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PRELIMINARY GEOENVIRONMENTAL APPRAISAL

of land at

HOLYWELL ROAD, EWLOE GREEN

Prepared for

[redacted]

Report No. 5022-G-R001

Date: August 2019

Executive Summary

The site is located off Holywell Road, approximately 0.3km North of Ewloe Green, Flintshire (NGR 329042 366739). The site occupies an area of 9.98 hectares.

The site is currently used as agricultural land and is subdivided into six distinct fields by predominately hawthorn hedges, with associated boundary ditches and occasional mature trees. Ivy cottage is located in the south of the site with associated garden outbuildings and stables.

This Preliminary Investigation comprised an inspection of historical and geological maps and information provided by Groundsure, the British Geological Survey and The Coal Authority. An environmental search response from Flintshire County Council was awaited at the time of issue of this report. A site inspection has been undertaken by IDG.

A summary of salient geoenvironmental issues is provided in the table below.

Issue	**Remarks**
Location	0.3km North of Ewloe Green, Flintshire.
Former uses	Agricultural land
Anticipated Ground Conditions	Glacial Till (clay, sand and gravel) underlain by Carboniferous Coal Measures strata (sandstone, mudstone and coal). A localised area of head deposits is present in the northwest of the site.
Mining & Quarrying	Affected by underground mining in 3 seams of coal at 60m to 140m depth, and last worked in 1906. Ground movement due to coal mining activity associated with these workings should have stopped by now. The Coal Authority Report does not indicate the presence of any potential shallow workings below the site. However the BGS geological map depicts the outcrop of the Main Coal seam (indicated to be up to 4.5m thick) in the centre south of the site and dipping to the east.
Hazardous Gas	No significant ground gas contamination (methane or carbon-dioxide) sources have been identified. Should intrusive investigation identify the presence of shallow coal mine workings in either the south or north of the site, a reassessment of the ground gas risk should be undertaken.
Radon	Located in a high risk Radon Affected Area, with >30% of properties being above the Action Level. Full radon protection measures required.
Anticipated Contamination	No significant soil or groundwater contamination sources have been identified.
Preparatory Works	Topsoil strip.
Anticipated Foundation Solutions	Firm glacial clay or weathered Coal Measures rock strata typically provide sufficient bearing capacity to enable the adoption of strip or trench fill foundations for two storey housing. Site investigation to determine shallow ground conditions is recommended.
Flooding, Drainage, Highways and External Works	Superficial deposits flooding- “potential at surface”. BGS’ confidence rating in this result is high. A Flood Zone 2 Floodplain is depicted ~48m south of site.
Recommendations for Ground Investigation	Trial pits to determine near surface ground conditions. Boreholes may be required to assess geotechnical properties of Head Deposits. Rotary boreholes required in north and south of site to confirm whether workable coal or shallow workings are present.

At this stage, the anticipated significant abnormals relating to geoenvironmental issues at the site are:

- Requirement for localised mining investigation in the north and south of the site.

This brief summary should not be assumed to represent a complete account of all the potential geo-environmental issues that may exist at the site. As such it is strongly recommended that the report be read in its entirety.

TABLE OF CONTENTS

APPENDICES

Appendix A - Drawings

Drawing No.	Title
5022-G-D001	Site Location Plan
5022-G-D002	Site Features Plan
5022-G-D003	Geological Features Plan

Appendix B - Historical OS Plans

Appendix C - Search Responses

From	To	Date	Content
Groundsure	IDG	6th August 2019	Environmental Search Response
Coal Authority	IDG	6th August 2019	Coal Mining Report
Coal Authority	IDG	13th August 2019	Subsidence Claim 50m Buffer Report
Coal Authority	IDG	13th August 2019	Correspondence
Flintshire County Council	IDG	Awaited	Environmental Search Response

Appendix D - Commission

Appendix E - General Notes

01	Environmental Setting

REVISION HISTORY

From	Date	Comments
5022-G-R001	August 2019	Original Report

FOREWORD (Preliminary Geoenvironmental Investigation Report)

This report has been prepared for the sole use and reliance of the Client named on page 1 and cannot be relied upon by any other parties without the express written authorisation of ID Geoenvironmental Limited (IDG). Any unauthorized third party relies on this report at their own risk and the authors owe them no duty of care.

The report presents observations and factual data obtained during our site investigation, and provides an assessment of geoenvironmental issues with respect to information provided by the Client regarding the proposed development. Further advice should be sought from IDG prior to significant revision of the development proposals.

The report should be read in its entirety, including all associated drawings and appendices. IDG cannot be held responsible for any misinterpretations arising from the use of extracts that are taken out of context. However, it should be noted that in order to keep the number of sheets of paper in the hard copy to a minimum, some information (e.g. laboratory test certificates) is only included within the "electronic", PDF Report.

The findings and opinions conveyed in any Desk Study section of the report (including review of any third party reports) are based on information obtained from the sources listed, which IDG understands are reliable. All reasonable skill, care and diligence have been applied in examining the information obtained. However, IDG accept no responsibility for inaccuracies in the data supplied or for opinions based on any such inaccurate data.

Where the report refers to the potential presence of invasive weeds such as Japanese Knotweed, or the presence of asbestos containing materials, it should be noted that the observations are for information only and should be verified by a suitably qualified expert.

IDG reserve the right to amend their conclusions and recommendations in the light of further information that may become available.

PRELIMINARY GEOENVIRONMENTAL INVESTIGATION

of land at

HOLYWELL ROAD, EWLOE GREEN

1 INTRODUCTION

1.1 The Commission and Brief

1.1.1 ID Geoenvironmental Limited (IDG), were commissioned by [redacted] to undertake a geoenvironmental appraisal of land at Holywell Road, Ewloe Green, hereafter referred to as 'the site'.

1.1.2 The agreed scope of works included:

- A site walkover and inspection.
- An assessment of the environmental setting and land use history of the site and adjacent area from published geological and topographic maps and environmental database sources.
- Identification of potential receptors and derivation of a site conceptual model.
- Undertaking a Coal Mining Desk Study Risk Assessment
- Assessment of anticipated foundation and engineering issues associated with redevelopment for a residential end-use.
- Provision of recommendations for an appropriate ground investigation.

1.1.3 Correspondence regarding IDG's appointment, including the brief for this investigation, is provided in Appendix D.

1.1.4 It is understood that consideration is being given to a residential redevelopment of the site as described in Section 2 below. The principal objective of this preliminary phase of investigation is to identify geoenvironmental issues affecting the site.

1.1.5 Recommendations for intrusive investigation of the site are given in Section 7.8.

1.2 Report Format and Limitations

1.1.2 Standard definitions, procedures and guidance are contained within Appendix E, which includes background, generic information on assessment of the environmental setting of the site.

1.2.1 This Preliminary Investigation comprised an inspection of historical and geological maps and information provided by Groundsure, the British Geological Survey and The Coal Authority. An environmental search response from Flintshire County Council was awaited at the time of issue of this report. A site inspection has been undertaken by IDG.

1.2.2 General notes and limitations relevant to all IDG preliminary investigations are described in the Foreword and should be read in conjunction with this report. The text of the report draws specific attention to any modification to these procedures and to any other special techniques employed.

2 SITE DESCRIPTION AND THE PROPOSED DEVELOPMENT

2.1 General

2.1.1 The site location is shown on Drawing No. 5022-G-D001 presented in Appendix A. Site details are

summarised in the following table.

Summary of Site Location Details

Location	0.3km North of Ewloe Green
NGR	329042 366739
Approximate Area	9.98 ha
Known services	Overhead electricity and telecom cables Underground gas supply to Ivy Cottage in the far south of the site

2.2 Site Features

2.2.1 An IDG Engineer completed a walkover survey of the site on 13th August 2019.

2.2.2 Existing site features together with a photographic record of the site at the time of the walkover survey are presented in Drawing No. 5022-G-D002 in Appendix A and summarised in the following table.

Summary of Site Details

Current Access	Off the B5125 Road in the north and from Green Lane in the south.
Topography	Highest elevation in the centre of the site, sloping moderately down to the northern boundary and gently down to southern boundary.
Approximate areas	9.98 ha grass Approximately 100m^2 buildings
Surrounding land uses	North & West - open fields. West- Dairy farm adjacent to the northern boundary of site, with petrol station. South – Green Lane Road (also known as Magazine Lane), with open fields and small, distinct areas of housing beyond. East - housing estate adjacent to the site boundary, with a hand car wash and Clwyd Car Auctions further east.

2.2.3 The site is currently used as agricultural land and is subdivided into six distinct fields by predominately hawthorn hedges, with associated boundary ditches and occasional mature trees. A public footpath crosses the site trending north-south, with stiles at both ends at access points and field boundaries. A second public footpath follows the western site boundary from Green Lane to the dairy farm (Newbridge Farm) at the B5125.

2.2.4 Topographically the highest elevation is at 91m AOD within field three, sloping moderately down to the northern boundary and gently down to southern boundary. Field six is the lowest lying field and is predominately flat, sloping very gently to the south to the boundary with fields three and four. There is a sharp change in the gradient to the north of field one, comprising a moderately steep slope towards the adjacent offsite playground.

2.2.5 Field one (as depicted on Drawing 5022-G-D002) is currently used as a grazing pasture for horses, and is divided into a number of separate paddocks by mobile electric fencing. Three horse shelters (large wooden sheds) are located at the southern end of the field. Field two is currently heavily overgrown, with an overgrown mound located at the northern field boundary. A dried-up pond lies upon the border between fields two and three, adjacent to the southern site boundary. Fields three, four and five are presently used as pasture for cattle. In the far north of the site, field six has an area of potentially infilled land in its western corner, where concrete blocks and fragments (indicative of Made Ground) overgrown by vegetation were observed.

2.2.6 At the time of the walkover, after a period of heavy rain, conditions underfoot were relatively dry and firm. However, field six was found to have a significant amount of wet ground with and area of standing water close to the western site boundary. In addition, the southern border of field 3 was

found to contain a water-filled ditch.

2.2.7 In the south of the site, overhead electricity cables were found to follow the boundary between fields four and five, trending in a NE-SW direction and extending offsite to housing in the south and Newbridge Farm in the north.

2.2.8 Ivy cottage is located in the south of the site with associated garden outbuildings and stables. Two overhead running cables (electricity and telecom), and an underground gas supply. Three outhouse buildings constructed out of brick and block with corrugated steel roofing are used predominately as stables and storage.

2.2.9 A wooded area located north of the B5125 road was observed to be underlain by a mound of highly weathered colliery spoil comprising light grey clay with dark grey mudstone and coal fragments.

2.3 Invasive Weeds

2.3.1 During the site walkover, we did not observe Japanese Knotweed or Himalayan Balsam. However, it should be noted that we are not qualified ecologists and recommend that specialist ecological advice be sought prior to development.

2.4 The Proposed Development

2.4.1 No site layout has been provided at this stage. However, it is understood that consideration is being given to redevelopment of the site with two storey domestic dwellings, associated gardens, Public Open Space (POS) areas, adoptable roads and sewers.

3 SITE HISTORY

3.1 Historical OS Maps

3.1.1 In order to investigate the development history and previous land uses at the site and immediate surrounding land, site centred extracts from Ordnance Survey (OS) plans dating back to 1869 were examined. These plans are presented in Appendix B.

3.1.2 The following table provides a summary of the salient points relating to the history of the site. Significant former uses/operations are highlighted in bold text for ease of reference.

Summary of Site History

Date(s)	Site	Surrounding Land
1869-1870	Majority of the site is undeveloped, comprising six fields. A footpath is depicted traversing the site approximately from SW to NE. A pond is depicted adjacent to the northern boundary of this site. A **drain** is depicted in the north corner of the site. A pond is depicted in the south of the site associated with possible drain. Three unlabelled buildings are depicted in the south of the site.	An old **colliery** is depicted ~5-10m NE of the site, with three distinct spoil heaps. Castle Hill Brewery is depicted ~400m north of the site. **Aston Hall Brickworks** is depicted ~500m SE of the site. **Colliery** ~650m SSE of the site, depicted as three distinct soil heaps, with an indication of a **shaft** being present. **Aston Hall Colliery** is depicted as ~750m SE of the site, with three **shafts**. New Inn Brook is depicted approximately 100m west of the site.

1898-1899	A pond is depicted in the south of the site, at the southern end of the footpath.	**Old shafts** are depicted ~400m E of the site. A single **shaft** is depicted ~190m East of the site. **Old shafts** are depicted ~390m NW and ~500m NNW of the site. A **Quarry** is depicted ~690m NNE. An **old shaft** is depicted ~600m SW. **The old colliery** ~5-10m NE is **no-longer** depicted. A **shaft** and **coal pit** are depicted ~150m south of the site. **Clay Pit** shown ~450m SSE of site. **Old shafts** are depicted ~200m SSE and ~450m SSE of the site. **Aston Hall Colliery** is now depicted ~650m SSE of the site, having been relocated.
1909-1912	No significant changes depicted.	A **shaft** and **coal pit** ~150m south of the site, are **no-longer** depicted**.** **Clay Pit** ~450m SSE of site is **no-longer** depicted. The **Aston Hall colliery** is depicted as DISUSED. The **Quarry** ~690m NNE of the site, is now labelled as Old Quarry. The two **Old Shafts** at ~390m and ~500m NE of the site are **no-longer** depicted.
1938	No significant changes depicted.	**Aston Hall Brickworks** ~500m SE of the site, is **no-longer** depicted. **Aston Hall Colliery** buildings are **no-longer** shown. Small-scale building development is depicted ~400m E of the site.
1948	No significant changes depicted.	Further development east of the site is depicted (buildings).
1963-1967	A marsh is also depicted in the north of the site (to the south of the drain). Overhead electricity cables depicted in NE and E of the site.	A **drain** is depicted adjacent to the southern end of the site, approximately <5m SSE. Residential buildings are depicted adjacent to the SE boundary of the site. Castle Hill Brewery is **no-longer** depicted ~400m north of the site. Ponds are depicted adjacent to the western & southern boundaries.
1969-1970	The **drain** previously depicted adjacent to the southern end of the site, approximately <5m SE, is now depicted cutting across the lower south end of the site. The pond in the south of the **no-longer** depicted. The building in the south of site is **no-longer** depicted.	**Old shafts** approximately 5-10m NE of site are **no-longer** depicted. Further development ~400m E of the site. A **garage** is depicted ~200m E of the site. A **garage** is shown to be ~5-10m East of the northern part of the site.
1978-1981	**Drain** in the north of the site is **no-longer** depicted. An additional building is depicted in the south of the site, adjacent to the site boundary.	Residential building development adjacent to the east boundary in the north of the site. **Opencast Workings** to the South of the site, closest boundary point ~400m to the site.
1987-1989	No significant changes are depicted.	Embankments and new road system is depicted ~500m south of the site (Intersection of the A55 & A494). The **Opencast Workings** are now depicted to have expanded NE.
1991	No significant changes are depicted.	The **garage** approximately 5-10m East of the northern part of the site is no-longer depicted. The **Opencast Workings** is now shown to be **disused**.
2002	Marsh in the north of the site is **no-longer** depicted.	Residential development is depicted in the NE of the disused **Opencast Workings**.

		The **garage** ~200m E of the site is **no-longer** depicted. Further development within 500m east of the site.
2010	No significant changes are depicted.	No significant changes are depicted.
2014	No significant changes are depicted.	No significant changes are depicted.

4 GEOLOGY AND MINING

4.1 Geology

4.1.1 The published 1:50,000 scale geological map (BGS Sheet 108 solid and drift, Flint) depicts the majority of the site to be underlain by superficial deposits comprising Glacial Till with a small area of Head Deposits depicted in the north of the site. The Glacial Till is a highly variable deposit of clay, silt, sand and gravel superficial of glacial origin. The Head Deposits comprise locally derived clay, silt, sand and gravel, deposited as a down-slope layer/fan of subaerial origin.

4.1.2 The Groundsure GeoInsights Report states that the superficial deposits are likely to be of very low to high permeability.

4.1.3 The published 1:50,000 scale geological map (BGS Sheet 108 solid, Flint) indicates the site to be underlain by Carboniferous Middle Coal Measure Formation strata. Bedrock strata at rockhead are divided into three fault blocks by N-S and E-W trending faults. The Hollin Rock sandstone is inferred to be present at rockhead in the northwest fault block, and Coal Measures Mudstone and an unnamed sandstone unit are inferred to be present at rockhead in the northeast fault block. Both fault blocks have an undetermined dip. The southern fault block contains Middle Coal Measures Mudstone strata with an implied general dip towards the east. The Main Coal seam is inferred to outcrop in the south of the site and is indicated to dip below the south-eastern section of the site at an unspecified angle.

4.1.4 The Groundsure GeoInsights Report states that the bedrock is likely to be of low to high permeability along bedrock fractures.

4.1.5 The published BGS 1:10,000 scale geological map provides a similar geological interpretation to the 1:50,000 scale maps, however it provides more detail in respect of coal seam thicknesses.

4.1.6 The Main Coal outcropping on site in the southern fault block is indicated to be between 2.17m-4.5m thick. The Upper Red (King) Coal seam (0.0-0.8m thick), Lower Red (Cannel) Coal seam (0.3m-0.6m thick, and Stone (Wall and Bench) Coal seam (up to 1.37m thick) are depicted to the south west of the site within the southern fault block and would dip to the east below the site.

4.1.7 The general stratigraphy of the coal seams above and below the Main Seam as depicted on the BGS 1:10,000 scale geological map is summarised in the following table.

Stratigraphy and thickness of coal seams relative to the Main Seam

Formation	Seam Name(s) ("Symbol")	Depth above/below Main Seam (m)	Thickness (m)
Middle Coal Measures	Quaker (Brassey) "B"	28	0.60-1.19
	Black Bed (Rough) "R"	16	0.11-1.11
	Main Seam "M"	**N/A**	**2.17-4.50**
	Main Bench	6	0.20
	Lower Bench "LB"	10	0.26-0.56
	Crown (Diamond)	20	0.00-0.30

Formation	Seam Name(s) ("Symbol")	Depth above/below Main Seam (m)	Thickness (m)
Lower Coal Measures	Upper Red (King) "K"	42	0.00-0.80
	Lower Red (Cannel) "C"	50	0.30-0.60
	Stone (Wall and Bench) "WB"	64	0.30-1.37
	Nant "N"	110	0.50-1.14
	Ruabon Yard (Yard) "Y"	136	0.76-1.63
	Premier (P)	156	0.65-2.13

4.2 BGS Borehole Records

4.2.1 Records have been obtained from BGS on line viewer for the exploratory holes shown in the following table.

BGS Borehole Records

BGS reference	Date	Location	Final depth m	Summary of strata encountered
SJ26NE-21	15/08/1972	Adjacent to northern boundary of site. Distance: 24.0m NE	12.2	(BH name: Proposed Hawarden by-pass.1) 0.0-0.5m MADE GROUND: Topsoil and ashes with roots & bricks. 0.5-3.9m Clayey SAND & GRAVEL. 3.9-7.3m Stiff to very stiff sandy CLAY. 7.3-10.0m Sandy CLAY, with sandstone fragments. 10.0-12.2m Red, brown & yellow SANDSTONE.
SJ26NE-32	Nov 1979	Adjacent to northern boundary of site. Distance: 15.0m NE	12.1	(BH name: New Inn Bridge Farm) 0.0-1.2m MADE GROUND. 1.2-2.9m brown stony CLAY. 2.9-5.0m Fine to coarse grained clayey GRAVEL & SAND. 5.0-5.2m Red-brown stony CLAY. 5.2-7.2m Fine to coarse grained pebbly GRAVEL & SAND. 7.2-11.9m Red-brown stony CLAY. 11.9-12.1 SANDSTONE.
SJ26NE-1100	Unknown	Offsite, 50.0m NE	Unknown	Mare Hay Colliery Shaft. 79.25m MAIN (possibly Main Coal).
SJ26NE-1101	Unknown	Offsite, 55.0m NE	Unknown	Mare Hay Colliery, Engine or Water Shaft. 102.73m MAIN (possibly Main Coal).
SJ26NE-895	Unknown	Offsite, 130.0m NE	Unknown	Mare Hay Colliery, Engine Pit. 65.54m HOLLIN (possibly Hollin Coal). 122.22m MAIN (possibly Main Coal).
SJ26NE-894	Unknown	Offsite, 242.0m NE	Unknown	Mare Hay colliery. 85.03m MAIN (possibly Main Coal).
SJ26NE-893	Unknown	Offsite, ~100m N	Unknown	Un-named shaft. 109.73m MAIN (possibly Main Coal).
SJ26NE-1013	Unknown	Offsite ~40m S	Unknown	Coal Pit No further details.
SJ26NE-1079	Unknown	Offsite ~265m S	Unknown	Un-named shaft, Located during construction of Hawarden Bypass. **Diameter 2.7m. 8.05m to MAIN**
SJ26NE-1163	Unknown	Offsite, ~600m SW	Unknown	Pit 19.5m MAIN or DRAINAGE LEVEL (possibly Main Coal).
SJ26NE-905	Unknown	Offsite, ~550m SW	Unknown	Cheapside Colliery. 19.8m MAIN or DRAINAGE LEVEL (possibly Main Coal).

BGS reference	Date	Location	Final depth m	Summary of strata encountered
SJ26NE-912	Unknown	Offsite, ~200m SE	Unknown	Mare Hay Colliery, No.1 Shaft 52.12m MAIN (possibly Main Coal).
SJ26NE-1015	Unknown	Offsite, ~450m E	Unknown	Old Shaft. 54.86m HOLLIN (possibly Hollin Coal).

4.3 BGS GeoSure Natural Ground Stability Hazard Datasets

4.3.1 Information from BGS relating to potential ground stability hazards is summarised in the following table.

Ground Stability Hazards

Hazard	Hazard rating	Estimated Distance from Site
Potential for shrinking or swelling clay ground stability hazards	Very Low	On-site
Potential for landslide stability hazards	Very Low	On-site
Potential for ground dissolution stability hazards	Negligible	On-site
Potential for compressible ground stability hazards	Negligible	On-site
Potential for collapsible ground stability hazards	Very Low	On-site
Potential for running sand ground stability hazards	Very Low	On-site

4.4 Mining

4.4.1 The Coal Authority coal mining report, reference: 51002159390001 is presented in Appendix C. The report states:

- The property is in a surface area that could be affected by underground mining in 3 seams of coal at 60m to 140m depth, and last worked in 1906. Any movement in the ground due to coal mining activity associated with these workings should have stopped by now.
- There are no recorded coal mine entries known to the Coal Authority within, or within 20 metres, of the boundary of the property. Based on the Coal Authority's knowledge of the mining circumstances at the time of this enquiry, there may be unrecorded mine entries in the local area that do not appear on Coal Authority records.
- The property is not within the boundary of an opencast site from which coal has been removed by opencast methods.
- There are 2 claims within 50 metres of the property boundary that do not match the property address. These are shown on the enquiry boundary plot.
- The Coal Authority has no record of a mine gas emission requiring action.

4.4.2 IDG obtained a copy of a Subsidence Buffer Report Reference 51002160465001 dated 13th August 2019 to further evaluate the nature of the subsidence claims located 48.6m south of the site. The report states that the claims dated 2013 relate to Park Dale, Mold Road, Ewloe Green, Deeside, Clwyd CH5 3GU, and were rejected on Legal/Limitation Grounds. No further information is presented.

4.4.3 The online Coal Authority viewer provides the following information:

- There are no coal mine entries recorded within the site.
- There are three shafts located immediately north of the site. Shafts reference 329367-268 and 329367-269 are located approximately 25m north of the site. Both shafts are 81.7m deep and relate to Mare Hay Colliery. No details of any investigation or shaft treatment are given. Shaft reference 329367-063 is located approximately 110m northeast of the site and

is reported to be 122.2m deep. No details of any investigation or shaft treatment are given.

- Shaft reference 329366-181 is located 140m south of the site. No details of the depth of the shaft or treatment details are given.
- The site does not lie within a Development High Risk Area (DHRA), however DVHA's are associated with off-site mineshafts to the north of the site and to a probably shallow coal mining to the northwest of the site.
- There are no areas of past or probable shallow coal mine workings identified within the site.
- The CA viewer does not depict the outcrop of the Main seam within the south of the site.
- A number of panels of workings for underground coal are depicted in the southeast of the site.

4.4.4 The Coal Authority have confirmed, by correspondence, that areas of probable working located adjacent to the northern boundary of the site are considered to be at "moderate" (i.e 30-100m) depth.

4.4.5 Further consultations with the Coal Authority and correspondence presented in Appendix C have confirmed the following.

- The Main Coal coal seam (Reference KE020D) has been worked in the extreme centre east of the site at a depth of between 62-66m. The Main Coal seam has also been worked in the extreme northeast of the site at a depth of 123-125m. These workings lie within the fault block lying to the east of the fault oriented north-south through the site.
- To the west of the fault, the Ruabon Yard coal seam has been worked in the vicinity of the south of the site at depths ranging from 107m to 142m and the Premier coal seam has been worked in the vicinity of the south of the site at a depths between 75-115m.

4.4.6 With reference to the stratigraphy presented in Section 4.1.7, the Main coal seam lies approximately 136m above the Yard coal and approximately 156m above the Premier Coal seam. Therefore, taking the depth range of these coal seams, the Main coal seam could be present at shallow depth within the western fault block in the south of the site. This accords with the published BGS geological maps which infer the seam to outcrop in the south of the site.

4.4.7 The Groundsure GeoInsight report identifies the potential for **non-coal** mining within the site. The BGS state that "localised small scale underground mining (for bedded iron ore) may have occurred", however the potential for difficult ground conditions is unlikely or localised and at a level where they need not be considered further.

4.5 Shallow Mining Assessment

4.5.1 The Coal Authority Report does not indicate the presence of any potential shallow workings below the site. However the BGS map depicts the outcrop of the Main Coal seam (indicated to be up to 4.5m thick) in the centre south of the site and dipping to the east. It also indicates the presence of three off site coal shafts located down dip of the inferred outcrop.

4.5.2 Therefore it is considered that that there is a potential for shallow coal seams to be present in the southeast of the site and it is recommended that a number of rotary probeholes be drilled to determine whether the workable thicknesses of coal are present within influencing depth of the surface of the site.

4.5.3 The Coal Authority indicate the presence of probable workings for coal in the north of the site, albeit at moderate (30-100m) depth. Therefore, it would be considered prudent to advance a number of probeholes in the north of the site to confirm the absence of shallow coal mine workings

in this area.

