPG	Status
A	46m SE	OBSOLETE	320A, Lytham Road, Warton, Preston, Lancashire, PR4 1TE	Not Applicable	Obsolete

This data is sourced from Experian.

4.3 Electricity cables

Records within 500m	**0**

High voltage underground electricity transmission cables.

This data is sourced from National Grid.

4.4 Gas pipelines

Records within 500m	**0**

High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.5 Sites determined as Contaminated Land

Records within 500m	0

Contaminated Land Register of sites designated under Part 2a of the Environmental Protection Act 1990.

This data is sourced from Local Authority records.

4.6 Control of Major Accident Hazards (COMAH)

Records within 500m	0

Control of Major Accident Hazards (COMAH) sites. This data includes upper and lower tier sites, and includes a historical archive of COMAH sites and Notification of Installations Handling Hazardous Substances (NIHHS) records.

This data is sourced from the Health and Safety Executive.

4.7 Regulated explosive sites

Records within 500m	0

Sites registered and licensed by the Health and Safety Executive under the Manufacture and Storage of Explosives Regulations 2005 (MSER). The last update to this data was in April 2011.

This data is sourced from the Health and Safety Executive.

4.8 Hazardous substance storage/usage

Records within 500m	0

Consents granted for a site to hold certain quantities of hazardous substances at or above defined limits in accordance with the Planning (Hazardous Substances) Regulations 2015.

This data is sourced from Local Authority records.

4.9 Historical licensed industrial activities (IPC)

Records within 500m	0

Integrated Pollution Control (IPC) records of substance releases to air, land and water. This data represents a historical archive as the IPC regime has been superseded.

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

4.10 Licensed industrial activities (Part A(1))

Records within 500m	2

Records of Part A(1) installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

Features are displayed on the Current industrial land use map on **page 27**

ID	Location	Details	
B	58m S	Operator: FAYRE GAME LTD Installation Name: BROOK BRIDGE POULTRY FARM - EPR/QP3934FG Process: INTENSIVE FARMING; > 40,000 POULTRY Permit Number: BP3805LR Original Permit Number: QP3934FG	EPR Reference: - Issue Date: 25/03/2021 Effective Date: 25/03/2021 Last date noted as effective: 01/07/2021 Status: EFFECTIVE
B	58m S	Operator: FAYRE GAME LTD Installation Name: BROOK BRIDGE FARM EPR/QP3934FG Process: INTENSIVE FARMING; > 40,000 POULTRY Permit Number: QP3934FG Original Permit Number: QP3934FG	EPR Reference: - Issue Date: 19/03/2012 Effective Date: 19/03/2012 Last date noted as effective: 01/07/2021 Status: SUPERCEDED

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

4.11 Licensed pollutant release (Part A(2)/B)

Records within 500m	0

Records of Part A(2) and Part B installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

This data is sourced from Local Authority records.

4.12 Radioactive Substance Authorisations

Records within 500m	0

Records of the storage, use, accumulation and disposal of radioactive substances regulated under the Radioactive Substances Act 1993.

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

4.13 Licensed Discharges to controlled waters

Records within 500m	**18**

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

Features are displayed on the Current industrial land use map on **page 27**

ID	Location	Address	Details	
C	242m SE	WARTON PS NO 10, FYLDE	Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: 01FYL0026 Permit Version: 1 Receiving Water: -	Status: REVOKED - UNSPECIFIED Issue date: - Effective Date: 13/05/1993 Revocation Date: 01/01/1995
C	267m SE	LYTHAM ROAD, BRYNING WITH WARTON, LANCASHIRE, PR4 1TE	Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: 01FYL0028 Permit Version: 4 Receiving Water: WREA BROOK	Status: MODIFIED - (WRA 91 SCHED 10 - AS AMENDED BY ENV ACT 1995) Issue date: 12/10/2011 Effective Date: 14/10/2011 Revocation Date: 30/12/2011
C	267m SE	LYTHAM ROAD, BRYNING WITH WARTON, LANCASHIRE, PR4 1TE	Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: 01FYL0028 Permit Version: 4 Receiving Water: WREA BROOK	Status: MODIFIED - (WRA 91 SCHED 10 - AS AMENDED BY ENV ACT 1995) Issue date: 12/10/2011 Effective Date: 14/10/2011 Revocation Date: 30/12/2011
C	267m SE	LYTHAM ROAD, BRYNING WITH WARTON, LANCASHIRE, PR4 1TE	Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: 01FYL0028 Permit Version: 5 Receiving Water: WREA BROOK	Status: VARIED UNDER EPR 2010 Issue date: 29/12/2011 Effective Date: 31/12/2011 Revocation Date: 30/01/2019
C	267m SE	LYTHAM ROAD, BRYNING WITH WARTON, LANCASHIRE, PR4 1TE	Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: 01FYL0028 Permit Version: 5 Receiving Water: WREA BROOK	Status: VARIED UNDER EPR 2010 Issue date: 29/12/2011 Effective Date: 31/12/2011 Revocation Date: 30/01/2019
C	267m SE	LYTHAM ROAD, BRYNING WITH WARTON, LANCASHIRE, PR4 1TE	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: NPSWQD010748 Permit Version: 1 Receiving Water: WREA BROOK	Status: VARIED UNDER EPR 2010 Issue date: 31/01/2019 Effective Date: 31/01/2019 Revocation Date: -
C	267m SE	LYTHAM ROAD, BRYNING WITH WARTON, LANCASHIRE, PR4 1TE	Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: NPSWQD010748 Permit Version: 1 Receiving Water: WREA BROOK	Status: VARIED UNDER EPR 2010 Issue date: 31/01/2019 Effective Date: 31/01/2019 Revocation Date: -

ID	Location	Address	Details	
D	278m S	BROOK CORNER CSO, LYTHAM ROAD, WARTON, PRESTON, LANCASHIRE, PR4 1TE	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01FYL0015 Permit Version: 1 Receiving Water: -	Status: REVOKED - UNSPECIFIED Issue date: - Effective Date: 01/04/1991 Revocation Date: 31/12/1994
D	278m S	BROOK CORNER CSO, LYTHAM ROAD, WARTON, PRESTON, LANCASHIRE, PR4 1TE	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01FYL0015 Permit Version: 2 Receiving Water: WREA BROOK	Status: POST NRA LEGISLATION WHERE ISSUE DATE > 31-AUG-89 (HISTORIC ONLY) Issue date: - Effective Date: 01/01/1995 Revocation Date: 31/03/2012
D	278m S	BRYNING-WTH-WARTON SSO 10, FYLDE	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01LA1934 Permit Version: 1 Receiving Water: WREA BROOK	Status: REVOKED - UNSPECIFIED Issue date: - Effective Date: 05/07/1973 Revocation Date: 05/07/1973
C	279m SE	NORTH WEST WATER LTD, FYLDE	Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - WATER COMPANY Permit Number: 017160304 Permit Version: 1 Receiving Water: TRIB WREA BROOK	Status: REVOKED - UNSPECIFIED Issue date: - Effective Date: 01/07/1991 Revocation Date: 30/07/1993
E	378m E	BROOK CORNER, FYLDE	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01FYL0027 Permit Version: 1 Receiving Water: -	Status: REVOKED - UNSPECIFIED Issue date: - Effective Date: 13/05/1993 Revocation Date: 01/01/1995
E	419m E	BROOK CORNER CSO, LYTHAM ROAD, WARTON, PRESTON, LANCASHIRE, PR4 1TE	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01FYL0015 Permit Version: 4 Receiving Water: WREA BROOK	Status: MODIFIED - (WRA 91 SCHED 10 - AS AMENDED BY ENV ACT 1995) Issue date: 13/10/2011 Effective Date: 01/04/2012 Revocation Date: 13/08/2017
E	419m E	BROOK CORNER CSO, LYTHAM ROAD, WARTON, PRESTON, LANCASHIRE, PR4 1TE	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01FYL0015 Permit Version: 5 Receiving Water: RIVER RIBBLE	Status: VARIED UNDER EPR 2010 Issue date: 24/08/2017 Effective Date: 14/08/2017 Revocation Date: -

ID	Location	Address	Details	
E	419m E	LYTHAM ROAD, BRYNING WITH WARTON, LANCASHIRE, PR4 1TE	Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: 01FYL0028 Permit Version: 4 Receiving Water: WREA BROOK	Status: MODIFIED - (WRA 91 SCHED 10 - AS AMENDED BY ENV ACT 1995) Issue date: 12/10/2011 Effective Date: 14/10/2011 Revocation Date: 30/12/2011
E	419m E	LYTHAM ROAD, BRYNING WITH WARTON, LANCASHIRE, PR4 1TE	Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: 01FYL0028 Permit Version: 5 Receiving Water: WREA BROOK	Status: VARIED UNDER EPR 2010 Issue date: 29/12/2011 Effective Date: 31/12/2011 Revocation Date: 30/01/2019
E	419m E	LYTHAM ROAD, BRYNING WITH WARTON, LANCASHIRE, PR4 1TE	Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: NPSWQD010748 Permit Version: 1 Receiving Water: WREA BROOK	Status: VARIED UNDER EPR 2010 Issue date: 31/01/2019 Effective Date: 31/01/2019 Revocation Date: -
E	428m E	NORTH WEST WATER LTD, FYLDE	Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - WATER COMPANY Permit Number: 01DA183 Permit Version: 1 Receiving Water: WREA BROOK	Status: REVOKED - UNSPECIFIED Issue date: - Effective Date: 30/07/1993 Revocation Date: 30/07/1993

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

4.14 Pollutant release to surface waters (Red List)

Records within 500m	0

Discharges of specified substances under the Environmental Protection (Prescribed Processes and Substances) Regulations 1991.

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

4.15 Pollutant release to public sewer

Records within 500m	0

Discharges of Special Category Effluents to the public sewer.

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

4.16 List 1 Dangerous Substances

Records within 500m	0

Discharges of substances identified on List I of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

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

4.17 List 2 Dangerous Substances

Records within 500m	0

Discharges of substances identified on List II of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

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

4.18 Pollution Incidents (EA/NRW)

Records within 500m	4

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

Features are displayed on the Current industrial land use map on **page 27**

ID	Location	Details	
4	127m S	Incident Date: 18/09/2009 Incident Identification: 717432 Pollutant: Sewage Materials Pollutant Description: Storm Sewage	Water Impact: Category 2 (Significant) Land Impact: Category 2 (Significant) Air Impact: Category 3 (Minor)
C	234m SE	Incident Date: 15/06/2005 Incident Identification: 320540 Pollutant: Sewage Materials Pollutant Description: Crude Sewage	Water Impact: Category 2 (Significant) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
C	280m SE	Incident Date: 17/07/2003 Incident Identification: 174540 Pollutant: Oils and Fuel Pollutant Description: Hydraulic Oils	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
5	293m NE	Incident Date: 08/04/2014 Incident Identification: 1225484 Pollutant: Agricultural Materials and Wastes Pollutant Description: Silage Liquors	Water Impact: Category 2 (Significant) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)

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

4.19 Pollution inventory substances

Records within 500m	0

The pollution inventory (substances) includes reporting on annual emissions of certain regulated substances to air, controlled waters and land. A reporting threshold for each substance is also included. Where emissions fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

4.20 Pollution inventory waste transfers

Records within 500m	0

The pollution inventory (waste transfers) includes reporting on annual transfers and recovery/disposal of controlled wastes from a site. A reporting threshold for each waste type is also included. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

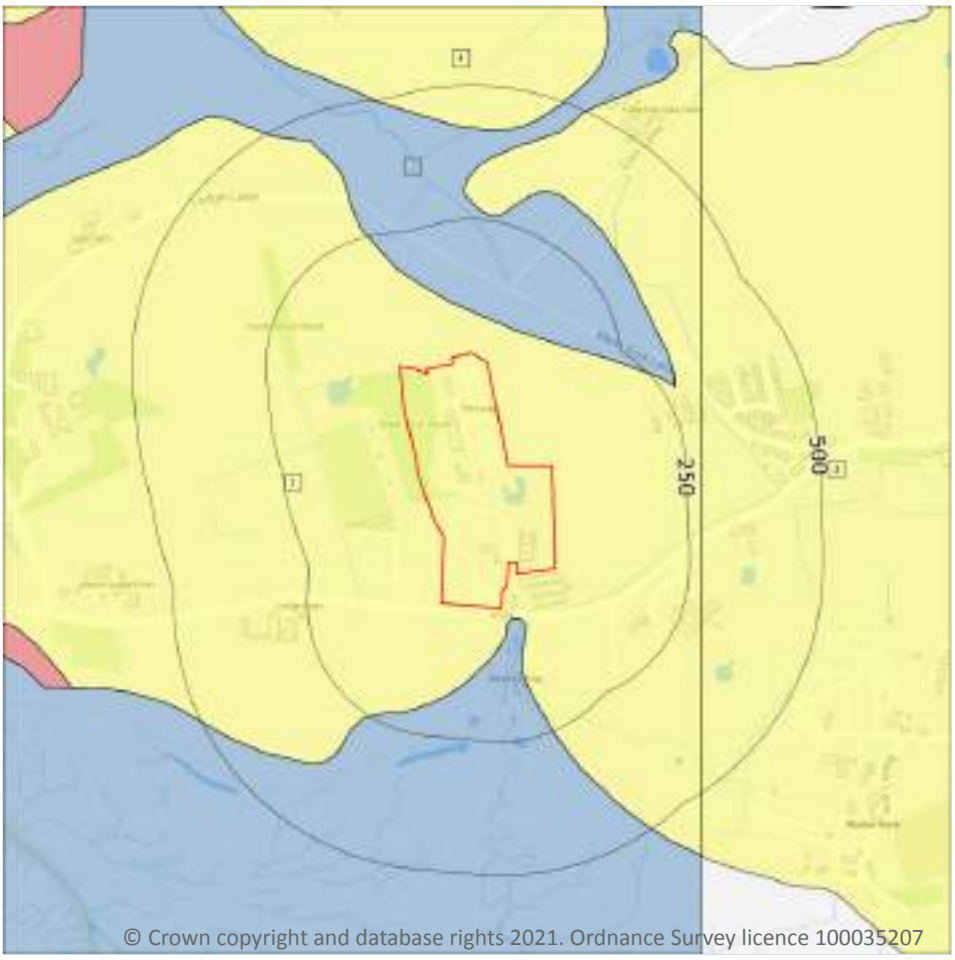
4.21 Pollution inventory radioactive waste

Records within 500m	0

The pollution inventory (radioactive wastes) includes reporting on annual releases of radioactive substances from a site, including the means of release. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

5 Hydrogeology - Superficial aquifer



Site Outline

Search buffers in metres (m)

- Principal
- Secondary A
- Secondary B
- Secondary Undifferentiated
- Unproductive
- Unknown

5.1 Superficial aquifer

Records within 500m	4

Aquifer status of groundwater held within superficial geology.

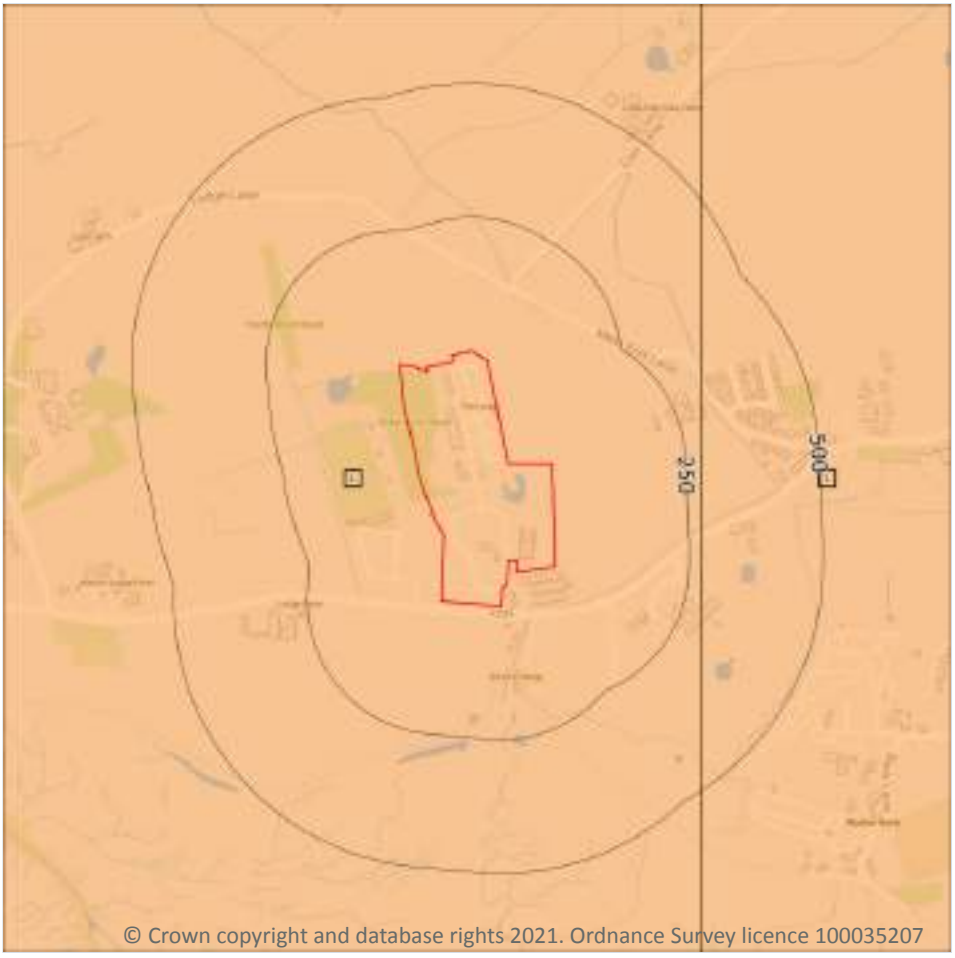
Features are displayed on the Hydrogeology map on **page 36**

ID	Location	Designation	Description
1	**On site**	**Secondary Undifferentiated**	**Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type**
2	28m SE	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow

ID	Location	Designation	Description
3	274m E	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
4	418m N	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

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

Bedrock aquifer



Site Outline

Search buffers in metres (m)

- Principal
- Secondary A
- Secondary B
- Secondary Undifferentiated
- Unproductive

5.2 Bedrock aquifer

Records within 500m	2

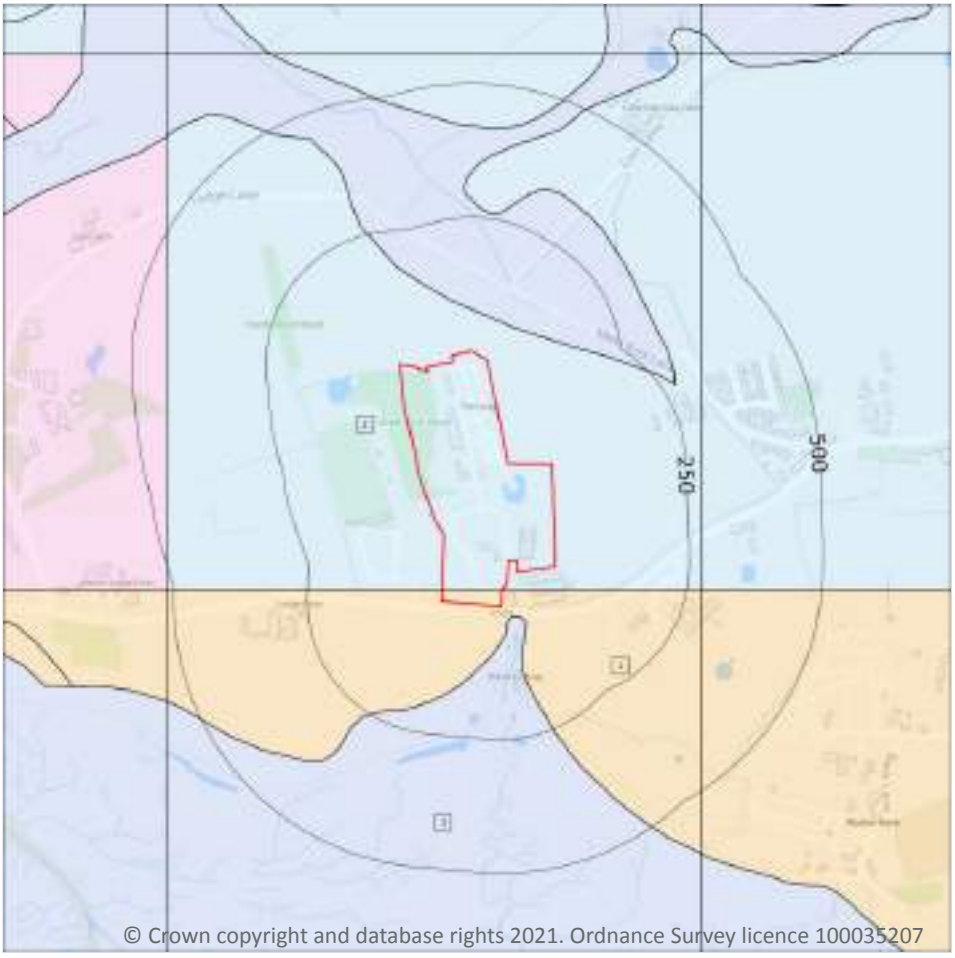
Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on **page 38**

ID	Location	Designation	Description
1	**On site**	**Secondary B**	**Predominantly lower permeability layers which may store/yield limited amounts of groundwater due to localised features such as fissures, thin permeablehorizons and weathering. These are generally the water-bearing parts of the former non-aquifers**
2	274m E	Secondary B	Predominantly lower permeability layers which may store/yield limited amounts of groundwater due to localised features such as fissures, thin permeablehorizons and weathering. These are generally the water-bearing parts of the former non-aquifers

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

Groundwater vulnerability



Site Outline

Search buffers in metres (m)

Superficial vulnerability

- Principal superficial aquifer, high vulnerability
- Secondary superficial aquifer, high vulnerability
- Principal superficial aquifer, medium vulnerability
- Secondary superficial aquifer, medium vulnerability
- Principal superficial aquifer, low vulnerability
- Secondary superficial aquifer, low vulnerability

Bedrock vulnerability

- Principal bedrock aquifer, high vulnerability
- Secondary bedrock aquifer, high vulnerability
- Principal bedrock aquifer, medium vulnerability
- Secondary bedrock aquifer, medium vulnerability
- Principal bedrock aquifer, low vulnerability
- Secondary bedrock aquifer, low vulnerability

Other information

- Unproductive aquifer
- Soluble rock risk
- Local information

5.3 Groundwater vulnerability

Records within 50m	3

An assessment of the vulnerability of groundwater to a pollutant discharged at ground level based on the hydrological, geological, hydrogeological and soil properties within a one kilometre square grid. Groundwater vulnerability is described as High, Medium or Low as follows:

- High - Areas able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits.
- Medium - Intermediate between high and low vulnerability.
- Low - Areas that provide the greatest protection from pollution. They are likely to be characterised by low leaching soils and/or the presence of superficial deposits characterised by a low permeability.

Features are displayed on the Groundwater vulnerability map on **page 40**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	**On site**	**Summary Classification: Secondary superficial aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer**	**Leaching class: High Infiltration value: >70% Dilution value: 300-550mm/year**	**Vulnerability: High Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: Low**	**Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures**
2	**On site**	**Summary Classification: Secondary superficial aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer**	**Leaching class: Low Infiltration value: <40% Dilution value: 300-550mm/year**	**Vulnerability: Low Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: Low**	**Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures**
3	27m SE	Summary Classification: Secondary bedrock aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Unproductive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: 300-550mm/year	Vulnerability: Unproductive Aquifer type: Unproductive Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures

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

5.4 Groundwater vulnerability- soluble rock risk

Records on site	0

This dataset identifies areas where solution features that enable rapid movement of a pollutant may be present within a 1km grid square.

This data is sourced from the British Geological Survey and the Environment Agency.

5.5 Groundwater vulnerability- local information

Records on site	0

This dataset identifies areas where additional local information affecting vulnerability is held by the Environment Agency. Further information can be obtained by contacting the Environment Agency local Area groundwater team through the Environment Agency National Customer Call Centre on 03798 506 506 or by email on enquiries@environment-agency.gov.uk.

This data is sourced from the British Geological Survey and the Environment Agency.

Abstractions and Source Protection Zones

Site Outline

Search buffers in metres (m)

- Source Protection Zone 1 — Inner catchment
- Source Protection Zone 2 — Outer catchment
- Source Protection Zone 3 — Total catchment
- Source Protection Zone 4 — Zone of Special Interest
- Source Protection Zone 1c — Inner catchment - confined aquifer
- Source Protection Zone 2c — Outer catchment - confined aquifer
- Source Protection Zone 3c — Total catchment - confined aquifer
- Drinking water abstraction licences
- Drinking water abstraction licences — Polygon features
- Drinking water abstraction licences — Linear features
- Groundwater abstraction licence (point)
- Groundwater abstraction licence (area)
- Groundwater abstraction licence (linear)
- Surface Water Abstractions (point)
- Surface Water Abstractions (area)
- Surface Water Abstractions (linear)

5.6 Groundwater abstractions

Records within 2000m	0

Licensed groundwater abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, between two points (line data) or a larger area.

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

5.7 Surface water abstractions

Records within 2000m	2

Licensed surface water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on **page 42**

ID	Location	Details	
-	806m NW	Status: Historical Licence No: 2671352001 Details: Spray Irrigation - Direct Direct Source: Surface, Non-Tidal - North West Region Point: WREA BROOK AT BRYNING,KIRKHAM Data Type: Line Name: THOMAS JOSEPH BLACOE AND SON Easting: 338800 Northing: 429400	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 27/07/1984 Expiry Date: - Issue No: 100 Version Start Date: 27/07/1984 Version End Date: -
-	1071m NW	Status: Historical Licence No: 2671352002 Details: Spray Irrigation - Direct Direct Source: Surface, Non-Tidal - North West Region Point: UNNAMED WATERCOURSE AT BRYNING KIRKHAM Data Type: Line Name: THOMAS JOSEPH BLACOE AND SON Easting: 339200 Northing: 429600	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 27/07/1984 Expiry Date: - Issue No: 100 Version Start Date: 27/07/1984 Version End Date: -

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

5.8 Potable abstractions

Records within 2000m	0

Licensed potable water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

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

5.9 Source Protection Zones

Records within 500m	0

Source Protection Zones define the sensitivity of an area around a potable abstraction site to contamination.

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

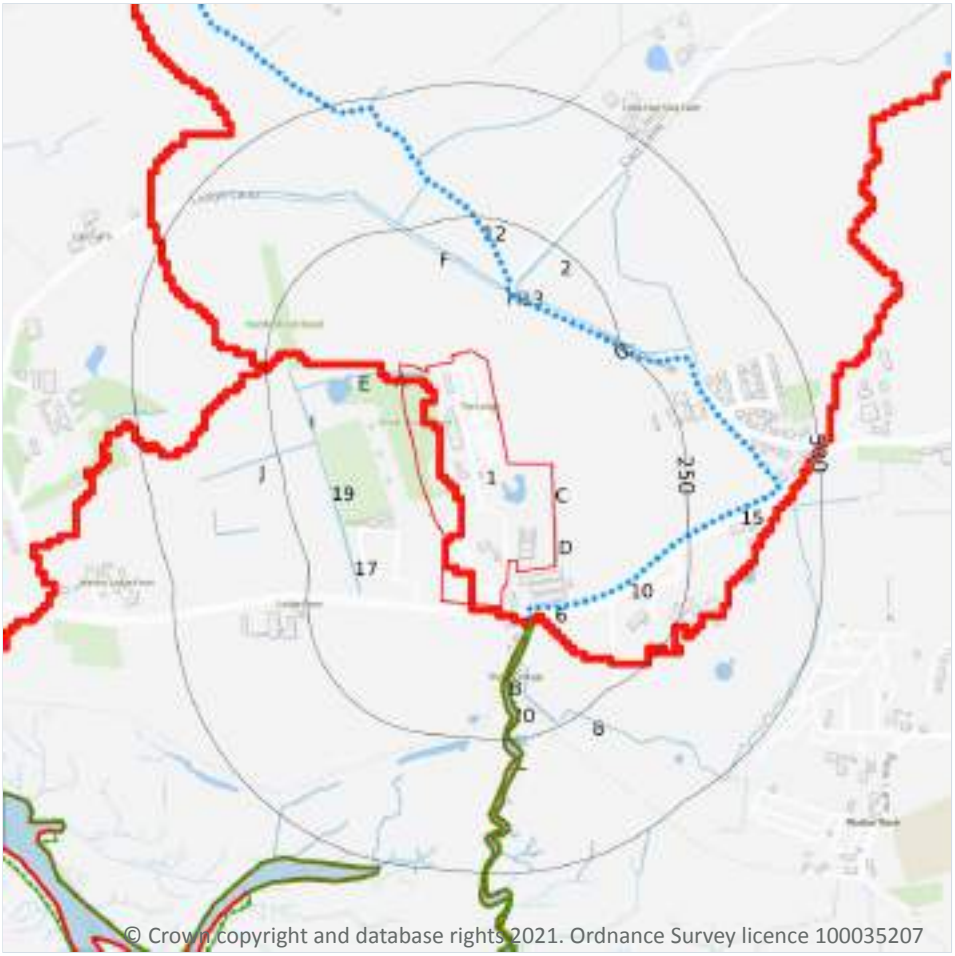
5.10 Source Protection Zones (confined aquifer)

Records within 500m	0

Source Protection Zones in the confined aquifer define the sensitivity around a deep groundwater abstraction to contamination. A confined aquifer would normally be protected from contamination by overlying geology and is only considered a sensitive resource if deep excavation/drilling is taking place.

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

6 Hydrology



Site Outline

Search buffers in metres (m)

Water Network (OS MasterMap)

Surface water features (wider than 5m)

Surface water features (narrower than 5m)

WFD River, canal and surface water transfer water bodies

WFD Lake water bodies

WFD Transitional and coastal water bodies

WFD Surface water body catchments boundaries

WFD Groundwater body boundaries

6.1 Water Network (OS MasterMap)

Records within 250m	29

Detailed water network of Great Britain showing the flow and precise central course of every river, stream, lake and canal.

Features are displayed on the Hydrology map on **page 45**

ID	Location	Type of water feature	Ground level	Permanence	Name
A	**On site**	**Inland river not influenced by normal tidal action.**	**On ground surface**	**Watercourse contains water year round (in normal circumstances)**	**-**

ID	Location	Type of water feature	Ground level	Permanence	Name
C	**On site**	**Inland river not influenced by normal tidal action.**	**On ground surface**	**Watercourse contains water year round (in normal circumstances)**	**-**
D	2m E	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
6	54m E	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Wrea Brook
E	80m W	Marsh. An area that is predominantly waterlogged by freshwater.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
E	85m W	Lake, loch or reservoir.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
B	102m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Wrea Brook
B	102m S	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
E	122m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
8	125m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
G	127m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Wrea Brook
F	129m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
H	129m NE	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
H	130m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

ID	Location	Type of water feature	Ground level	Permanence	Name
H	130m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Wrea Brook
10	135m E	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Wrea Brook
H	135m NE	Inland river not influenced by normal tidal action.	Not provided	Watercourse contains water year round (in normal circumstances)	-
H	135m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Wrea Brook
F	135m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
12	137m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Wrea Brook
13	141m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
15	142m E	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Wrea Brook
17	152m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
19	165m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
I	174m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
J	174m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
20	179m S	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	Wrea Brook

ID	Location	Type of water feature	Ground level	Permanence	Name
E	196m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
L	199m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Wrea Brook

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m	**22**

Covering rivers, streams and lakes (some overlap with OS MasterMap Water Network data in previous section) but additionally covers smaller features such as ponds. Rivers and streams narrower than 5m are represented as a single line. Lakes, ponds and rivers or streams wider than 5m are represented as polygons.

Features are displayed on the Hydrology map on **page 45**

This data is sourced from the Ordnance Survey.

6.3 WFD Surface water body catchments

Records on site	**2**

The Water Framework Directive is an EU-led framework for the protection of inland surface waters, estuaries, coastal waters and groundwater through river basin-level management planning. In terms of surface water, these basins are broken down into smaller units known as management, operational and water body catchments.

Features are displayed on the Hydrology map on **page 45**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
2	**On site**	**River WB catchment**	**Wrea Brook**	**GB112071065680**	**Savick Brook and Fylde South Drains**	**Ribble**
B	**On site**	**Coastal Catchment**	**Not part of a river WB catchment**	**176**	**Savick Brook and Fylde South Drains**	**Ribble**

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

6.4 WFD Surface water bodies

Records identified	2

Surface water bodies under the Directive may be rivers, lakes, estuary or coastal. To achieve the purpose of the Directive, environmental objectives have been set and are reported on for each water body. The progress towards delivery of the objectives is then reported on by the relevant competent authorities at the end of each six-year cycle. The river water body directly associated with the catchment listed in the previous section is detailed below, along with any lake, canal, coastal or artificial water body within 250m of the site. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each water body listed.

Features are displayed on the Hydrology map on **page 45**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
5	54m E	River	Wrea Brook	GB112071065680	Moderate	Good	Moderate	2016
7	68m SE	Transitional	Ribble	GB531207112400	Bad	Good	Bad	2016

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

6.5 WFD Groundwater bodies

Records on site	1

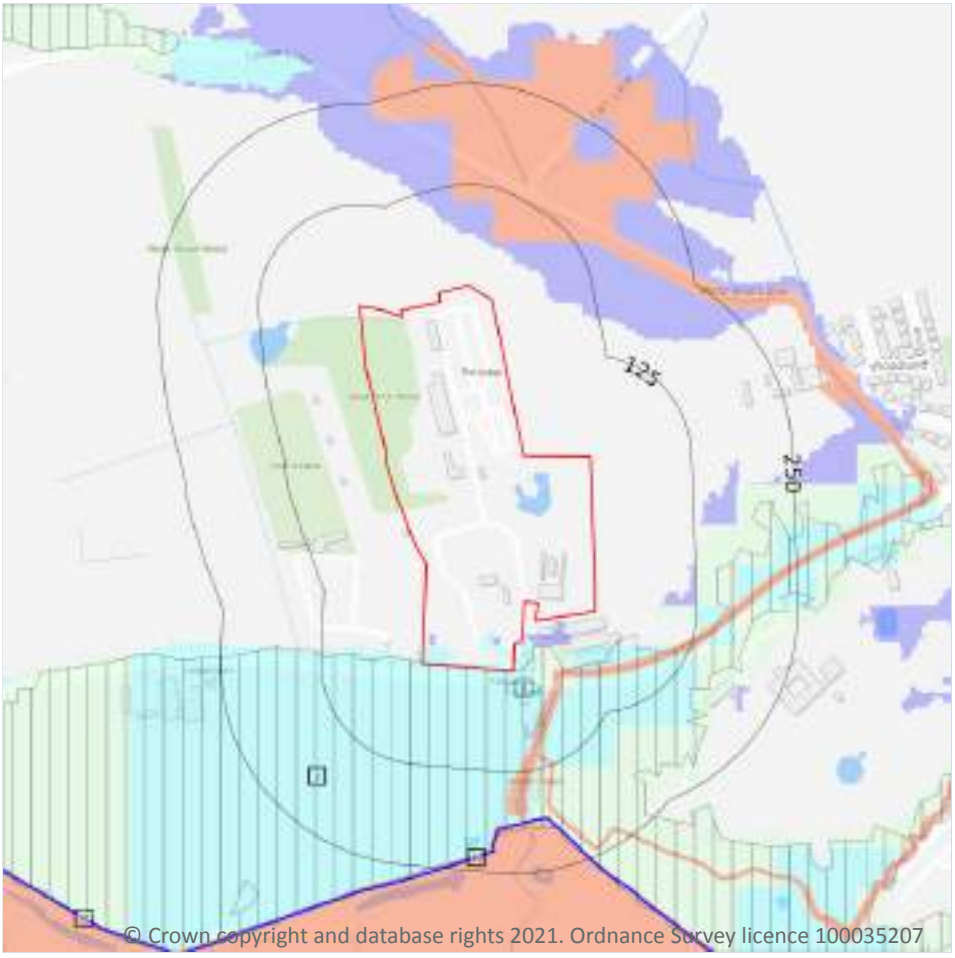
Groundwater bodies are also covered by the Directive and the same regime of objectives and reporting detailed in the previous section is in place. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each groundwater body listed.

Features are displayed on the Hydrology map on **page 45**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
1	**On site**	**West Lancashire Quaternary Sand and Gravel Aquifers**	**GB41202G912700**	**Good**	**Good**	**Good**	**2015**

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

7 River and coastal flooding



Site Outline

Search buffers in metres (m)

Environment Agency river and coastal flooding:

- High
- Medium
- Low
- Very Low
- Historical Flood Events
- Areas Used for Flood Storage
- Areas Benefiting from Flood Defences
- Flood Defences

7.1 Risk of Flooding from Rivers and Sea (RoFRaS)

Records within 50m	**11**

The chance of flooding from rivers and/or the sea in any given year, based on cells of 50m. Each cell is allocated one of four flood risk categories, taking into account flood defences and their condition; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 100 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 100 chance) or High (greater than or equal to 1 in 30 chance).

Features are displayed on the River and coastal flooding map on **page 50**

Distance	RoFRaS flood risk
On site	**Medium**
0 - 50m	High

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

7.2 Historical Flood Events

Records within 250m	1

Records of historic flooding from rivers, the sea, groundwater and surface water. Records began in 1946 when predecessor bodies started collecting detailed information about flooding incidents, although limited details may be included on flooding incidents prior to this date. Takes into account the presence of defences, structures, and other infrastructure where they existed at the time of flooding, and includes flood extents that may have been affected by overtopping, breaches or blockages.

Features are displayed on the River and coastal flooding map on **page 50**

ID	Location	Event name	Date of flood	Flood source	Flood cause	Type of flood
8	15m S	Wrea	1997-02-10 1997-02-11	Other	Local drainage/surface water	Tidal

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

7.3 Flood Defences

Records within 250m	1

Records of flood defences owned, managed or inspected by the Environment Agency and Natural Resources Wales. Flood defences can be structures, buildings or parts of buildings. Typically these are earth banks, stone and concrete walls, or sheet-piling that is used to prevent or control the extent of flooding.

Features are displayed on the River and coastal flooding map on **page 50**

ID	Location	Update
31	186m S	01/09/2021

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

7.4 Areas Benefiting from Flood Defences

Records within 250m	1

Areas that would benefit from the presence of flood defences in a 1 in 100 (1%) chance of flooding each year from rivers or 1 in 200 (0.5%) chance of flooding each year from the sea.

Features are displayed on the River and coastal flooding map on **page 50**

ID	Location	
2	**On site**	**Area benefiting from flood defences**

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

7.5 Flood Storage Areas

Records within 250m	**0**

Areas that act as a balancing reservoir, storage basin or balancing pond to attenuate an incoming flood peak to a flow level that can be accepted by the downstream channel or to delay the timing of a flood peak so that its volume is discharged over a longer period.

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

River and coastal flooding - Flood Zones

Site Outline

Search buffers in metres (m)

Flood zone 2

Flood zone 3

7.6 Flood Zone 2

Records within 50m	1

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land between Flood Zone 3 (see next section) and the extent of the flooding from rivers or the sea with a 1 in 1000 (0.1%) chance of flooding each year.

Features are displayed on the River and coastal flooding map on **page 50**

Location	Type
On site	**Zone 2 - (Fluvial /Tidal Models)**

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

7.7 Flood Zone 3

Records within 50m	1

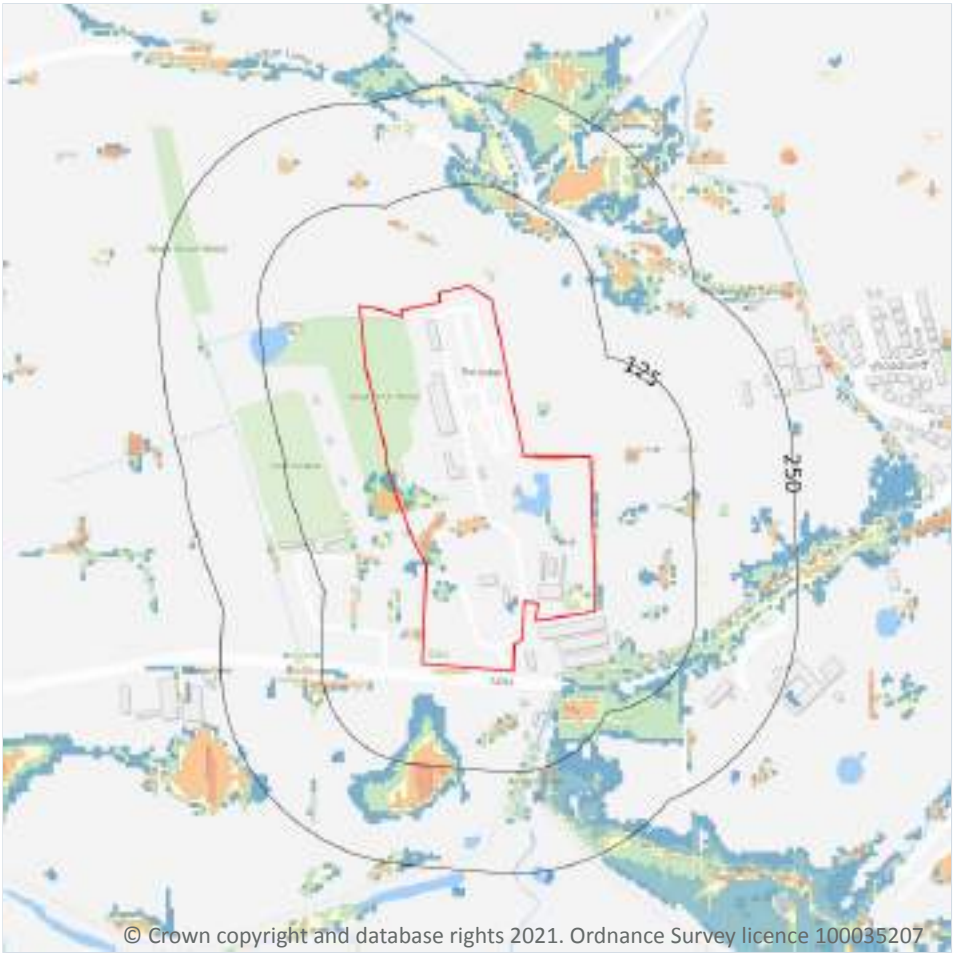
Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land with a 1 in 100 (1%) or greater chance of flooding each year from rivers or a 1 in 200 (0.5%) or greater chance of flooding each year from the sea.