5 ENVIRONMENTAL SETTING

5.1 General

5.1.1 Notes describing how the site's environmental setting has been assessed are included in Appendix E. Environmental information obtained from Groundsure Limited and the British Geological Society (BGS) is presented in Appendix B. A response from Flintshire County Council was awaited at the time of issue of this report. A summary of relevant information is provided below.

5.2 Hydrogeology

5.2.1 The Groundsure Enviro Insight report states that:

- The superficial deposits beneath the site are classified as a Secondary Aquifer (undifferentiated)
- The bedrock beneath the site is classified as a Secondary (A) Aquifer (permeable layers)
- Leaching potential is low within the site.
- There are no current groundwater abstraction licences within the immediate vicinity of the site. Two historic potable licences (dated: 1996-2001) are recorded for Castle Hill Brewery (315m N of the site).
- There are no current Source Protection Zones within 500m of the site.

5.3 Hydrology

5.3.1 The Groundsure Enviro Insight report states that:

- The nearest named water course is New Inn Brook 117m W of the site.
- The nearest surface water feature is an inland river in the south of the site, possibly related to the field drain evident on topographic maps.

5.3.2 The site does not lie within any active licenses, the closest is 1783m SE of the proposed site.

5.4 Pollution Incidents

5.4.1 No significant pollution incidents have been recorded within the immediate vicinity of the site. The closest reported incident was 156m SW of the site (NG: 328744.0 366653.0), involving agricultural materials and wastes with minor impact to water & air and no impact on land. These are not considered significant.

5.5 Risk of Flooding from Rivers and Sea

5.5.1 The Environment Agency indicate that the risk of flooding from rivers or the sea at the centre of the site is very low.

5.5.2 EA Flood Zone maps depict a Flood Zone 2 Floodplain ~48m south of the site.

5.6 Susceptibility to Groundwater Flooding

5.6.1 BGS have developed a dataset that indicates where groundwater flooding could occur, defined by the term 'susceptibility', but does not indicate the *likelihood* that it will occur.

5.6.2 Groundwater flooding is defined as "the emergence of groundwater at the ground surface away

from perennial river valleys, or the rising of groundwater into man-made ground under conditions where the 'normal' range of groundwater levels and groundwater flows is exceeded". Two conceptual models have been used by BGS, namely permeable superficial deposit (PSD) flooding and clearwater flooding.

5.6.3 BGS state that there are BGS groundwater flooding susceptibility areas within 50m of the subject site, relating to **superficial deposits flooding**. The highest susceptibility is **Potential at surface.** BGS' confidence rating in this result is **high.**

5.6.4 Based on the above, further assessment by means of intrusive investigation is recommended, in order to establish whether a continuous groundwater table is present beneath the site; where present, the depth of the groundwater table will need to be established by means of monitoring wells. BGS note that groundwater levels are typically highest in early Spring and lowest in early Autumn, and therefore monitoring may be required over a lengthy period.

5.7 Radon

5.7.1 Radon Affected Areas are designated by the Public Health England (PHE). PHE advise that radon concentrations should be measured in all properties located within Radon Affected Areas.

5.7.2 The risk of proposed properties being affected by radon has been assessed by reference to the information presented in the Groundsure Geoinsight Report. The Groundsure data is based on a BGS radon dataset with a 25m resolution. Radon potential maps published online by Public Health England (www.ukradon.org) are of a significantly lower resolution and show the worst-case radon potential within a 1km grid square.

5.7.3 The property *is located* in **a high risk Radon Affected Area**, with >30% of properties being above the Action Level. Current Building Control Regulations require **full radon protection measures** (in accordance with BRE211, 2015) to be installed.

5.8 Landfills

5.8.1 Known or suspected areas of landfill in the vicinity of the site are summarised in the following table.

Landfills in vicinity of site

Location	NGR (proximity to site)	Remarks	Source of data
Land adjacent to Ewloe C.P. school	NGR not given (49m S)	Waste type: Inert & industrial Site reference: 150/87 Licence holder: F G Whitley and Sons Company Limited First recorded: 31/12/1987 Last recorded: 20/05/1989	Groundsure EnviroInsight report:

5.8.2 The above inert landfill site is not considered to present a significant source of hazardous gas in respect of the site.

5.8.3 The Groundsure Enviro Insight report has identified potentially infilled land used by the old colliery to the northeast of the site based on 1869 mapping. Review of the historical map dated 1869 does not depict any evidence of excavation or deposition of materials. Therefore this is not considered significant in relation to the proposed development of the site.

5.8.4 Three spoil heaps within 5-10m NE of the site (potentially related to the old Colliery), are above ground features and are not considered to be a significant source of hazardous gases.

5.8.5 Infilled ponds onsite and 4m W of the site, are not considered to be a significant source of hazardous gas.

5.9 Current Land Uses and Contemporary Trade Directory Entries

5.9.1 The site is currently used as pasture for the grazing of cattle. The eastern field is currently used as pasture for the grazing of horses. Stabling facilities are located adjacent to Ivy Cottage in the south of the site.

5.9.2 An active fuel station is located approximately 100m northwest of the site.

5.9.3 A historical garage locates 15m northeast of the site, which has been redeveloped for residential use. This site is not considered likely to be a source of mobile hydrocarbon contamination.

5.10 Dangerous or Hazardous Sites

5.10.1 There are no COMAH or NIHHS recorded sites within 500m of the site.

5.11 Sensitive Land Uses

5.11.1 No Sensitive Land Uses have been identified within the immediate vicinity of the site. The closest sensitive site is an SSSI 166m N, described as Connah's Quay Ponds and Woodland.

5.11.2 Review of Flintshire County Council Unitary Development Plan 2000-2015 (adopted 28th September 2011) indicates that the site lies within an area designated Green Barrier (GEN4(12)).

5.12 Summary of Environmental Setting

5.12.1 A summary of the Environmental Setting of the site is presented in the table overleaf.

Summary of Geological and Environmental Information

Issue	Data reviewed	Summary	
Geology	1:50,000 BGS map (Sheet 108) 1:10,000 BGS map (Sheet SJ26NE) Groundsure report BGS Online Viewer	Superficial Deposits (Drift):	Glacial Till and Head Deposits
		Solid (Bedrock):	Hollin Rock Sandstone & Coal Measures Mudstone, Sandstone and Coal
		Bedrock Strata Dip:	Not specified
		Faults:	2 major faults, separating the site into three fault blocks.
Mining	The Coal Authority report The Coal Authority Interactive Map (online) BGS maps Groundsure report	Past and present workings:	The property is within a surface area that could be affected by underground mining- last worked in 1906
		Shallowest coal seam:	60m
		Shallow Mineworkings:	No areas of past or probable workings have been identified
		Mine entries:	No recorded coal mine entries known to the CA within, or within 20m of site boundary
		Opencast:	None identified within the immediate vicinity of the site boundary
Quarrying	Local Authority search Historical OS Plans Groundsure report	None have been identified with the immediate vicinity of the site boundary	
Radon	Groundsure GeoInsight report	A high risk radon affected area (>30%), **full radon protection** measures required	
Hydrogeology	Environment Agency Groundsure report	Superficial (Drift):	Secondary Aquifer (undifferentiated)
		Solid (Bedrock):	Secondary (A) Aquifer (permeable layers)
		Source Protection Zone:	None depicted within the vicinity of the site
		Soil leaching potential:	Low
		Groundwater abstractions:	No current licenses
		Pollution incidents:	None identified
Hydrology	Groundsure report	Nearest watercourse(s):	New Inn Brook ~117m west of the site
		Water quality:	Not specified
		Pollution incidents:	No significant incidents
		Surface Water Abstractions:	No active licences
		Discharge consents to surface water:	Not specified
Flood Risk – surface water	Environment Agency Flood Map for Planning / Risk of Flooding from rivers or sea	Risk of flooding from rivers or the sea is very low. The site **does not lie within** an area depicted on EA Flood Zone maps to be at risk of flooding from rivers or the sea. A Flood Zone 2 Floodplain is depicted ~48m south of site.	
Flood Risk – groundwater	BGS	Groundwater flooding susceptibility areas within 50m of the subject site, relating to superficial deposits flooding. Highest susceptibility is "potential at surface". BGS' confidence rating in this result is high.	

6 PRELIMINARY CONCEPTUAL SITE MODEL

6.1 General

6.1.1 Based on the data presented in the preceding sections of this report, a Preliminary Conceptual Site Model has been determined as outlined below.

Potential contamination sources

6.1.2 The historical plans show that the site has been mainly used as agricultural land which is considered unlikely to have caused ground contamination.

6.1.3 The historical plans depict an **offsite** historical garage approximately 10m NE of the site boundary. This garage site has been redeveloped for residential use and is not considered to represent a source of significant contamination.

6.1.4 An active fuel filling station is located 100m metres to the northwest of the site on Holywell Road. This garage site is not considered to represent a source of significant contamination.

6.1.5 BGS borehole data has identified two boreholes located to the north of the site with Made Ground comprising topsoil and ashes with roots & brick. This likely to represent localised recycled aggregate material placed at field entrance for farming vehicles and is not considered to be significant.

Potential ground gas sources

6.1.6 The property is located in a high risk Radon Affected Area, with >30% of properties being above the Action Level. Current Building Control Regulations require **full radon protection measures** (in accordance with BRE211, 2015) to be installed.

6.1.7 The Coal Authority Report does not indicate the presence of any potential shallow workings below the site.

6.1.8 The historical plans depicted an inert landfill site adjacent to Ewloe C.P. School dating from 1987-1989. This is not considered to present a significant source of hazardous gas.

6.1.9 The historical plans show infilled ponds onsite and off-site ponds 4m west of the site. Based on the size of these ponds and time since infilling these are not considered to present a significant source hazardous gas.

6.1.10 The historical plans show three mining spoil heaps located 5-10m NE of the site. These are above ground features and are not considered to be a significant source of hazardous gases.

6.1.11 Coal Authority Records do not indicate the likely presence of any shallow coal mine workings below the site.

Human receptors

6.1.12 Following the proposed redevelopment, human receptors will include residents within the new properties, visitors using public open space areas, and residents in neighbouring properties.

6.1.13 Transient risks to construction workers from handling contaminated soils are normally addressed by the adoption of appropriate health and safety measures during the construction works, and therefore these receptors are not considered further. Similarly, risks to residents in neighbouring properties due to airborne dust or vapours during redevelopment works should be addressed by the adoption of suitable measures.

Controlled water receptors

6.1.14 The superficial deposits beneath the site are classified as Secondary aquifer. The underlying Coal Measures rocks are classified as Secondary A aquifer. There are no groundwater abstractions within the vicinity of the site. Therefore, the site's environmental setting has been assessed as low sensitivity in respect of groundwater receptors.

6.1.15 Other than field drains, the nearest surface watercourse is the New Inn Brook ~117m west of the site. Therefore, the site's environmental setting has been assessed as low sensitivity in respect of surface water receptors.

Preliminary Conceptual Site Model

6.1.16 The property is located in a high risk Radon Affected Area, with >30% of properties being above the Action Level. Current Building Control Regulations require **full radon protection measures** (in accordance with BRE211, 2015) to be installed.

6.1.17 No significant soil, groundwater or ground gas (methane or carbon-dioxide) contamination sources have been identified.

6.2 Land Contamination - Part IIA

6.2.1 Local Authorities have responsibilities with respect to contaminated land in the context both of Part IIA of the Environmental Protection Act 1990, and the Town and Country Planning Act 1990.

6.2.2 The contaminated land regime in Part IIA of the Environmental Protection Act 1990 was introduced specifically to address the historical legacy of land contamination. It applies where there is unacceptable risk, assessed on the basis of the current use and the relevant circumstances of the land. It is not directed to assessing risks in relation to a future use of the land that would require a specific grant of planning permission. This is primarily a task for the planning system, which aims to control development and land use in the future.

National Planning Policy Framework 2019

6.2.3 This site is being considered for redevelopment and therefore potential contamination issues have to be considered to ensure compliance with the Town & Country Planning Act 1990 and the National Planning Policy Framework 2019 (NPPF).

6.2.4 In accordance with Paragraph 178 of the NPPF 2019, the local Planning Authority should also ensure that:

- a site is suitable for its proposed use taking account of ground conditions and any risks arising from land instability and contamination. This includes risks arising from natural hazards or former activities such as mining, and any proposals for mitigation including land remediation (as well as potential impacts on the natural environment arising from that remediation);
- after remediation, as a minimum, land should not be capable of being determined as contaminated land under Part IIA of the Environmental Protection Act 1990; and
- adequate site investigation information, prepared by a competent person, is available to inform these assessments.

6.2.5 Paragraph 179 of the NPPF 2019 states, "where a site is affected by contamination or land stability issues, responsibility for securing a safe development rests with the developer and/or landowner".

6.2.6 Paragraph 180 states "planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development".

This Site

6.2.7 The current use of the site is considered unlikely to have given rise to significant ground and groundwater contamination.

6.2.8 It is considered that the site should be suitable for the proposed use, subject to the comments made in Section 7 below.

6.3 Mineral Safeguarding

6.3.1 The NPPF 2019 also states that planning policies should:

- provide for the extraction of mineral resources of local and national importance
- safeguard mineral resources by defining Mineral Safeguarding Areas; and adopt appropriate policies so that known locations of specific minerals resources of local and national importance are not sterilised by non-mineral development where this should be avoided (whilst not creating a presumption that the resources defined will be worked)
- set out policies to encourage the prior extraction of minerals, where practical and environmentally feasible, if it is necessary for non-mineral development to take place;
- set out criteria or requirements to ensure that permitted and proposed operations do not have unacceptable adverse impacts on the natural and historic environment or human health, taking into account the cumulative effects of multiple impacts from individual sites and/or a number of sites in a locality.

This site

6.3.2 Review of Flintshire County Council Unitary Development Plan 2000-2015 (adopted 28th September 2011) indicates that a small section in the north of the site lies within an area designated as a Minerals Safeguarding Area (MIN8) in order to protect mineral interests.

6.3.3 The Minerals Safeguarding Area correlates with an area of Superficial "Head" Deposits as depicted on published BGS geological plans. Head Deposits are described by the BGS to be localised poorly-sorted, highly variable mixtures of clay, silt, sand and gravel formed by mass movements on sub-aerial slopes.

6.3.4 The remainder of the designated Mineral Safeguarding Area located to the north of the site corresponds with an area of Glaciofluvial Deposits (sand and gravel), which are more likely to represent a geological resource. Correspondence with Flintshire County Council (Minerals and Waste Manager) has confirmed that "when the safeguarding maps were drawn up, they were based on the published BGS resource mapping and no differentiation has been made of quality, quantity or even whether it (the resource) is actually present". It is therefore considered likely that whilst the Head deposits have been included in the Mineral Safeguarding Area they are unlikely to form a resource requiring protection from sterilisation or warranting prior extraction.

6.3.5 Notwithstanding the above assessment, and given the extent of the Head deposits within the site, extraction of mineral resources from this area is considered unlikely to be practical or economically feasible.

7 CONCLUSIONS AND RECOMMENDATIONS

7.1 General

7.1.1 It is understood that Mr Gaunt is considering acquisition of the site with a view to residential development.

7.1.2 The main issues considered in this report, and in particular in Sections 3 and 4, are based on a review of historical data and available information. The report provides an assessment of geoenvironmental issues and implications for the current and proposed use of the site, together with issues associated with residential development of the site.

7.2 Contamination

7.2.1 No significant soil or groundwater contamination sources have been identified.

7.3 Hazardous Gas

7.3.1 The property is located in a high risk Radon Affected Area, with >30% of properties being above the Action Level. Current Building Control Regulations require **full radon protection measures** (in accordance with BRE211, 2015) to be installed.

7.3.2 No significant ground gas contamination (methane or carbon-dioxide) sources have been identified. Ground gas monitoring is therefore not required. Should intrusive investigation identify the presence of shallow coal mine workings in either the south or north of the site, a reassessment of the ground gas risk should be undertaken.

7.4 Mining

7.4.1 The property is in a surface area that could be affected by underground mining in 3 seams of coal at 60m to 140m depth, and last worked in 1906. Any movement in the ground due to coal mining activity associated with these workings should have stopped by now.

7.4.2 There are no recorded coal mine entries known to the Coal Authority within, or within 20 metres, of the boundary of the property. However, based on the Coal Authority's knowledge of the mining circumstances at the time of this enquiry, there may be unrecorded mine entries in the local area that do not appear on Coal Authority records.

7.4.3 The Coal Authority Report does not indicate the presence of any potential shallow workings below the site. However the BGS geological map depicts the outcrop of the Main Coal seam (indicated to be up to 4.5m thick) in the centre south of the site and dipping to the east. It also indicates the presence of three off site coal shafts located down dip of the inferred outcrop. Therefore it is considered that that there is a potential for shallow coal seams to be present in the southeast of the site and it is recommended that a number of rotary probeholes be drilled to determine whether the workable thicknesses of coal are present within influencing depth of the surface of the site.

7.4.4 The Coal Authority indicate the presence of probable workings for coal in the north of the site, albeit at moderate (30-100m) depth. Therefore, it would be considered prudent to advance a number of probeholes in the north of the site to confirm the absence of shallow coal mine workings in this area.

7.5 Foundations

7.5.1 At present, no geotechnical ground investigation data is available and consequently it is only possible to estimate the ground conditions. Before firm foundation recommendations can be given, it will be necessary to undertake an appropriate ground investigation. However, tentative recommendations are provided below.

7.5.2 The published geological data suggests that the site is underlain by Glacial clay with localised Head deposits in the northwest. Significant Made Ground is not anticipated.

7.5.3 Firm glacial clay or weathered Coal Measures rock strata typically provide sufficient bearing capacity to enable the adoption of strip or trench fill foundations for two storey housing. Reinforcement may be necessary to limit differential settlement. Alternative foundation solutions may be required in areas of soft or loose deposits or where a significant thickness of Made Ground is encountered.

7.6 Flooding, Drainage, Highways and External Works Issues

7.6.1 BGS state that there are BGS groundwater flooding susceptibility areas within 50m of the subject site, relating to superficial deposits flooding. The highest susceptibility is **Potential at surface**. BGS' confidence rating in this result is high.

7.6.2 Further assessment by means of intrusive investigation is recommended, in order to establish whether a continuous groundwater table is present beneath the site; where present, the depth of the groundwater table will need to be established by means of monitoring wells. BGS note that

groundwater levels are typically highest in early Spring and lowest in early Autumn, and therefore monitoring may be required over a lengthy period.

7.6.3 Based on the anticipated ground conditions, it is not considered likely that soakaways would represent an effective means of dispersal for surface water.

7.7 Intrusive Investigation

7.7.1 Whilst the site is considered suitable for its current and proposed use, the proposed change in use will require intrusive investigation.

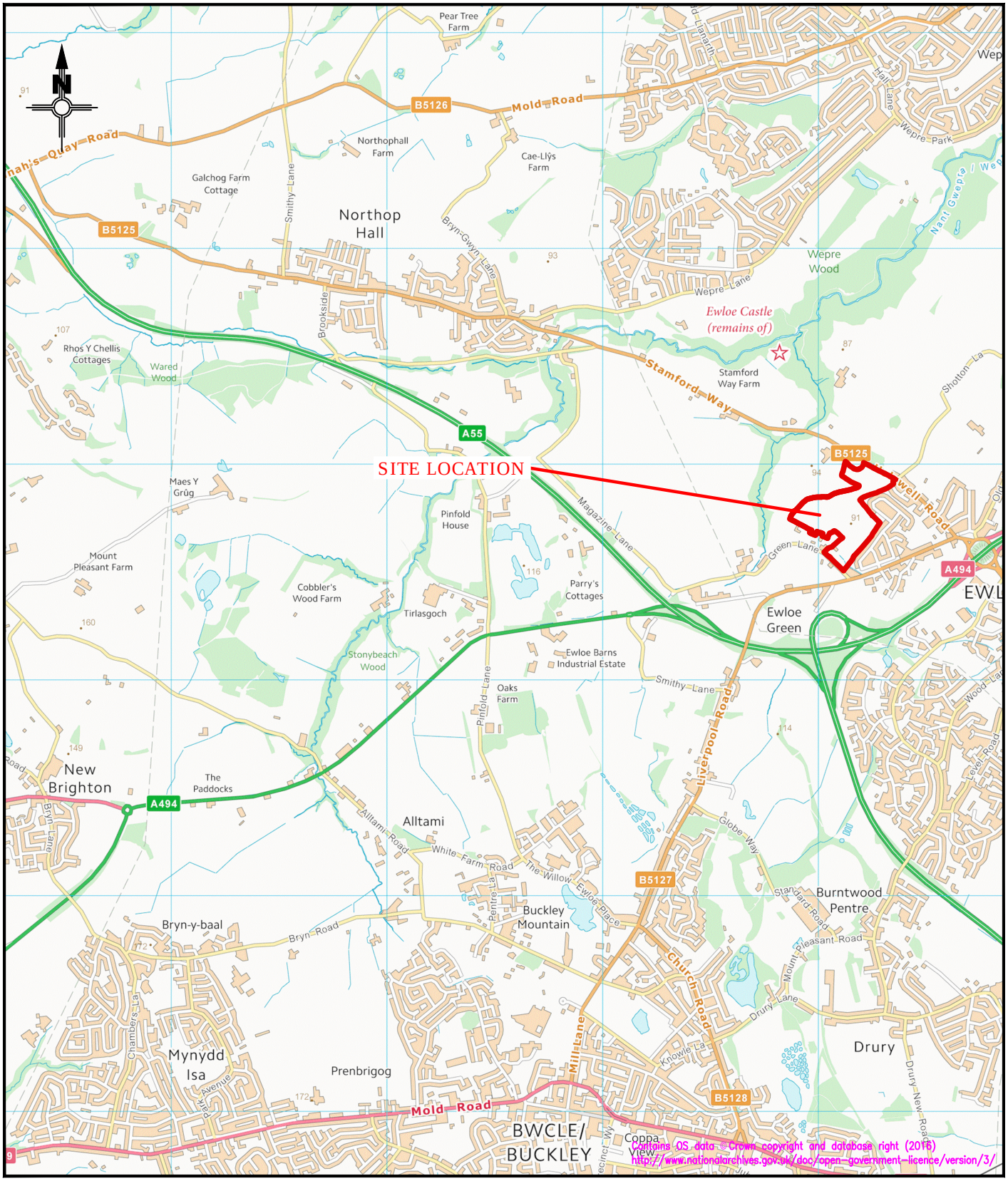
7.7.2 This should comprise the excavation of trial pits in all accessible areas of the site to determine near-surface ground conditions, including depth to bedrock, presence of obstructions, groundwater conditions and ground stability. Suitable geotechnical soils analysis will be required to enable foundation recommendations to be provided.

7.7.3 Based on the anticipated ground conditions, it is likely that boreholes will be required in order to assess the geotechnical properties of the Head Deposits in the north of the site.

7.7.4 Rotary probeholes will be required to confirm whether workable thicknesses of coal are present in the south of the site and to confirm probable workings do not extend onto the site at shallow depth in the north of the site.

7.7.5 An appropriate range of chemical testing should be carried out on soils within the vicinity of Ivy Cottage to determine whether the site has been affected by contamination. Topsoil from the wider site should be chemically tested to confirm its suitability for re-use within garden and landscaped areas of the proposed development.

Appendix A



iD GeoEnvironmental Limited

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CLIENT	Core Design
JOB TITLE	Holywell Road, Ewloe Green
DRAWING TITLE	Site Location Plan

DRAWN BY	SIGNATURE	DATE	STATUS
EW		15-8-2019	

APPROVED	SIGNATURE	DATE	SCALE	DRG No.
BRB		15-8-2019	1:25,000@A4	5022-G-D001

A4 border: 186 x 218

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KEY

- Site Boundary
- 1 — Field Number
- Slope (direction indicated-by point)
- E — Overhead Electrical Cables
- T — Overhead Telecom Cables

Revision	Description	Date

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☒ North West & Midlands:
Caledonian House
Tatton Street
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Tel: 01565 755557
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☐ North East & Yorkshire:
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Yorkshire, DL10 5HG

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Fax: 01565 740263

CLIENT: Core Design

JOB TITLE: Holywell Road, Ewloe Green

DRAWING TITLE: Site Features Plan

STATUS	DRAFT	
DRAWN BY: EW	SIGNATURE:	DATE: 14-8-2019
APPROVED: BRB	SIGNATURE:	DATE: 14-8-2019
SCALE: 1:1000@A1	ORG No.: 5022-G-D002	

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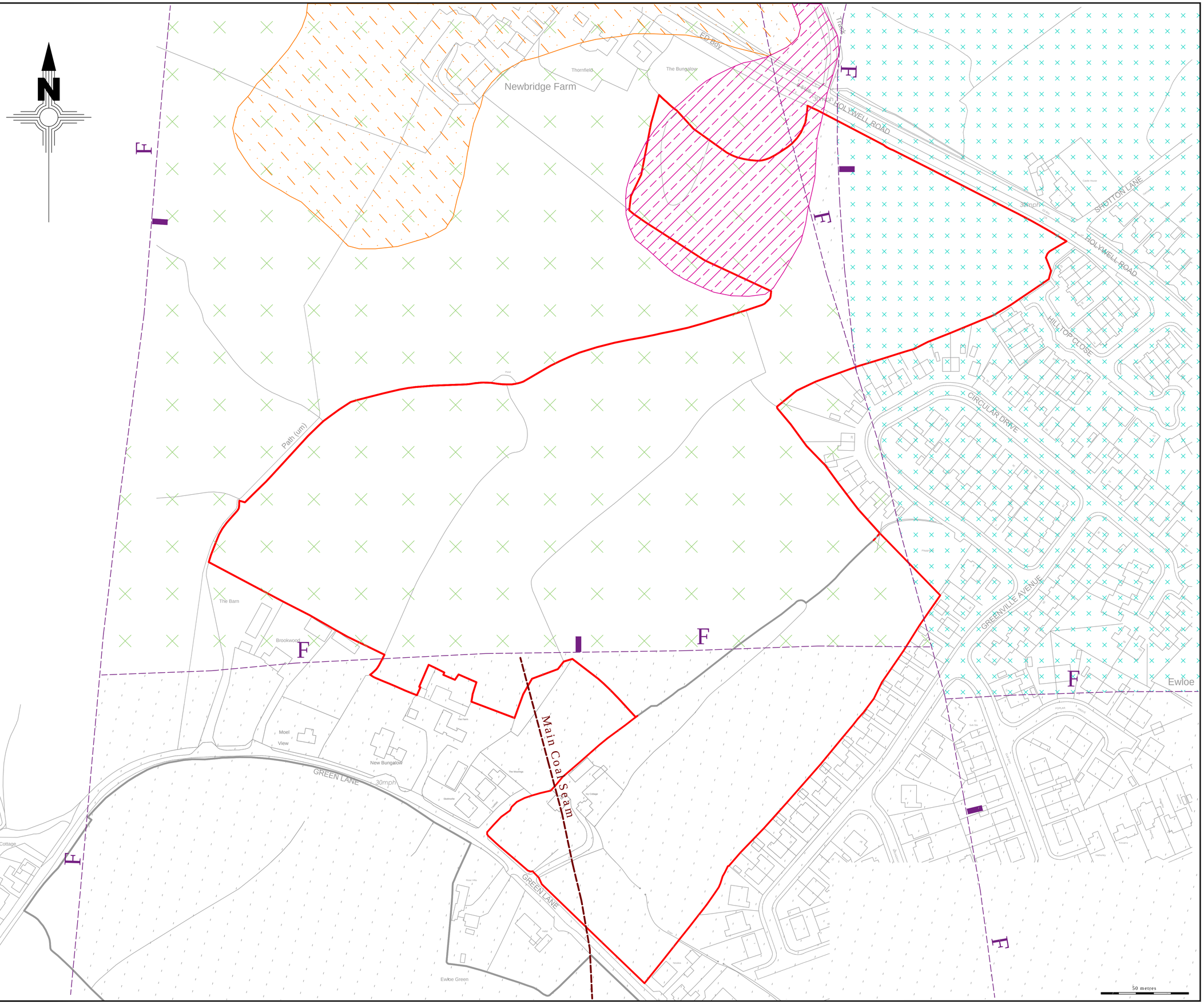

KEY

- Site Boundary
- Main Coal Seam
- F — Fault (Tick on down thrown side)

Superficial Deposits

- Head Deposit
- Glacial Sand and Gravel
- Glacial Till (NOT DEPICTED)

Bedrock: Middle Coal Measures

- Mudstone
- Hollin Rock
- Sandstone

Revision	Description	Date

iD Geo
iD GeoEnvironmental Limited

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☐ North East & Yorkshire:
The Stables, Aske Hall
Aske, Richmond
Yorkshire, DL10 5HG

Tel: 01748 889015
Fax: 01565 740263

CLIENT: Core Design

JOB TITLE: Holywell Road, Ewloe Green

DRAWING TITLE: Geological Features

STATUS: DRAFT

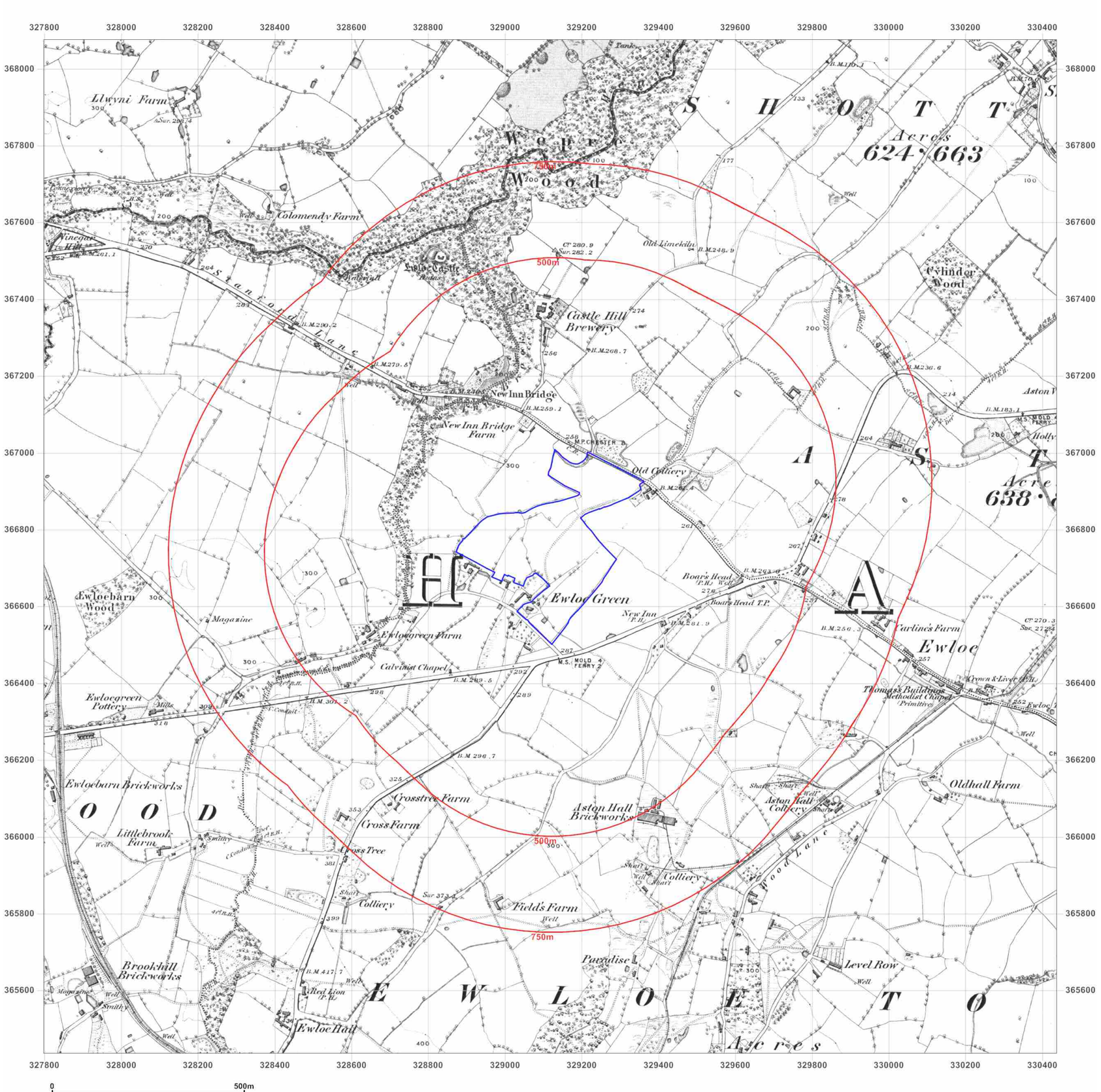
DRAWN BY	SIGNATURE	DATE
EW		15-8-2019

APPROVED	SIGNATURE	DATE
BRB		15-8-2019

SCALE	DRG No.
1:1000@A1	5022-G-D002

A1 Border 841 X 617

Appendix B



Groundsure INSIGHTS

Site Details:

HOLYWELL ROAD, EWLOE GREEN, CH5 3BS

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Report Ref: GS-6222585
Grid Ref: 329117, 366755

Map Name: County Series

Map date: **1869**

Scale: 1:10,560

Printed at: 1:10,560

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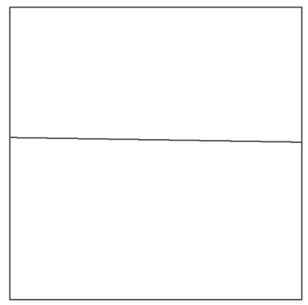
Surveyed 1869
Revised 1869
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1869
Revised 1869
Edition N/A
Copyright N/A
Levelled N/A

Powered by OS

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

Production date: 06 August 2019

Map legend available at:
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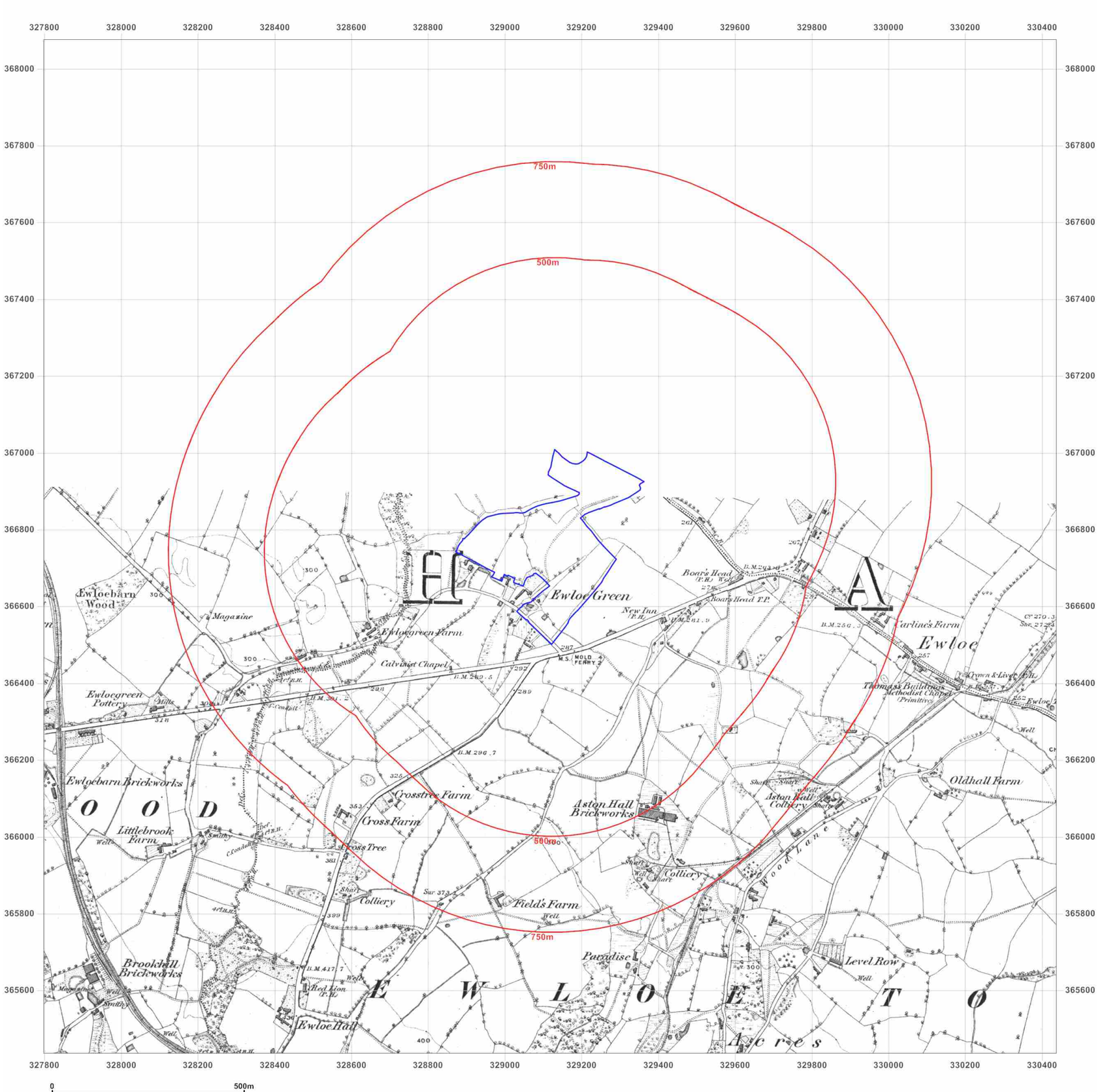

Groundsure INSIGHTS

Site Details:

HOLYWELL ROAD, EWLOE GREEN, CH5 3BS

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Report Ref: GS-6222585
Grid Ref: 329117, 366755

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Map date: **1869**
Scale: 1:10,560
Printed at: 1:10,560

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Surveyed 1869
Revised 1869
Edition N/A
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Production date: 06 August 2019

Map legend available at:
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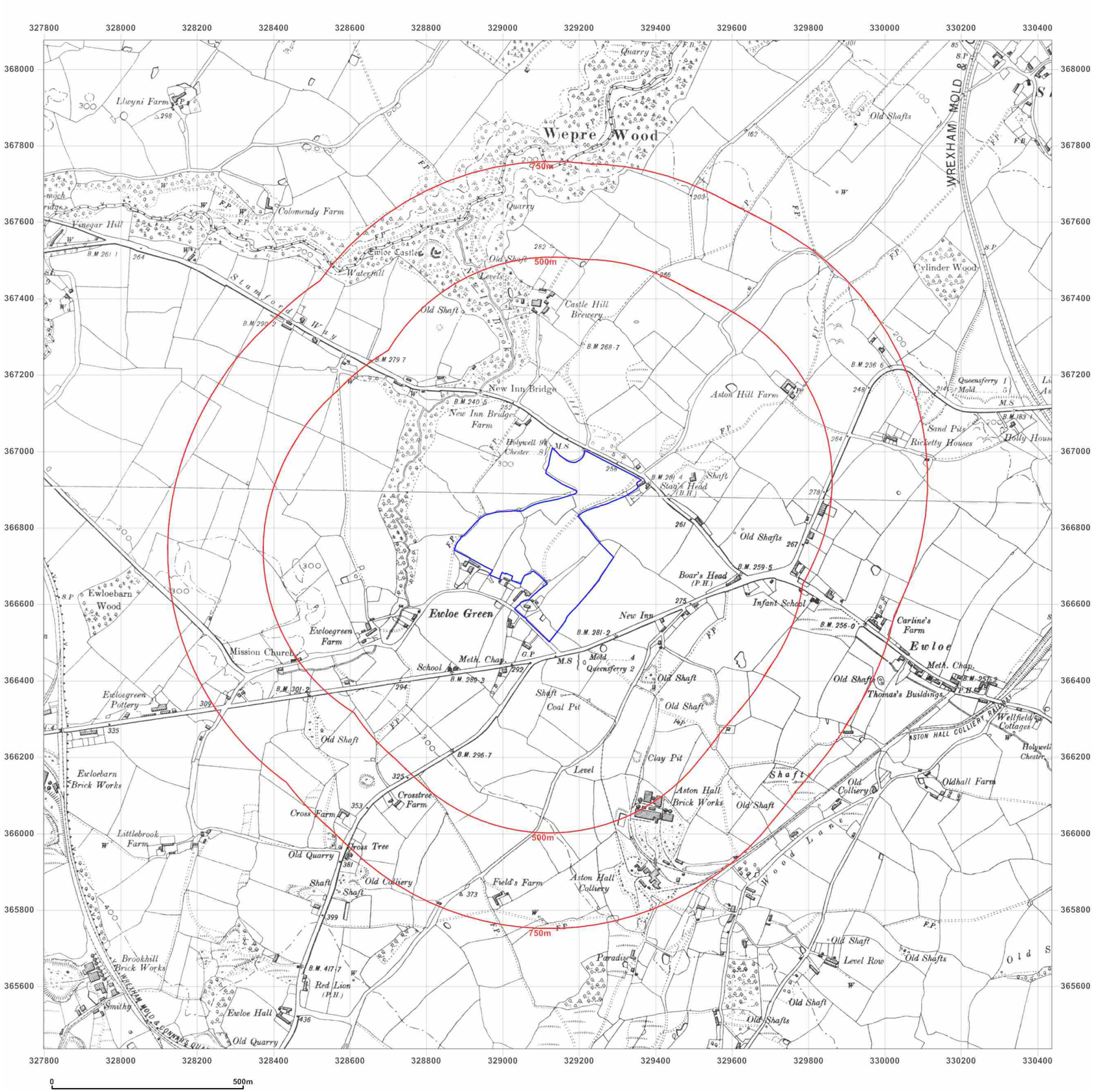

Groundsure INSIGHTS

Site Details:

HOLYWELL ROAD, EWLOE GREEN, CH5 3BS

Client Ref: 5022
Report Ref: GS-6222585
Grid Ref: 329117, 366755

Map Name: County Series

Map date: **1898**

Scale: 1:10,560

Printed at: 1:10,560

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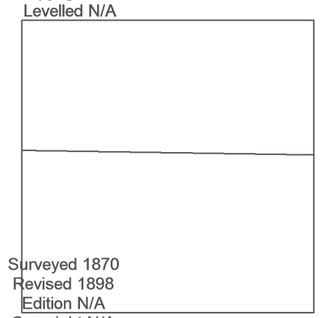
Surveyed 1870
Revised 1898
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1870
Revised 1898
Edition N/A
Copyright N/A
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Production date: 06 August 2019

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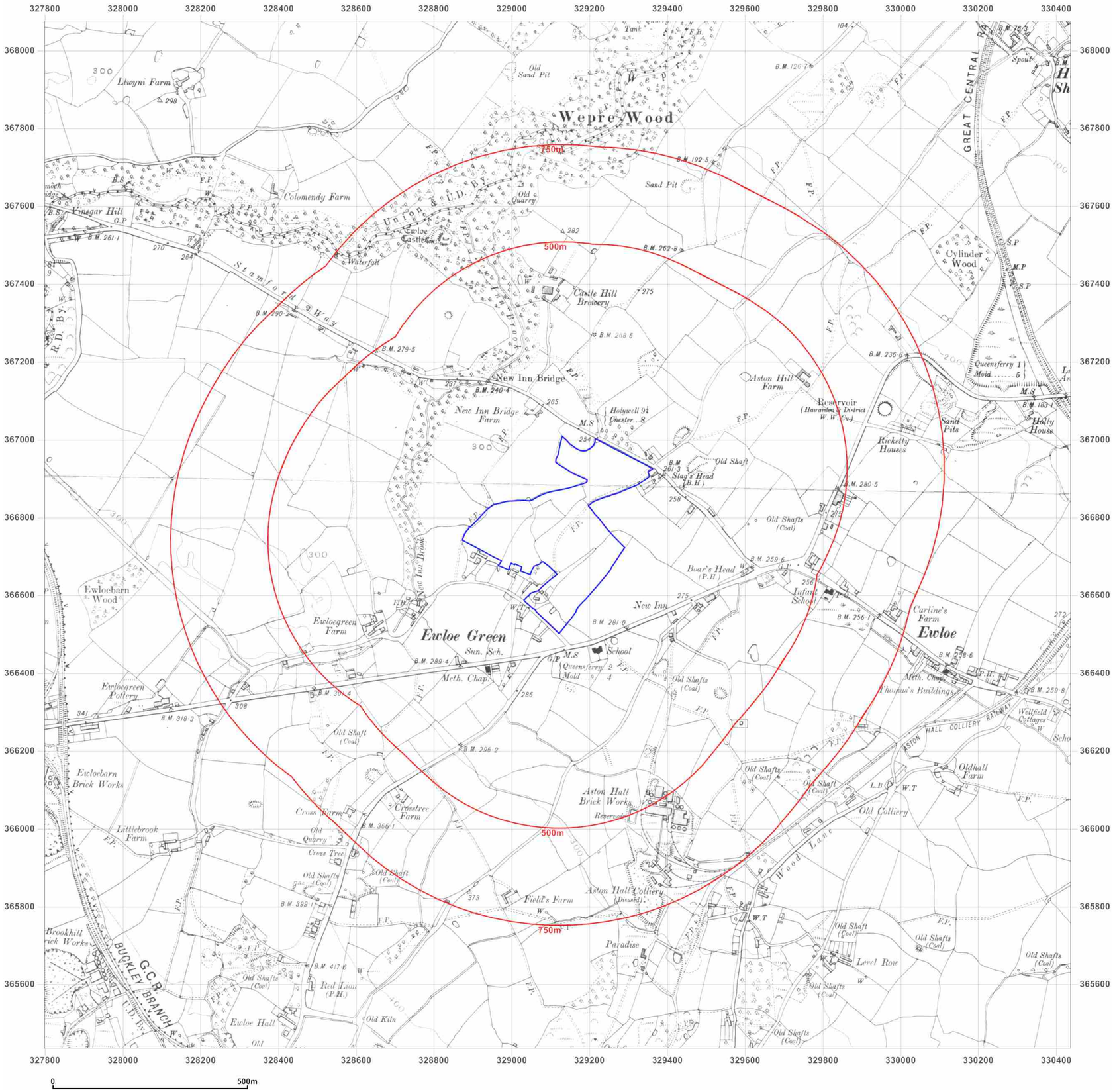

Groundsure INSIGHTS

Site Details:

HOLYWELL ROAD, EWLOE GREEN, CH5 3BS

Client Ref: 5022
Report Ref: GS-6222585
Grid Ref: 329117, 366755

Map Name: County Series

Map date: **1909-1910**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed 1869
Revised 1910
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1870
Revised 1909
Edition N/A
Copyright N/A
Levelled N/A

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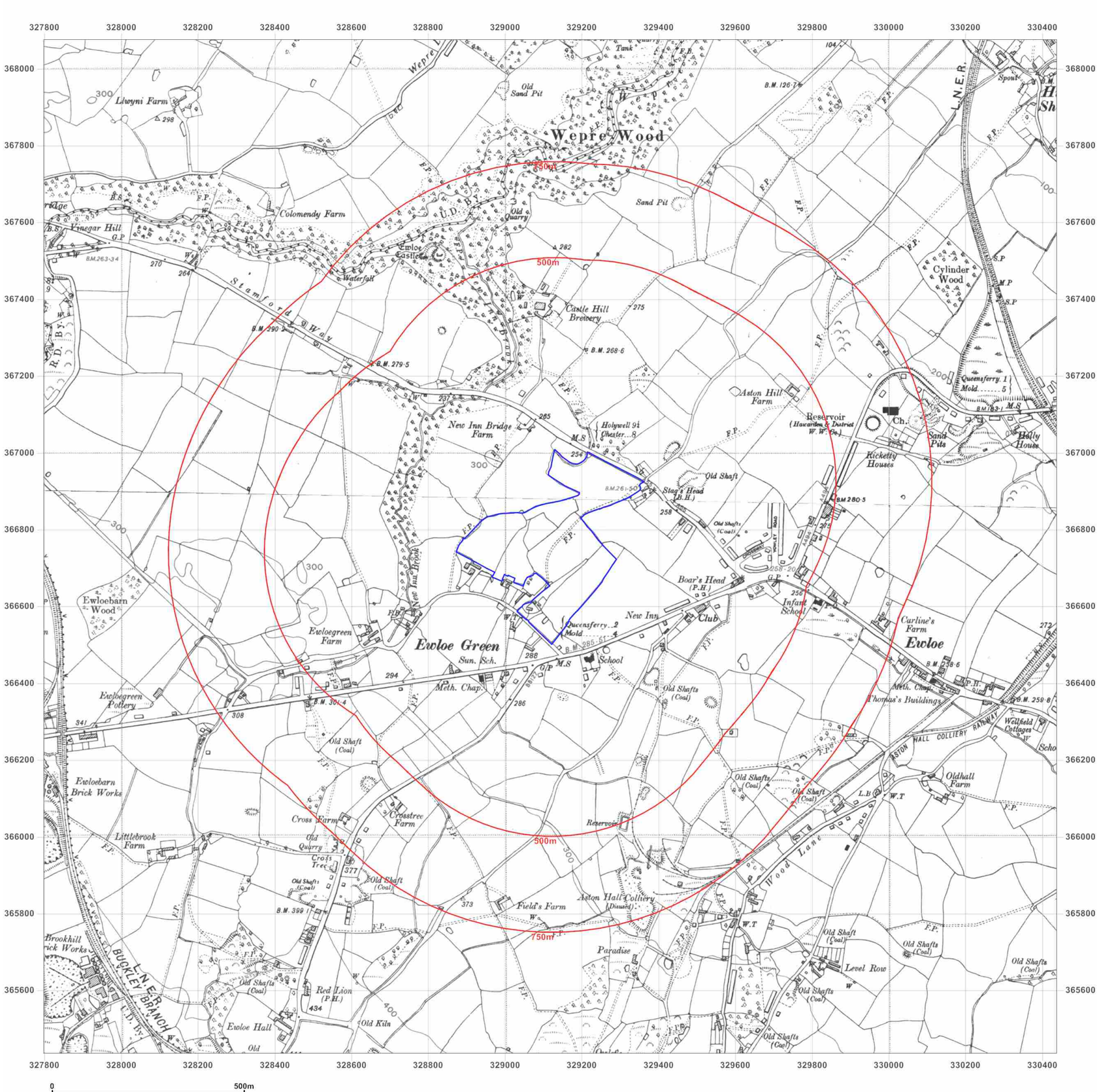

Groundsure INSIGHTS

Site Details:

HOLYWELL ROAD, EWLOE GREEN, CH5 3BS

Client Ref: 5022
Report Ref: GS-6222585
Grid Ref: 329117, 366755

Map Name: County Series

Map date: **1938**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed 1869
Revised 1938
Edition 1938
Copyright N/A
Levelled N/A