Features are displayed on the River and coastal flooding map on **page 50**

Location	Type
On site	**Zone 3 - (Fluvial Models)**

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

8 Surface water flooding



Site Outline
Search buffers in metres (m)

1 in 1000 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 250 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 100 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 30 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

8.1 Surface water flooding

Highest risk on site	**1 in 30 year, 0.3m - 1.0m**
Highest risk within 50m	**1 in 30 year, 0.3m - 1.0m**

Ambiental Risk Analytics surface water (pluvial) FloodMap identifies areas likely to flood as a result of extreme rainfall events, i.e. land naturally vulnerable to surface water ponding or flooding. This data set was produced by simulating 1 in 30 year, 1 in 100 year, 1 in 250 year and 1 in 1,000 year rainfall events. Modern urban drainage systems are typically built to cope with rainfall events between 1 in 20 and 1 in 30 years, though some older ones may flood in a 1 in 5 year rainfall event.

Features are displayed on the Surface water flooding map on **page 55**

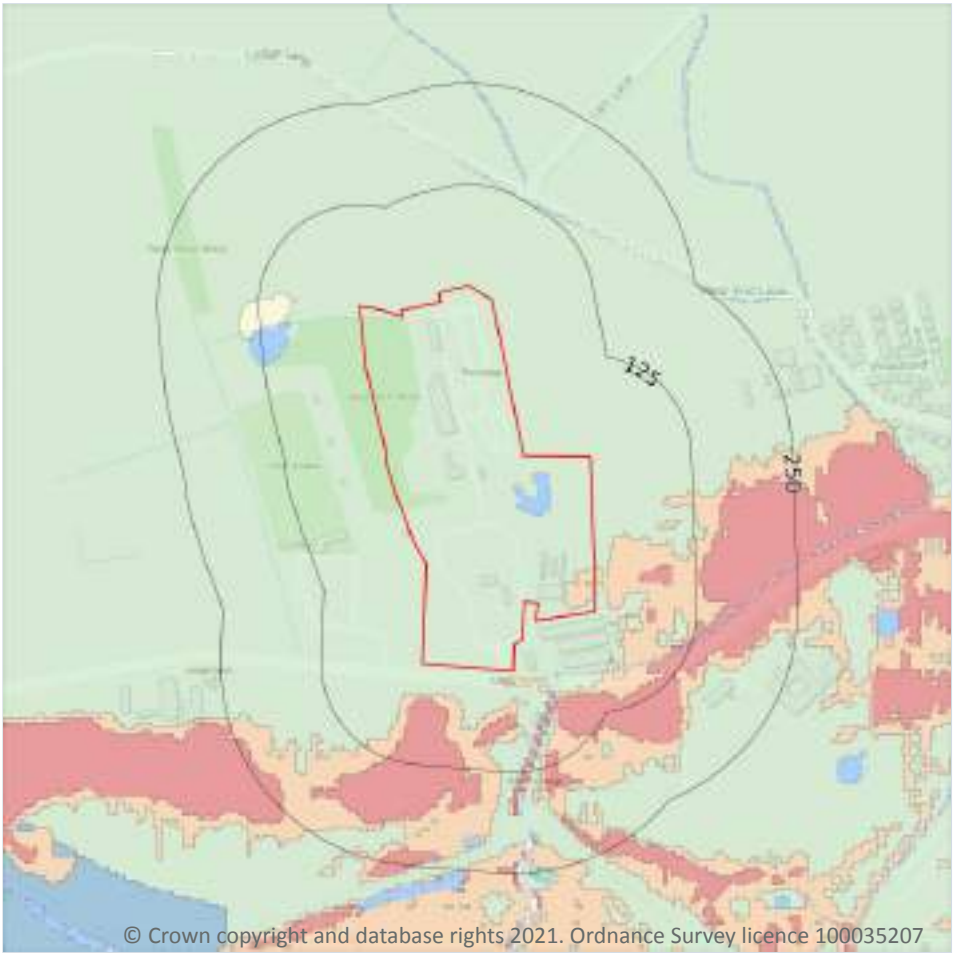
The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site.

The table below shows the maximum flood depths for a range of return periods for the site.

Return period	Maximum modelled depth
1 in 1000 year	Greater than 1.0m
1 in 250 year	Between 0.3m and 1.0m
1 in 100 year	Between 0.3m and 1.0m
1 in 30 year	Between 0.3m and 1.0m

This data is sourced from Ambiental Risk Analytics.

9 Groundwater flooding



Site Outline

Search buffers in metres (m)

High

Moderate - High

Moderate

Low

Negligible

9.1 Groundwater flooding

Highest risk on site	**Moderate-High**
Highest risk within 50m	**High**

Groundwater flooding is caused by unusually high groundwater levels. It occurs when the water table rises above the ground surface or within underground structures such as basements or cellars. Groundwater flooding tends to exhibit a longer duration than surface water flooding, possibly lasting for weeks or months, and as a result it can cause significant damage to property. This risk assessment is based on a 1 in 100 year return period and a 5m Digital Terrain Model (DTM).

Features are displayed on the Groundwater flooding map on **page 57**

This data is sourced from Ambiental Risk Analytics.

10 Environmental designations

Site Outline

Search buffers in metres (m)

- Sites of Special Scientific Interest (SSSI)
- Conserved wetland sites (Ramsar sites)
- Special Protection Areas (SPA)
- National Nature Reserves (NNR)
- Marine Conservation Zones
- Green Belt

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m	**4**

Sites providing statutory protection for the best examples of UK flora, fauna, or geological or physiographical features. Originally notified under the National Parks and Access to the Countryside Act 1949, SSSIs were re-notified under the Wildlife and Countryside Act 1981. Improved provisions for the protection and management of SSSIs were introduced by the Countryside and Rights of Way Act 2000 (in England and Wales) and (in Scotland) by the Nature Conservation (Scotland) Act 2004 and the Wildlife and Natural Environment (Scotland) Act 2010.

Features are displayed on the Environmental designations map on **page 58**

ID	Location	Name	Data source
2	174m S	Ribble Estuary	Natural England

ID	Location	Name	Data source
13	1048m W	Lytham Coastal Changes	Natural England
16	1087m W	Lytham Coastal Changes	Natural England
21	1194m W	Lytham Coastal Changes	Natural England

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.2 Conserved wetland sites (Ramsar sites)

Records within 2000m	**2**

Ramsar sites are designated under the Convention on Wetlands of International Importance, agreed in Ramsar, Iran, in 1971. They cover all aspects of wetland conservation and wise use, recognizing wetlands as ecosystems that are extremely important for biodiversity conservation in general and for the well-being of human communities. These sites cover a broad definition of wetland; marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, and even some marine areas.

Features are displayed on the Environmental designations map on **page 58**

ID	Location	Site	Details
3	174m S	Name: Ribble & Alt Estuaries Site status: Listed Data source: Natural England	Overview: A large area including two estuaries which form part of the chain of west coast sites which fringe the Irish Sea. The site is formed by extensive sand and mudflats backed, in the north, by the saltmarsh of the Ribble Estuary and, to the south, the sand dunes of the Sefton Coast. The tidal flats and saltmarsh support internationally important populations of waterfowl in winter and the sand dunes support vegetation communities and amphibian populations of international importance. Ramsar criteria: Ramsar criterion 2 This site supports up to 40% of the Great Britain population of natterjack toads Bufo calamita.
8	615m S	Name: Ribble & Alt Estuaries Site status: Listed Data source: Natural England	Overview: A large area including two estuaries which form part of the chain of west coast sites which fringe the Irish Sea. The site is formed by extensive sand and mudflats backed, in the north, by the saltmarsh of the Ribble Estuary and, to the south, the sand dunes of the Sefton Coast. The tidal flats and saltmarsh support internationally important populations of waterfowl in winter and the sand dunes support vegetation communities and amphibian populations of international importance. Ramsar criteria: Ramsar criterion 2 This site supports up to 40% of the Great Britain population of natterjack toads Bufo calamita.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.3 Special Areas of Conservation (SAC)

Records within 2000m	0

Areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.4 Special Protection Areas (SPA)

Records within 2000m	2

Sites classified by the UK Government under the EC Birds Directive, SPAs are areas of the most important habitat for rare (listed on Annex I to the Directive) and migratory birds within the European Union.

Features are displayed on the Environmental designations map on **page 58**

ID	Location	Name	Species of interest	Habitat description	Data source
4	174m S	Ribble & Alt Estuaries	Great cormorant; Tundra swan; Whooper swan; Pink-footed goose; Common shelduck; Eurasian wigeon; Eurasian teal; Northern pintail; Greater scaup; Black (common) scoter; Eurasian oystercatcher; Ringed plover; European golden plover; Grey plover; Northern l	Tidal rivers, Estuaries, Mud flats, Sand flats, Lagoons (including saltwork basins); Bogs, Marshes, Water fringed vegetation, Fens; Salt marshes, Salt pastures, Salt steppes	Natural England
24	1383m SE	Ribble & Alt Estuaries	Great cormorant; Tundra swan; Whooper swan; Pink-footed goose; Common shelduck; Eurasian wigeon; Eurasian teal; Northern pintail; Greater scaup; Black (common) scoter; Eurasian oystercatcher; Ringed plover; European golden plover; Grey plover; Northern l	Tidal rivers, Estuaries, Mud flats, Sand flats, Lagoons (including saltwork basins); Bogs, Marshes, Water fringed vegetation, Fens; Salt marshes, Salt pastures, Salt steppes	Natural England

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.5 National Nature Reserves (NNR)

Records within 2000m	2

Sites containing examples of some of the most important natural and semi-natural terrestrial and coastal ecosystems in Great Britain. They are managed to conserve their habitats, provide special opportunities for scientific study or to provide public recreation compatible with natural heritage interests.

Features are displayed on the Environmental designations map on **page 58**

ID	Location	Name	Data source
7	606m SE	Ribble Estuary	Natural England
-	1942m SE	Ribble Estuary	Natural England

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.6 Local Nature Reserves (LNR)

Records within 2000m	**0**

Sites managed for nature conservation, and to provide opportunities for research and education, or simply enjoying and having contact with nature. They are declared by local authorities under the National Parks and Access to the Countryside Act 1949 after consultation with the relevant statutory nature conservation agency.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.7 Designated Ancient Woodland

Records within 2000m	**0**

Ancient woodlands are classified as areas which have been wooded continuously since at least 1600 AD. This includes semi-natural woodland and plantations on ancient woodland sites. 'Wooded continuously' does not mean there is or has previously been continuous tree cover across the whole site, and not all trees within the woodland have to be old.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.8 Biosphere Reserves

Records within 2000m	**0**

Biosphere Reserves are internationally recognised by UNESCO as sites of excellence to balance conservation and socioeconomic development between nature and people. They are recognised under the Man and the Biosphere (MAB) Programme with the aim of promoting sustainable development founded on the work of the local community.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.9 Forest Parks

Records within 2000m	**0**

These are areas managed by the Forestry Commission designated on the basis of recreational, conservation or scenic interest.

This data is sourced from the Forestry Commission.

10.10 Marine Conservation Zones

Records within 2000m	**43**

A type of marine nature reserve in UK waters established under the Marine and Coastal Access Act (2009). They are designated with the aim to protect nationally important, rare or threatened habitats and species.

Features are displayed on the Environmental designations map on **page 58**

ID	Location	Name	Status
5	198m S	Ribble Estuary	Designated
6	417m S	Ribble Estuary	Designated
9	678m SW	Ribble Estuary	Designated
10	724m SW	Ribble Estuary	Designated
11	752m SE	Ribble Estuary	Designated
12	960m SE	Ribble Estuary	Designated
14	1053m S	Ribble Estuary	Designated
15	1056m S	Ribble Estuary	Designated
A	1100m SW	Ribble Estuary	Designated
A	1101m SW	Ribble Estuary	Designated
A	1104m SW	Ribble Estuary	Designated
17	1105m SW	Ribble Estuary	Designated
18	1109m SW	Ribble Estuary	Designated
A	1124m SW	Ribble Estuary	Designated
A	1125m SW	Ribble Estuary	Designated
A	1131m SW	Ribble Estuary	Designated
19	1145m S	Ribble Estuary	Designated
20	1175m SW	Ribble Estuary	Designated
23	1214m S	Ribble Estuary	Designated
B	1241m S	Ribble Estuary	Designated
B	1259m SW	Ribble Estuary	Designated
B	1270m S	Ribble Estuary	Designated
C	1310m SW	Ribble Estuary	Designated

ID	Location	Name	Status
C	1327m SW	Ribble Estuary	Designated
C	1372m SW	Ribble Estuary	Designated
D	1477m SW	Ribble Estuary	Designated
-	1536m W	Ribble Estuary	Designated
D	1536m SW	Ribble Estuary	Designated
27	1579m SE	Ribble Estuary	Designated
D	1595m SW	Ribble Estuary	Designated
E	1633m SW	Ribble Estuary	Designated
-	1716m SW	Ribble Estuary	Designated
-	1766m SW	Ribble Estuary	Designated
-	1778m SW	Ribble Estuary	Designated
-	1791m SW	Ribble Estuary	Designated
-	1808m SW	Ribble Estuary	Designated
28	1815m SE	Ribble Estuary	Designated
-	1910m SW	Ribble Estuary	Designated
-	1930m SW	Ribble Estuary	Designated
-	1947m S	Ribble Estuary	Designated
-	1968m S	Ribble Estuary	Designated
-	1977m S	Ribble Estuary	Designated
-	1995m S	Ribble Estuary	Designated

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.11 Green Belt

Records within 2000m	**5**

Areas designated to prevent urban sprawl by keeping land permanently open.

Features are displayed on the Environmental designations map on **page 58**

ID	Location	Name	Local Authority name
1	**On site**	**Blackpool**	**Fylde**

ID	Location	Name	Local Authority name
22	1201m SW	Blackpool	Fylde
25	1500m SE	Blackpool	Fylde
-	1901m S	Merseyside and Greater Manchester	West Lancashire
-	1907m S	Merseyside and Greater Manchester	West Lancashire

This data is sourced from the Ministry of Housing, Communities and Local Government.

10.12 Proposed Ramsar sites

Records within 2000m	0

Ramsar sites are areas listed as a Wetland of International Importance under the Convention on Wetlands of International Importance especially as Waterfowl Habitat (the Ramsar Convention) 1971. The sites here supplied have a status of 'Proposed' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.13 Possible Special Areas of Conservation (pSAC)

Records within 2000m	0

Special Areas of Conservation are areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive. Those sites supplied here are those with a status of 'Possible' having been identified for potential adoption under the framework.

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

10.14 Potential Special Protection Areas (pSPA)

Records within 2000m	0

Special Protection Areas (SPAs) are areas designated (or ‘classified’) under the European Union Wild Birds Directive for the protection of nationally and internationally important populations of wild birds. Those sites supplied here are those with a status of 'Potential' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.15 Nitrate Sensitive Areas

Records within 2000m	0

Areas where nitrate concentrations in drinking water sources exceeded or was at risk of exceeding the limit of 50 mg/l set by the 1980 EC Drinking Water Directive. Voluntary agricultural measures as a means of reducing the levels of nitrate were introduced by DEFRA as MAFF, with payments being made to farmers who complied. The scheme was started as a pilot in 1990 in ten areas, later implemented within 32 areas. The scheme was closed to further new entrants in 1998, although existing agreements continued for their full term. All Nitrate Sensitive Areas fell within the areas designated as Nitrate Vulnerable Zones (NVZs) in 1996 under the EC Nitrate Directive (91/676/EEC).

This data is sourced from Natural England.

10.16 Nitrate Vulnerable Zones

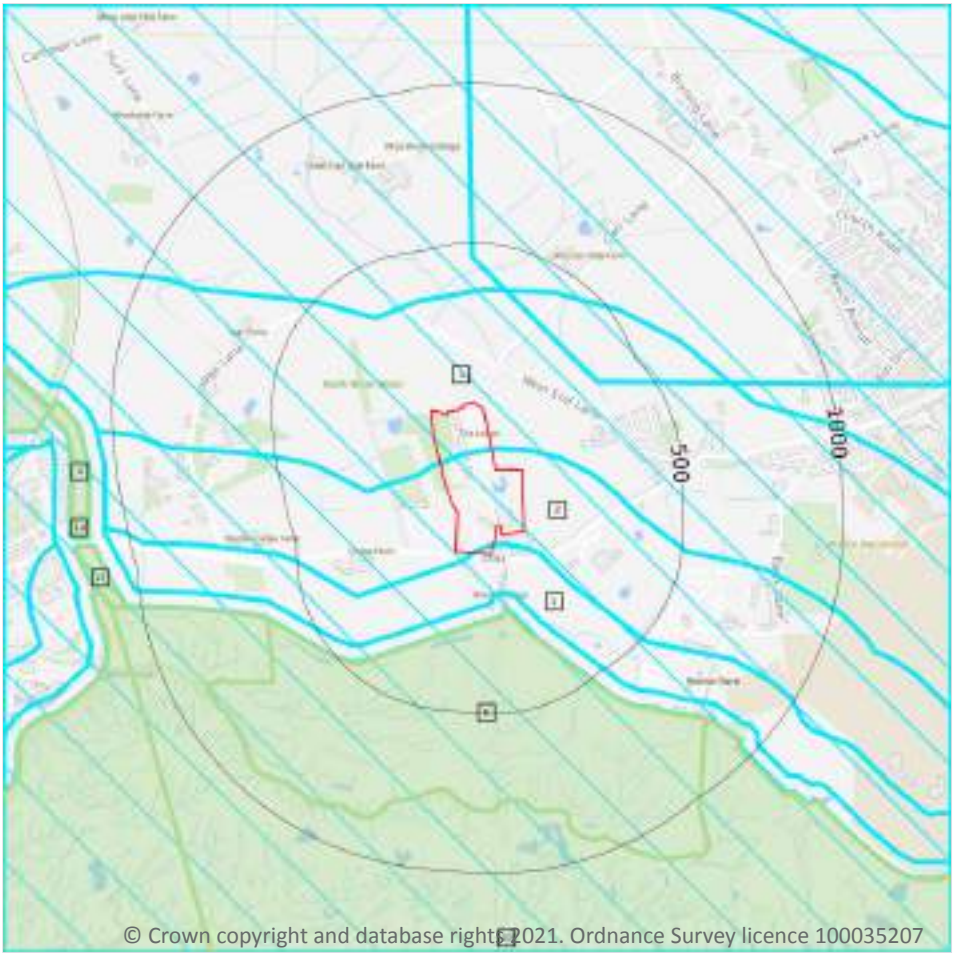
Records within 2000m	1

Areas at risk from agricultural nitrate pollution designated under the EC Nitrate Directive (91/676/EEC). These are areas of land that drain into waters polluted by nitrates. Farmers operating within these areas have to follow mandatory rules to tackle nitrate loss from agriculture.

Location	Name	Type	NVZ ID	Status
1902m SE	BLACK SLUICE AND THREE POOLS WATERWAY NVZ	Surface Water	S711	Existing

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

SSSI Impact Zones and Units



Site Outline

Search buffers in metres (m)

SSSI Impact Risk Zones

SSSI Units

Not recorded

Favourable

Unfavourable - Recovering

Unfavourable - No change

Unfavourable - Declining

Partially destroyed

Destroyed

10.17 SSSI Impact Risk Zones

Records on site	3

Developed to allow rapid initial assessment of the potential risks to SSSIs posed by development proposals. They define zones around each SSSI which reflect the particular sensitivities of the features for which it is notified and indicate the types of development proposal which could potentially have adverse impacts.