Surveyed 1870
Revised 1938
Edition 1938
Copyright N/A
Levelled N/A

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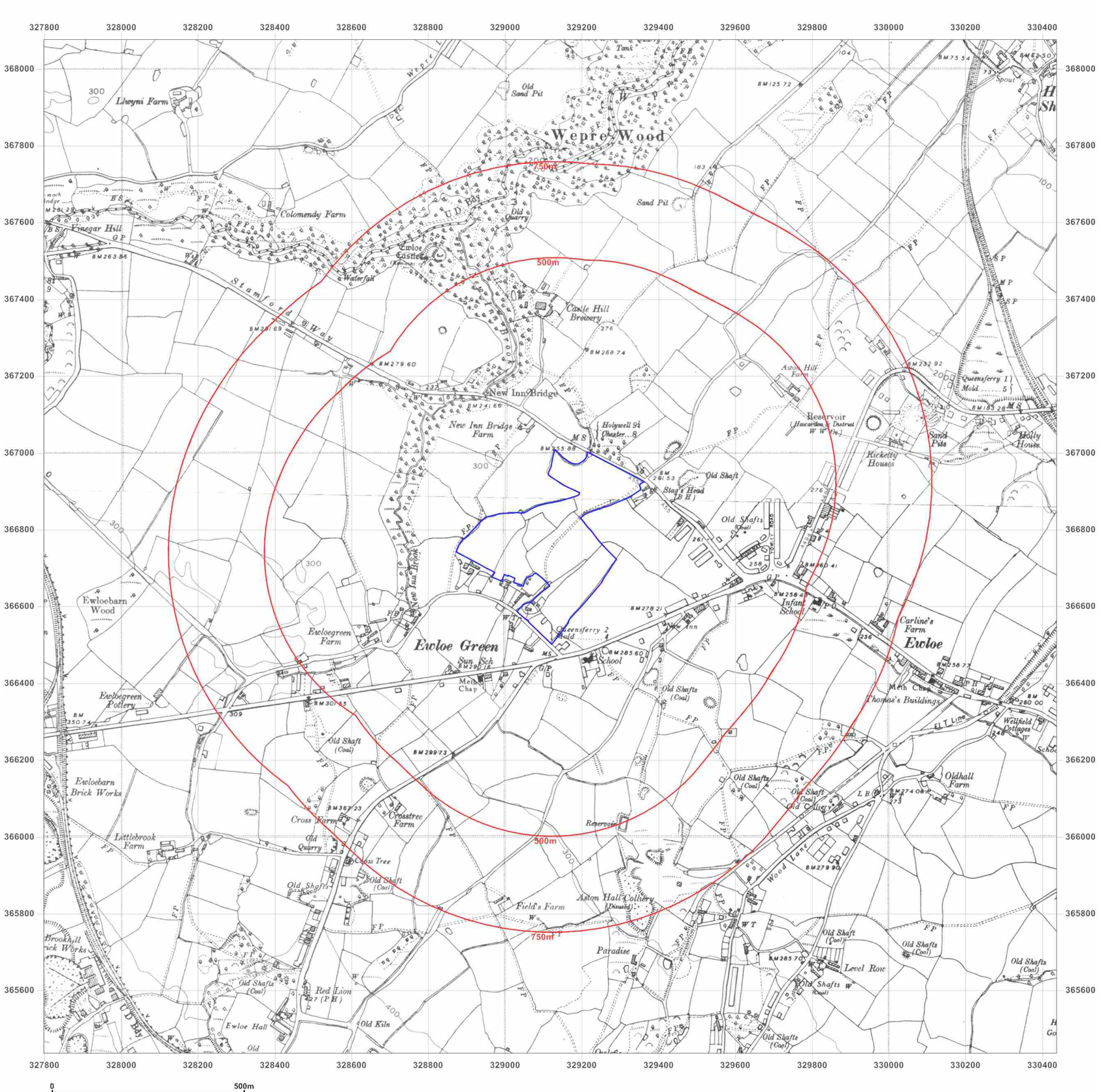

Site Details:

HOLYWELL ROAD, EWLOE GREEN, CH5 3BS

Client Ref: 5022
Report Ref: GS-6222585
Grid Ref: 329117, 366755

Map Name:	County Series
Map date:	**1948**
Scale:	1:10,560
Printed at:	1:10,560

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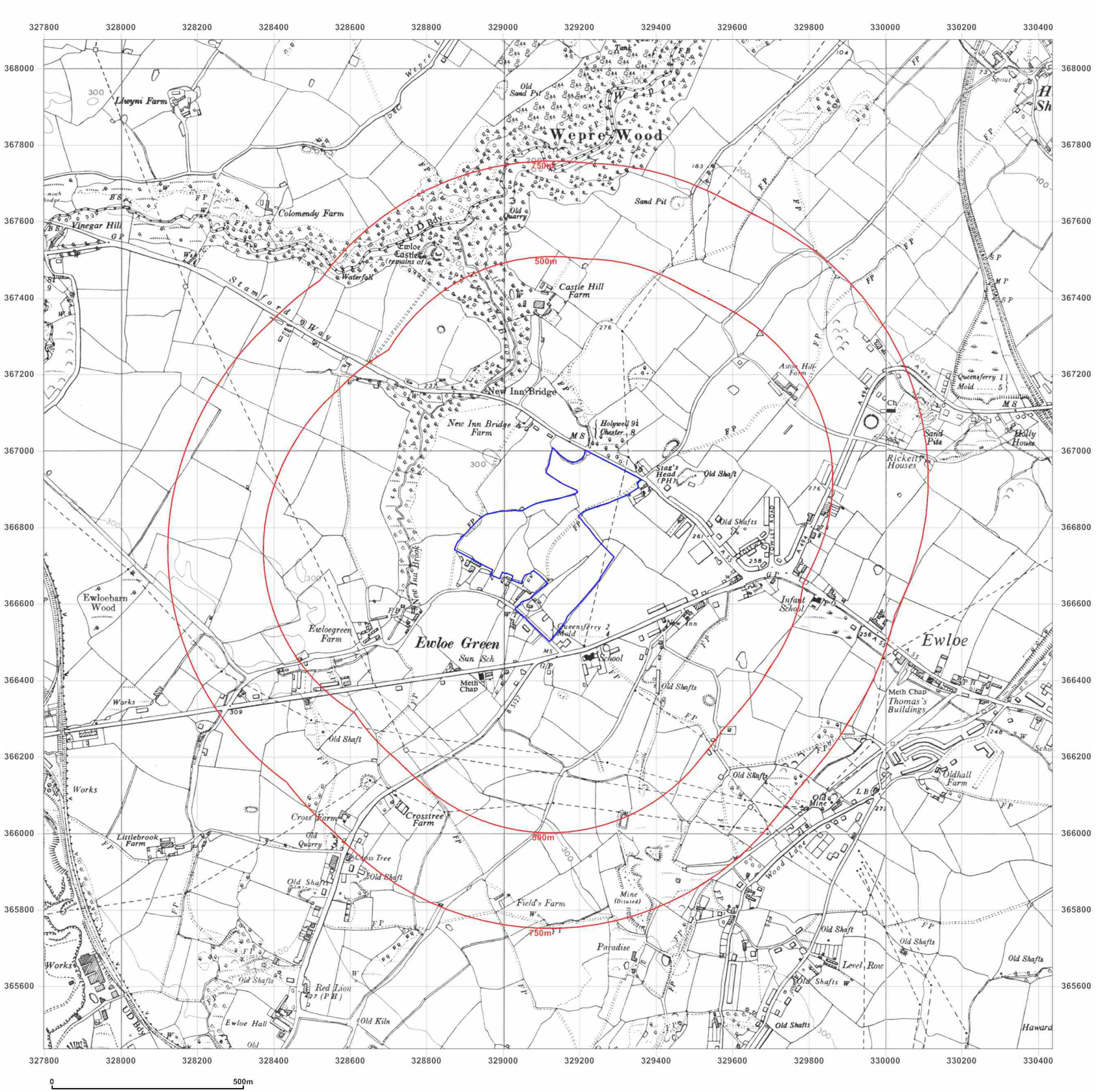

Groundsure INSIGHTS

Site Details:

HOLYWELL ROAD, EWLOE GREEN, CH5 3BS

Client Ref: 5022
Report Ref: GS-6222585
Grid Ref: 329117, 366755

Map Name: Provisional
Map date: **1963**
Scale: 1:10,560
Printed at: 1:10,560

N
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Surveyed N/A
Revised 1962
Edition N/A
Copyright 1963
Levelled N/A

Surveyed N/A
Revised 1962
Edition N/A
Copyright 1963
Levelled N/A

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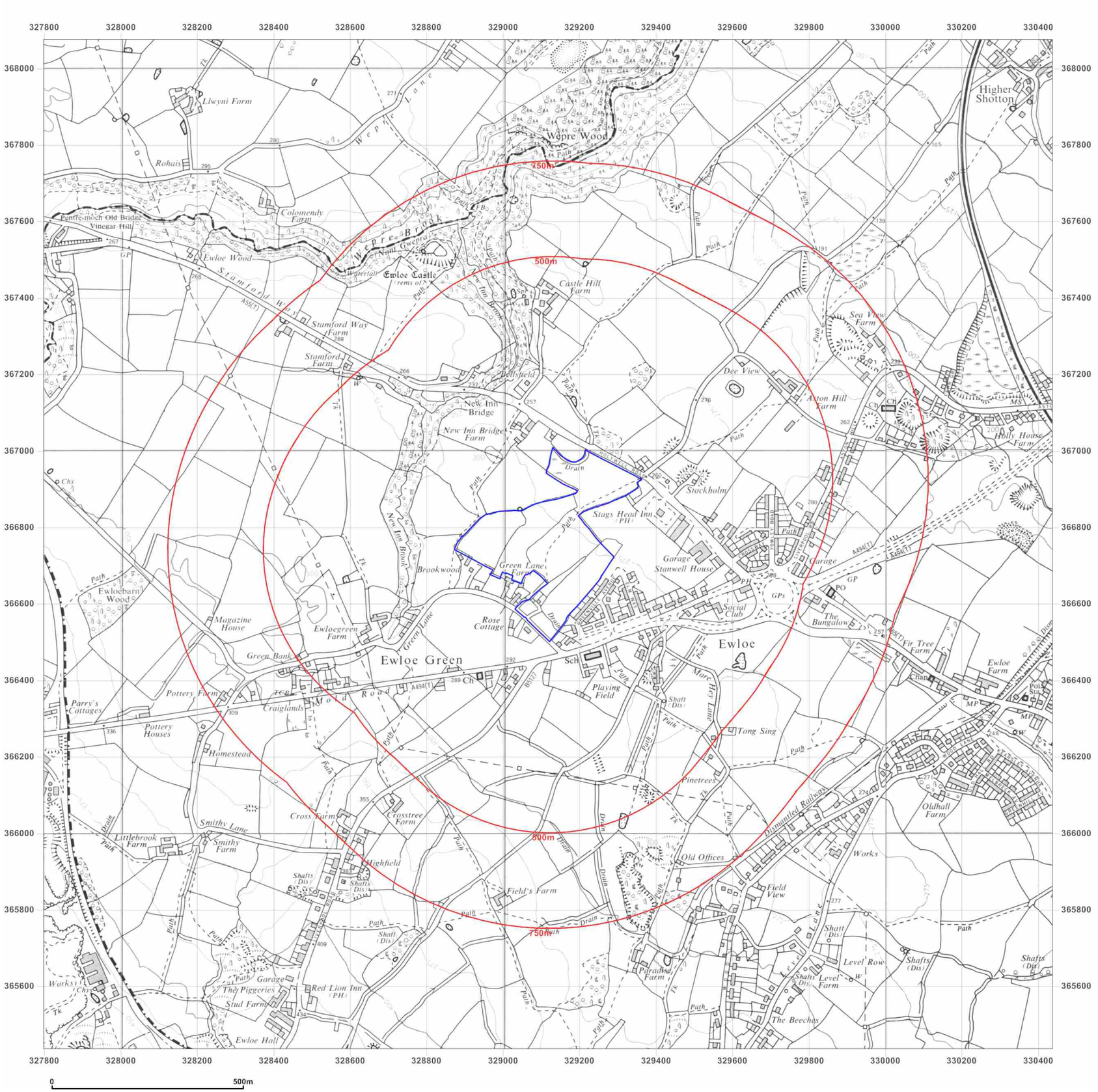

Groundsure INSIGHTS

Site Details:

HOLYWELL ROAD, EWLOE GREEN, CH5 3BS

Client Ref: 5022
Report Ref: GS-6222585
Grid Ref: 329117, 366755

Map Name: Provisional

Map date: **1969-1970**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1966
Revised 1970
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1965
Revised 1968
Edition N/A
Copyright 1969
Levelled N/A

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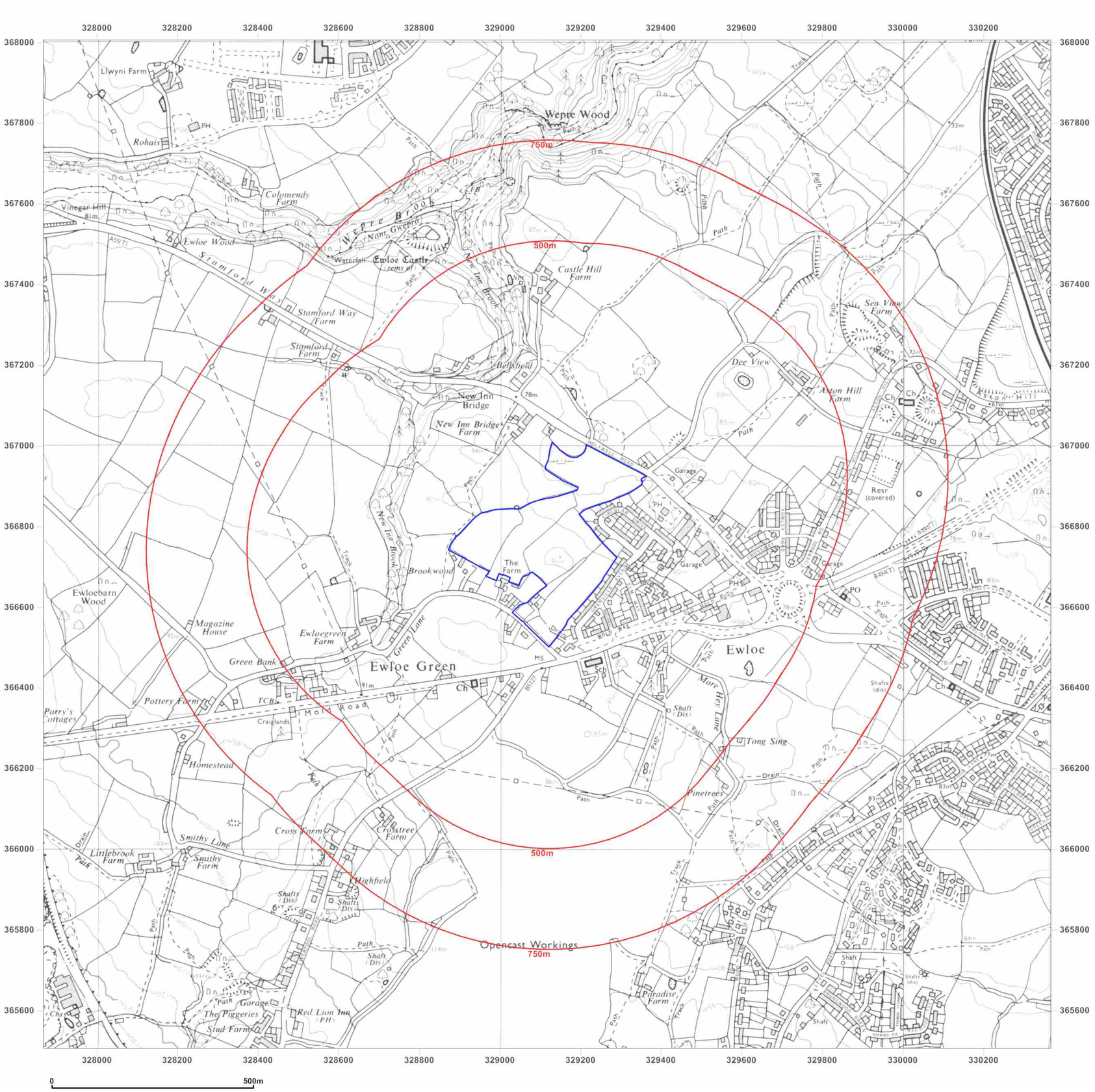

Groundsure INSIGHTS

Site Details:

HOLYWELL ROAD, EWLOE GREEN, CH5 3BS

Client Ref: 5022
Report Ref: GS-6222585
Grid Ref: 329117, 366755

Map Name: National Grid

Map date: **1978-1981**

Scale: 1:10,000

Printed at: 1:10,000

N
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Surveyed 1979
Revised 1981
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1969
Revised 1978
Edition N/A
Copyright 1978
Levelled 1965

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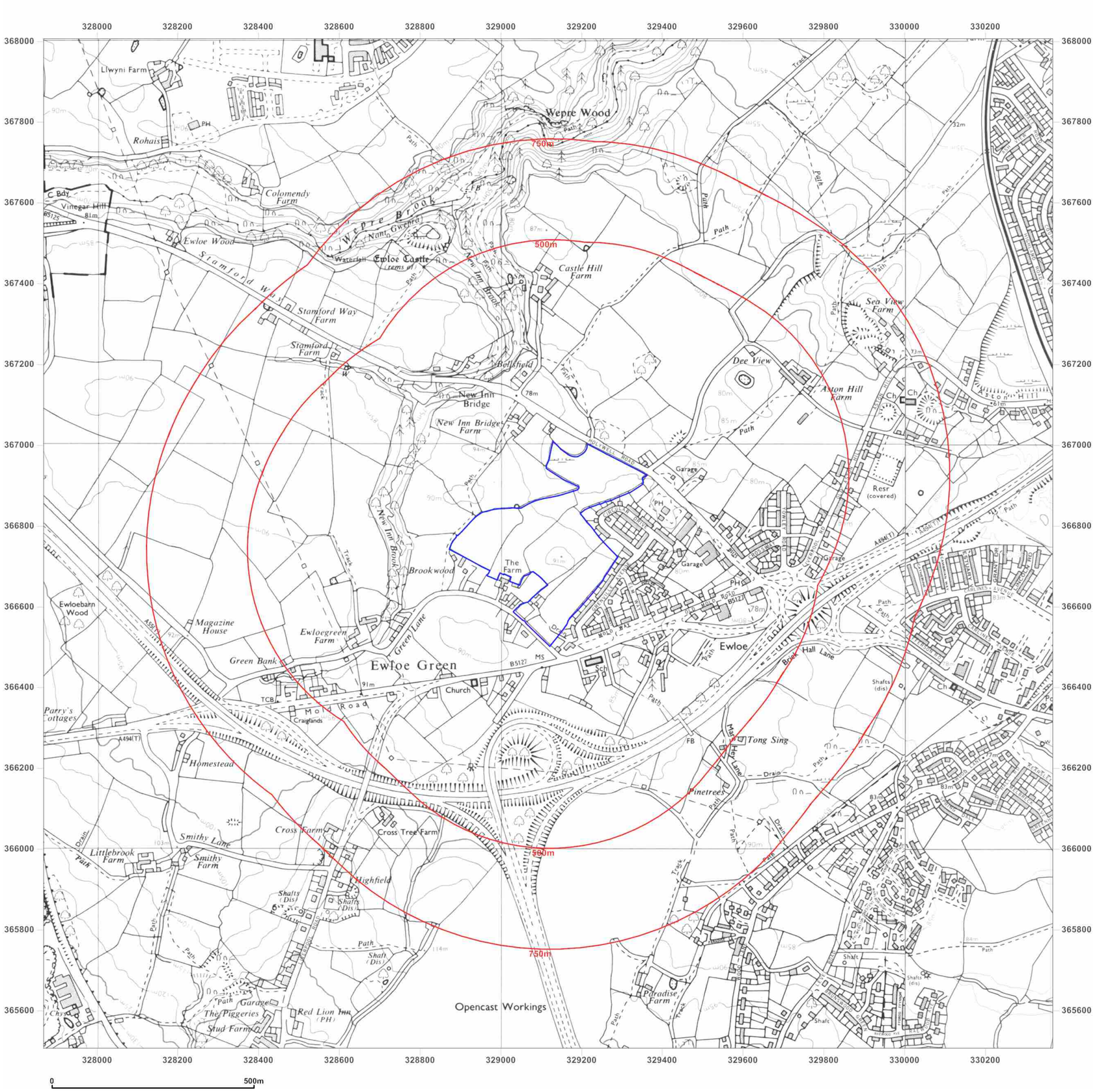

Groundsure INSIGHTS

Site Details:

HOLYWELL ROAD, EWLOE GREEN, CH5 3BS

Client Ref: 5022
Report Ref: GS-6222585
Grid Ref: 329117, 366755

Map Name: National Grid

Map date: **1987-1989**

Scale: 1:10,000

Printed at: 1:10,000

N
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Surveyed 1979
Revised 1987
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1988
Revised 1989
Edition N/A
Copyright N/A
Levelled N/A

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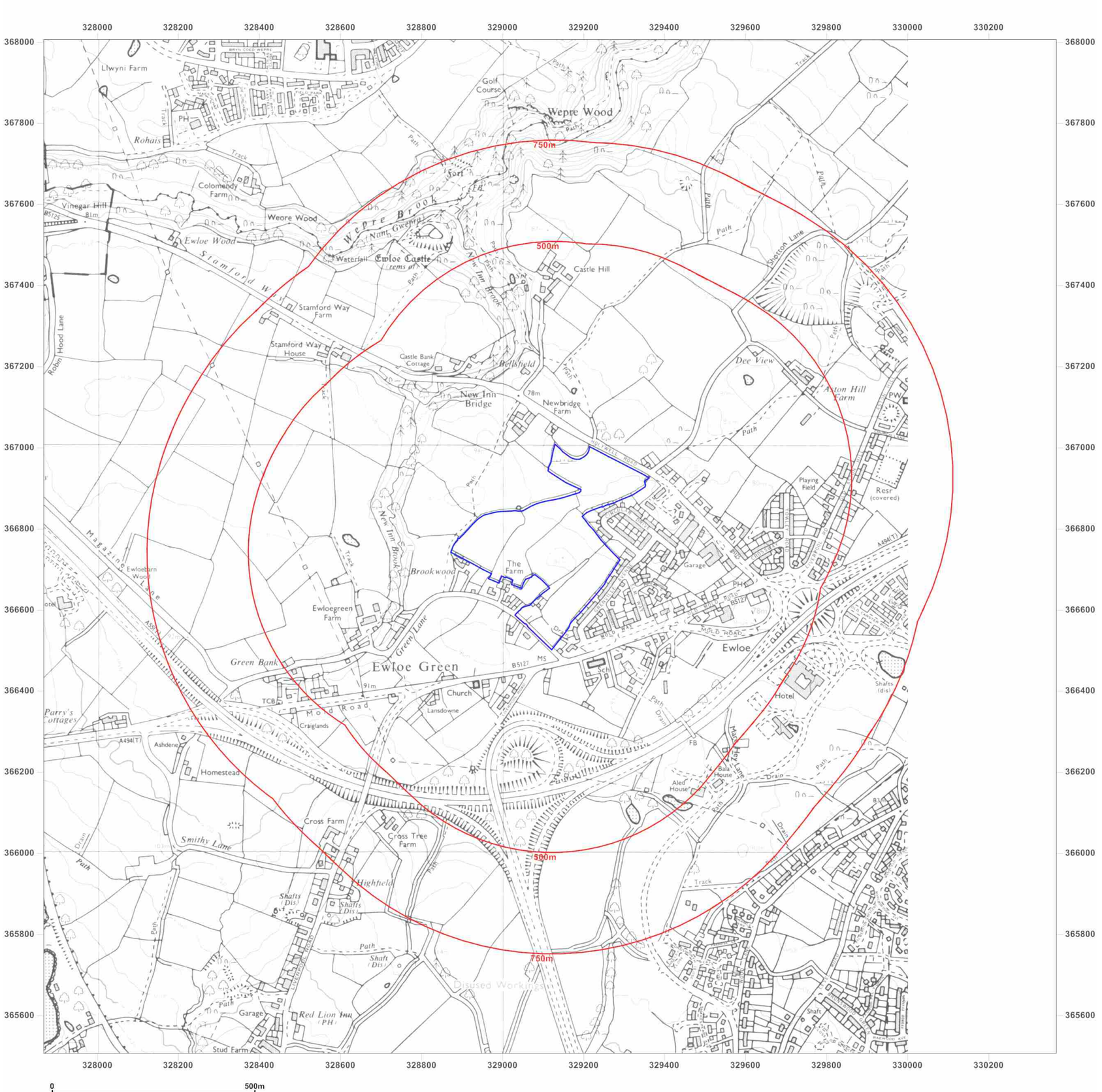

Groundsure INSIGHTS

Site Details:

HOLYWELL ROAD, EWLOE GREEN, CH5 3BS

Client Ref: 5022
Report Ref: GS-6222585
Grid Ref: 329117, 366755

Map Name: National Grid

Map date: **1991**

Scale: 1:10,000

Printed at: 1:10,000

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

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Map legend available at:
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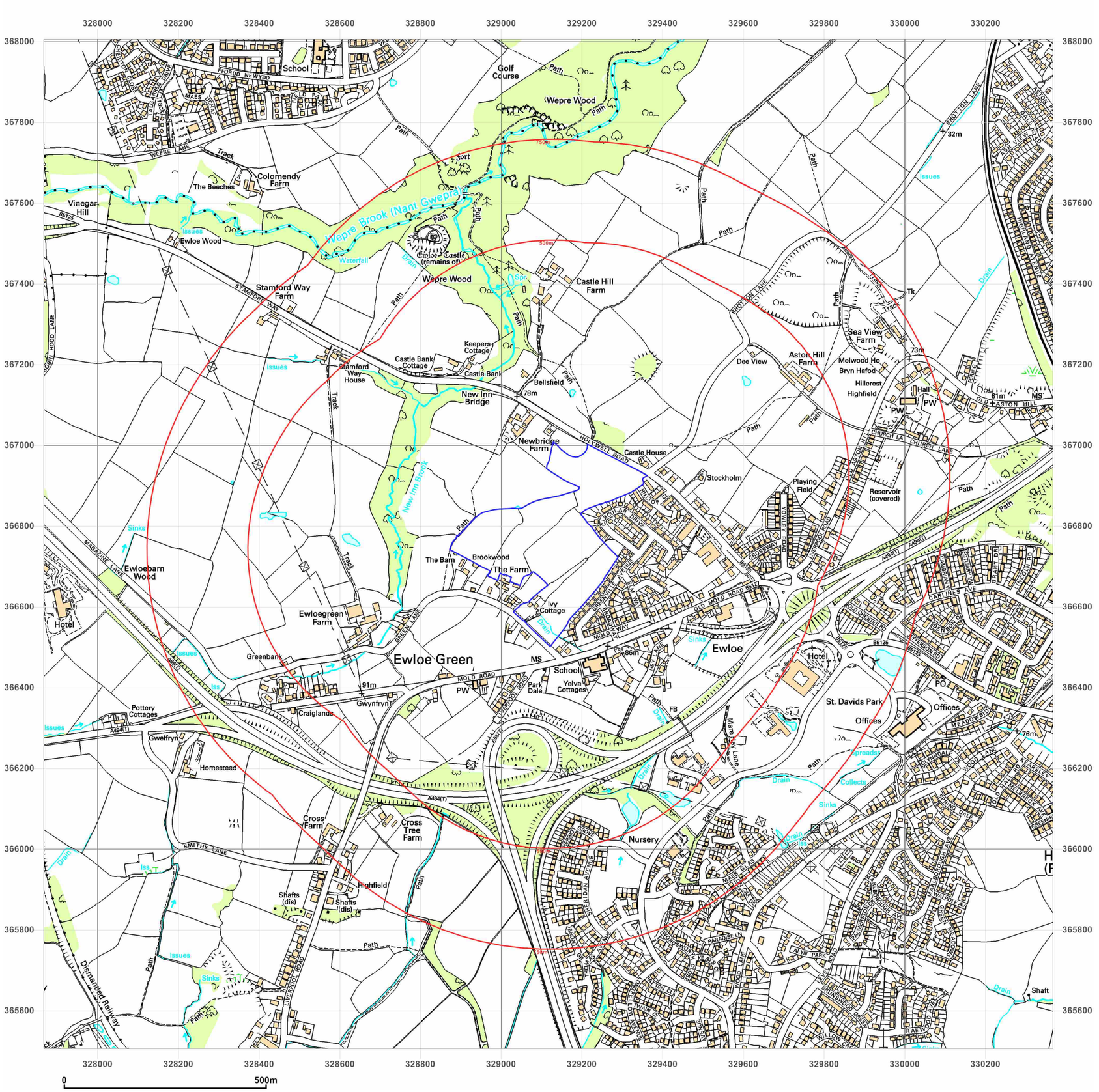

Groundsure INSIGHTS

Site Details:

HOLYWELL ROAD, EWLOE GREEN, CH5 3BS

Client Ref: 5022
Report Ref: GS-6222585
Grid Ref: 329117, 366755

Map Name: 1:10,000 Raster
Map date: **2002**
Scale: 1:10,000
Printed at: 1:10,000

N
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2002

Powered by OS

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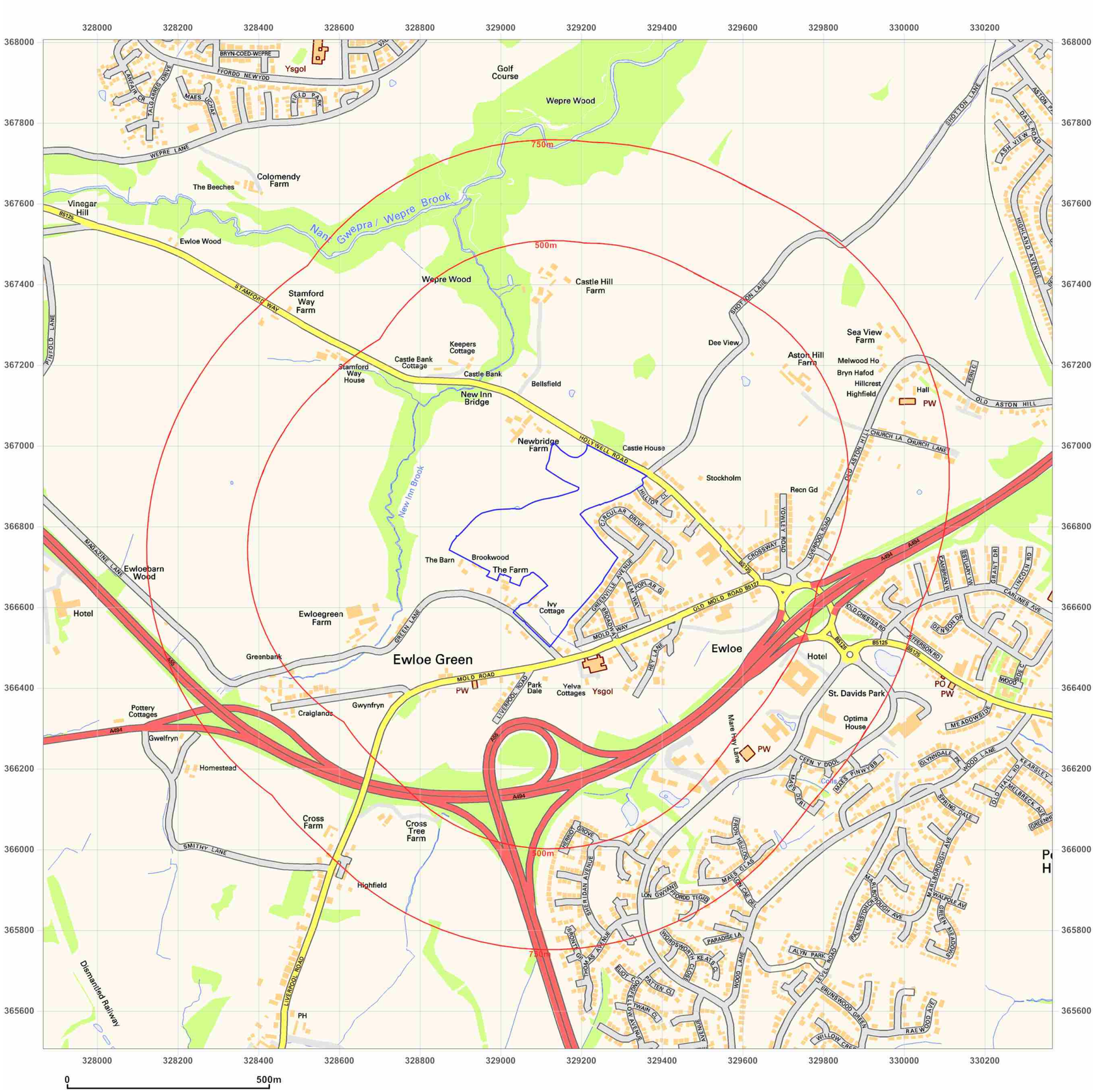
W: www.groundsure.com

Production date: 06 August 2019

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



Groundsure INSIGHTS

Site Details:

HOLYWELL ROAD, EWLOE GREEN, CH5 3BS

Client Ref: 5022
Report Ref: GS-6222585
Grid Ref: 329117, 366755

Map Name: National Grid

Map date: **2010**

Scale: 1:10,000

Printed at: 1:10,000

N
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2010

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W: www.groundsure.com

Production date: 06 August 2019

Map legend available at:
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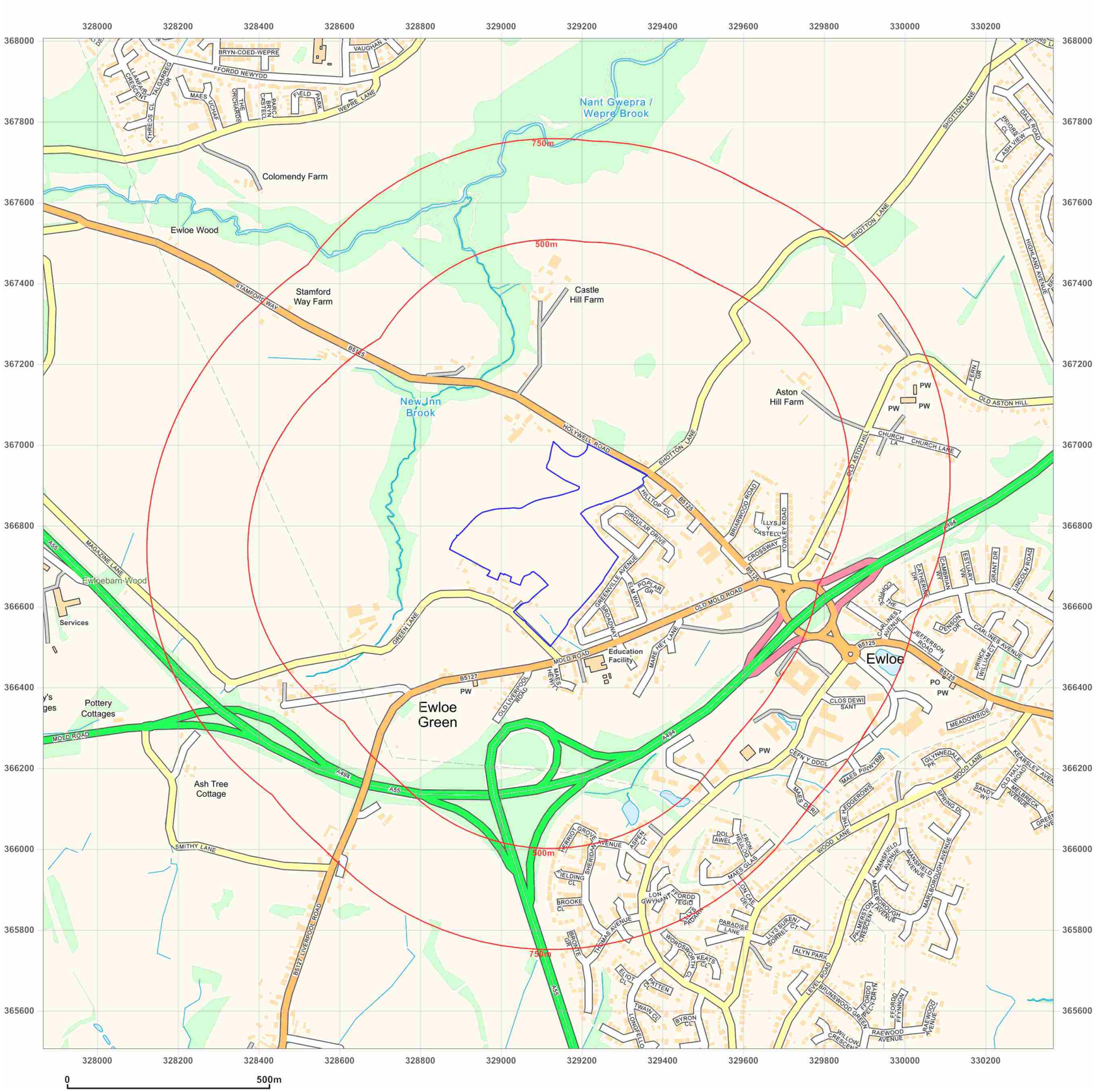

Groundsure INSIGHTS

Site Details:

HOLYWELL ROAD, EWLOE GREEN, CH5 3BS

Client Ref: 5022
Report Ref: GS-6222585
Grid Ref: 329117, 366755

Map Name: National Grid

Map date: **2014**

Scale: 1:10,000

Printed at: 1:10,000

N
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2014

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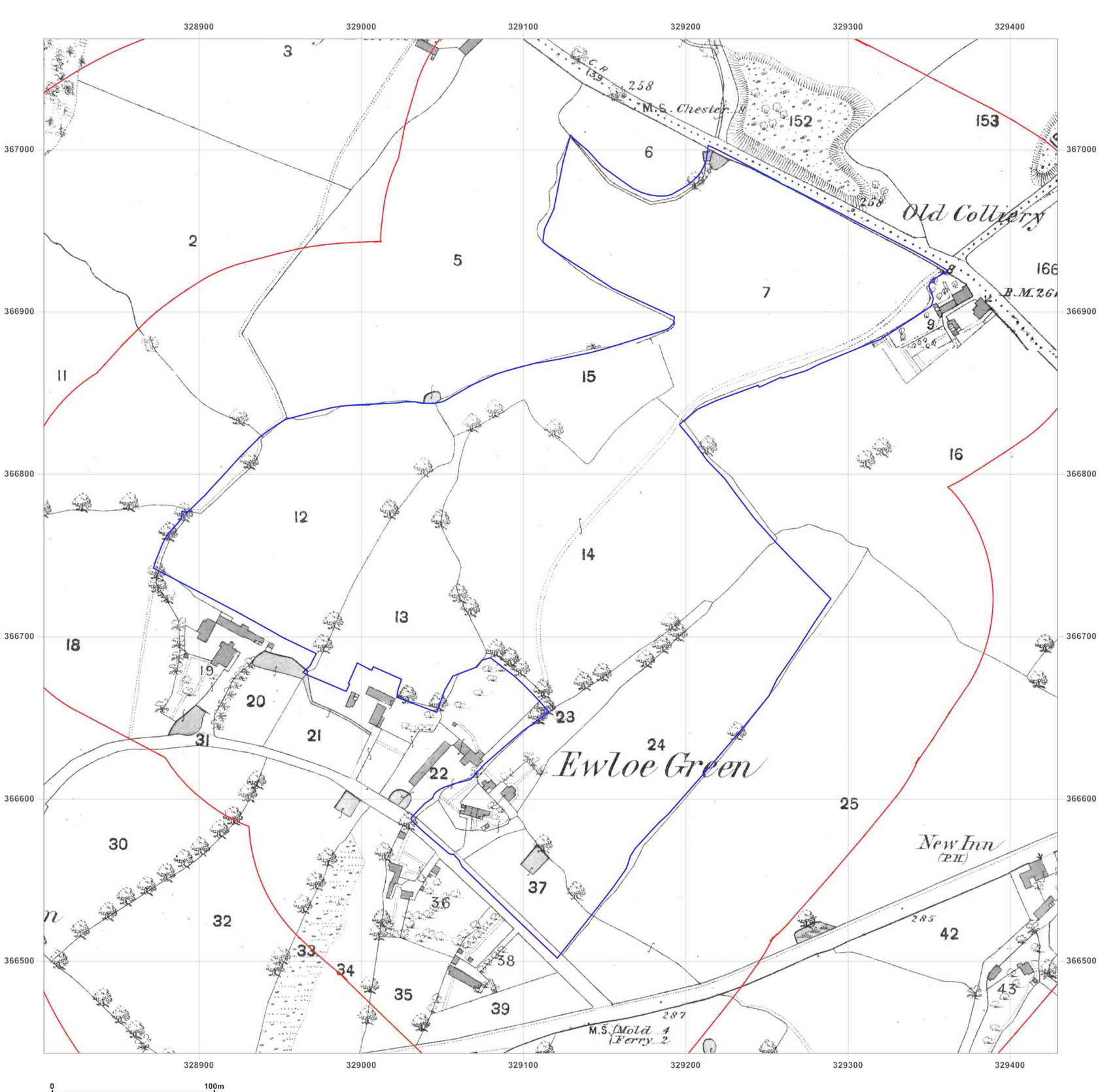

Groundsure INSIGHTS

Site Details:

HOLYWELL ROAD, EWLOE GREEN, CH5 3BS

Client Ref: 5022
Report Ref: GS-6222585
Grid Ref: 329117, 366755

Map Name: County Series

Map date: **1870**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
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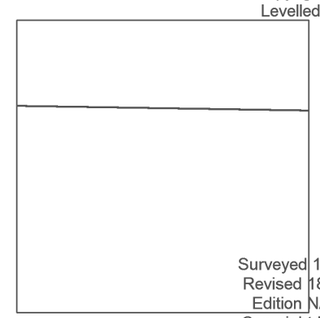
Surveyed 1870
Revised 1870
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1870
Revised 1870
Edition N/A
Copyright N/A
Levelled N/A

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Production date: 06 August 2019

Map legend available at:
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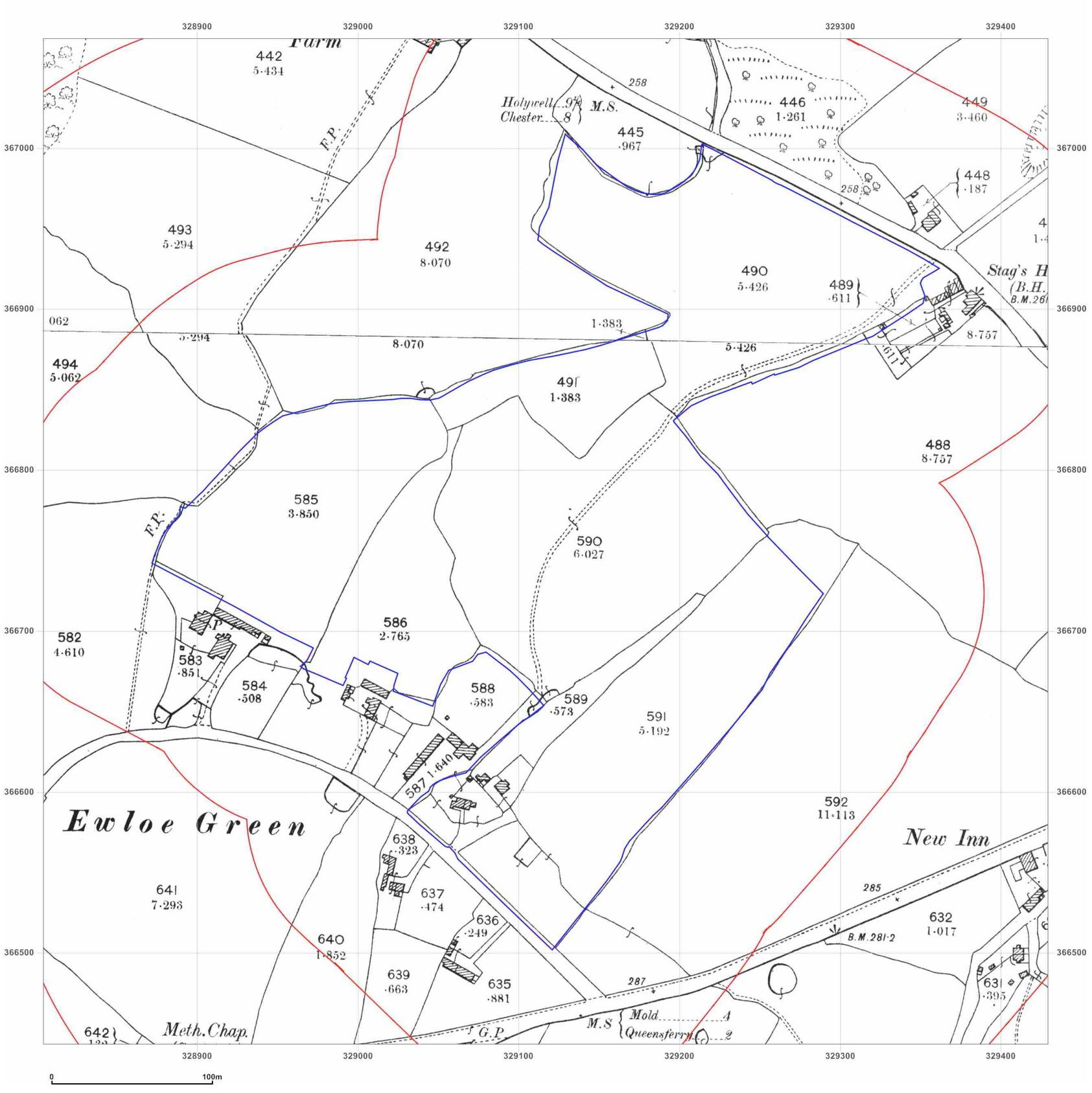

Groundsure INSIGHTS

Site Details:

HOLYWELL ROAD, EWLOE GREEN, CH5 3BS

Client Ref: 5022
Report Ref: GS-6222585
Grid Ref: 329117, 366755

Map Name: County Series

Map date: **1899**

Scale: 1:2,500

Printed at: 1:2,500

N
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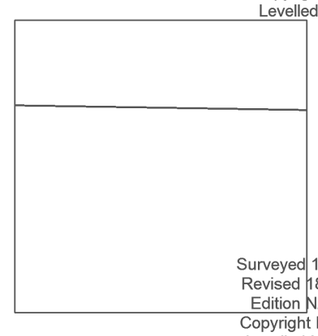
Surveyed 1899
Revised 1899
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1899
Revised 1899
Edition N/A
Copyright N/A
Levelled N/A

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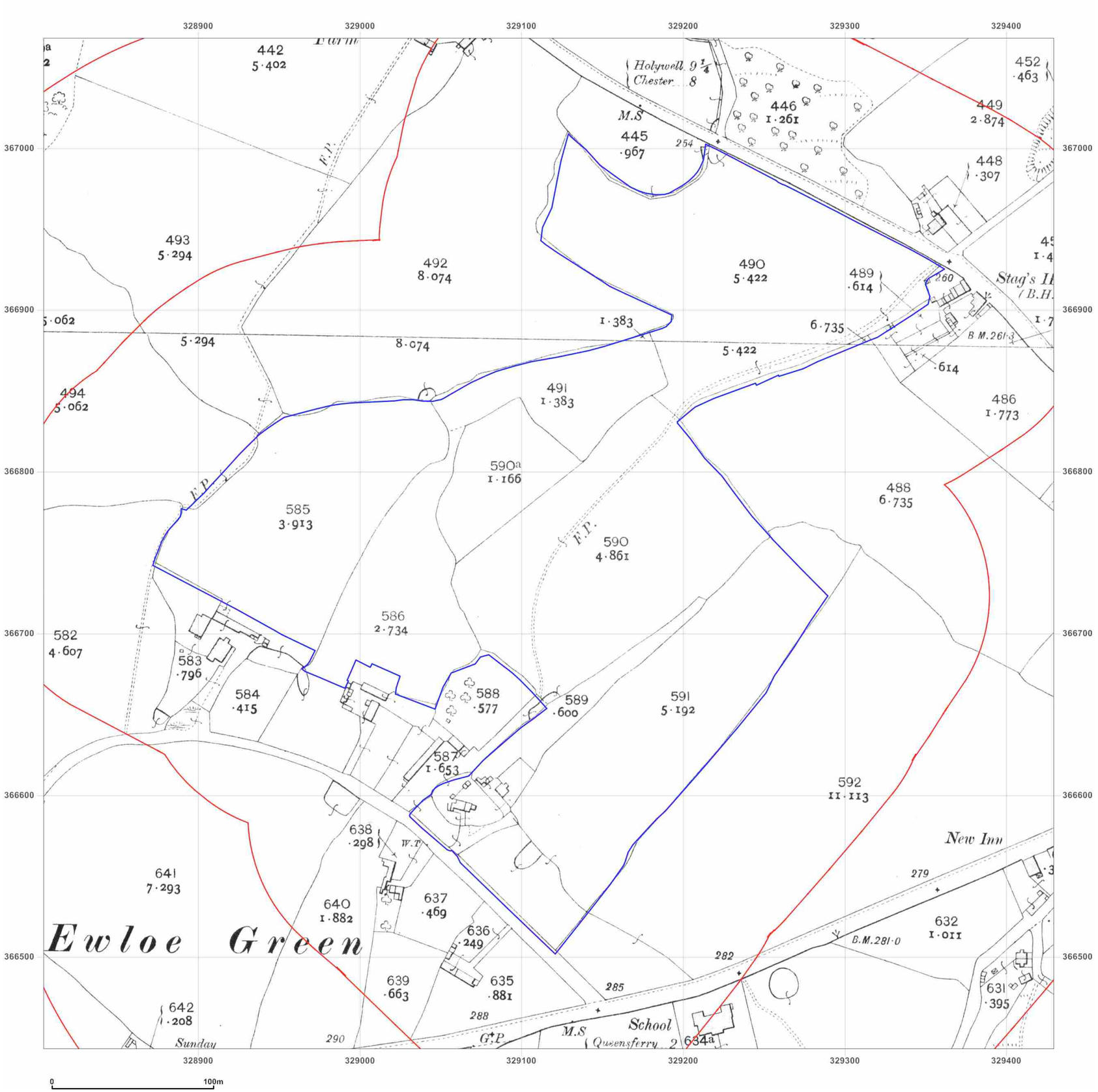

Groundsure INSIGHTS

Site Details:

HOLYWELL ROAD, EWLOE GREEN, CH5 3BS

Client Ref: 5022
Report Ref: GS-6222585
Grid Ref: 329117, 366755

Map Name: County Series
Map date: **1912**
Scale: 1:2,500
Printed at: 1:2,500

N
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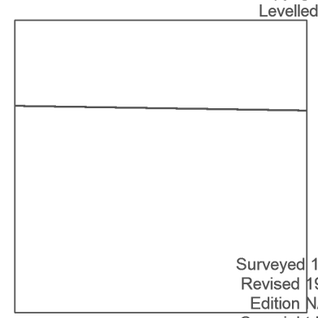
Surveyed 1912
Revised 1912
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1912
Revised 1912
Edition N/A
Copyright N/A
Levelled N/A

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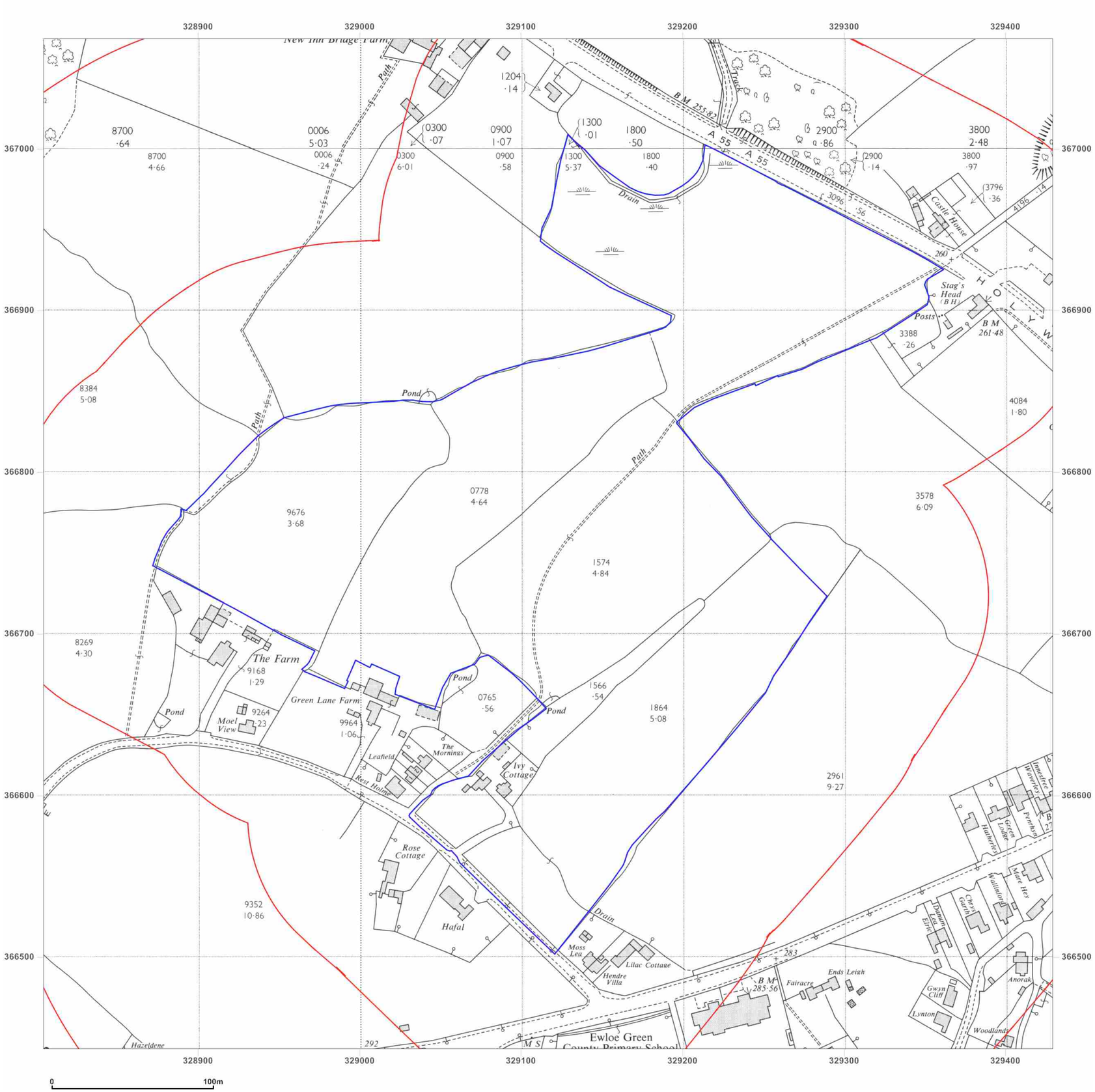