Features are displayed on the SSSI Impact Zones and Units map on **page 66**

ID	Location	Type of developments requiring consultation
1	**On site**	**All applications - All Planning Applications (Except Householder) Outside Or Extending Outside Existing Settlements/urban Areas Affecting Greenspace, Farmland, Semi Natural Habitats Or Landscape Features Such As Trees, Hedges, Streams, Rural Buildings/structures** **Infrastructure - Pipelines, pylons and overhead cables. Any transport proposal including road, rail and by water (excluding routine maintenance). Airports, helipads and other aviation proposals** **Wind and Solar - Solar schemes with footprint > 0.5ha, all wind turbines** **Minerals, Oil and Gas - Planning applications for quarries, including: new proposals, Review of Minerals Permissions (ROMP), extensions, variations to conditions etc. Oil & gas exploration/extraction.** **Rural non-residential - Large non residential developments outside existing settlements/urban areas where net additional gross internal floorspace is > 1,000m² or footprint exceeds 0.2ha** **Residential - Residential development of 10 units or more.** **Rural residential - Any residential developments outside of existing settlements/urban areas with a total net gain in residential units** **Air pollution - Any development that could cause AIR POLLUTION or DUST either in its construction or operation (incl: industrial/commercial processes, livestock & poultry units, slurry lagoons/manure stores).** **Combustion - All general combustion processes. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion.** **Waste - Mechanical and biological waste treatment, inert landfill, non-hazardous landfill, hazardous landfill, household civic amenity recycling facilities construction, demolition and excavation waste, other waste management** **Composting - Any composting proposal. Incl: open windrow composting, in-vessel composting, anaerobic digestion, other waste management.** **Discharges - Any discharge of water or liquid waste that is discharged to ground (ie to seep away) or to surface water, such as a beck or stream (NB this does not include discharges to mains sewer which are unlikely to pose a risk at this location).** **Notes: New residential developments in this area should consider recreational disturbance impacts on the coastal designated sites. Please consider this issue in the HRA screening.**

ID	Location	Type of developments requiring consultation
2	**On site**	**All applications - All Planning Applications (Except Householder) Outside Or Extending Outside Existing Settlements/urban Areas Affecting Greenspace, Farmland, Semi Natural Habitats Or Landscape Features Such As Trees, Hedges, Streams, Rural Buildings/structures** **Infrastructure - Pipelines, pylons and overhead cables. Any transport proposal including road, rail and by water (excluding routine maintenance). Airports, helipads and other aviation proposals** **Wind and Solar - Solar schemes with footprint > 0.5ha, all wind turbines** **Minerals, Oil and Gas - Planning applications for quarries, including: new proposals, Review of Minerals Permissions (ROMP), extensions, variations to conditions etc. Oil & gas exploration/extraction.** **Rural non-residential - Large non residential developments outside existing settlements/urban areas where net additional gross internal floorspace is > 1,000m² or footprint exceeds 0.2ha** **Residential - Residential development of 10 units or more.** **Rural residential - Any residential developments outside of existing settlements/urban areas with a total net gain in residential units** **Air pollution - Any development that could cause AIR POLLUTION (incl: industrial/commercial processes, livestock & poultry units, slurry lagoons/manure stores).** **Combustion - All general combustion processes. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion.** **Waste - Mechanical and biological waste treatment, inert landfill, non-hazardous landfill, hazardous landfill, household civic amenity recycling facilities construction, demolition and excavation waste, other waste management** **Composting - Any composting proposal. Incl: open windrow composting, in-vessel composting, anaerobic digestion, other waste management.** **Discharges - Any discharge of water or liquid waste that is discharged to ground (ie to seep away) or to surface water, such as a beck or stream (NB this does not include discharges to mains sewer which are unlikely to pose a risk at this location).** **Notes: New residential developments in this area should consider recreational disturbance impacts on the coastal designated sites. Please consider this issue in the HRA screening.**

ID	Location	Type of developments requiring consultation
3	**On site**	**All applications - All Planning Applications (Except Householder) Outside Or Extending Outside Existing Settlements/urban Areas Affecting Greenspace, Farmland, Semi Natural Habitats Or Landscape Features Such As Trees, Hedges, Streams, Rural Buildings/structures** **Infrastructure - Pipelines, pylons and overhead cables. Any transport proposal including road, rail and by water (excluding routine maintenance). Airports, helipads and other aviation proposals** **Wind and Solar - Solar schemes with footprint > 0.5ha, all wind turbines** **Minerals, Oil and Gas - Planning applications for quarries, including: new proposals, Review of Minerals Permissions (ROMP), extensions, variations to conditions etc. Oil & gas exploration/extraction.** **Rural non-residential - Large non residential developments outside existing settlements/urban areas where net additional gross internal floorspace is > 1,000m² or footprint exceeds 0.2ha** **Residential - Residential development of 10 units or more.** **Rural residential - Any residential developments outside of existing settlements/urban areas with a total net gain in residential units** **Air pollution - Any industrial/agricultural development that could cause AIR POLLUTION (incl: industrial processes, livestock & poultry units with floorspace > 500m², slurry lagoons > 200m² & manure stores > 250t).** **Combustion - General combustion processes >20MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion** **Waste - Landfill. Incl: inert landfill, non-hazardous landfill, hazardous landfill.** **Composting - Any composting proposal with more than 500 tonnes maximum annual operational throughput. Incl: open windrow composting, in-vessel composting, anaerobic digestion, other waste management.** **Discharges - Any discharge of water or liquid waste of more than 2m³/day to ground (ie to seep away) or to surface water, such as a beck or stream (NB This does not include discharges to mains sewer which are unlikely to pose a risk at this location).** **Notes: New residential developments in this area should consider recreational disturbance impacts on the coastal designated sites. Please consider this issue in the HRA screening.**

This data is sourced from Natural England.

10.18 SSSI Units

Records within 2000m	**10**

Divisions of SSSIs used to record management and condition details. Units are the smallest areas for which Natural England gives a condition assessment, however, the size of units varies greatly depending on the types of management and the conservation interest.

Features are displayed on the SSSI Impact Zones and Units map on **page 66**

ID:	6
Location:	174m S
SSSI name:	Ribble Estuary
Unit name:	Warton Marsh - North
Broad habitat:	Littoral Sediment
Condition:	Favourable
Reportable features:	

Feature name	Feature condition	Date of assessment
Aggregations of non-breeding birds - Bar-tailed godwit, Limosa lapponica	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Bewick's swan, Cygnus columbianus bewickii	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Dunlin, Calidris alpina alpina	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Knot, Calidris canutus	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Oystercatcher, Haematopus ostralegus	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Pink-footed goose, Anser brachyrhynchus	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Sanderling, Calidris alba	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Shelduck, Tadorna tadorna	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Wigeon, Anas penelope	Not Recorded	01/01/1900
SM4-28 - Saltmarsh	Not Recorded	01/01/1900

ID: 10
Location: 625m W
SSSI name: Ribble Estuary
Unit name: Warton Marsh (Nnr)
Broad habitat: Littoral Sediment
Condition: Favourable
Reportable features:

Feature name	Feature condition	Date of assessment
Aggregations of non-breeding birds - Bar-tailed godwit, Limosa lapponica	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Bewick's swan, Cygnus columbianus bewickii	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Dunlin, Calidris alpina alpina	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Knot, Calidris canutus	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Oystercatcher, Haematopus ostralegus	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Pink-footed goose, Anser brachyrhynchus	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Sanderling, Calidris alba	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Shelduck, Tadorna tadorna	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Wigeon, Anas penelope	Not Recorded	01/01/1900

Feature name	Feature condition	Date of assessment
SM4-28 - Saltmarsh	Not Recorded	01/01/1900

ID: 12
Location: 1048m W
SSSI name: Lytham Coastal Changes
Unit name: Lytham Dock
Broad habitat: Earth Heritage
Condition: Favourable
Reportable features:

Feature name	Feature condition	Date of assessment
FB - Quaternary of the Pennines and adjacent areas	Favourable	15/03/2006

ID: 13
Location: 1083m W
SSSI name: Ribble Estuary
Unit name: Warton Marsh - West
Broad habitat: Littoral Sediment
Condition: Favourable
Reportable features:

Feature name	Feature condition	Date of assessment
Aggregations of non-breeding birds - Bar-tailed godwit, Limosa lapponica	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Bewick's swan, Cygnus columbianus bewickii	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Dunlin, Calidris alpina alpina	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Knot, Calidris canutus	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Oystercatcher, Haematopus ostralegus	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Pink-footed goose, Anser brachyrhynchus	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Sanderling, Calidris alba	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Shelduck, Tadorna tadorna	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Wigeon, Anas penelope	Not Recorded	01/01/1900
SM4-28 - Saltmarsh	Not Recorded	01/01/1900

ID: A
Location: 1087m W
SSSI name: Lytham Coastal Changes
Unit name: Main Drain
Broad habitat: Earth Heritage
Condition: Favourable
Reportable features:

Feature name	Feature condition	Date of assessment
FB - Quaternary of the Pennines and adjacent areas	Favourable	15/03/2006

ID: 14
Location: 1113m W
SSSI name: Lytham Coastal Changes
Unit name: Dock Bridge
Broad habitat: Earth Heritage
Condition: Favourable
Reportable features:

Feature name	Feature condition	Date of assessment
FB - Quaternary of the Pennines and adjacent areas	Favourable	15/03/2006

ID: 18
Location: 1194m W
SSSI name: Lytham Coastal Changes
Unit name: Shell Hill
Broad habitat: Earth Heritage
Condition: Favourable
Reportable features:

Feature name	Feature condition	Date of assessment
FB - Quaternary of the Pennines and adjacent areas	Favourable	15/03/2006

ID: -
Location: 1595m S
SSSI name: Ribble Estuary
Unit name: Hesketh Out Marsh (Nnr)
Broad habitat: Littoral Sediment
Condition: Favourable
Reportable features:

Feature name	Feature condition	Date of assessment
Aggregations of breeding birds - Black-headed gull, Larus ridibundus	Not Recorded	01/01/1900
Aggregations of breeding birds - Common tern, Sterna hirundo	Not Recorded	01/01/1900
Aggregations of breeding birds - Redshank, Tringa totanus	Not Recorded	01/01/1900
Aggregations of breeding birds - Ruff, Philomachus pugnax	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Bar-tailed godwit, Limosa lapponica	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Bewick's swan, Cygnus columbianus bewickii	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Dunlin, Calidris alpina alpina	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Knot, Calidris canutus	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Oystercatcher, Haematopus ostralegus	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Pink-footed goose, Anser brachyrhynchus	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Sanderling, Calidris alba	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Shelduck, Tadorna tadorna	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Wigeon, Anas penelope	Not Recorded	01/01/1900
Assemblages of breeding birds - Sand-dunes and saltmarshes	Not Recorded	01/01/1900
SM4-28 - Saltmarsh	Not Recorded	01/01/1900

ID: -
Location: 1599m S
SSSI name: Ribble Estuary
Unit name: Banks Marsh (Nnr)
Broad habitat: Littoral Sediment
Condition: Favourable
Reportable features:

Feature name	Feature condition	Date of assessment
Aggregations of breeding birds - Black-headed gull, Larus ridibundus	Not Recorded	01/01/1900
Aggregations of breeding birds - Common tern, Sterna hirundo	Not Recorded	01/01/1900
Aggregations of breeding birds - Redshank, Tringa totanus	Not Recorded	01/01/1900
Aggregations of breeding birds - Ruff, Philomachus pugnax	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Bar-tailed godwit, Limosa lapponica	Not Recorded	01/01/1900

Feature name	Feature condition	Date of assessment
Aggregations of non-breeding birds - Bewick's swan, Cygnus columbianus bewickii	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Dunlin, Calidris alpina alpina	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Knot, Calidris canutus	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Oystercatcher, Haematopus ostralegus	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Pink-footed goose, Anser brachyrhynchus	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Sanderling, Calidris alba	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Shelduck, Tadorna tadorna	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Wigeon, Anas penelope	Not Recorded	01/01/1900
Assemblages of breeding birds - Sand-dunes and saltmarshes	Not Recorded	01/01/1900
SM4-28 - Saltmarsh	Not Recorded	01/01/1900

ID: -
Location: 1846m SW
SSSI name: Ribble Estuary
Unit name: Banks Sands & Foulnaze (Nnr)
Broad habitat: Littoral Sediment
Condition: Favourable
Reportable features:

Feature name	Feature condition	Date of assessment
Aggregations of non-breeding birds - Bar-tailed godwit, Limosa lapponica	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Bewick's swan, Cygnus columbianus bewickii	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Dunlin, Calidris alpina alpina	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Knot, Calidris canutus	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Oystercatcher, Haematopus ostralegus	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Pink-footed goose, Anser brachyrhynchus	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Sanderling, Calidris alba	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Shelduck, Tadorna tadorna	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Wigeon, Anas penelope	Not Recorded	01/01/1900

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

11 Visual and cultural designations

11.1 World Heritage Sites

Records within 250m	0

Sites designated for their globally important cultural or natural interest requiring appropriate management and protection measures. World Heritage Sites are designated to meet the UK's commitments under the World Heritage Convention.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.2 Area of Outstanding Natural Beauty

Records within 250m	0

Areas of Outstanding Natural Beauty (AONB) are conservation areas, chosen because they represent 18% of the finest countryside. Each AONB has been designated for special attention because of the quality of their flora, fauna, historical and cultural associations, and/or scenic views. The National Parks and Access to the Countryside Act of 1949 created AONBs and the Countryside and Rights of Way Act, 2000 added further regulation and protection. There are likely to be restrictions to some developments within these areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

11.3 National Parks

Records within 250m	0

In England and Wales, the purpose of National Parks is to conserve and enhance landscapes within the countryside whilst promoting public enjoyment of them and having regard for the social and economic well-being of those living within them. In Scotland National Parks have the additional purpose of promoting the sustainable use of the natural resources of the area and the sustainable social and economic development of its communities. The National Parks and Access to the Countryside Act 1949 established the National Park designation in England and Wales, and The National Parks (Scotland) Act 2000 in Scotland.

This data is sourced from Natural England, Natural Resources Wales and the Scottish Government.

11.4 Listed Buildings

Records within 250m	0

Buildings listed for their special architectural or historical interest. Building control in the form of 'listed building consent' is required in order to make any changes to that building which might affect its special interest. Listed buildings are graded to indicate their relative importance, however building controls apply to all buildings equally, irrespective of their grade, and apply to the interior and exterior of the building in its entirety, together with any curtilage structures.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.5 Conservation Areas

Records within 250m	0

Local planning authorities are obliged to designate as conservation areas any parts of their own area that are of special architectural or historic interest, the character and appearance of which it is desirable to preserve or enhance. Designation of a conservation area gives broader protection than the listing of individual buildings. All the features within the area, listed or otherwise, are recognised as part of its character. Conservation area designation is the means of recognising the importance of all factors and of ensuring that planning decisions address the quality of the landscape in its broadest sense.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.6 Scheduled Ancient Monuments

Records within 250m	0

A scheduled monument is an historic building or site that is included in the Schedule of Monuments kept by the Secretary of State for Digital, Culture, Media and Sport. The regime is set out in the Ancient Monuments and Archaeological Areas Act 1979. The Schedule of Monuments has c.20,000 entries and includes sites such as Roman remains, burial mounds, castles, bridges, earthworks, the remains of deserted villages and industrial sites. Monuments are not graded, but all are, by definition, considered to be of national importance.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

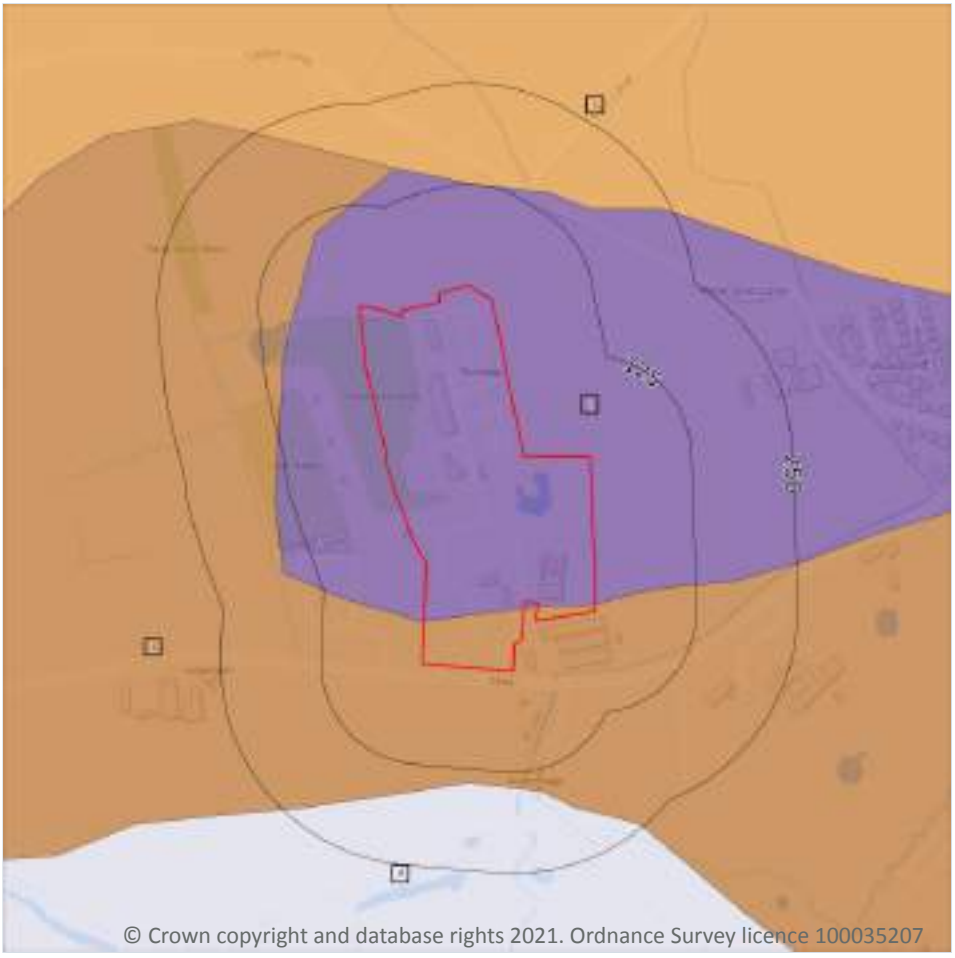
11.7 Registered Parks and Gardens

Records within 250m	0

Parks and gardens assessed to be of particular interest and of special historic interest. The emphasis being on 'designed' landscapes, rather than on planting or botanical importance. Registration is a 'material consideration' in the planning process, meaning that planning authorities must consider the impact of any proposed development on the special character of the landscape.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

12 Agricultural designations



Site Outline

Search buffers in metres (m)

- Grade 1 - excellent quality
- Grade 2 - very good quality
- Grade 3 - good to moderate quality
- Grade 3a - good quality
- Grade 3b - moderate quality
- Grade 4 - poor quality
- Grade 5 - very poor quality
- Non-agricultural land
- Urban land
- Exclusion land
- Tree felling licences
- Open Access land

12.1 Agricultural Land Classification

Records within 250m	4

Classification of the quality of agricultural land taking into consideration multiple factors including climate, physical geography and soil properties. It should be noted that the categories for the grading of agricultural land are not consistent across England, Wales and Scotland.

Features are displayed on the Agricultural designations map on **page 78**

ID	Location	Classification	Description
1	**On site**	**Grade 2**	**Very good quality agricultural land. Land with minor limitations which affect crop yield, cultivations or harvesting. A wide range of agricultural and horticultural crops can usually be grown but on some land in the grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable root crops. The level of yield is generally high but may be lower or more variable than Grade 1.**
2	**On site**	**Urban**	**-**
3	125m N	Grade 3	Good to moderate quality agricultural land. Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where more demanding crops are grown yields are generally lower or more variable than on land in Grades 1 and 2.
4	142m S	Grade 4	Poor quality agricultural land. Land with severe limitations which significantly restrict the range of crops and/or level of yields. It is mainly suited to grass with occasional arable crops (e.g. cereals and forage crops) the yields of which are variable. In moist climates, yields of grass may be moderate to high but there may be difficulties in utilisation. The grade also includes very droughty arable land.

This data is sourced from Natural England.

12.2 Open Access Land

Records within 250m	0

The Countryside and Rights of Way Act 2000 (CROW Act) gives a public right of access to land without having to use paths. Access land includes mountains, moors, heaths and downs that are privately owned. It also includes common land registered with the local council and some land around the England Coast Path. Generally permitted activities on access land are walking, running, watching wildlife and climbing.

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

12.3 Tree Felling Licences

Records within 250m	0

Felling Licence Application (FLA) areas approved by Forestry Commission England. Anyone wishing to fell trees must ensure that a licence or permission under a grant scheme has been issued by the Forestry Commission before any felling is carried out or that one of the exceptions apply.

This data is sourced from the Forestry Commission.

12.4 Environmental Stewardship Schemes

Records within 250m	1

Environmental Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. The schemes identified may be historical schemes that have now expired, or may still be active.

Location	Reference	Scheme	Start Date	End date
On site	**AG00458573**	**Entry Level Stewardship**	**01/05/2013**	**30/04/2018**

This data is sourced from Natural England.

12.5 Countryside Stewardship Schemes

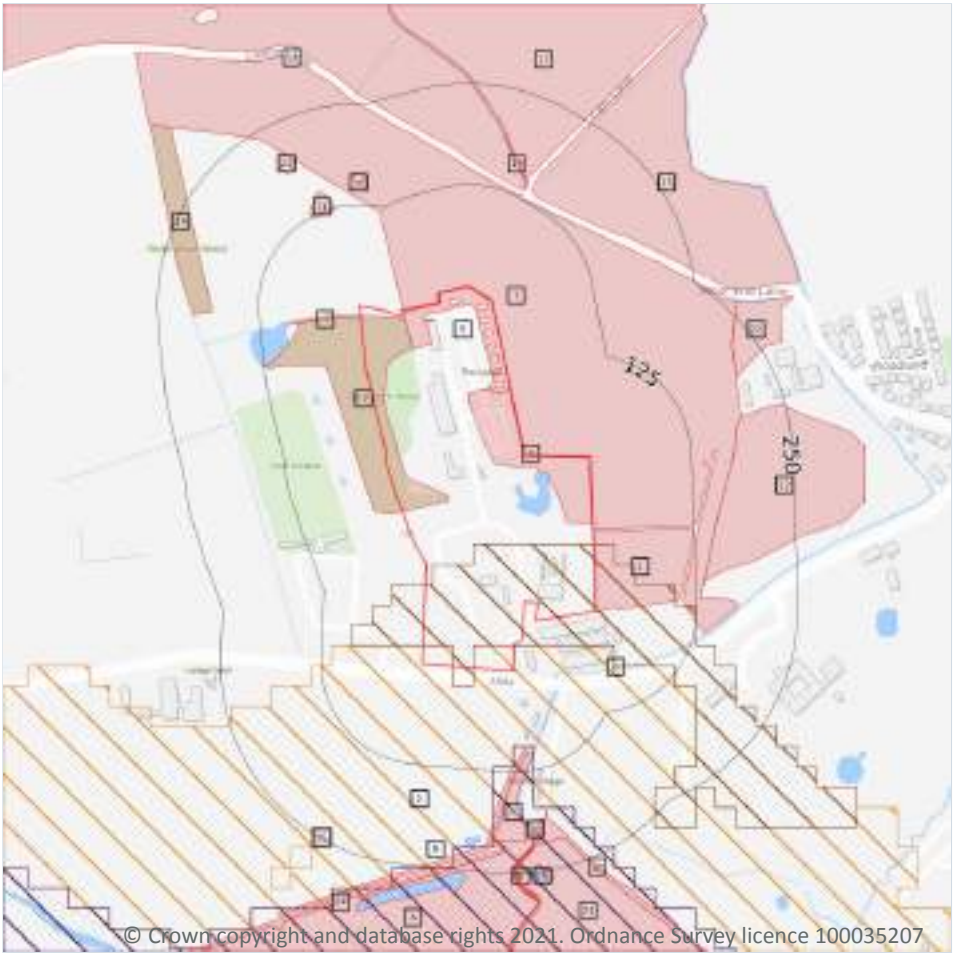
Records within 250m	5

Countryside Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. Main objectives are to improve the farmed environment for wildlife and to reduce diffuse water pollution.

Location	Reference	Scheme	Start Date	End Date
29m NE	826432	Countryside Stewardship (Middle Tier)	01/01/2020	31/12/2024
29m S	826432	Countryside Stewardship (Middle Tier)	01/01/2020	31/12/2024
71m SE	826432	Countryside Stewardship (Middle Tier)	01/01/2020	31/12/2024
131m E	826432	Countryside Stewardship (Middle Tier)	01/01/2020	31/12/2024
152m W	826432	Countryside Stewardship (Middle Tier)	01/01/2020	31/12/2024

This data is sourced from Natural England.

13 Habitat designations



Site Outline

Search buffers in metres (m)

Priority Habitat Inventory
Open Mosaic Habitat
Limestone Pavement Orders

Habitat Networks

Primary Habitat
Restorable Habitat
Associated Habitats
Habitat Restoration-Creation
Network Enhancement Zone 1
Network Enhancement Zone 2

13.1 Priority Habitat Inventory

Records within 250m	28

Habitats of principal importance as named under Natural Environment and Rural Communities Act (2006) Section 41.

Features are displayed on the Habitat designations map on **page 81**

ID	Location	Main Habitat	Other habitats
1	**On site**	**Coastal and floodplain grazing marsh**	**Main habitat: CFPGM (INV > 50%)**
3	**On site**	**Deciduous woodland**	**Main habitat: DWOOD (INV > 50%)**
4	**On site**	**Deciduous woodland**	**Main habitat: DWOOD (INV > 50%)**
5	**On site**	**No main habitat but additional habitats present**	**Main habitat: CFPGM (INV > 50%)**

ID	Location	Main Habitat	Other habitats
7	**On site**	**Coastal and floodplain grazing marsh**	**Main habitat: CFPGM (INV > 50%)**
8	**On site**	**Coastal and floodplain grazing marsh**	**Main habitat: CFPGM (INV > 50%)**
9	97m S	No main habitat but additional habitats present	Additional: SALTM (ENSIS L2)
10	101m S	Coastal saltmarsh	Main habitat: SALTM (FEP + HLS)
11	118m N	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
12	135m E	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
13	136m NE	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
14	136m NE	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
15	137m NE	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
16	143m N	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
17	152m NE	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
18	178m S	Coastal saltmarsh	Main habitat: SALTM (INV > 50%)
19	183m W	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
20	186m S	Coastal saltmarsh	Main habitat: SALTM (INV > 50%)
21	186m NW	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
A	200m S	Coastal saltmarsh	Main habitat: SALTM (INV > 50%, FEP + HLS)
22	205m NE	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
23	214m S	Coastal saltmarsh	Main habitat: SALTM (INV > 50%, FEP + HLS)
B	218m S	Coastal saltmarsh	Main habitat: MUDFL (INV > 50%); SALTM (INV > 50%)
B	218m S	No main habitat but additional habitats present	Additional: SALTM (INV 50%, ENSIS L2)
B	219m S	Coastal saltmarsh	Main habitat: MUDFL (INV > 50%); SALTM (INV > 50%)
24	221m S	No main habitat but additional habitats present	Additional: SALTM (ENSIS L2)
B	240m S	Coastal saltmarsh	Main habitat: SALTM (INV > 50%)
26	242m S	Coastal saltmarsh	Main habitat: SALTM (INV > 50%, FEP + HLS)

This data is sourced from Natural England.

13.2 Habitat Networks

Records within 250m	4

Habitat networks for 18 priority habitat networks (based primarily, but not exclusively, on the priority habitat inventory) and areas suitable for the expansion of networks through restoration and habitat creation.

Features are displayed on the Habitat designations map on **page 81**

ID	Location	Type	Habitat
2	**On site**	**Network Enhancement Zone 1**	**Not specified**
6	**On site**	**Network Enhancement Zone 2**	**Not specified**
A	93m S	Primary Habitat	Saltmarsh
25	232m SW	Network Enhancement Zone 2	Not specified

This data is sourced from Natural England.

13.3 Open Mosaic Habitat

Records within 250m	0

Sites verified as Open Mosaic Habitat. Mosaic habitats are brownfield sites that are identified under the UK Biodiversity Action Plan as a priority habitat due to the habitat variation within a single site, supporting an array of invertebrates.

This data is sourced from Natural England.

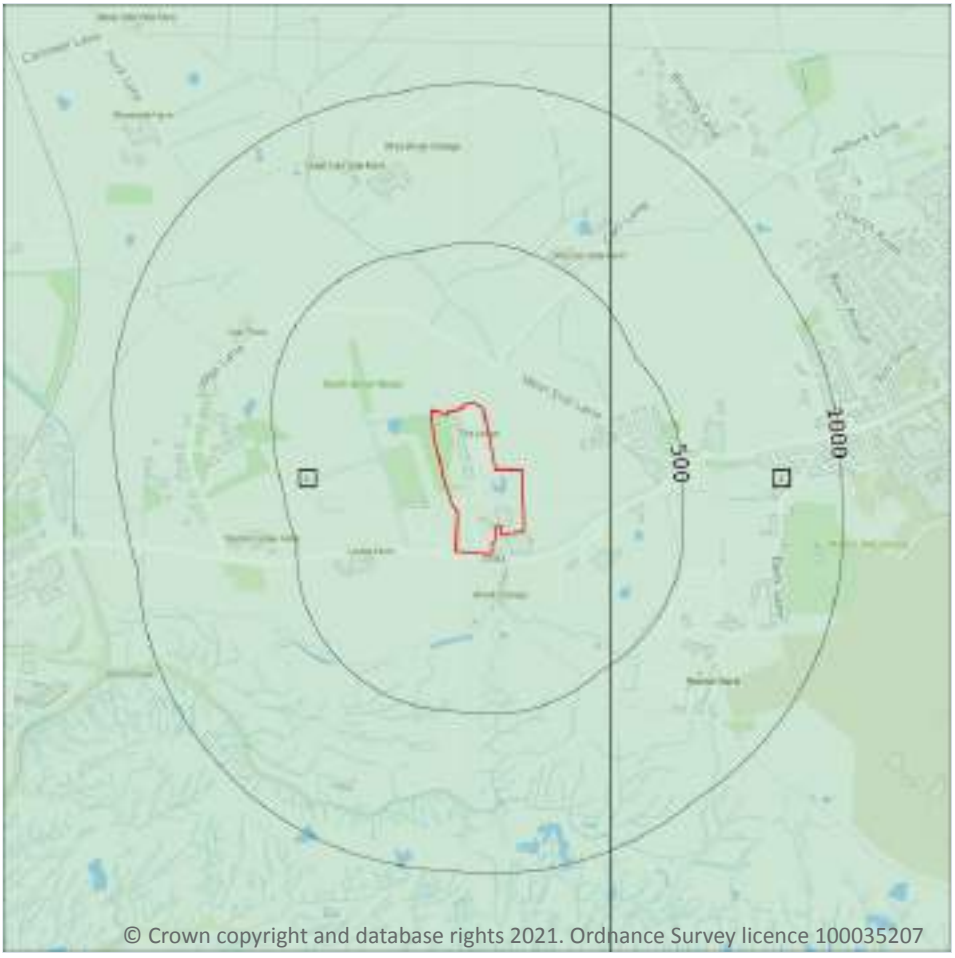
13.4 Limestone Pavement Orders

Records within 250m	0

Limestone pavements are outcrops of limestone where the surface has been worn away by natural means over millennia. These rocks have the appearance of paving blocks, hence their name. Not only do they have geological interest, they also provide valuable habitats for wildlife. These habitats are threatened due to their removal for use in gardens and water features. Many limestone pavements have been designated as SSSIs which affords them some protection. In addition, Section 34 of the Wildlife and Countryside Act 1981 gave them additional protection via the creation of Limestone Pavement Orders, which made it a criminal offence to remove any part of the outcrop. The associated Limestone Pavement Priority Habitat is part of the UK Biodiversity Action Plan priority habitat in England.

This data is sourced from Natural England.

14 Geology 1:10,000 scale - Availability



Site Outline

Search buffers in metres (m)

Full coverage

Partial coverage

No coverage

14.1 10k Availability

Records within 500m	2

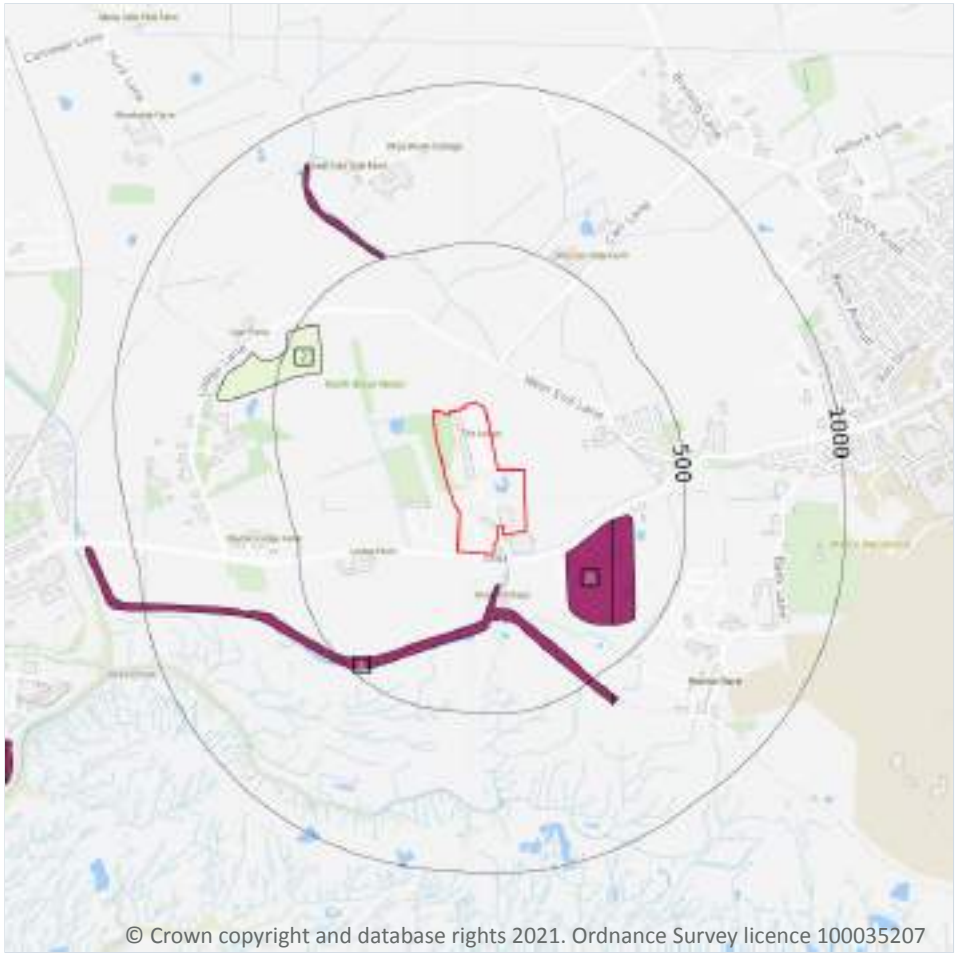
An indication on the coverage of 1:10,000 scale geology data for the site, the most detailed dataset provided by the British Geological Survey. Either 'Full', 'Partial' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:10,000 scale - Availability map on **page 84**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**No coverage**	**SD32NE**
2	274m E	Full	Full	Full	No coverage	SD42NW

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Artificial and made ground



Site Outline

Search buffers in metres (m)

- Reclaimed ground
- Made ground
- Worked ground
- Infilled ground
- Disturbed ground
- Landscaped ground

14.2 Artificial and made ground (10k)

Records within 500m **4**

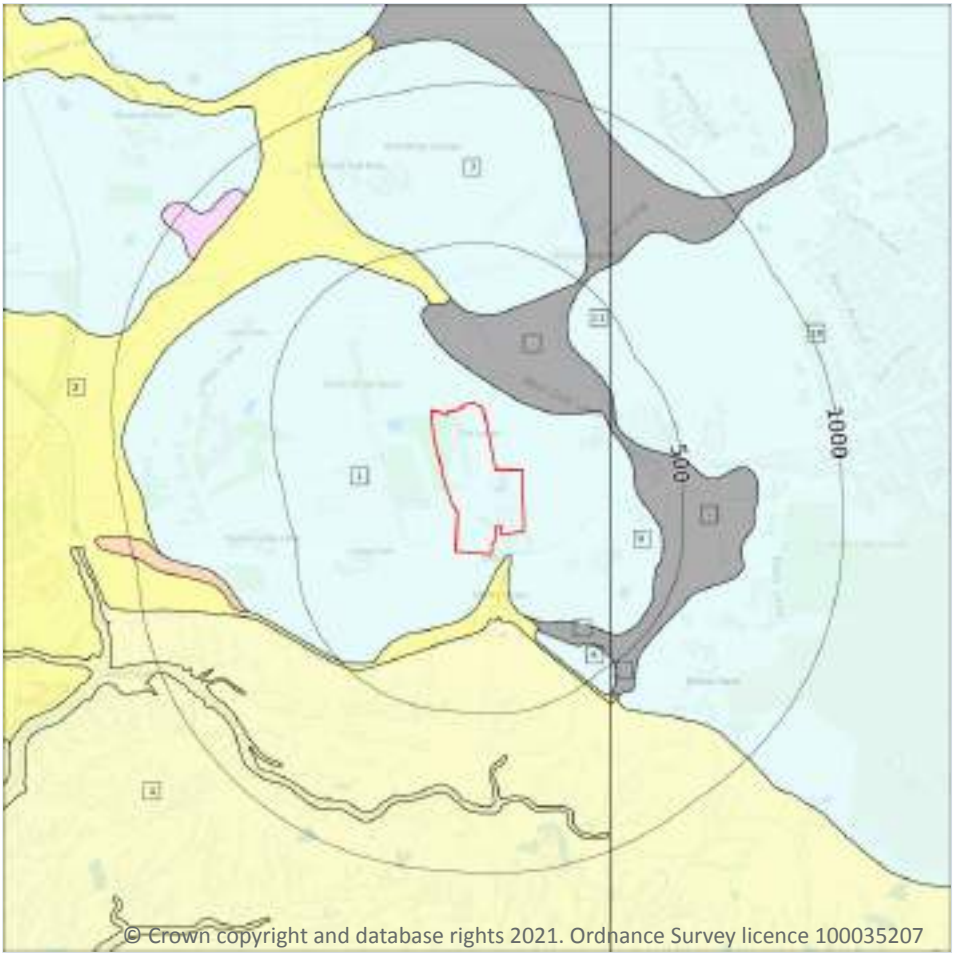
Details of made, worked, infilled, disturbed and landscaped ground at 1:10,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

Features are displayed on the Geology 1:10,000 scale - Artificial and made ground map on **page 85**

ID	Location	LEX Code	Description	Rock description
1	95m S	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
A	146m SE	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
A	274m E	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
2	367m W	WMGR-ARTDP	Infilled Ground	Artificial Deposit

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (10k)

Superficial geology (10k)
Please see table for more details.

14.3 Superficial geology (10k)

Records within 500m **12**

Superficial geological deposits at 1:10,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

Features are displayed on the Geology 1:10,000 scale - Superficial map on **page 87**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**TILLD-CSVZ**	**Till, Devensian - Clay, Sandy, Gravelly, Silty (unlithified Deposits Coding Scheme)**	**Clay, Sandy, Gravelly, Silty**
2	41m SE	TFD1-XZCS	Tidal Flat Deposits, 1 - Silt, Clay And Sand	Silt, Clay And Sand
3	76m NE	HEAD-CVZS	Head - Gravelly Silty Sandy Clay	Clay, Gravelly, Silty, Sandy

ID	Location	LEX Code	Description	Rock description
4	199m S	SAMD-XZCS	Saltmarsh Deposits - Silt, Clay And Sand	Silt, Clay And Sand
5	224m SE	HEAD-CVZS	Head - Gravelly Silty Sandy Clay	Clay, Gravelly, Silty, Sandy
6	274m E	TILLD-CSVZ	Till, Devensian - Clay, Sandy, Gravelly, Silty (unlithified Deposits Coding Scheme)	Clay, Sandy, Gravelly, Silty
7	277m N	TILLD-CSVZ	Till, Devensian - Clay, Sandy, Gravelly, Silty (unlithified Deposits Coding Scheme)	Clay, Sandy, Gravelly, Silty
8	278m SE	TILLD-CSVZ	Till, Devensian - Clay, Sandy, Gravelly, Silty (unlithified Deposits Coding Scheme)	Clay, Sandy, Gravelly, Silty
9	307m NE	HEAD-CVZS	Head - Gravelly Silty Sandy Clay	Clay, Gravelly, Silty, Sandy
10	328m NE	TILLD-CSVZ	Till, Devensian - Clay, Sandy, Gravelly, Silty (unlithified Deposits Coding Scheme)	Clay, Sandy, Gravelly, Silty
11	339m NE	TILLD-CSVZ	Till, Devensian - Clay, Sandy, Gravelly, Silty (unlithified Deposits Coding Scheme)	Clay, Sandy, Gravelly, Silty
12	484m SE	TILLD-CSVZ	Till, Devensian - Clay, Sandy, Gravelly, Silty (unlithified Deposits Coding Scheme)	Clay, Sandy, Gravelly, Silty

This data is sourced from the British Geological Survey.

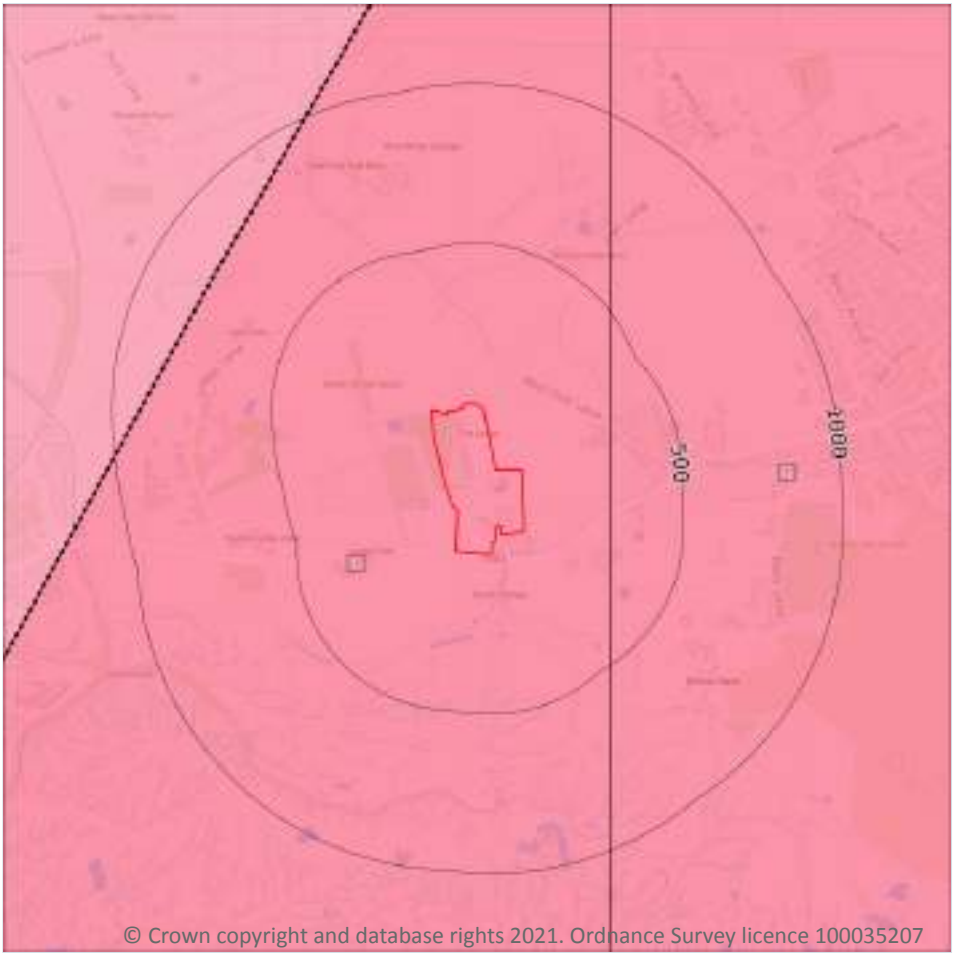
14.4 Landslip (10k)

Records within 500m	**0**

Mass movement deposits on BGS geological maps at 1:10,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (10k)

Bedrock geology (10k)
Please see table for more details.