Groundsure INSIGHTS

Site Details:

HOLYWELL ROAD, EWLOE GREEN, CH5 3BS

Client Ref: 5022
Report Ref: GS-6222585
Grid Ref: 329117, 366755

Map Name: National Grid

Map date: **1963-1966**

Scale: 1:2,500

Printed at: 1:2,500

N
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Surveyed 1963
Revised 1963
Edition N/A
Copyright 1964
Levelled 1959

Surveyed 1963
Revised 1963
Edition N/A
Copyright 1964
Levelled 1959

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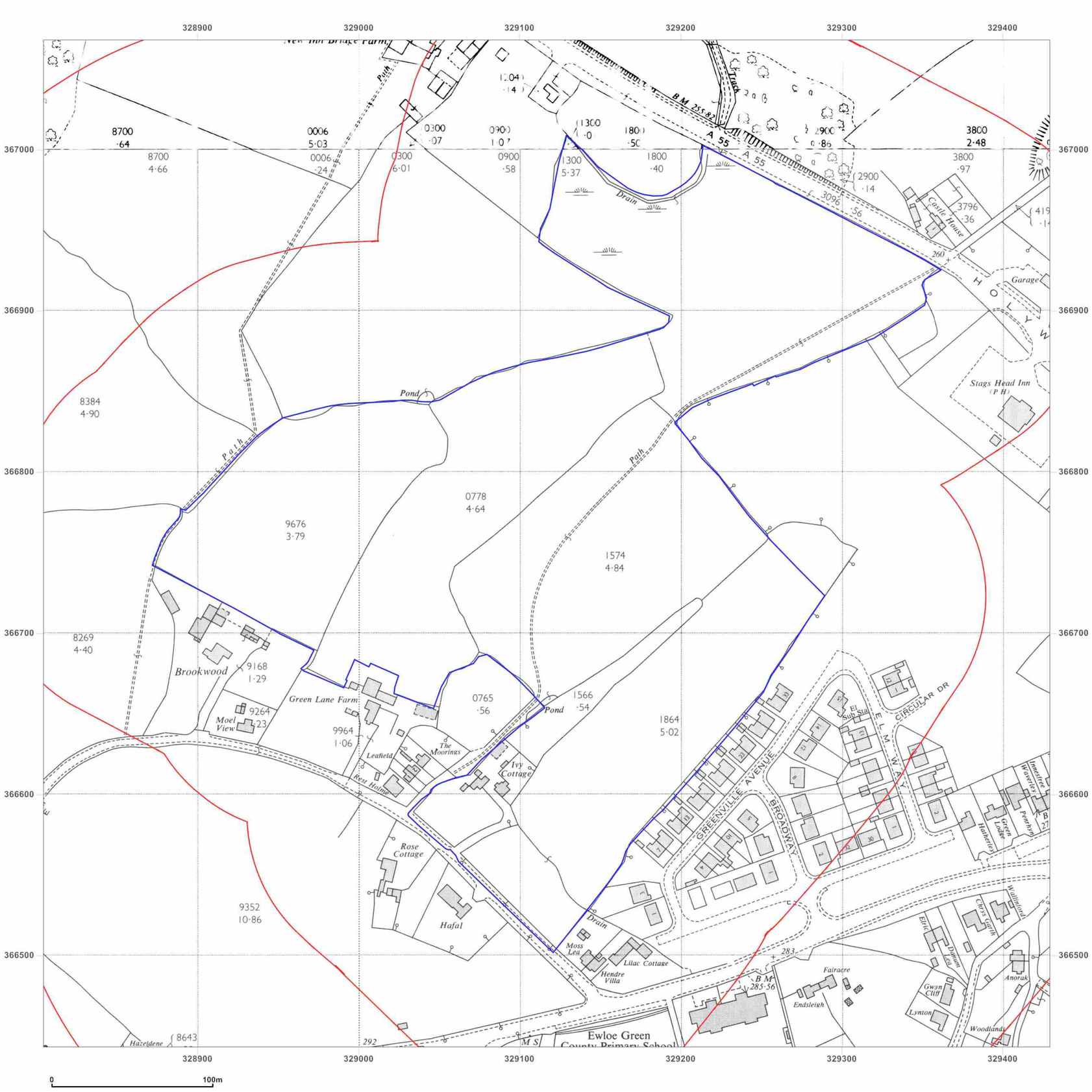

Groundsure INSIGHTS

Site Details:

HOLYWELL ROAD, EWLOE GREEN, CH5 3BS

Client Ref: 5022
Report Ref: GS-6222585
Grid Ref: 329117, 366755

Map Name: National Grid

Map date: **1964-1966**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
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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
Copyright N/A
Levelled N/A

Surveyed 1966
Revised 1966
Edition N/A
Copyright 1967
Levelled 1959

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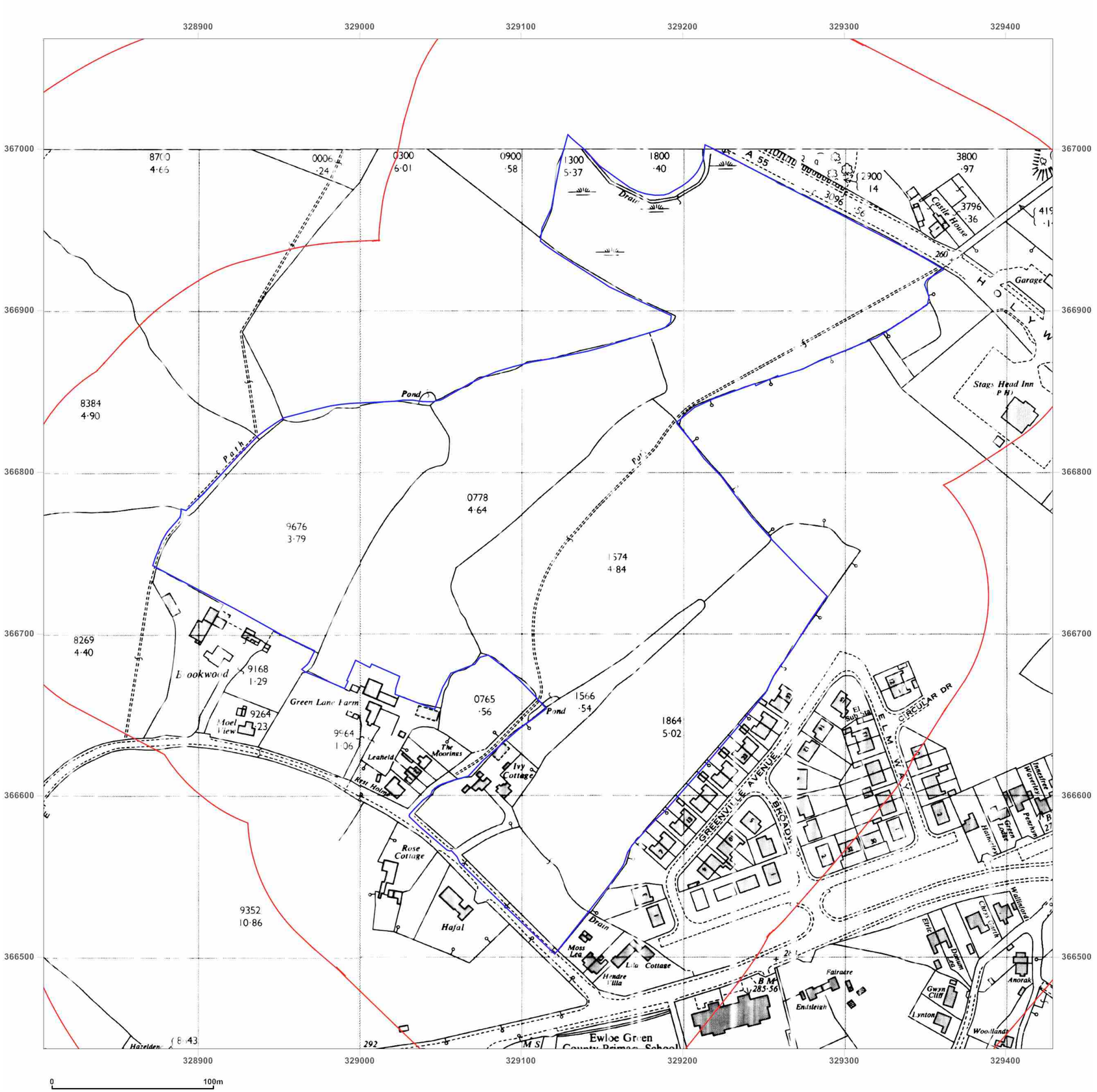

Groundsure INSIGHTS

Site Details:

HOLYWELL ROAD, EWLOE GREEN, CH5 3BS

Client Ref: 5022
Report Ref: GS-6222585
Grid Ref: 329117, 366755

Map Name: National Grid

Map date: **1967**

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
Copyright N/A
Levelled N/A

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Map legend available at:
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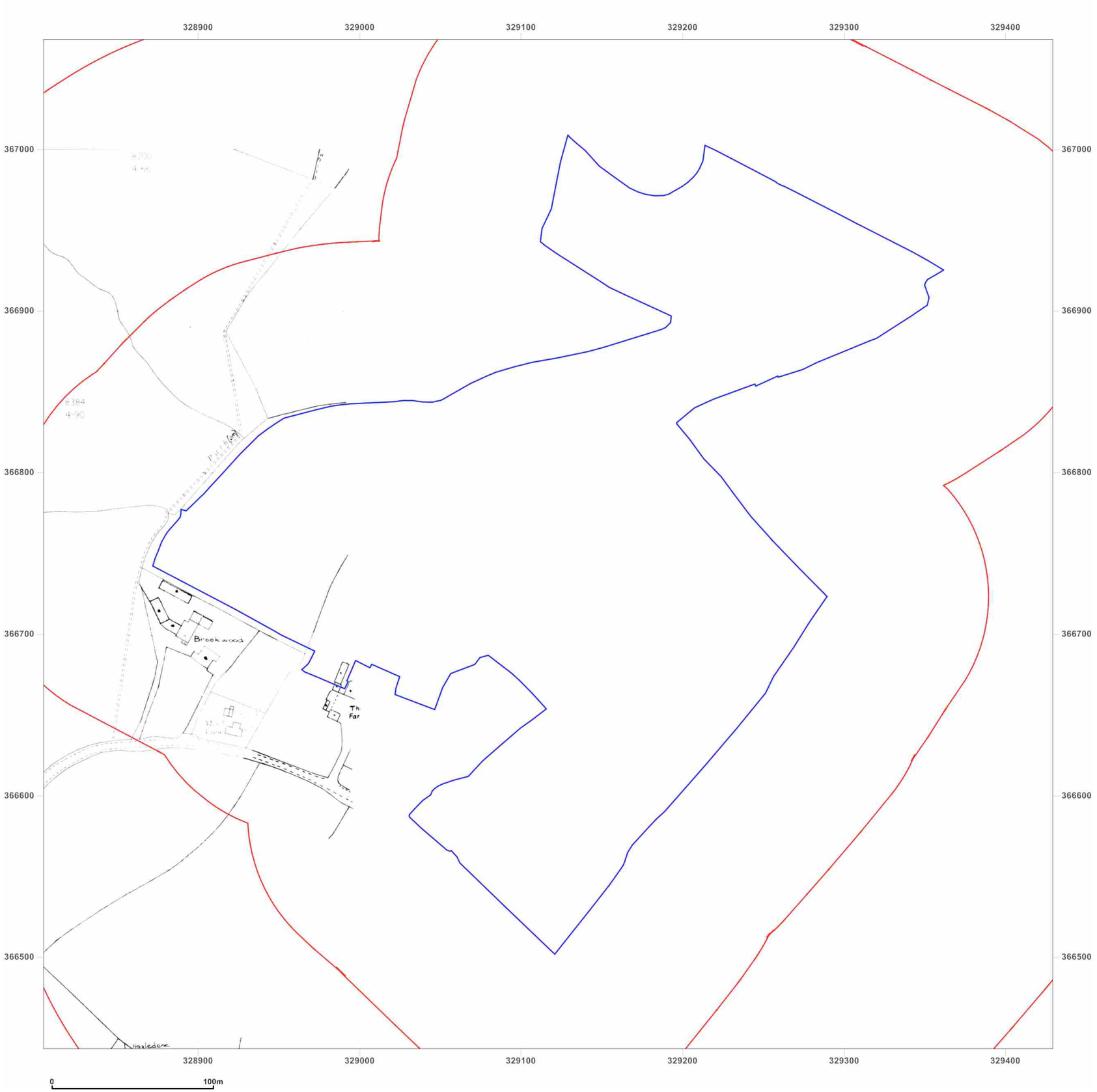

Groundsure INSIGHTS

Site Details:

HOLYWELL ROAD, EWLOE GREEN, CH5 3BS

Client Ref: 5022
Report Ref: GS-6222585
Grid Ref: 329117, 366755

Map Name: National Grid

Map date: **1988**

Scale: 1:2,500

Printed at: 1:2,500

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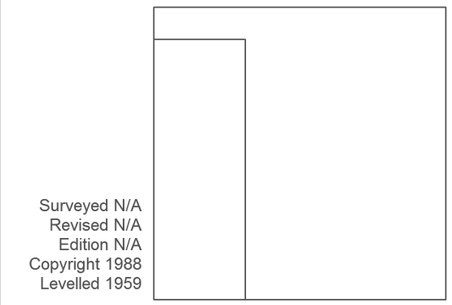

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Production date: 06 August 2019

Map legend available at:
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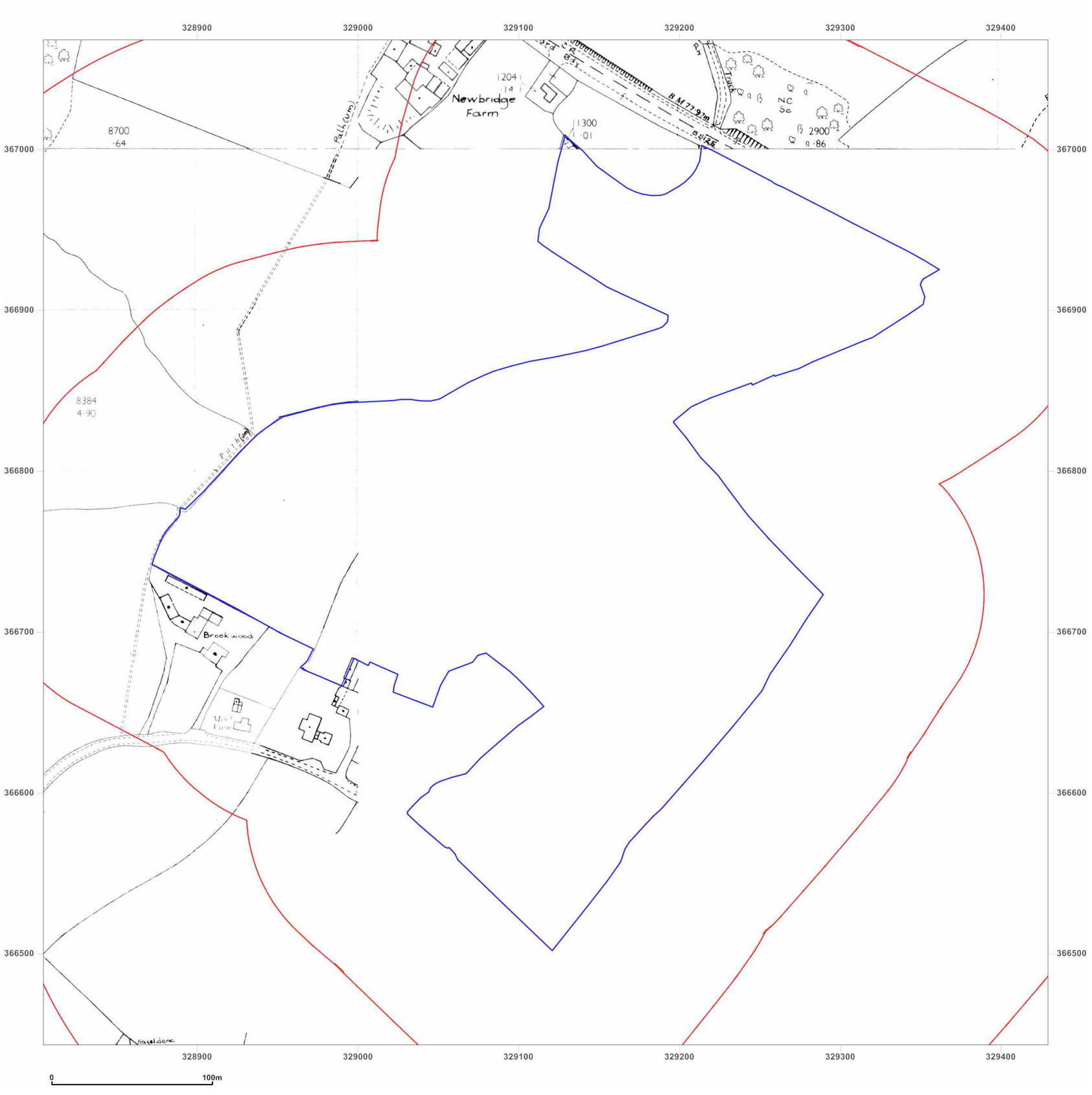

Groundsure INSIGHTS

Site Details:

HOLYWELL ROAD, EWLOE GREEN, CH5 3BS

Client Ref: 5022
Report Ref: GS-6222585
Grid Ref: 329117, 366755

Map Name: National Grid

Map date: **1991**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
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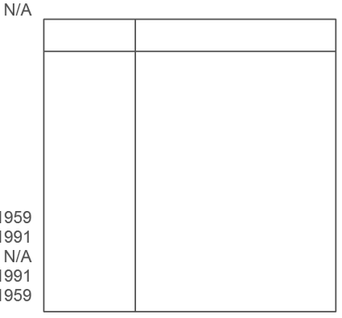
Surveyed 1991
Revised 1991
Edition N/A
Copyright 1991
Levelled N/A

Surveyed 1959
Revised 1991
Edition N/A
Copyright 1991
Levelled 1959



Surveyed 1959
Revised 1991
Edition N/A
Copyright 1991
Levelled 1959

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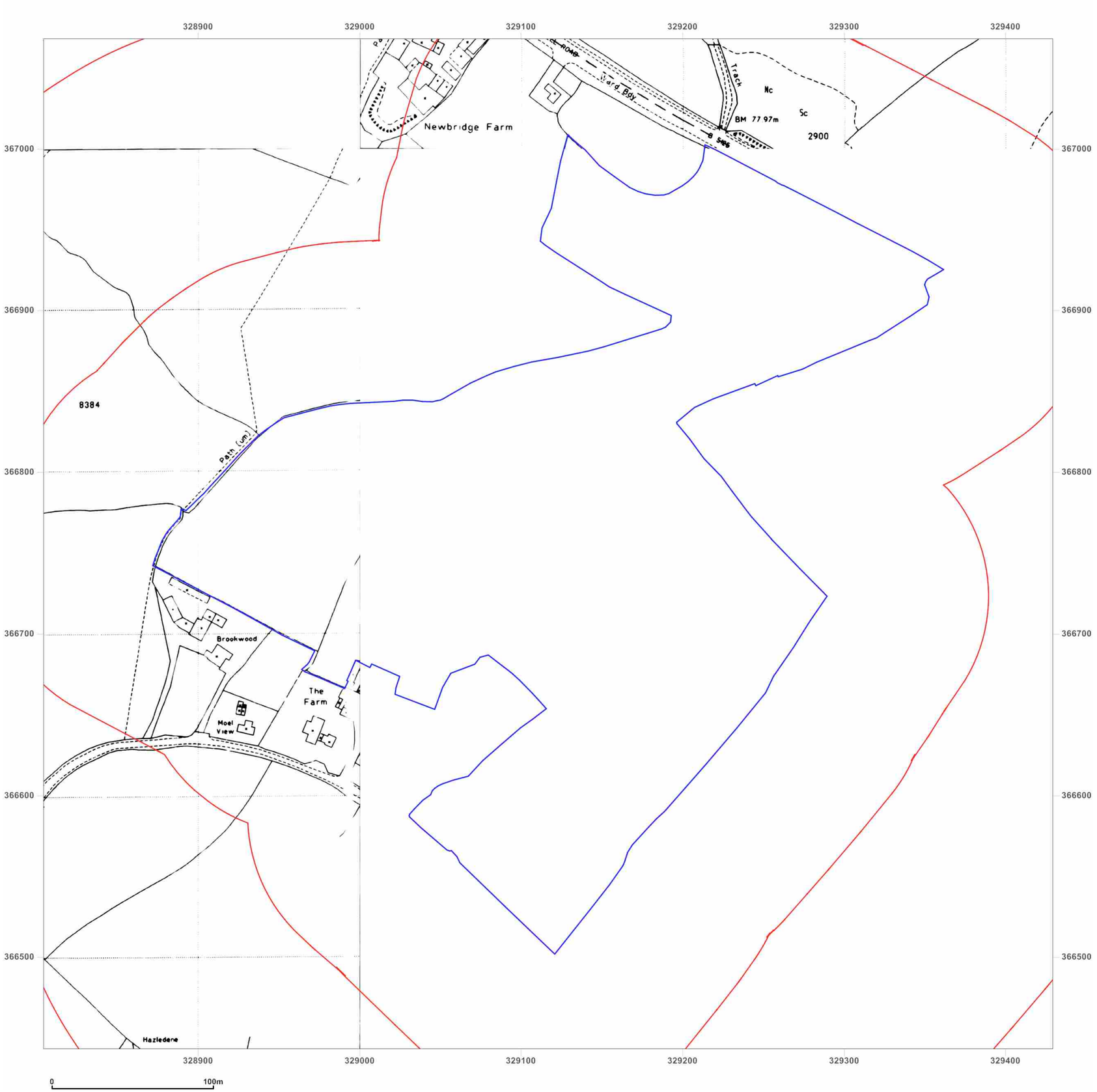

Groundsure INSIGHTS

Site Details:

HOLYWELL ROAD, EWLOE GREEN, CH5 3BS

Client Ref: 5022
Report Ref: GS-6222585
Grid Ref: 329117, 366755

Map Name: National Grid

Map date: **1992**

Scale: 1:2,500

Printed at: 1:2,500

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

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

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Appendix C

ID Geoenvironmental Limited

CALEDONIAN HOUSE, TATTON STREET,
KNUTSFORD, WA16 6AG

Groundsure Reference:	GS-6222583
Your Reference:	5022
Report Date	6 Aug 2019
Report Delivery Method:	Email - pdf

Enviro Insight

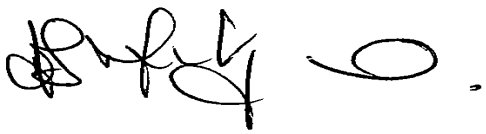
Address: HOLYWELL ROAD, EWLOE GREEN, CH5 3BS

Dear Sir/ Madam,

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

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

Yours faithfully,



Managing Director
Groundsure Limited

Enc.
Groundsure Enviroinsight

Enviro Insight

Address:	**HOLYWELL ROAD, EWLOE GREEN, CH5 3BS**
Date:	**6 Aug 2019**
Reference:	**GS-6222583**
Client:	**ID Geoenvironmental Limited**

NW N NE

W E

SW S SE

Aerial Photograph Capture date:	07-May-2017
Grid Reference:	329042,366739
Site Size:	9.9967ha

Report Reference: GS-6222583
Client Reference: 5022

Contents Page

Overview of Findings

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

Section 1: Historical Industrial Sites	On-site	0-50	51-250	251-500
1.1 Potentially Contaminative Uses identified from 1:10,000 scale mapping	1	1	54	103
1.2 Additional Information – Historical Tank Database	0	0	0	7
1.3 Additional Information – Historical Energy Features Database	0	0	3	8
1.4 Additional Information – Historical Petrol and Fuel Site Database	0	0	0	0
1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database	0	2	6	5
1.6 Historical military sites	0	0	0	0
1.7 Potentially Infilled Land	5	2	48	98

Section 2: Environmental Permits, Incidents and Registers	On-site	0-50m	51-250	251-500
2.1 Industrial Sites Holding Environmental Permits and/or Authorisations				
2.1.1 Records of historic IPC Authorisations	0	0	0	0
2.1.2 Records of Part A(1) and IPPC Authorised Activities	0	0	0	0
2.1.3 Records of Red List Discharge Consents	0	0	0	0
2.1.4 Records of List 1 Dangerous Substances Inventory sites	0	0	0	0
2.1.5 Records of List 2 Dangerous Substances Inventory sites	0	0	0	0
2.1.6 Records of Part A(2) and Part B Activities and Enforcements	0	0	1	0
2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations	0	0	0	0
2.1.8 Records of Licensed Discharge Consents	0	0	1	1
2.1.9 Records of Water Industry Referrals	0	0	0	0
2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site	0	0	0	0
2.2 Records of COMAH and NIHHS sites	0	0	0	0
2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents				
2.3.1 National Incidents Recording System, List 2	0	0	3	6
2.3.2 National Incidents Recording System, List 1	0	0	0	1
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990	0	0	0	0

Section 3: Landfill and Other Waste Sites	On-site	0-50m	51-250	251-500	501-1000	1000-1500
3.1 Landfill Sites						
3.1.1 Environment Agency/Natural Resources Wales Registered Landfill Sites	0	0	0	1	1	Not searched
3.1.2 Environment Agency/Natural Resources Wales Historic Landfill Sites	0	1	0	0	4	8
3.1.3 BGS/DoE Landfill Site Survey	0	0	0	0	0	1
3.1.4 Records of Landfills in Local Authority and Historical Mapping Records	0	0	0	0	0	3
3.2 Landfill and Other Waste Sites Findings						
3.2.1 Operational and Non-Operational Waste Treatment, Transfer and Disposal Sites	0	0	0	0	Not searched	Not searched
3.2.2 Environment Agency/Natural Resources Wales Licensed Waste Sites	0	0	0	0	22	42

Section 4: Current Land Use	On-site	0-50m	51-250	251-500
4.1 Current Industrial Sites Data	0	0	3	Not searched
4.2 Records of Petrol and Fuel Sites	0	0	1	1
4.3 National Grid Underground Electricity Cables	0	0	0	0
4.4 National Grid Gas Transmission Pipelines	0	0	0	0

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

Section 6: Hydrogeology and Hydrology	0-500m
6.1 Records of Strata Classification in the Superficial Geology within 500m of the study site	Identified
6.2 Records of Strata Classification in the Bedrock Geology within 500m of the study site	Identified

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
6.3 Groundwater Abstraction Licences (within 2000m of the study site)	0	0	0	2	0	0
6.4 Surface Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	4
6.5 Potable Water Abstraction Licences (within 2000m of the study site)	0	0	0	2	0	0
6.6 Source Protection Zones (within 500m of the study site)	0	0	0	0	Not searched	Not searched
6.7 Source Protection Zones within Confined Aquifer	0	0	0	0	Not searched	Not searched
6.8 Groundwater Vulnerability and Soil Leaching Potential (within 500m of the study site)	1	0	0	1	Not searched	Not searched

Section 6: Hydrogeology and Hydrology

	0-500m					
	On-site	0-50m	51-250	251-500	501-1000	1000-1500
6.9 Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site	No	No	No	No	No	Yes
6.10 Ordnance Survey MasterMap Water Network entries within 500m of the site	6	4	4	50	Not searched	Not searched
6.11 Surface water features within 250m of the study site	Yes	Yes	Yes	Not searched	Not searched	Not searched

Section 7: Flooding

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

Section 8: Designated Environmentally Sensitive Sites

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.1 Records of Sites of Special Scientific Interest (SSSI)	0	0	2	0	1	10
8.2 Records of National Nature Reserves (NNR)	0	0	0	0	0	0
8.3 Records of Special Areas of Conservation (SAC)	0	0	2	0	1	10
8.4 Records of Special Protection Areas (SPA)	0	0	0	0	0	0
8.5 Records of Ramsar sites	0	0	0	0	0	0
8.6 Records of Ancient Woodlands	0	0	8	0	15	38
8.7 Records of Local Nature Reserves (LNR)	0	0	0	0	0	2
8.8 Records of World Heritage Sites	0	0	0	0	0	0
8.9 Records of Environmentally Sensitive Areas	0	0	0	0	0	0

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

Section 9: Natural Hazards

9.1 Maximum risk of natural ground subsidence	Very Low
9.1.1 Maximum Shrink-Swell hazard rating identified on the study site	Very Low
9.1.2 Maximum Landslides hazard rating identified on the study site	Very Low
9.1.3 Maximum Soluble Rocks hazard rating identified on the study site	Negligible
9.1.4 Maximum Compressible Ground hazard rating identified on the study site	Negligible
9.1.5 Maximum Collapsible Rocks hazard rating identified on the study site	Very Low
9.1.6 Maximum Running Sand hazard rating identified on the study site	Very Low
9.2 Radon	
9.2.1 Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?	The site is in a Radon Affected Area, as greater than 30% of properties are above the Action Level.
9.2.2 Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment?	Full radon protective measures are necessary.