14.5 Bedrock geology (10k)

Records within 500m **2**

Bedrock geology at 1:10,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 89**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**BRM-MDST**	**Breckells Mudstone Member - Mudstone**	**Carnian Age - Ladinian Age**
2	274m E	BRM-MDST	Breckells Mudstone Member - Mudstone	Carnian Age - Ladinian Age

This data is sourced from the British Geological Survey.

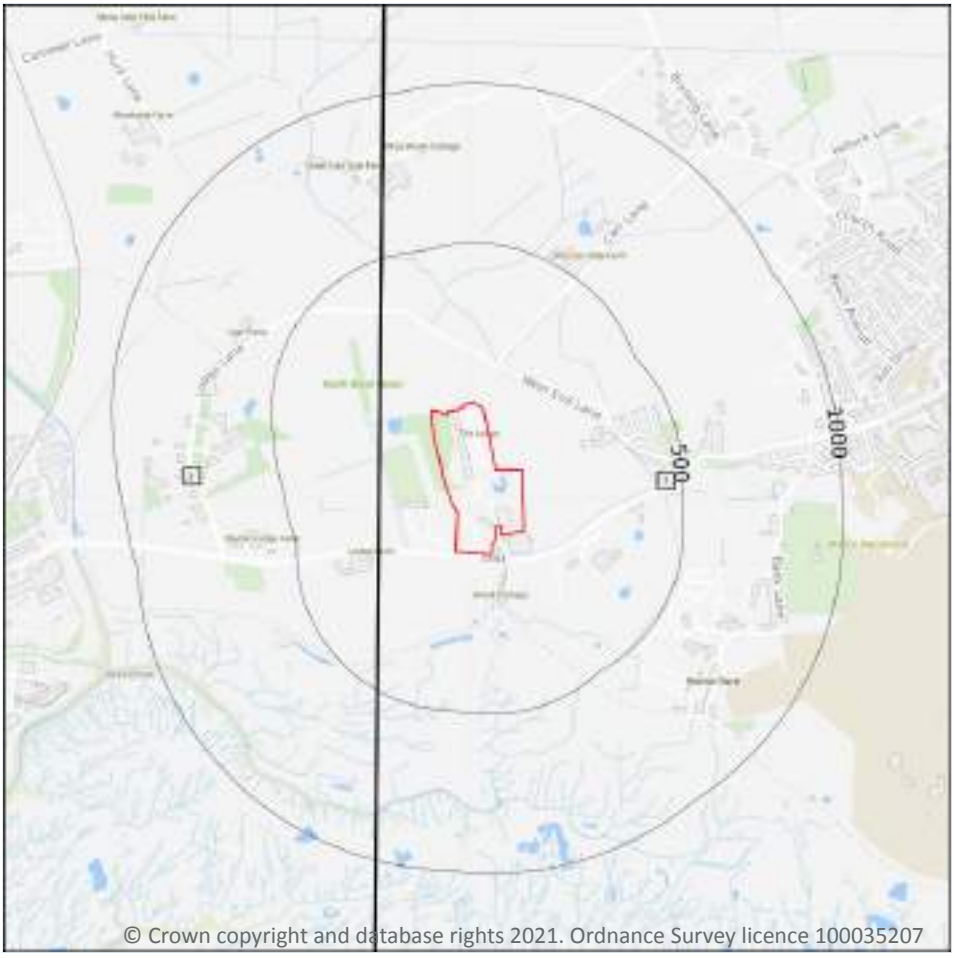
14.6 Bedrock faults and other linear features (10k)

Records within 500m	0

Linear features at the ground or bedrock surface at 1:10,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

This data is sourced from the British Geological Survey.

15 Geology 1:50,000 scale - Availability



Site Outline

Search buffers in metres (m)

Geological map tile

15.1 50k Availability

Records within 500m	2

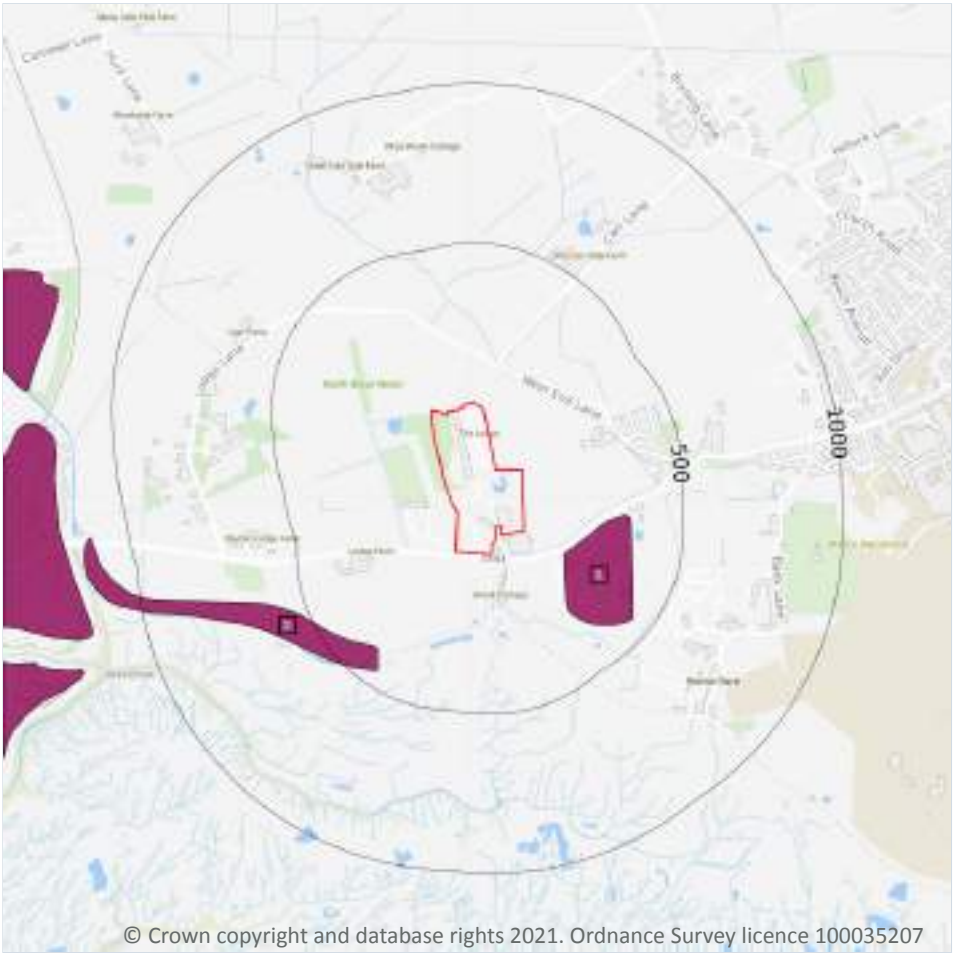
An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:50,000 scale - Availability map on **page 91**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**No coverage**	**Full**	**Full**	**Full**	**EW075_preston_v4**
2	159m W	Full	Full	Full	No coverage	EW074_southport_v4

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Artificial and made ground



Site Outline

Search buffers in metres (m)

- Made ground
- Worked ground
- Infilled ground
- Disturbed ground
- Landscaped ground

15.2 Artificial and made ground (50k)

Records within 500m	2

Details of made, worked, infilled, disturbed and landscaped ground at 1:50,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

Features are displayed on the Geology 1:50,000 scale - Artificial and made ground map on **page 92**

ID	Location	LEX Code	Description	Rock description
1	146m SE	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
2	388m SW	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

This data is sourced from the British Geological Survey.

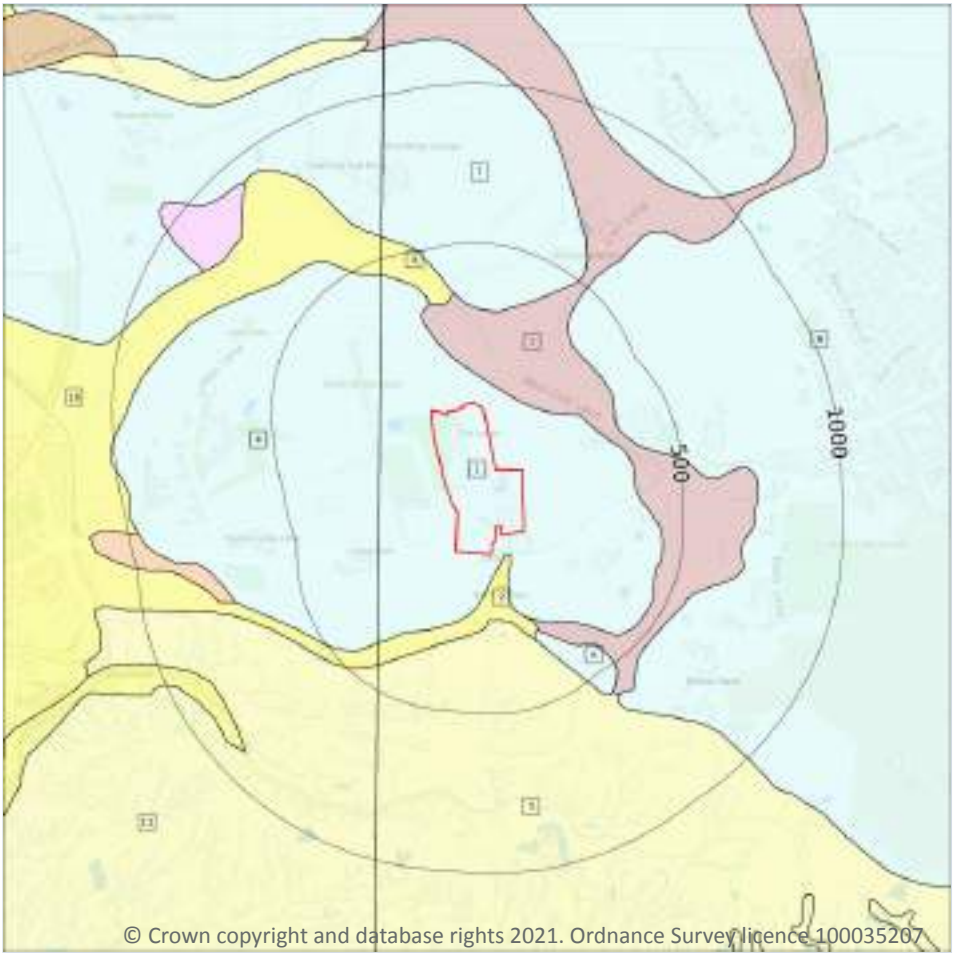
15.3 Artificial ground permeability (50k)

Records within 50m	0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any artificial deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (50k)

Superficial geology (50k)
Please see table for more details.

15.4 Superficial geology (50k)

Records within 500m **11**

Superficial geological deposits at 1:50,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

Features are displayed on the Geology 1:50,000 scale - Superficial map on **page 94**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**TILLD-DMTN**	**TILL, DEVENSIAN**	**DIAMICTON**
2	37m SE	TFD1-XZCS	TIDAL FLAT DEPOSITS, 1	SILT, CLAY AND SAND
3	77m NE	HEAD-XCZSV	HEAD	CLAY, SILT, SAND AND GRAVEL

ID	Location	LEX Code	Description	Rock description
4	159m W	TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON
5	206m S	SAMD-XZCS	SALTMARSH DEPOSITS	SILT, CLAY AND SAND
6	278m SE	TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON
7	292m N	TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON
8	323m N	TFD1-XZCS	TIDAL FLAT DEPOSITS, 1	SILT, CLAY AND SAND
9	328m NE	TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON
10	377m SW	TFD-XCZ	TIDAL FLAT DEPOSITS	CLAY AND SILT
11	433m SW	SAMD-XZCS	SALTMARSH DEPOSITS	SILT, CLAY AND SAND

This data is sourced from the British Geological Survey.

15.5 Superficial permeability (50k)

Records within 50m	**2**

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any superficial deposits (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Mixed**	**High**	**Low**
37m S	Intergranular	Moderate	Low

This data is sourced from the British Geological Survey.

15.6 Landslip (50k)

Records within 500m	**0**

Mass movement deposits on BGS geological maps at 1:50,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

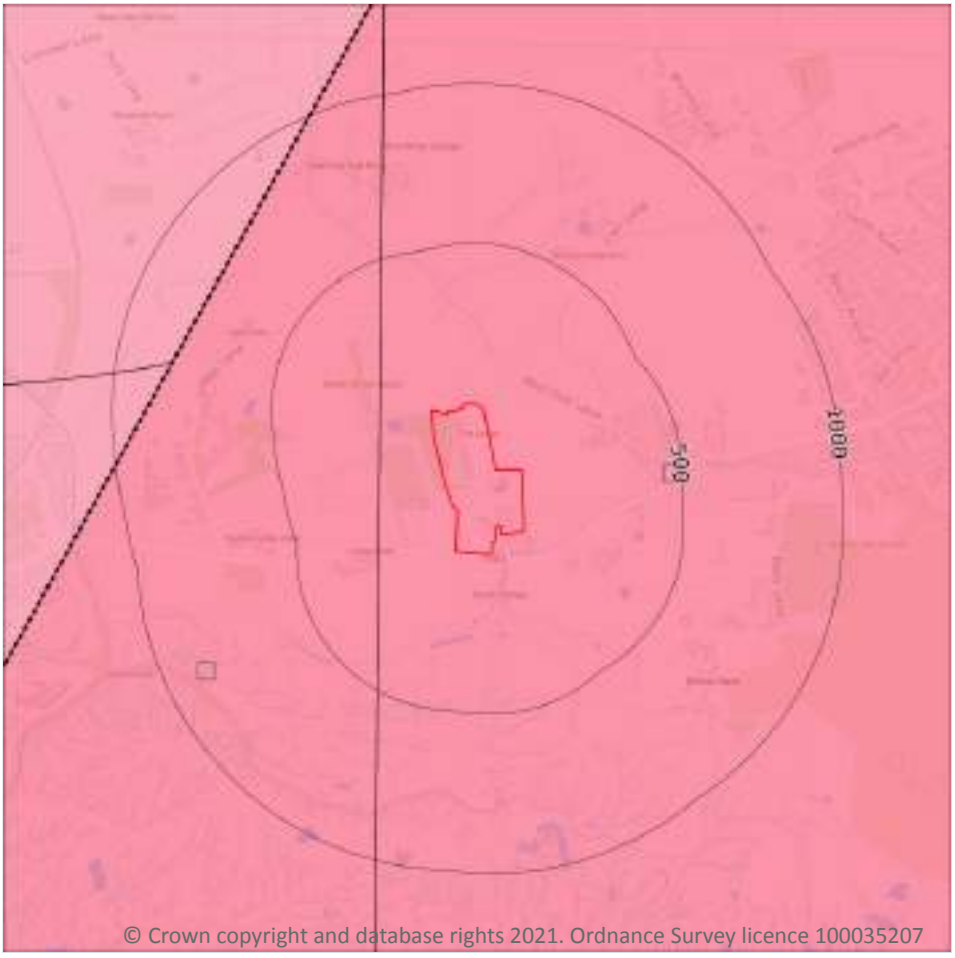
15.7 Landslip permeability (50k)

Records within 50m	0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any landslip deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (50k)

Bedrock geology (50k)
Please see table for more details.

15.8 Bedrock geology (50k)

Records within 500m **2**

Bedrock geology at 1:50,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 97**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**BRM-MDST**	**BRECKELLS MUDSTONE MEMBER - MUDSTONE**	**LADINIAN**
2	159m W	BRM-MDST	BRECKELLS MUDSTONE MEMBER - MUDSTONE	LADINIAN

This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m	1

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of bedrock (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Fracture**	**Low**	**Low**

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

Records within 500m	0

Linear features at the ground or bedrock surface at 1:50,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

This data is sourced from the British Geological Survey.

16 Boreholes

Site Outline

Search buffers in metres (m)

Confidential

0 - 10m

10 - 30m

30m+

Unknown

16.1 BGS Boreholes

Records within 250m	5

The Single Onshore Boreholes Index (SOBI); an index of over one million records of boreholes, shafts and wells from all forms of drilling and site investigation work held by the British Geological Survey. Covering onshore and nearshore boreholes dating back to at least 1790 and ranging from one to several thousand metres deep.

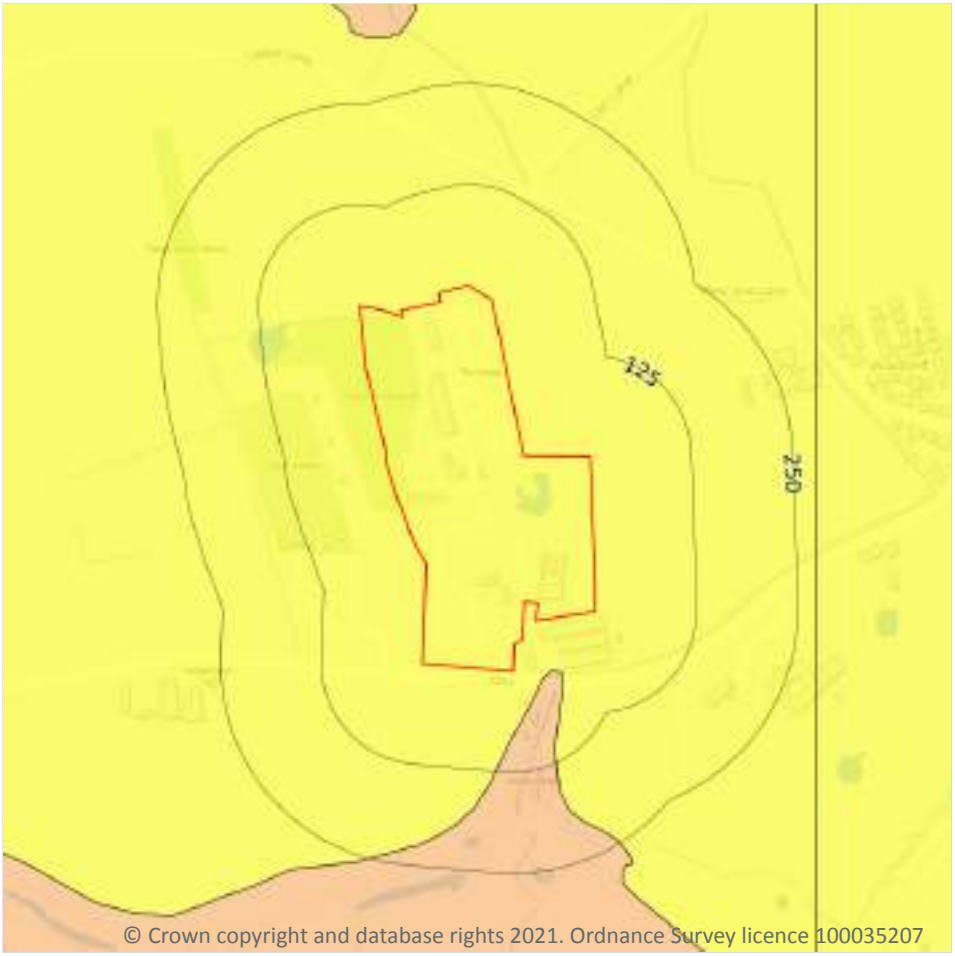
Features are displayed on the Boreholes map on **page 99**

ID	Location	Grid reference	Name	Length	Confidential	Web link
1	**On site**	**339470 428400**	**PRESTON-FAIRHAVEN FLOW TRANSFER TP33**	**-**	**Y**	**N/A**
2	101m NE	339640 428520	PRESTON-FAIRHAVEN FLOW TRANSFER 34	-	Y	N/A
3	174m S	339670 427800	WARTON TIDAL DEFENCE 1	-	Y	N/A

ID	Location	Grid reference	Name	Length	Confidential	Web link
4	201m S	339660 427770	WARTON TIDAL DEFENCE PH1	-	Y	N/A
5	239m NE	339740 428620	PRESTON-FAIRHAVEN FLOW TRANSFER TP35	-	Y	N/A

This data is sourced from the British Geological Survey.

17 Natural ground subsidence - Shrink swell clays



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.1 Shrink swell clays

Records within 50m	2

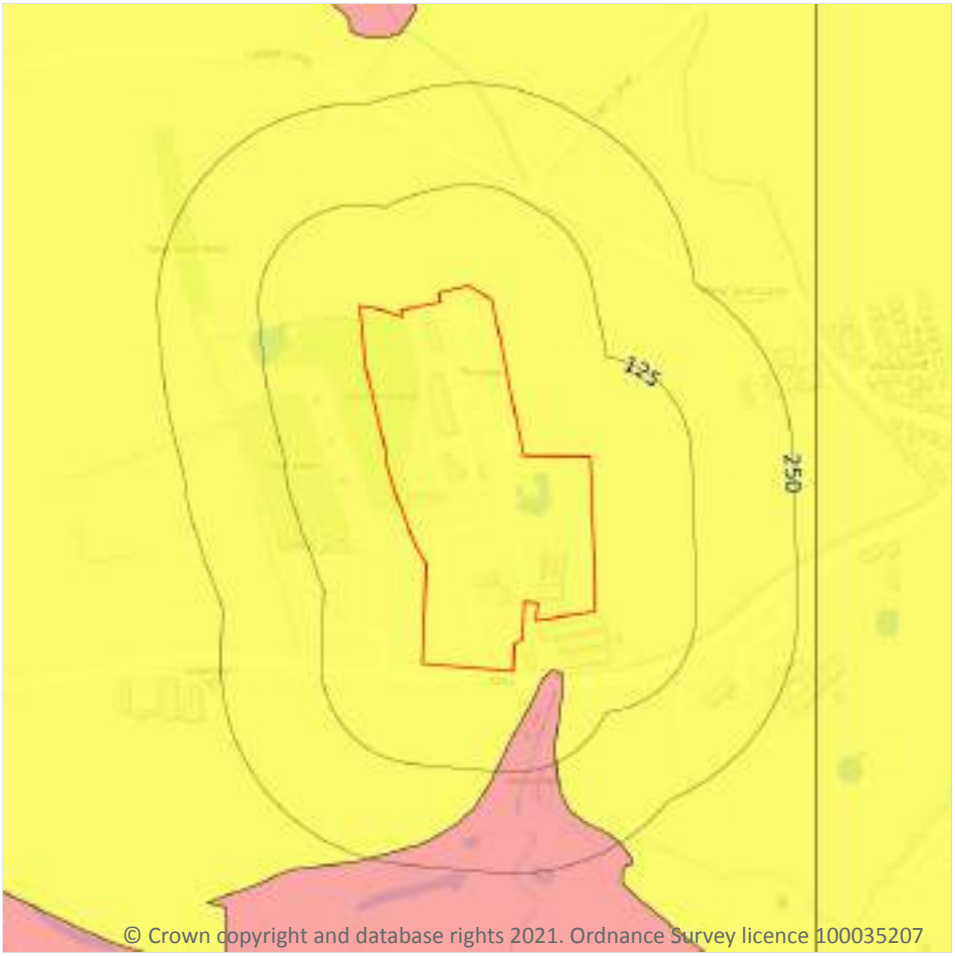
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and local drainage).

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 101**

Location	Hazard rating	Details
On site	**Very low**	**Ground conditions predominantly low plasticity.**
37m SE	Low	Ground conditions predominantly medium plasticity.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Running sands



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.2 Running sands

Records within 50m	2

The potential hazard presented by rocks that can contain loosely-packed sandy layers that can become fluidised by water flowing through them. Such sands can 'run', removing support from overlying buildings and causing potential damage.

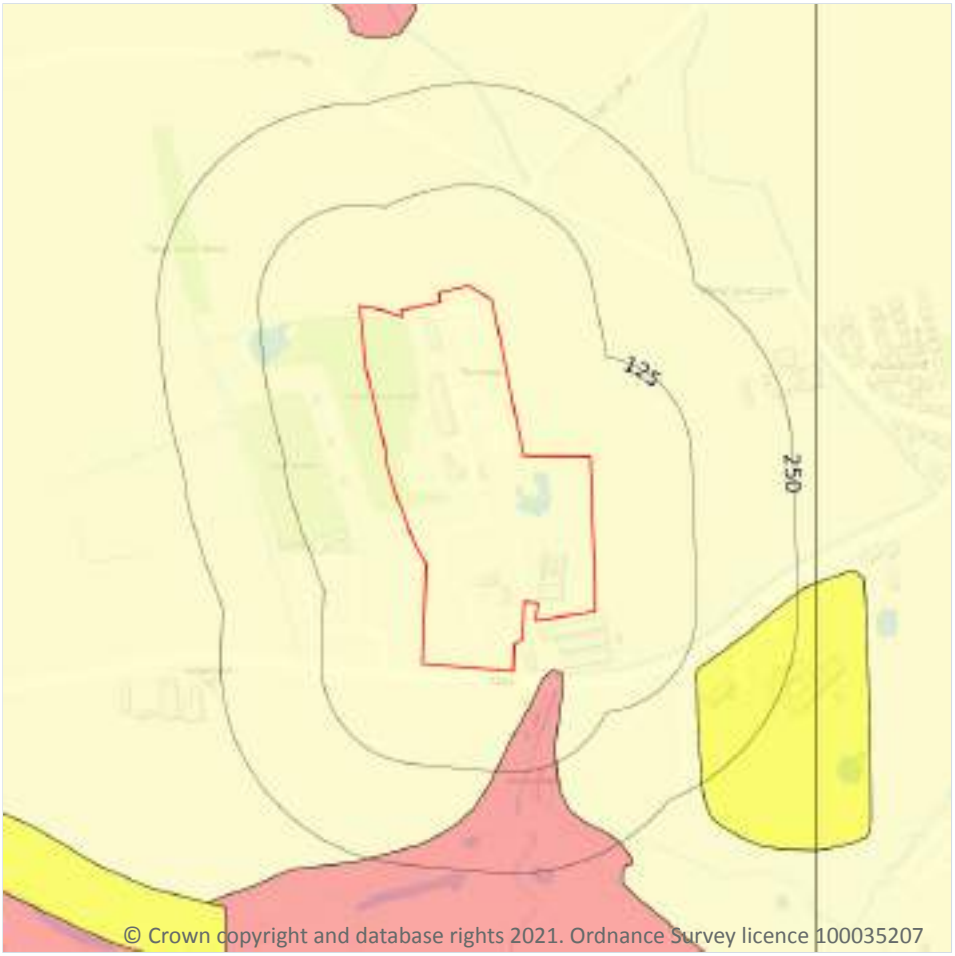
Features are displayed on the Natural ground subsidence - Running sands map on **page 102**

Location	Hazard rating	Details
On site	**Very low**	**Running sand conditions are unlikely. No identified constraints on land use due to running conditions unless water table rises rapidly.**

Location	Hazard rating	Details
37m SE	Moderate	Running sand conditions are probably present. Constraints may apply to land uses involving excavation or the addition or removal of water.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Compressible deposits



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.3 Compressible deposits

Records within 50m	2

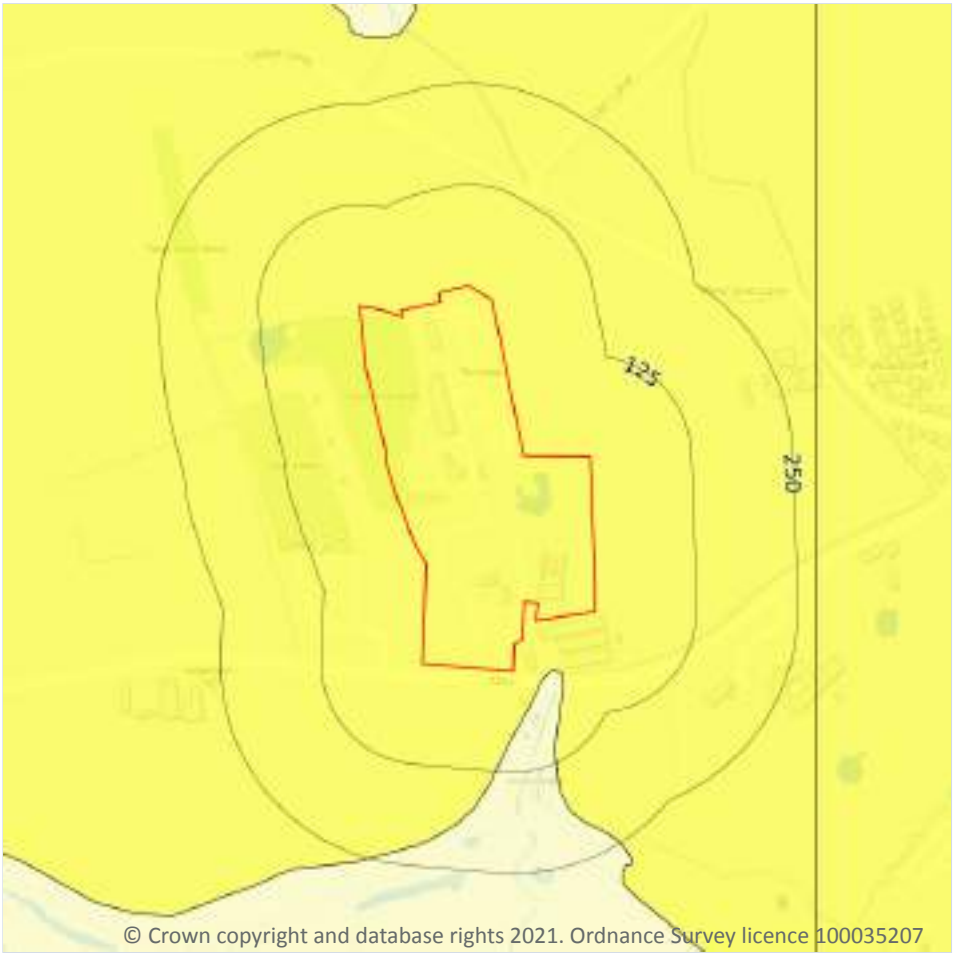
The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 104**

Location	Hazard rating	Details
On site	**Negligible**	**Compressible strata are not thought to occur.**
37m SE	Moderate	Compressibility and uneven settlement hazards are probably present. Land use should consider specifically the compressibility and variability of the site.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Collapsible deposits



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.4 Collapsible deposits

Records within 50m	2

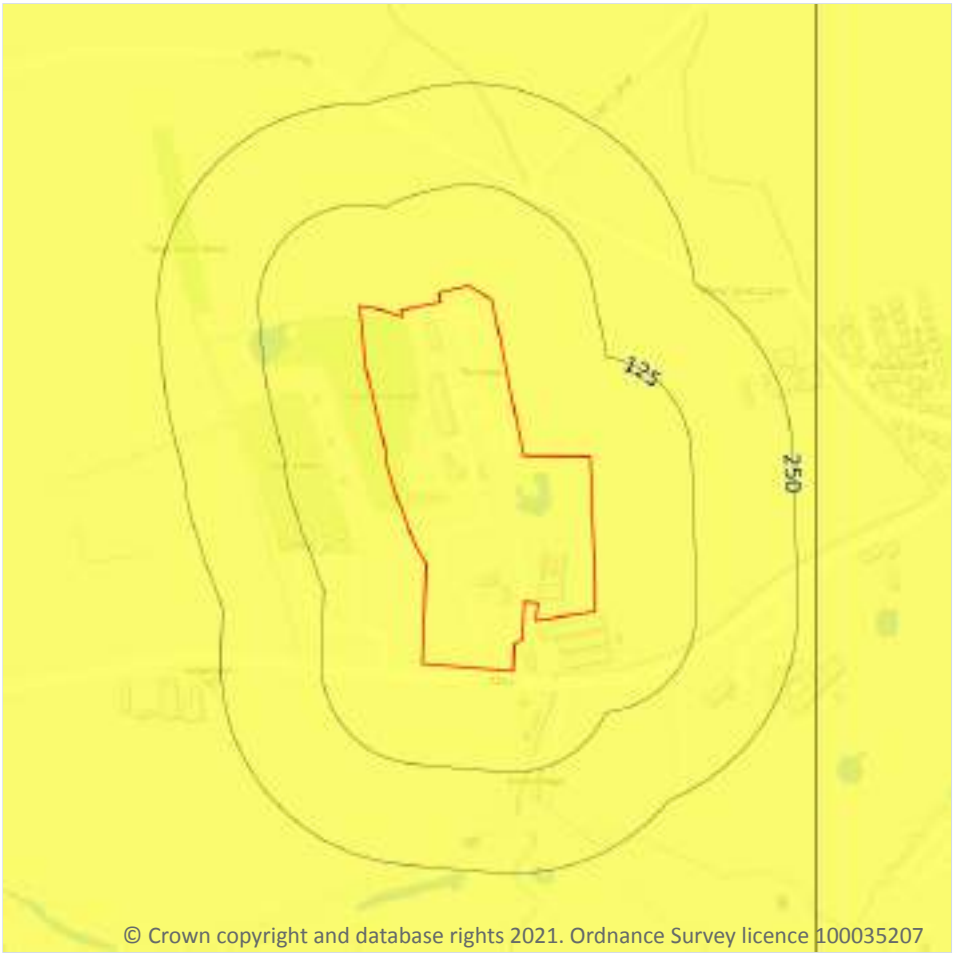
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 106**

Location	Hazard rating	Details
On site	**Very low**	**Deposits with potential to collapse when loaded and saturated are unlikely to be present.**
37m SE	Negligible	Deposits with potential to collapse when loaded and saturated are believed not to be present.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Landslides



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.5 Landslides

Records within 50m	1

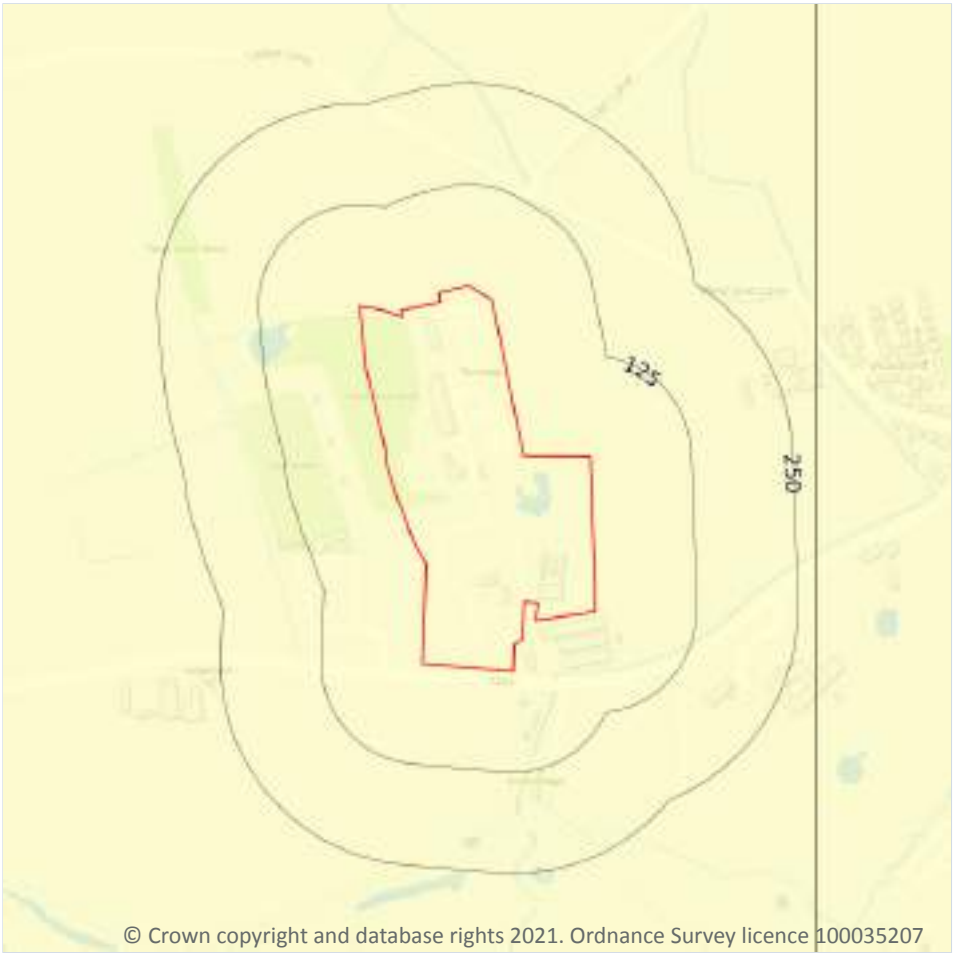
The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

Features are displayed on the Natural ground subsidence - Landslides map on **page 107**

Location	Hazard rating	Details
On site	**Very low**	**Slope instability problems are not likely to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Ground dissolution of soluble rocks



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.6 Ground dissolution of soluble rocks

Records within 50m	1

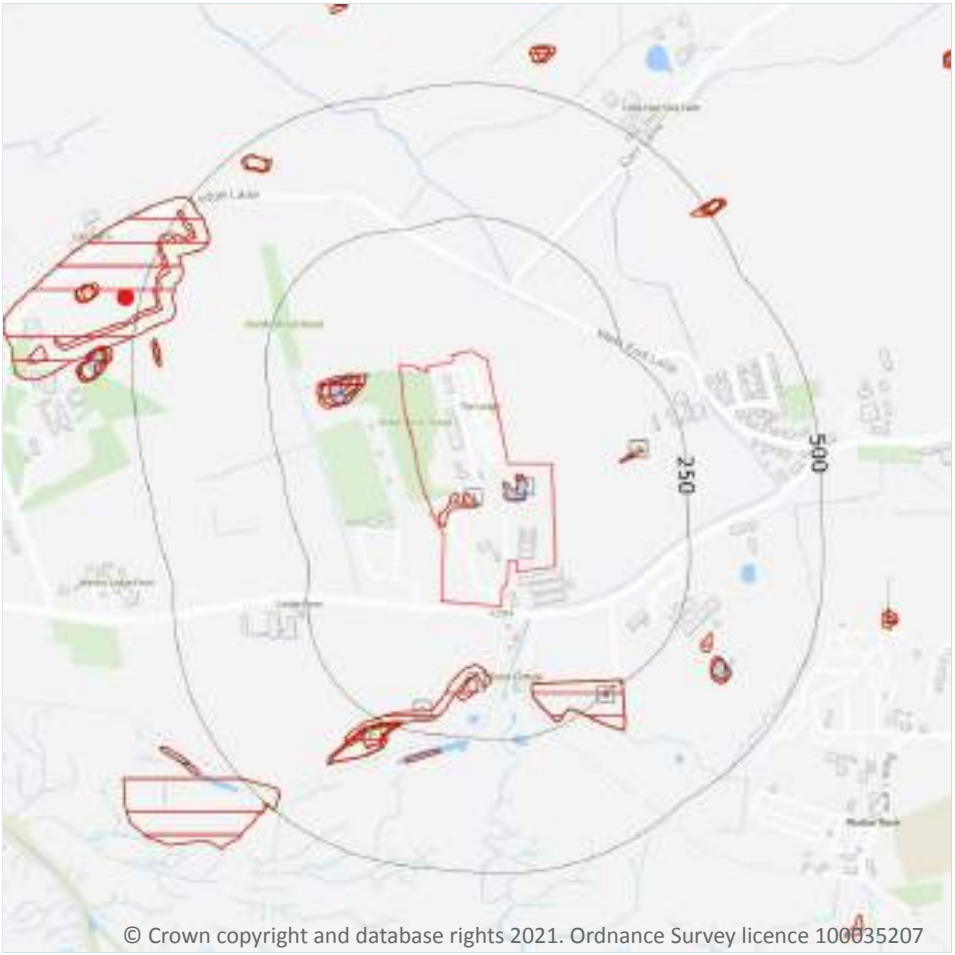
The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 108**

Location	Hazard rating	Details
On site	**Negligible**	**Soluble rocks are either not thought to be present within the ground, or not prone to dissolution. Dissolution features are unlikely to be present.**

This data is sourced from the British Geological Survey.

18 Mining, ground workings and natural cavities



Site Outline

Search buffers in metres (m)

Natural cavities (Area)

Natural cavities (Point)

BritPits

Surface ground workings

Underground workings

Historical Mineral Planning Areas

Mining Cavities

Non Coal Mining

Sporadic underground mining of restricted extent possible

Localised small scale underground mining possible

Small scale mining possible

Underground mining known or likely within or in close proximity

Underground mining known within or in very close proximity

18.1 Natural cavities

Records within 500m	0

Industry recognised national database of natural cavities. Sinkholes and caves are formed by the dissolution of soluble rock, such as chalk and limestone, gulls and fissures by cambering. Ground instability can result from movement of loose material contained within these cavities, often triggered by water.

This data is sourced from Stantec UK Ltd.

18.2 BritPits

Records within 500m	0

BritPits (an abbreviation of British Pits) is a database maintained by the British Geological Survey of currently active and closed surface and underground mineral workings. Details of major mineral handling sites, such as wharfs and rail depots are also held in the database.

This data is sourced from the British Geological Survey.

18.3 Surface ground workings

Records within 250m	20

Historical land uses identified from Ordnance Survey mapping that involved ground excavation at the surface. These features may or may not have been subsequently backfilled.

Features are displayed on the Mining, ground workings and natural cavities map on **page 110**

ID	Location	Land Use	Year of mapping	Mapping scale
1	**On site**	**Pond**	**1989**	**1:10000**
2	**On site**	**Pond**	**1989**	**1:10000**
A	63m W	Pond	1971	1:10000
A	63m W	Pond	1951	1:10560
A	63m W	Pond	1989	1:10000
A	77m W	Pond	1892	1:10560
A	78m W	Pond	1938	1:10560
A	78m W	Pond	1930	1:10560
A	78m W	Pond	1909	1:10560
A	86m W	Pond	1846	1:10560
3	113m S	Unspecified Heap	1892	1:10560
4	127m E	Pond	1892	1:10560
5	139m S	Pond	1909	1:10560
B	157m S	Sewage Works	1971	1:10000
B	157m S	Sewage Works	1989	1:10000
C	237m S	Pond	1951	1:10560
C	239m S	Pond	1938	1:10560

ID	Location	Land Use	Year of mapping	Mapping scale
C	239m S	Pond	1930	1:10560
C	239m S	Pond	1909	1:10560
C	250m SW	Pond	1971	1:10000

This is data is sourced from Ordnance Survey/Groundsure.

18.4 Underground workings

Records within 1000m	**0**

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

This is data is sourced from Ordnance Survey/Groundsure.