Section 10: Mining

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

Using this report

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

1. Historical Industrial Sites

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

2. Environmental Permits, Incidents and Registers

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

3. Landfills and Other Waste Sites

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

4. Current Land Uses

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

5. Geology

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

6. Hydrogeology and Hydrology

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

7. Flooding

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

8. Designated Environmentally Sensitive Sites

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

9. Natural Hazards

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

10. Mining

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

11. Contacts

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

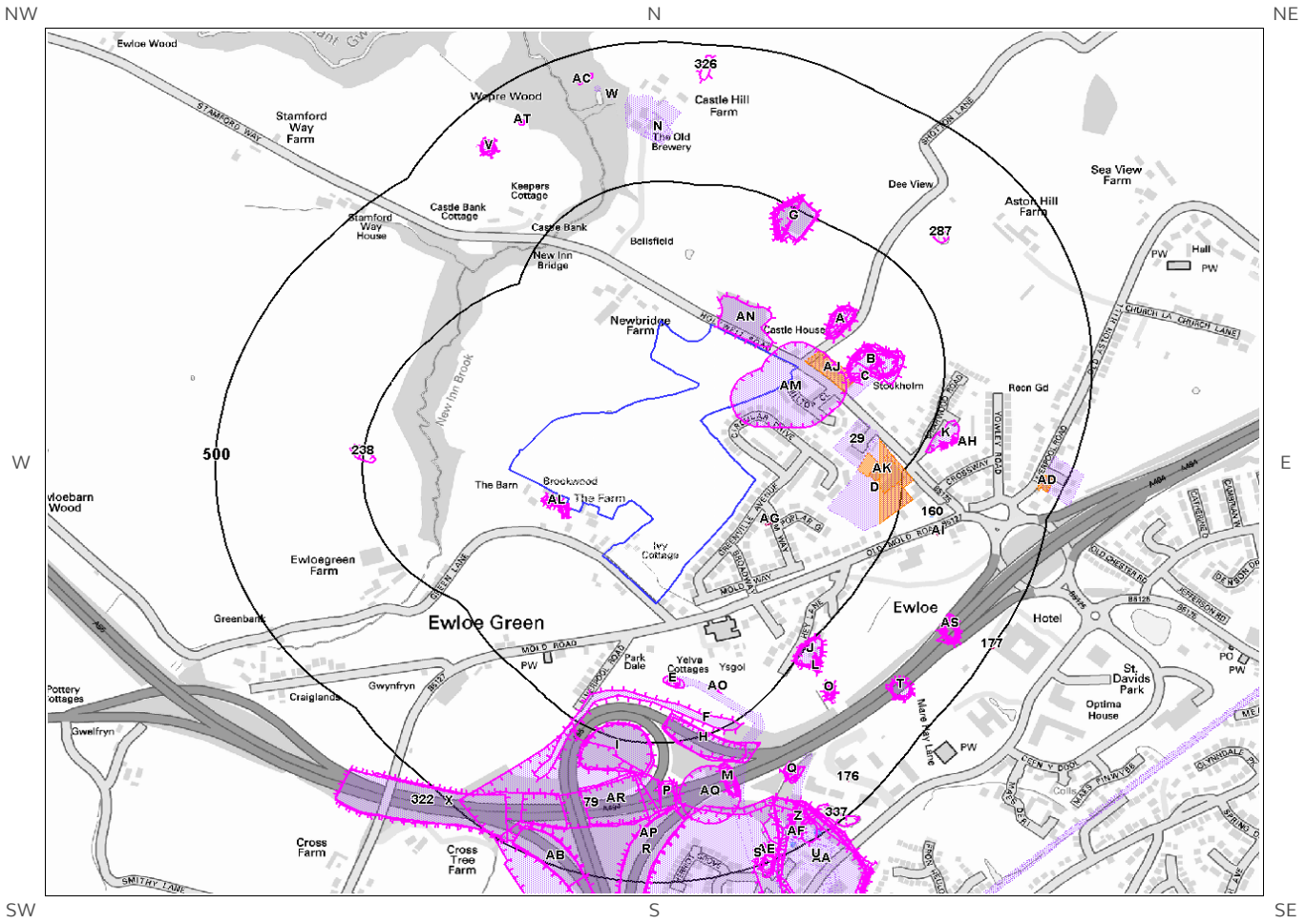
Note: Maps

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

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

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

1. Historical Land Use



Site Outline

250
500
Search Buffers (m)

Historical 1:10,000 and 1:10,560 scale mapping

Industrial Land Use

Potentially Infilled Land

Historical 1:2,500, 1:1,250 and 1:500 scale mapping

Energy Features

Petrol Stations

Historical military sites

Tanks

Garages

1. Historical Industrial Sites

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

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

Records of sites with a potentially contaminative past land use within 500m of the search boundary: 159

ID	Distance [m]	Direction	Use	Date
1AM	0	On Site	Old Colliery	1869
2AN	2	NE	Unspecified Heap	1869
3A	72	NE	Unspecified Heap	1938
4A	72	NE	Unspecified Heap	1938
5A	76	NE	Unspecified Heap	1960
6A	76	NE	Unspecified Heap	1970
7A	77	NE	Unspecified Heap	1869
8A	77	NE	Unspecified Heap	1910
9A	78	NE	Unspecified Heap	1948
10A	78	NE	Unspecified Heap	1898
11B	83	E	Unspecified Ground Workings	1910
12B	84	E	Unspecified Heap	1948
13B	84	E	Unspecified Heap	1970
14C	86	SE	Garage	1981
15C	86	SE	Garage	1987
16B	86	E	Unspecified Heap	1960
17C	86	E	Unspecified Ground Workings	1938
18C	86	E	Unspecified Ground Workings	1938
19C	88	E	Unspecified Heap	1869
20B	90	E	Unspecified Heap	1898
21A	90	NE	Unspecified Heap	1981
22A	90	NE	Unspecified Heap	1987
23B	131	E	Unspecified Old Shaft	1948
24B	131	E	Unspecified Shaft	1898
25E	131	S	Refuse Heap	1948
26D	131	E	Garage	1981
27D	131	E	Garage	1987
28D	131	E	Garage	1991
29	132	SE	Garage	1970
30Y	134	S	Railway Sidings	1898
31B	135	E	Unspecified Old Shaft	1938
32B	135	E	Unspecified Old Shaft	1938

33E	136	S	Unspecified Heap	1960
34B	136	E	Unspecified Old Shaft	1910
35B	140	E	Unspecified Old Shaft	1960
36E	144	S	Unspecified Shaft	1898
37F	164	S	Unspecified Ground Workings	1991
38F	164	S	Unspecified Ground Workings	1987
39AO	182	SE	Coal Pit	1898
40G	186	NE	Refuse Heap	1948
41G	187	NE	Unspecified Heap	1869
42G	187	NE	Unspecified Heap	1938
43G	187	NE	Unspecified Heap	1938
44G	188	NE	Unspecified Heap	1960
45G	189	NE	Unspecified Ground Workings	1910
46H	197	S	Cuttings	1991
47H	202	S	Cuttings	1987
48I	219	S	Unspecified Heap	1991
49I	222	S	Unspecified Heap	1987
50J	241	SE	Unspecified Heap	1938
51J	241	SE	Unspecified Heap	1938
52J	243	SE	Unspecified Heap	1909
53J	243	SE	Unspecified Heap	1960
54J	243	SE	Unspecified Heap	1970
55J	245	SE	Unspecified Heap	1948
56J	245	SE	Unspecified Heap	1898
57AP	257	SW	Opencast Workings	1981
58K	262	SE	Refuse Heap	1869
59J	269	SE	Old Coal Shafts	1948
60J	270	SE	Old Coal Shafts	1938
61J	271	SE	Old Coal Shafts	1909
62J	275	SE	Unspecified Old Shaft	1898
63J	275	SE	Unspecified Old Shafts	1960
64K	279	SE	Old Coal Shafts	1948
65K	279	SE	Unspecified Old Shafts	1898
66K	279	SE	Old Coal Shafts	1938
67K	280	SE	Old Coal Shafts	1909
68L	282	SE	Old Coal Shafts	1948
69K	282	SE	Unspecified Old Shafts	1960
70L	284	SE	Old Coal Shafts	1909
71L	286	SE	Unspecified Old Shafts	1960
72K	292	SE	Old Coal Shafts	1938
73K	293	SE	Old Coal Shafts	1909
74K	294	SE	Old Coal Shafts	1948
75K	294	SE	Unspecified Old Shafts	1898
76K	296	SE	Unspecified Old Shafts	1960

77AQ	303	S	Unspecified Level	1898
78AR	304	S	Cuttings	1991
79	307	S	Cuttings	1987
80M	308	S	Unspecified Pit	1948
81M	311	SE	Unspecified Pit	1938
82M	311	SE	Unspecified Pit	1938
83N	315	N	Brewery	1910
84M	316	SE	Unspecified Pit	1960
85M	316	SE	Unspecified Pit	1970
86O	316	SE	Unspecified Heap	1948
87P	317	S	Cuttings	1991
88N	318	N	Brewery	1869
89O	318	SE	Unspecified Heap	1938
90O	318	SE	Unspecified Heap	1938
91O	319	SE	Unspecified Heap	1909
92N	320	N	Brewery	1898
93N	320	N	Brewery	1948
94P	322	S	Cuttings	1987
95O	323	SE	Unspecified Heap	1960
96O	324	SE	Old Coal Shafts	1938
97O	324	SE	Old Coal Shafts	1948
98O	324	SE	Unspecified Old Shaft	1898
99O	325	SE	Old Coal Shafts	1909
100O	327	SE	Unspecified Disused Shaft	1970
101O	327	SE	Unspecified Disused Shaft	1981
102Q	363	SE	Clay Pit	1898
103Q	366	SE	Unspecified Heap	1948
104Q	366	SE	Unspecified Heap	1938
105Q	366	SE	Unspecified Heap	1938
106R	366	S	Cuttings	1991
107Q	368	SE	Unspecified Heap	1909
108R	368	S	Cuttings	1987
109S	372	S	Opencast Workings	1987
110S	372	S	Unspecified Disused Workings	1991
111Q	373	SE	Unspecified Ground Workings	1960
112X	379	SW	Cuttings	1991
113U	399	SE	Brick Works	1898
114T	400	SE	Unspecified Pit	1938
115T	400	SE	Unspecified Pit	1938
116T	401	SE	Unspecified Pit	1909
117U	401	SE	Brick Works	1909
118T	403	SE	Unspecified Pit	1948
119T	403	SE	Unspecified Pit	1898
120T	404	SE	Unspecified Pit	1960

121W	406	N	Unspecified Tank	1869
122V	413	NW	Unspecified Heap	1960
123V	413	NW	Unspecified Heap	1938
124V	413	NW	Unspecified Heap	1938
125V	415	NW	Unspecified Heap	1910
126V	420	NW	Unspecified Heap	1948
127V	420	NW	Unspecified Heap	1898
128AT	422	NW	Unspecified Old Shaft	1898
129W	425	N	Unspecified Tank	1869
130X	427	SW	Cuttings	1987
131Y	429	SE	Brick Works	1869
132AA	436	SE	Colliery	1869
133Z	440	SE	Unspecified Heap	1948
134Z	441	SE	Unspecified Heap	1938
135Z	441	SE	Unspecified Heap	1938
136Z	442	SE	Unspecified Heap	1909
137Z	444	SE	Unspecified Heap	1960
138	445	SE	Railway Sidings	1938
139	445	SE	Railway Sidings	1938
140AC	445	N	Unspecified Levels	1898
141Z	446	SE	Unspecified Heap	1970
142AA	448	SE	Railway Sidings	1909
143AB	450	SW	Cuttings	1987
144AB	451	SW	Cuttings	1991
145AC	452	N	Unspecified Levels	1898
146AD	460	SE	Garage	1981
147AD	460	SE	Garage	1987
148AD	461	SE	Garage	1970
149AA	468	SE	Railway Sidings	1869
150Z	469	SE	Unspecified Pit	1970
151AE	470	SE	Unspecified Heap	1898
152AE	472	SE	Unspecified Tanks	1898
153AF	472	SE	Unspecified Tank	1909
154	477	SE	Railway Sidings	1869
155AF	477	SE	Unspecified Tank	1869
156AF	486	SE	Unspecified Tank	1869
157AF	487	SE	Unspecified Tank	1909
158Z	488	SE	Unspecified Tank	1909
159Z	489	SE	Unspecified Tank	1898

1.2 Additional Information – Historical Tank Database

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

Records of historical tanks within 500m of the search boundary: 7

ID	Distance (m)	Direction	Use	Date
160	303	E	Unspecified Tank	1912
161AF	472	SE	Unspecified Tank	1899
162AF	475	SE	Unspecified Tank	1912
163AF	486	SE	Unspecified Tank	1899
164AF	486	SE	Unspecified Tank	1870
165Z	487	SE	Unspecified Tank	1899
166Z	491	SE	Unspecified Tank	1912

1.3 Additional Information – Historical Energy Features Database

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

Records of historical energy features within 500m of the search boundary: 11

ID	Distance (m)	Direction	Use	Date
167AG	57	SE	Electricity Substation	1966
168AG	57	SE	Electricity Substation	1980
169AG	57	SE	Electricity Substation	1992
170AH	316	SE	Electricity Substation	1987
171AH	317	SE	Electricity Substation	1980
172AH	318	SE	Electricity Substation	1992
173AI	321	E	Electricity Substation	1987
174AI	322	E	Electricity Substation	1980
175AI	322	E	Electricity Substation	1992
176	451	SE	Electricity Substation	1992
177	497	SE	Electricity Substation	1990

1.4 Additional Information – Historical Petrol and Fuel Site Database

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

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

Database searched and no data found.

1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database

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

Records of historical garage and motor vehicle repair sites within 500m of the search boundary: 13

ID	Distance (m)	Direction	Use	Date
178AJ	15	NE	Garage	1966
179AJ	16	NE	Garage	1980
180AK	175	E	Garage	1966
181AK	182	SE	Garage	1980
182AK	184	SE	Garage	1987
183AK	193	E	Garage	1980
184AK	193	E	Garage	1992
185AK	208	SE	Garage	1992
186AD	458	SE	Garage	1987
187AD	458	SE	Garage	1980
188AD	459	SE	Garage	1966
189AD	459	SE	Garage	1966
190AD	460	SE	Garage	1992

1.6 Historical military sites

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

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

Database searched and no data found.

1.7 Potentially Infilled Land

Records of Potentially Infilled Features from 1:10,000 scale mapping within 500m of the study site: 153

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

ID	Distance(m)	Direction	Use	Date
191AL	0	On Site	Pond	1938
192AL	0	On Site	Ponds	1898
193AL	0	On Site	Pond	1960
194AM	0	On Site	Old Colliery	1869
195AL	0	On Site	Pond	1909

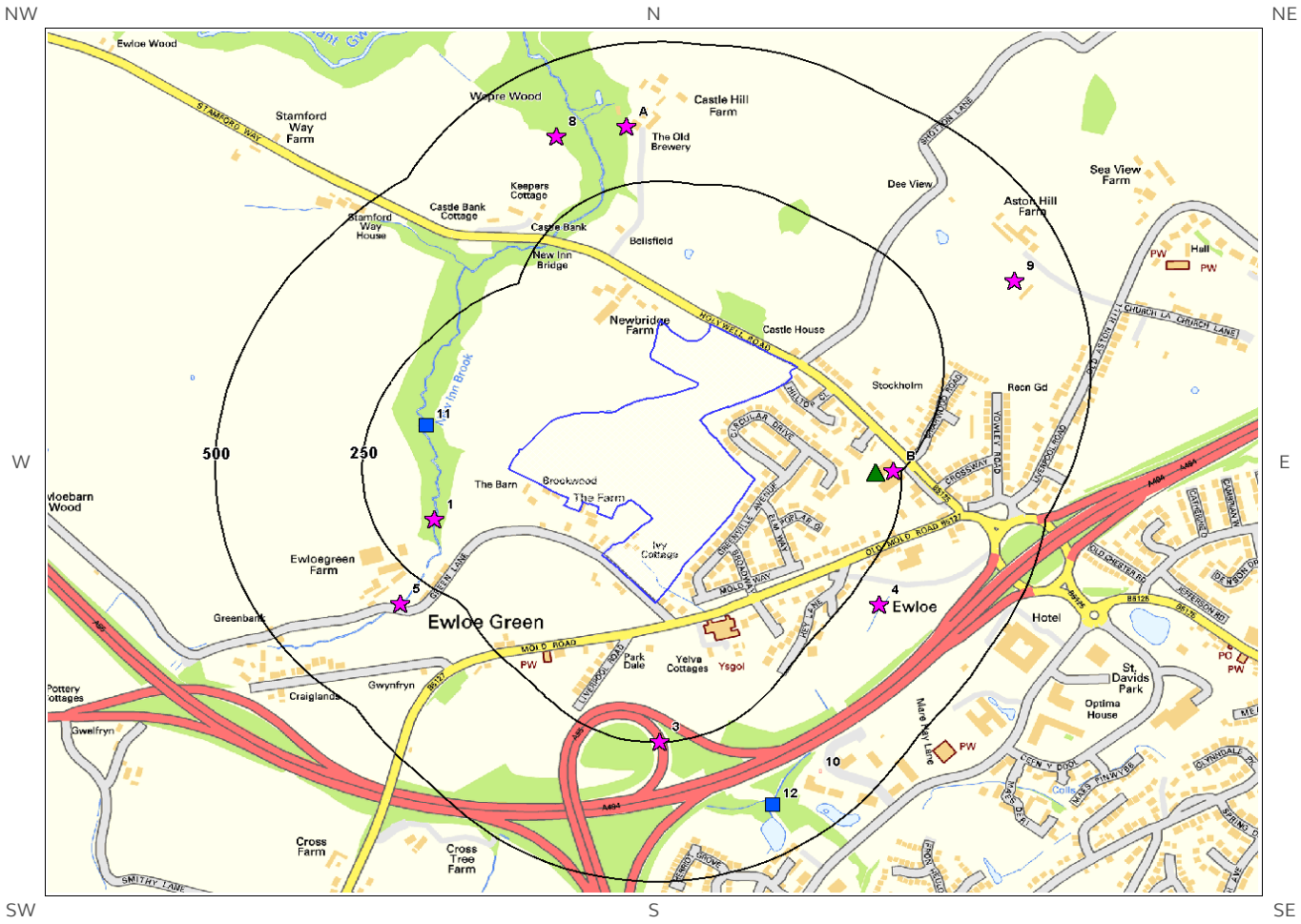
196AN	2	NE	Unspecified Heap	1869
197AL	4	W	Pond	1869
198A	72	NE	Unspecified Heap	1938
199A	72	NE	Unspecified Heap	1938
200A	76	NE	Unspecified Heap	1970
201A	76	NE	Unspecified Heap	1960
202A	77	NE	Unspecified Heap	1869
203A	77	NE	Unspecified Heap	1910
204A	78	NE	Unspecified Heap	1898
205A	78	NE	Unspecified Heap	1948
206B	83	E	Unspecified Ground Workings	1910
207B	84	E	Unspecified Heap	1948
208B	84	E	Unspecified Heap	1970
209B	86	E	Unspecified Heap	1960
210B	86	E	Unspecified Ground Workings	1938
211B	86	E	Unspecified Ground Workings	1938
212B	88	E	Unspecified Heap	1869
213B	90	E	Unspecified Heap	1898
214A	90	NE	Unspecified Heap	1987
215A	90	NE	Unspecified Heap	1981
216B	131	E	Unspecified Shaft	1898
217B	131	E	Unspecified Old Shaft	1948
218E	131	S	Refuse Heap	1948
219B	135	E	Unspecified Old Shaft	1938
220B	135	E	Unspecified Old Shaft	1938
221E	136	S	Unspecified Heap	1960
222B	136	E	Unspecified Old Shaft	1910
223B	140	E	Unspecified Old Shaft	1960
224E	144	S	Unspecified Shaft	1898
225F	164	S	Unspecified Ground Workings	1991
226F	164	S	Unspecified Ground Workings	1987
227AO	182	SE	Coal Pit	1898
228G	186	NE	Refuse Heap	1948
229G	187	NE	Unspecified Heap	1869
230G	187	NE	Unspecified Heap	1938
231G	187	NE	Unspecified Heap	1938
232G	188	NE	Unspecified Heap	1960
233G	189	NE	Unspecified Ground Workings	1910
234H	197	S	Cuttings	1991
235H	202	S	Cuttings	1987
236I	219	S	Unspecified Heap	1991
237I	222	S	Unspecified Heap	1987

238	228	W	Pond	1991
239J	241	SE	Unspecified Heap	1938
240J	241	SE	Unspecified Heap	1938
241J	243	SE	Unspecified Heap	1909
242J	243	SE	Unspecified Heap	1970
243J	243	SE	Unspecified Heap	1960
244J	245	SE	Unspecified Heap	1898
245J	245	SE	Unspecified Heap	1948
246AP	257	SW	Opencast Workings	1981
247AH	262	SE	Refuse Heap	1869
248L	269	SE	Old Coal Shafts	1948
249L	270	SE	Old Coal Shafts	1938
250L	271	SE	Old Coal Shafts	1909
251L	275	SE	Unspecified Old Shaft	1898
252L	275	SE	Unspecified Old Shafts	1960
253AH	279	SE	Unspecified Old Shafts	1898
254AH	279	SE	Old Coal Shafts	1948
255AH	279	SE	Old Coal Shafts	1938
256AH	280	SE	Old Coal Shafts	1909
257L	282	SE	Old Coal Shafts	1948
258AH	282	SE	Unspecified Old Shafts	1960
259L	284	SE	Old Coal Shafts	1909
260L	286	SE	Unspecified Old Shafts	1960
261AH	292	SE	Old Coal Shafts	1938
262AH	293	SE	Old Coal Shafts	1909
263AH	294	SE	Unspecified Old Shafts	1898
264AH	294	SE	Old Coal Shafts	1948
265AH	296	SE	Unspecified Old Shafts	1960
266AQ	303	S	Unspecified Level	1898
267AR	304	S	Cuttings	1991
268AR	307	S	Cuttings	1987
269M	308	S	Unspecified Pit	1948
270M	311	SE	Unspecified Pit	1938
271M	311	SE	Unspecified Pit	1938
272AQ	316	SE	Unspecified Pit	1960
273AQ	316	SE	Unspecified Pit	1970
274O	316	SE	Unspecified Heap	1948
275P	317	S	Cuttings	1991
276O	318	SE	Unspecified Heap	1938
277O	318	SE	Unspecified Heap	1938
278O	319	SE	Unspecified Heap	1909
279P	322	S	Cuttings	1987
280O	323	SE	Unspecified Heap	1960
281O	324	SE	Old Coal Shafts	1938
282O	324	SE	Old Coal Shafts	1948
283O	324	SE	Unspecified Old Shaft	1898

284O	325	SE	Old Coal Shafts	1909
285O	327	SE	Unspecified Disused Shaft	1970
286O	327	SE	Unspecified Disused Shaft	1981
287	328	NE	Pond	1987
288Q	363	SE	Clay Pit	1898
289Q	366	SE	Unspecified Heap	1948
290Q	366	SE	Unspecified Heap	1938
291Q	366	SE	Unspecified Heap	1938
292R	366	S	Cuttings	1991
293Q	368	SE	Unspecified Heap	1909
294R	368	S	Cuttings	1987
295S	372	S	Opencast Workings	1987
296S	372	S	Unspecified Disused Workings	1991
297Q	373	SE	Unspecified Ground Workings	1960
298X	379	SW	Cuttings	1991
299U	399	SE	Brick Works	1898
300T	400	SE	Unspecified Pit	1938
301T	400	SE	Unspecified Pit	1938
302T	401	SE	Unspecified Pit	1909
303U	401	SE	Brick Works	1909
304T	403	SE	Unspecified Pit	1898
305T	403	SE	Unspecified Pit	1948
306T	404	SE	Unspecified Pit	1960
307AS	405	SE	Pond	1869
308AS	409	SE	Pond	1869
309AS	410	SE	Pond	1938
310AS	411	SE	Pond	1970
311AS	411	SE	Pond	1909
312V	413	NW	Unspecified Heap	1960
313V	413	NW	Unspecified Heap	1938
314V	413	NW	Unspecified Heap	1938
315AS	413	SE	Pond	1960
316AS	413	SE	Pond	1898
317AS	413	SE	Pond	1948
318V	415	NW	Unspecified Heap	1910
319V	420	NW	Unspecified Heap	1948
320V	420	NW	Unspecified Heap	1898
321AT	422	NW	Unspecified Old Shaft	1898
322	427	SW	Cuttings	1987
323AF	428	SE	Pond	1991
324U	429	SE	Brick Works	1869
325AA	436	SE	Colliery	1869
326	438	N	Ponds	1869
327Z	440	SE	Unspecified Heap	1948

328Z	441	SE	Unspecified Heap	1938
329Z	441	SE	Unspecified Heap	1938
330Z	442	SE	Unspecified Heap	1909
331Z	444	SE	Unspecified Heap	1960
332AC	445	N	Unspecified Levels	1898
333AF	446	SE	Unspecified Heap	1970
334AB	450	SW	Cuttings	1987
335AB	451	SW	Cuttings	1991
336AC	452	N	Unspecified Levels	1898
337	454	SE	Pond	1991
338AF	469	SE	Unspecified Pit	1970
339AE	470	SE	Unspecified Heap	1898
340AE	486	S	Reservoir	1938
341AE	487	SE	Pond	1898
342AE	487	SE	Reservoir	1948
343AE	488	S	Pond	1970

2. Environmental Permits, Incidents and Registers Map



Site Outline

250
500
Search Buffers (m)

Recorded Pollution Incident

Dangerous Substances (List 1)

Dangerous Substances (List 2)

Water Industry Referrals

Licenced Discharge Consents

Red List Discharge Consents

RAS 3 & 4 Authorisations

Part A(1) Authorised Processes and Historic IPC Authorisations

Part A(2) and Part B Authorised Processes

COMAH / NIHHS Sites

Sites Determined as Contaminated Land

Hazardous Substance Consents and Enforcements

2. Environmental Permits, Incidents and Registers

2.1 Industrial Sites Holding Licences and/or Authorisations

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

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

1

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

ID	Distance (m)	Direction	NGR	Details	
13B	206	E	329495 366733	Address: Ewloe Service Station, Holywell Road, Ewloe, Flintshire, Flintshire, CH5 3BS Process: Waste Oil Burner <0.4 MW Status: New Legislation Applies Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified

2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations:

0

Database searched and no data found.