18.5 Historical Mineral Planning Areas

Records within 500m	**0**

Boundaries of mineral planning permissions for England and Wales. This data was collated between the 1940s (and retrospectively to the 1930s) and the mid 1980s. The data includes permitted, withdrawn and refused permissions.

This data is sourced from the British Geological Survey.

18.6 Non-coal mining

Records within 1000m	**0**

The potential for historical non-coal mining to have affected an area. The assessment is drawn from expert knowledge and literature in addition to the digital geological map of Britain. Mineral commodities may be divided into seven general categories - vein minerals, chalk, oil shale, building stone, bedded ores, evaporites and 'other' commodities (including ball clay, jet, black marble, graphite and chert).

This data is sourced from the British Geological Survey.

18.7 Mining cavities

Records within 1000m	**0**

Industry recognised national database of mining cavities. Degraded mines may result in hazardous subsidence (crown holes). Climatic conditions and water escape can also trigger subsidence over mine entrances and workings.

This data is sourced from Stantec UK Ltd.

18.8 JPB mining areas

Records on site	0

Areas which could be affected by former coal and other mining. This data includes some mine plans unavailable to the Coal Authority.

This data is sourced from Johnson Poole and Bloomer.

18.9 Coal mining

Records on site	0

Areas which could be affected by past, current or future coal mining.

This data is sourced from the Coal Authority.

18.10 Brine areas

Records on site	0

The Cheshire Brine Compensation District indicates areas that may be affected by salt and brine extraction in Cheshire and where compensation would be available where damage from this mining has occurred. Damage from salt and brine mining can still occur outside this district, but no compensation will be available.

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

18.11 Gypsum areas

Records on site	0

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.12 Tin mining

Records on site	0

Generalised areas that may be affected by historical tin mining.

This data is sourced from Mining Searches UK.

18.13 Clay mining

Records on site	0

Generalised areas that may be affected by kaolin and ball clay extraction.

This data is sourced from the Kaolin and Ball Clay Association (UK).

19 Radon

Site Outline

Search buffers in metres (m)

- Greater than 30%
- Between 10% and 30%
- Between 5% and 10%
- Between 3% and 5%
- Between 1% and 3%
- Less than 1%

19.1 Radon

Records on site	1

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

Features are displayed on the Radon map on **page 115**

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

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

20 Soil chemistry

20.1 BGS Estimated Background Soil Chemistry

Records within 50m	**7**

The estimated values provide the likely background concentration of the potentially harmful elements Arsenic, Cadmium, Chromium, Lead and Nickel in topsoil. The values are estimated primarily from rural topsoil data collected at a sample density of approximately 1 per 2 km^2. In areas where rural soil samples are not available, estimation is based on stream sediment data collected from small streams at a sampling density of 1 per 2.5 km^2; this is the case for most of Scotland, Wales and southern England. The stream sediment data are converted to soil-equivalent concentrations prior to the estimation.

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**90 - 120 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**90 - 120 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**90 - 120 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**90 - 120 mg/kg**	**15 - 30 mg/kg**
12m SW	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg
13m SW	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg
28m S	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg

This data is sourced from the British Geological Survey.

20.2 BGS Estimated Urban Soil Chemistry

Records within 50m	**0**

Estimated topsoil chemistry of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc and bioaccessible Arsenic and Lead in 23 urban centres across Great Britain. These estimates are derived from interpolation of the measured urban topsoil data referred to above and provide information across each city between the measured sample locations (4 per km^2).

This data is sourced from the British Geological Survey.

20.3 BGS Measured Urban Soil Chemistry

Records within 50m	0

The locations and measured total concentrations (mg/kg) of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc in urban topsoil samples from 23 urban centres across Great Britain. These are collected at a sample density of 4 per km^2.

This data is sourced from the British Geological Survey.

21 Railway infrastructure and projects

21.1 Underground railways (London)

Records within 250m	0

Details of all active London Underground lines, including approximate tunnel roof depth and operational hours.

This data is sourced from publicly available information by Groundsure.

21.2 Underground railways (Non-London)

Records within 250m	0

Details of the Merseyrail system, the Tyne and Wear Metro and the Glasgow Subway. Not all parts of all systems are located underground. The data contains location information only and does not include a depth assessment.

This data is sourced from publicly available information by Groundsure.

21.3 Railway tunnels

Records within 250m	0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

21.4 Historical railway and tunnel features

Records within 250m	0

Railways and tunnels digitised from historical Ordnance Survey mapping as scales of 1:1,250, 1:2,500, 1:10,000 and 1:10,560.

This data is sourced from Ordnance Survey/Groundsure.

21.5 Royal Mail tunnels

Records within 250m	0

The Post Office Railway, otherwise known as the Mail Rail, is an underground railway running through Central London from Paddington Head District Sorting Office to Whitechapel Eastern Head Sorting Office. The line is 10.5km long. The data includes details of the full extent of the tunnels, the depth of the tunnel, and the depth to track level.

This data is sourced from Groundsure/the Postal Museum.

21.6 Historical railways

Records within 250m	0

Former railway lines, including dismantled lines, abandoned lines, disused lines, historic railways and razed lines.

This data is sourced from OpenStreetMap.

21.7 Railways

Records within 250m	0

Currently existing railway lines, including standard railways, narrow gauge, funicular, trams and light railways.

This data is sourced from Ordnance Survey and OpenStreetMap.

21.8 Crossrail 1

Records within 500m	0

The Crossrail railway project links 41 stations over 100 kilometres from Reading and Heathrow in the west, through underground sections in central London, to Shenfield and Abbey Wood in the east.

This data is sourced from publicly available information by Groundsure.

21.9 Crossrail 2

Records within 500m	0

Crossrail 2 is a proposed railway linking the national rail networks in Surrey and Hertfordshire via an underground tunnel through London.

This data is sourced from publicly available information by Groundsure.

21.10 HS2

Records within 500m	0

HS2 is a proposed high speed rail network running from London to Manchester and Leeds via Birmingham. Main civils construction on Phase 1 (London to Birmingham) of the project began in 2019, and it is currently anticipated that this phase will be fully operational by 2026. Construction on Phase 2a (Birmingham to Crewe) is anticipated to commence in 2021, with the service fully operational by 2027. Construction on Phase 2b (Crewe to Manchester and Birmingham to Leeds) is scheduled to begin in 2023 and be operational by 2033.

This data is sourced from HS2 ltd.

Data providers

Groundsure works with respected data providers to bring you the most relevant and accurate information. To find out who they are and their areas of expertise see https://www.groundsure.com/sources-reference.

Terms and conditions

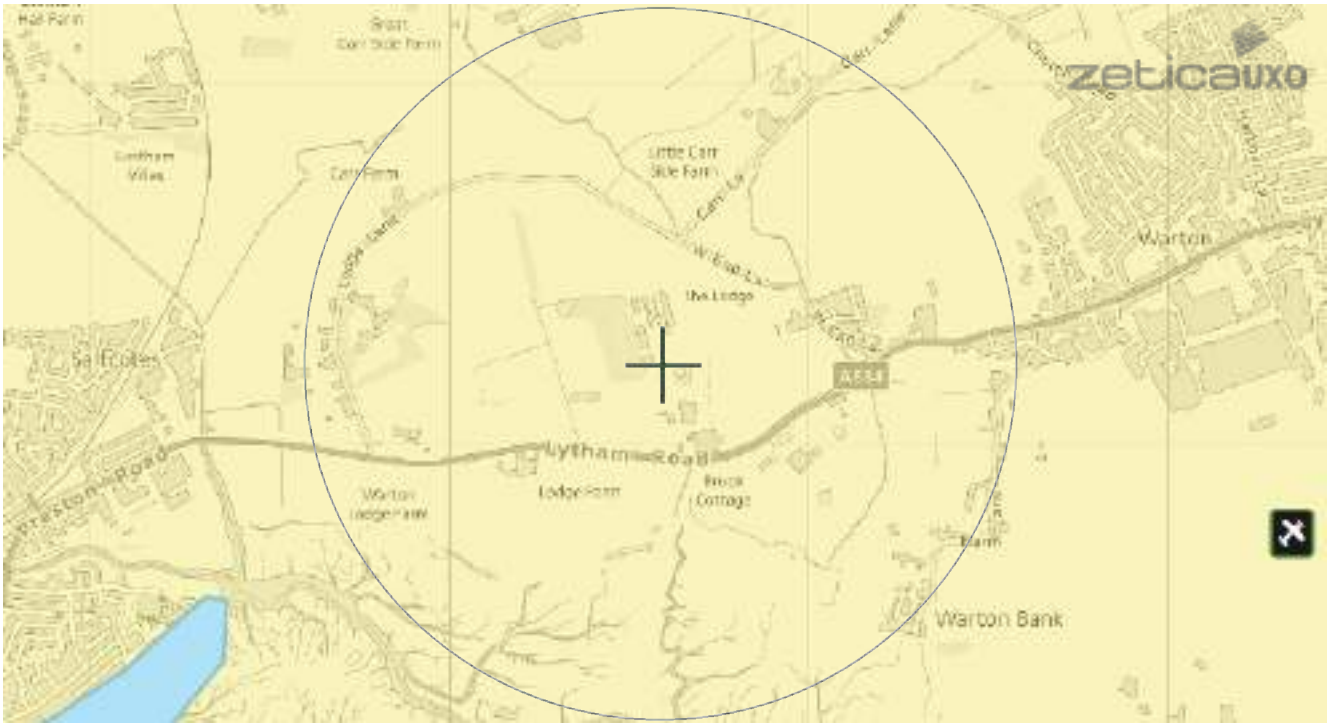
Groundsure's Terms and Conditions can be accessed at this link: https://www.groundsure.com/terms-and-conditions-jan-2020/.

Zetica UXB Risk Map

UNEXPLODED BOMB RISK MAP

SITE LOCATION

Map Centre: 339601,428218



LEGEND

- **High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
- **Moderate:** Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.
- **Low:** Areas indicated as having 15 bombs per 1000acre or less.

miltary	**industry**	**UXO find**
transport	**dock**	**Luftwaffe targets**
utilities	**Bombing decoy**	**other**

How to use your Unexploded Bomb (UXB) risk map?

The map indicates the potential for Unexploded Bombs (UXB) to be present as a result of World War Two (WWII) bombing.

You can incorporate the map into your preliminary risk assessment* for potential Unexploded Ordnance (UXO) for a site. Using this map, you can make an informed decision as to whether more in-depth detailed risk assessment* is necessary.

What do I do if my site is in a moderate or high risk area?

Generally, we recommend that a detailed UXO desk study and risk assessment is undertaken for sites in a moderate or high UXB risk area.

Similarly, if your site is near to a designated Luftwaffe target or bombing decoy then additional detailed research is recommended.

More often than not, this further detailed research will conclude that the potential for a significant UXO hazard to be present on your site is actually low.

Never plan site work or undertake a risk assessment using these maps alone. More detail is required, particularly where there may be a source of UXO from other military operations which are not reflected on these maps.

If my site is in a low risk area, do I need to do anything?

If both the map and other research confirms that there is a low potential for UXO to be present on your site then, subject to your own comfort and risk tolerance, works can proceed with no special precautions.

A low risk really means that there is no greater probability of encountering UXO than anywhere else in the UK.

If you are unsure whether other sources of UXO may be present, you can ask for one of our **pre-desk study assessments (PDSA)**

If I have any questions, who do I contact?

tel: **+44 (0) 1993 886682**

email: **uxo@zetica.com**

web: **www.zeticauxo.com**

The information in this UXB risk map is derived from a number of sources and should be used in conjunction with the accompanying notes on our website: **(https://zeticauxo.com/downloads-and-resources/risk-maps/)**

It is important to note that this map is not a UXO risk assessment and should not be reported as such when reproduced.

*Preliminary and detailed UXO risk assessments are advocated as good practice by industry guidance such as CIRIA C681 'Unexploded Ordnance (UXO), a guide for the construction industry'.

Appendix E Hydrock Methodologies

This report uses Hydrock Desk Study and Ground Investigation template V47.1.

This appendix provides additional background information on certain approaches and methods used by Hydrock Consultants Limited in the preparation of this report.

The following Hydrock Methodologies apply to this report. These are not included, but are available on request by quoting the methodology reference, revision and date.

Reference	Name	Revision	Date
001	Desk Study	001	30/07/2018
003	Preliminary Geo-environmental Risk Assessment Rationale	001	30/07/2018
004	Preliminary geotechnical Risk Register	001	30/07/2018

Appendix F Preliminary Geotechnical Risk Register

Geotechnical Hazard Identification – Desk Study Stage

Potential geotechnical hazards have been assessed in accordance with the general requirements of ICE/DETR Document 'Managing Geotechnical Risk' and the HE documents HD 41/15 and CD 622. The following pages set out the identified geotechnical risks and hazards which are associated with the proposed development and establish the approach which is to be taken to manage the risks including the geotechnical input and analysis.

Table F.1 is a preliminary assessment of possible geotechnical hazards at the site at Desk Study stage. This information is used to assist with ground investigation design.

Table F.1: Possible geotechnical hazards

Hazard	Comment	Hazard status based on desk study	
		Could be present and / or affect site (i.e., Plausible)	Unlikely to be present and/or affect site
Uncontrolled Made Ground (variable strength and compressibility).	Potential for deep Made Ground associated with previous site uses.	✔	-
Soft / loose compressible ground (low strength and high settlement potential).	The site is underlain by Glacial Till which may vary in density / strength. Deep Made Ground may also be present.	✔	-
Shrink swell of the clay fraction of soils under the influence of vegetation.	It is likely that shallow cohesive soils will be present within proximity to trees on site.	✔	-
Variable lateral and vertical changes in ground conditions.	Potential within Made Ground and the superficial deposits.	✔	-
High sulfates present in the soils.	Associated with the Made Ground underlying the site.	✔	-
Adverse chemical ground conditions, (e.g., expansive slag).	Unlikely to pose a risk.	-	✔
Obstructions.	Associated with the existing buildings on site.	✔	-
Existing below ground structures to remain (on or off-site tunnels, foundations, basements, and adjacent sub-structures).	Hydrock are not aware of any structures that are to remain at the site.		✔
Shallow groundwater.	Shallow groundwater may be present given the potentially impermeable superficial deposits underlying Made Ground and the low-lying land.	✔	-
Changing groundwater conditions.	The Groundsure report indicates a moderate to high risk of groundwater flooding in the	✔	-

Hazard	Comment	Hazard status based on desk study	
		Could be present and / or affect site (i.e., Plausible)	Unlikely to be present and/or affect site
	south east corner of the site. Groundwater levels may vary under tidal influence from the Irish Sea and be subject to seasonal variations.		
Risk from erosion.	Unlikely to pose a risk.	-	✔
Risk from flooding.	The Groundsure report indicates the southern-most section of the proposed development along the site boundary is in Flood Zone 3 (with a high/significant probability of flooding from rivers or the sea).	✔	-
Running sands and / or loose Made Ground, leading to difficulty with excavation and collapse of side walls.	Associated with uncontrolled Made Ground underlying the site, which has the potential for instability and excavation collapse.	✔	-
Slope stability issues – general slopes.	Unlikely to pose a risk.	-	✔
Slope stability issues – retaining walls.	Unlikely to pose a risk.	-	✔
Earthworks – settlement (due to placement of fill on soft / loose ground).	Unlikely to pose a risk.	-	✔
Earthworks – poor bearing capacity of new fill.	Unlikely to pose a risk.	-	✔
Earthworks – unsuitability of site won material to be reused as fill.	Unlikely to pose a risk.	-	✔
Solution features in Chalk.	Unlikely to pose a risk.	-	✔
Cavities in the Superficial Deposits due to solution features.	Unlikely to pose a risk.	-	✔
Dissolution (associated with “wet rock head”).	Unlikely to pose a risk.	-	✔
Brine extraction.	Unlikely to pose a risk.	-	✔
Mining.	Unlikely to pose a risk.	-	✔
Cambered ground with gulls possibly present.	Unlikely to pose a risk.	-	✔
Relict Slip Surfaces.	Unlikely to pose a risk.	-	✔
Solifluction.	Unlikely to pose a risk.	-	✔
Problematic soils (silts and rewetting etc.).	Unlikely to pose a risk.	-	✔

Appendix G Plausible Source-Pathway-Receptor Contaminant Linkages

Summary of Potential Contaminant Linkages

Table G.2 lists the plausible contaminant linkages which have been identified. These are considered as potentially unacceptable risks in line with guidelines published in LCRM (2019) and additional risk assessment is required.

Source – Pathway – Receptor Linkages have been assessed in general accordance with guidance in CIRIA Report C552 (Rudland et al 2001) but modified to add a 'no linkage' category and to remove low/moderate risk (See Table G.1). Further information is given in the relevant Hydrock methodology, referenced in Appendix E, including descriptions of typical examples of probability and consequences.

It should be noted that whilst the risk assessment process undertaken in this report may identify potential risks to site demolition and redevelopment workers, consideration of occupational health and safety issues is beyond the scope of this report and need to be considered separately in the Construction Phase Health and Safety Plan.

Table G.1: Consequence versus probability assessment.

		Consequence			
Probability		Severe	Medium	Mild	Minor
	High Likelihood	Very high risk	High risk	Moderate risk	Low risk
	Likely	High risk	Moderate risk	Low risk	Very low risk
	Low Likelihood	Moderate risk	Low risk	Low risk	Very low risk
	Unlikely	Low risk	Very low risk	Very low risk	Very low risk
	No Linkage	No risk			

Table G.2: Exposure model – final source-pathway-receptor contaminant linkages

Sources	Possible Pathways	Receptors	Probability	Consequence	Risk Level	Comments
Made Ground associated with historical construction activities and imported fill, fly-tipped and general waste in and around the equestrian centre and stables, and ash associated with the burning of materials and waste to the west of the motel, possibly including elevated concentrations of metals, metalloids, asbestos fibres, Asbestos Containing Materials, PAH and petroleum hydrocarbons (S01).	Ingestion, inhalation or direct contact.	Site users	Likely	Medium	Moderate	Made Ground is likely to be present associated with former site uses. Contact with these materials is likely in areas of landscaping. Chemical analysis should be undertaken on the Made Ground to confirm if mitigation measures will be required to break the SPR linkage.
						Fly-tipped and general waste, and ash associated with the burning of materials and waste is present on the site. These should be removed prior to development and chemical analysis undertaken on underlying soils to confirm if mitigation measures will be required to break the SPR linkage.
		Water supply pipes	Low likelihood	Medium	Low	Elevated concentrations of PAHs can be detrimental to water pipes and further testing of the Made Ground and soils associated with the waste and ash may be completed to determine if elevated levels of PAHs are present. Mitigation measures may be required such as barrier pipes to break the SPR linkage subject to a water pipe risk assessment. However, this is considered unlikely.
	Inhalation of fugitive dust.	Site users	Unlikely	Severe	Low	The risk of significant generation of dust is likely only during site development process and can therefore be controlled.
	Leaching through unsaturated zone.	Groundwater and possible abstractors.	Likely	Medium	Moderate	It is anticipated that Made Ground associated with the sites former uses may contain leachable contaminants. The current and proposed development comprise areas of soft landscaping which enables infiltration and increases the risk of leaching into the sensitive aquifers below the site. Leachate testing should be undertaken on samples of Made Ground to confirm the risk.

Sources	Possible Pathways	Receptors	Probability	Consequence	Risk Level	Comments
						Leachate testing and chemical analysis of soils underlying areas of fly-tipped and general waste, and ash should be undertaken to confirm the risk.
	Surface run-off.	Aquatic ecosystems. Surface water and possible abstractors.	Likely	Medium	Moderate	There are several natural drains on and surrounding the site, and ponds on site. These surface water features may be affected by surface water run-off from contaminated areas of the site and baseflow from contaminated groundwater.
	Base flow from contaminated groundwater.		Likely	Medium	Moderate	
Asbestos fibres from insulation or Asbestos Containing Materials in the buildings (S02)	Fugitive dust.	Site users	Likely	Severe	High	Asbestos may be present in existing buildings constructed before 1999 and in Made Ground. Careful removal will be required from buildings during demolition. However, removal under controlled conditions should limit release of fibres to the air and the ground.
		Neighbours.	Unlikely	Severe	Low	
Ground gases (carbon dioxide and methane) from organic materials in the Made Ground below the site (S03)	Migration, build up and asphyxiation	Site users	Low likelihood	Severe	Moderate	Ground gases may be present generated from the Made Ground. It is recommended that gas monitoring wells are installed across the site to assess the risks posed by the Made Ground.
		Buildings on site				
		Neighbours				
		Buildings on adjacent sites				
Naturally occurring elevated concentrations of metal (arsenic and vanadium) within soils (S04)	Ingestion, inhalation or direct contact	Site users	Low likelihood	Medium	Low	Contact with these soils is likely in areas of landscaping. Chemical analysis should be undertaken on soils to confirm if mitigation measures will be required to break the SPR linkage.
	Leaching through unsaturated zone	Groundwater and possible abstractors				

Sources	Possible Pathways	Receptors	Probability	Consequence	Risk Level	Comments
Leachable contaminants from transformers in the electricity sub-station 4m east and 95m west of the site including PCBs and oils (S05)	Ingestion, inhalation or direct contact	Site users	Unlikely	Medium	Very low	Chemical analysis should be undertaken on shallow groundwater to confirm the low risk.
Leachable organic contaminants and pathogenic contaminants such as faecal coliforms from the Poultry Farm 52m east of the site (S06)	Ingestion, inhalation or direct contact	Site users	Unlikely	Medium	Very low	