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

2

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

ID	Distance (m)	Direction	NGR	Details	
11	160	NW	328730 366820	Address: EWLOE GREEN Effluent Type: UNSPECIFIED Permit Number: CM0080001 Permit Version: 1	Receiving Water: NEW INN BROOK Status: CONSENT EXPIRED - TIME LIMIT Issue date: 15/01/1975 Effective Date: 15-Jan-1975 Revocation Date: 26/04/1995
12	413	SE	329320 366140	Address: HAWARDEN EWLOE CROSS TREE FARM OPEN, HAWARDEN EWLOE CROSS TREE FARM O, EWLOE CROSS TREE FARM OPENCAST C, CROSS TREE FARM OPENCAST COAL Effluent Type: TRADE DISCHARGES - UNSPECIFIED Permit Number: CM0084201 Permit Version: 1	Receiving Water: UN-NAMED TRIB. OF BROUGHTON BR Status: CONSENT EXPIRED - TIME LIMIT Issue date: 23/10/1978 Effective Date: 23-Oct-1978 Revocation Date: 22/12/1992

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

0

Database searched and no data found.

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

0

Database searched and no data found.

2.2 Dangerous or Hazardous Sites

Records of COMAH & NIHHS sites within 500m of the study site: 0

Database searched and no data found.

2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents

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

9

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

ID	Distance (m)	Direction	NGR	Details	
1	156	SW	328744.0 366653.0	Incident Date: 08-Jul-2002 Incident Identification: 89900.0 Pollutant: Agricultural Materials and Wastes Pollutant Description: Other Agricultural Material or Waste	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)
2B	235	E	329524.0 366740.0	Incident Date: 05-Oct-2002 Incident Identification: 112815.0 Pollutant: Sewage Materials Pollutant Description: Crude Sewage	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 2 (Significant)
3	248	S	329126.0 366254.0	Incident Date: 16-Sep-2013 Incident Identification: 1159521.0 Pollutant: Contaminated Water Pollutant Description: Firefighting Run-Off	Water Impact: Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)
4	298	SE	329500.0 366500.0	Incident Date: 04-Sep-2002 Incident Identification: 105420.0 Pollutant: Oils and Fuel Pollutant Description: Lubricating Oils	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
5	304	SW	328685.0 366502.0	Incident Date: 05-Nov-2015 Incident Identification: 1385956.0 Pollutant: Pollutant Not Identified Pollutant Description: Not Identified	Water Impact: Land Impact: Category 3 (Minor) Air Impact: Category 3 (Minor)
6A	353	N	329070.0 367357.0	Incident Date: 20-Feb-2017 Incident Identification: 1700866.0 Pollutant: Sewage Material Pollutant Description: Final Effluent	Water Impact: No Details Land Impact: Category 4 (No Impact) Air Impact: No Details
7A	353	N	329070.0 367357.0	Incident Date: 20-Feb-2017 Incident Identification: 1700866.0 Pollutant:	Water Impact: No Details Land Impact: Category 4 (No Impact) Air Impact: No Details

ID	Distance (m)	Direction	NGR	Details	
				Pollutant Description:	
8	376	NW	328950.0 367340.0	Incident Date: 02-Oct-2001 Incident Identification: 34135.0 Pollutant: Oils and Fuel Pollutant Description: Diesel	Water Impact: Category 3 (Minor) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
9	400	NE	329730.0 367080.0	Incident Date: 02-Aug-2003 Incident Identification: 178524.0 Pollutant: Inert Materials and Wastes Pollutant Description: Soils and Clay	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)

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

1

The following NIRS List 1 records are represented as points on the Environmental Permits, Incidents and Registers Map:

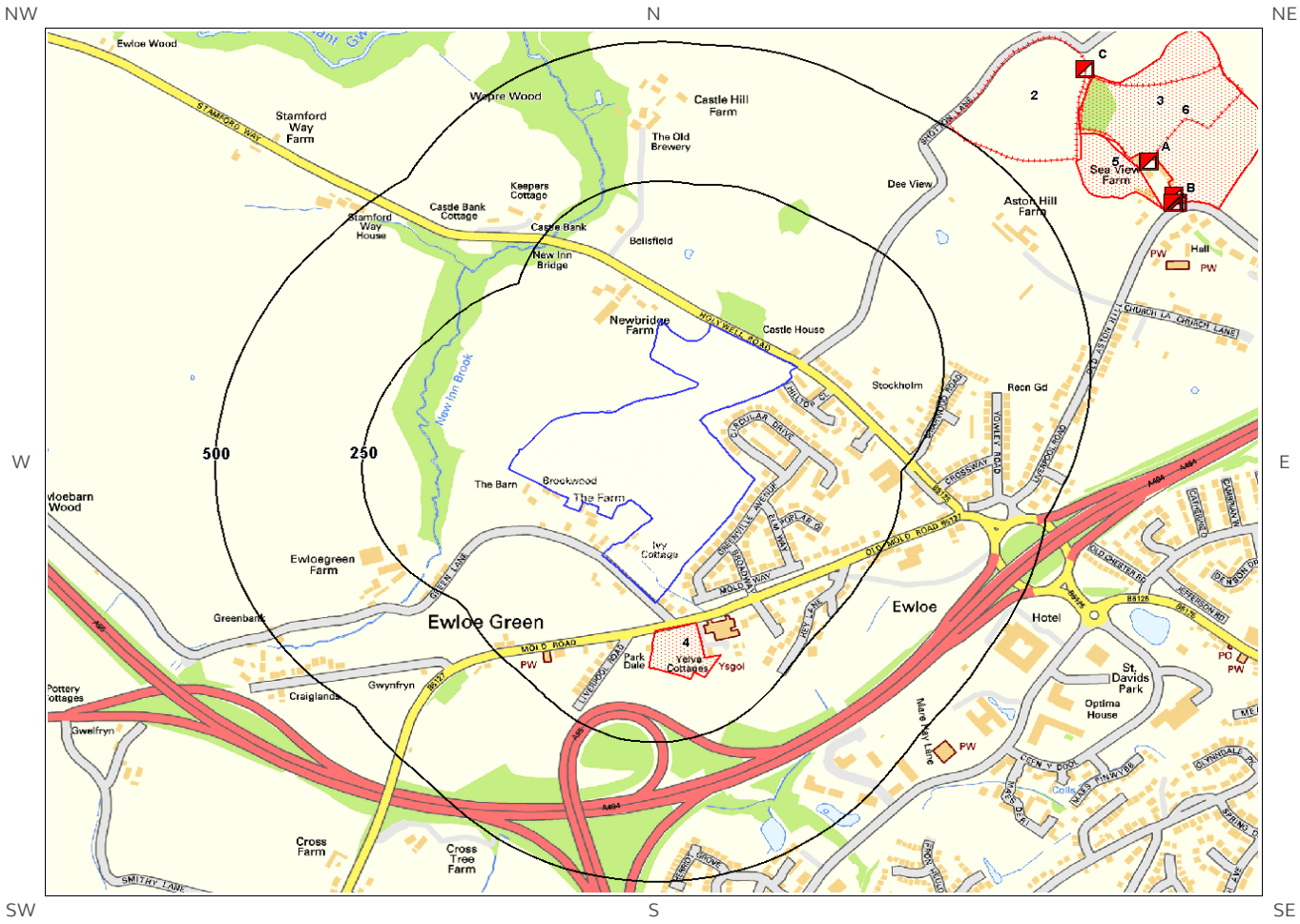
ID	Distance(m)	Direction	NGR	Details	
10	411	SE		Incident Date: 14-Jul-1999 Incident Identification: 3802.0 Catchments Name: DEE TIDAL GENERAL Water Description: ESTUARY Water Course: DEE TIDAL GENERAL Incident Substantiated: Yes	Priority Description: Immediate (2 Hours) Waste Description: Not Available Water Impact: Significant Impact Land Impact: No Impact Air Impact: No Impact Action Taken: Not Available

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

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

Database searched and no data found.

3. Landfill and Other Waste Sites Map



Site Outline

250 / 500 Search Buffers (m)

EA/NRW Active Landfill

EA/NRW Historic Landfill

BGS / DoE Survey Landfill

Historic and Planned Waste Sites

EA/NRW Licensed Waste Site

Local Authority/Historical Mapping Landfill Records

3. Landfill and Other Waste Sites

3.1 Landfill Sites

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

2

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

ID	Distance (m)	Direction	NGR	Details	
2	497	NE	329850 367460	Address: Old Aston Hill, Ewloe, Deeside, Flintshire, CH5 3AH Landfill Reference: 37019.0 Environmental Permitting Regulations (Waste) Reference: MOR001 Landfill Type: A6 : Landfill taking other wastes	Operator: D Morgan Plc Status: Closure IPPC Reference: EPR Reference:
3	645	NE	329958 367294	Address: Old Aston Hill, Ewloe, Deeside, Flintshire, CH5 3AH Landfill Reference: 37013.0 Environmental Permitting Regulations (Waste) Reference: MOR002 Landfill Type: A6 : Landfill taking other wastes	Operator: D Morgan Plc Status: Closure IPPC Reference: EPR Reference:

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

13

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

ID	Distance (m)	Direction	NGR	Details	
4	49	S		Site Address: Land Adjacent to Ewloe C.P. School Waste Licence: Yes Site Reference: 150/87 Waste Type: Inert, Industrial Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: 20-May-1987 Licence Surrendered: 20-May-1989 Licence Holder Address: - Operator: - Licence Holder: F G Whitley and Sons Company Limited First Recorded: 31-Dec-1987 Last Recorded: 20-May-1989
5	587	NE		Site Address: Land at Rear Of Transport Yard Waste Licence: Yes Site Reference: 121/83, 136/85	Licence Issue: 01-Nov-1983 Licence Surrendered: 12-Jul-1986 Licence Holder Address: - Operator: -

ID	Distance (m)	Direction	NGR	Details	
				Waste Type: Inert, Commercial Environmental Permitting Regulations (Waste) Reference: -	Licence Holder: Mr M R Jackson First Recorded: - Last Recorded: 12-Jul-1986
6	638	NE		Site Address: Sea View Farm Waste Licence: Yes Site Reference: 154/88, NOW-437-L, 163, 6835/0091 Waste Type: Inert, Industrial, Commercial Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: 23-Mar-1979 Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: D Morgan Plc First Recorded: 23-Mar-1979 Last Recorded: 30-Jun-1997
Not shown	862	N		Site Address: Wepre Park Waste Licence: Yes Site Reference: UT6 Waste Type: Inert, Industrial, Commercial, Household, Special Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: Connah's Quay Urban District Council Licence Holder: Hawarden Rural Council First Recorded: 31-Dec-1964 Last Recorded: 26-Jan-1973
Not shown	891	NW		Site Address: Colomendy Farm Waste Licence: Yes Site Reference: - Waste Type: Inert Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: Gateways Supermarket Contractors First Recorded: 31-Dec-1986 Last Recorded: 31-Dec-1987
Not shown	1178	W		Site Address: New Bridge Farm Waste Licence: Yes Site Reference: 123/83 Waste Type: Inert, Commercial Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: 01-Nov-1983 Licence Surrendered: 01-Nov-1986 Licence Holder Address: - Operator: - Licence Holder: A McAlpine and Sons (Northern) Limited First Recorded: 31-Dec-1983 Last Recorded: 31-Dec-1985
Not shown	1203	E		Site Address: Upper Aston Hill Lane Waste Licence: Yes Site Reference: UT8 Waste Type: Inert, Industrial, Commercial, Household, Special Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: Alyn and Deeside District Council First Recorded: - Last Recorded: -
Not shown	1254	S		Site Address: Standard Clay Pit Waste Licence: Yes Site Reference: 159/89, 173/93/m1 Waste Type: Inert, Industrial, Commercial, Household, Liquid sludge Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: 31-Dec-1989 Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: Alyn and Deeside District Council First Recorded: 31-Dec-1989 Last Recorded: 31-Dec-1991
Not shown	1277	SW		Site Address: Ewloe Barn Clayhole Waste Licence: Yes Site Reference: 107/79, 120/83, 134/85 Waste Type: Inert, Commercial Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: 14-Dec-1979 Licence Surrendered: 12-Jun-1993 Licence Holder Address: - Operator: - Licence Holder: Roltonstar Finance Limited First Recorded: 14-Dec-1979 Last Recorded: 31-Dec-1992
Not shown	1324	NW		Site Address: Greenacres Waste Licence: - Site Reference: BRE/50/2.94 Waste Type: Inert, Industrial, Commercial, Household, Special Environmental Permitting Regulations	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: Flintshire County Council First Recorded: 31-Dec-1960

ID	Distance (m)	Direction	NGR	Details	
				(Waste) Reference: -	Last Recorded: 31-Dec-1970
Not shown	1340	SW		Site Address: Etna Tip Waste Licence: Yes Site Reference: 103A/78 Waste Type: Inert, Industrial, Commercial, Household, Special Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: 26-Jan-1978 Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: Nevor Hada First Recorded: 31-Dec-1978 Last Recorded: 31-Dec-1990
Not shown	1437	NE		Site Address: Killins Lane Waste Licence: - Site Reference: - Waste Type: Inert, Industrial, Commercial, Household, Special Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: Hawarden Rural District Council Licence Holder: Hawarden Rural District Council First Recorded: 31-Dec-1960 Last Recorded: 31-Dec-1970
Not shown	1447	NW		Site Address: McKeown Close Waste Licence: Yes Site Reference: 139/85 Waste Type: Inert, Commercial, Household Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: 12-Jul-1985 Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: Alyn and Deeside District Council First Recorded: 31-Dec-1985 Last Recorded: 31-Dec-1987

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

1

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

ID	Distance (m)	Direction	NGR	Details	
Not shown	1093	N	329200.0 368100.0	Address: Wepre Park, Connah's Quay, Flints BGS Number: 1737.0	Risk: No risk to aquifer Waste Type: N/A

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

3

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

ID	Distance (m)	Direction	NGR	Site Address	Source	Data Type
Not shown	1263	S	328891 365122	Landfill Site	1996 mapping	Polygon
Not shown	1318	NW	327834 367640	Refuse Tip	1966 mapping	Polygon
Not shown	1438	NE	330272 368206	Refuse Tip	1969 mapping	Polygon

3.2 Other Waste Sites

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

0

Database searched and no data found.

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

64

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

ID	Distance (m)	Direction	NGR	Details	
17A	701	NE	329958 367294	Site Address: Sea View Farm 1, Ewloe, , , Deeside, Flintshire, CH5 3AH Type: Landfill taking other wastes Size: - Environmental Permitting Regulations (Waste) Licence Number: BP3894FD EPR reference: - Operator: D Morgan Plc Waste Management licence No: 37013 Annual Tonnage: 0.0	Issue Date: 02/11/1988 Effective Date: 02/11/1988 Modified: - Surrendered Date: - Expiry Date: 25/01/2002 Cancelled Date: - Status: Effective Site Name: - Correspondence Address: -
18A	701	NE	329958 367294	Site Address: Sea View Farm 1, Ewloe, Flintshire, Deeside, Flintshire, CH5 3AH Type: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: BP3894FD EPR reference: - Operator: D Morgan Plc Waste Management licence No: 37013 Annual Tonnage: 0.0	Issue Date: 02/11/1988 Effective Date: 02/11/1988 Modified: - Surrendered Date: - Expiry Date: 25/01/2002 Cancelled Date: - Status: Effective Site Name: - Correspondence Address: -
19A	701	NE	329958 367294	Site Address: Old Aston Hill, Ewloe, Deeside, Flintshire, CH5 3AH Type: Landfill taking other wastes Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: MOR002 EPR reference: EA/EPR/BP3894FD/A001 Operator: D Morgan Plc Waste Management licence No: 37013 Annual Tonnage: 150000.0	Issue Date: 02/11/1988 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Closure Site Name: Sea View Farm 1 Correspondence Address: -
20A	701	NE	329958 367294	Site Address: Sea View Farm 1, Ewloe, , , Deeside, Flintshire, CH5 3AH Type: Landfill taking other wastes Size: - Environmental Permitting Regulations (Waste) Licence Number: BP3894FD EPR reference: - Operator: D Morgan Plc Waste Management licence No: 37013 Annual Tonnage: 0.0	Issue Date: 02/11/1988 Effective Date: 02/11/1988 Modified: - Surrendered Date: - Expiry Date: 25/01/2002 Cancelled Date: - Status: Effective Site Name: - Correspondence Address: -

ID	Distance (m)	Direction	NGR	Details	
21A	701	NE	329958 367294	Site Address: Sea View Farm 1, Ewloe, Deeside, Flintshire, CH5 3AH Type: Landfill taking other wastes Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: BP3894FD EPR reference: - Operator: - Waste Management licence No: 37013 Annual Tonnage: 0.0	Issue Date: 02/11/1988 Effective Date: 02/11/1988 Modified: - Surrendered Date: - Expiry Date: 25/01/2002 Cancelled Date: - Status: Effective Site Name: - Correspondence Address: -
22A	701	NE	329958 367294	Site Address: Sea View Farm 1, Ewloe, Deeside, Flintshire, CH5 3AH Type: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: BP3894FD EPR reference: - Operator: D Morgan Plc Waste Management licence No: 0 Annual Tonnage: 0.0	Issue Date: 02/11/1988 Effective Date: 02/11/1988 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective Site Name: - Correspondence Address: -
23A	703	NE	329959 367295	Site Address: Old Aston Hill, Ewloe, Deeside, Flintshire, CH5 3AH Type: Landfill taking other wastes Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: MOR002 EPR reference: BP3894FD/A001 Operator: D Morgan Plc Waste Management licence No: 37013 Annual Tonnage: 150000.0	Issue Date: 02/11/1988 Effective Date: - Modified: - Surrendered Date: 0 Expiry Date: 0 Cancelled Date: 0 Status: Closure Site Name: Sea View Farm 1 Correspondence Address: -
24B	703	NE	330000 367220	Site Address: The Old Transport Yard, Old Aston Hill, Ewloe, Deeside, Flintshire, CH5 3AH Type: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: XP3694FN EPR reference: - Operator: Mr M R Jackson Waste Management licence No: 0 Annual Tonnage: 5000.0	Issue Date: 15/12/2015 Effective Date: 15/12/2015 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective Site Name: - Correspondence Address: -
25B	703	NE	330000 367220	Site Address: Mr M R Jackson, The Old Transport Yard, Old Aston Hill, Deeside, Flintshire, CH5 3AH Type: Metal Recycling Site (Vehicle Dismantler) Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: XP3694FN EPR reference: - Operator: Mr M R Jackson Waste Management licence No: 37067 Annual Tonnage: 5000.0	Issue Date: 15/12/2015 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective Site Name: The Old Transport Yard Correspondence Address: -
26B	703	NE	330000 367220	Site Address: The Old Transport Yard, Old Aston Hill, Ewloe, Deeside, Flintshire, CH5 3AH Type: Metal Recycling Site (Vehicle Dismantler) Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: XP3694FN EPR reference: - Operator: - Waste Management licence No: 37067 Annual Tonnage: 5000.0	Issue Date: 15/12/2015 Effective Date: 15/12/2015 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective Site Name: - Correspondence Address: -

ID	Distance (m)	Direction	NGR	Details	
27B	703	NE	330000 367220	Site Address: The Old Transport Yard, Old Aston Hill, Ewloe, Flintshire, Deeside, Flintshire, CH5 3AH Type: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: XP3694FN EPR reference: - Operator: Mr M R Jackson Waste Management licence No: 37067 Annual Tonnage: 5000.0	Issue Date: 15/12/2015 Effective Date: 15/12/2015 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective Site Name: - Correspondence Address: -
28B	703	NE	330000 367220	Site Address: The Old Transport Yard, Old Aston Hill, Ewloe, , Deeside, Flintshire, CH5 3AH Type: Metal Recycling Site (Vehicle Dismantler) Size: - Environmental Permitting Regulations (Waste) Licence Number: XP3694FN EPR reference: - Operator: Mr M R Jackson Waste Management licence No: 37067 Annual Tonnage: 5000.0	Issue Date: 15/12/2015 Effective Date: 15/12/2015 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective Site Name: - Correspondence Address: -
29B	703	NE	330000 367220	Site Address: The Old Transport Yard, Old Aston Hill, Ewloe, , Deeside, Flintshire, CH5 3AH Type: Metal Recycling Site (Vehicle Dismantler) Size: - Environmental Permitting Regulations (Waste) Licence Number: XP3694FN EPR reference: - Operator: Mr M R Jackson Waste Management licence No: 37067 Annual Tonnage: 5000.0	Issue Date: 15/12/2015 Effective Date: 15/12/2015 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective Site Name: - Correspondence Address: -
30B	705	NE	330001 367221	Site Address: The Old Transport Yard, Old Aston Hill, Ewloe, Deeside, Flintshire, CH5 3AH Type: Metal Recycling Site (Vehicle Dismantler) Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: JAC002 EPR reference: XP3694FN/V002 Operator: Jackson M R & Sons Waste Management licence No: 37067 Annual Tonnage: 594.0	Issue Date: 30/04/1993 Effective Date: - Modified: 22/11/2004 Surrendered Date: 0 Expiry Date: 0 Cancelled Date: 0 Status: Modified Site Name: M R Jackson & Sons Correspondence Address: -
31B	711	NE	330008 367220	Site Address: - Type: Household, Commercial & Industrial Waste Landfill Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: MOR001 EPR reference: - Operator: D. Morgan Plc Waste Management licence No: 37019 Annual Tonnage: 0.0	Issue Date: 20/02/1991 Effective Date: - Modified: 31/10/2001 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Sea View Farm 2 Correspondence Address: New Hay, Chester Road, Great Sutton, South Wirral, L66 2LS
32B	711	NE	330002 367233	Site Address: Old Aston Hill, Ewloe, CH66 2LS Type: Landfill taking other wastes Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: MOR002 EPR reference: - Operator: D. Morgan Plc	Issue Date: 02/11/1988 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Closure Site Name: Sea Veiw Farm 1

ID	Distance (m)	Direction	NGR	Details	
				Waste Management licence No: 37013 Annual Tonnage: 0.0	Correspondence Address: New Hey, Chester Road, Great Sutton, South Wirral, L66 2LS
33C	724	NE	329850 367460	Site Address: Sea View Farm 2, Ewloe, , , Deeside, Flintshire, CH5 3AH Type: Landfill taking other wastes Size: - Environmental Permitting Regulations (Waste) Licence Number: SP3394FL EPR reference: - Operator: D Morgan Plc Waste Management licence No: 37019 Annual Tonnage: 0.0	Issue Date: 20/02/1991 Effective Date: 20/02/1991 Modified: - Surrendered Date: - Expiry Date: 12/02/2009 Cancelled Date: - Status: Effective Site Name: - Correspondence Address: -
34C	724	NE	329850 367460	Site Address: Sea View Farm 2, Ewloe, , , Deeside, Flintshire, CH5 3AH Type: Landfill taking other wastes Size: - Environmental Permitting Regulations (Waste) Licence Number: SP3394FL EPR reference: - Operator: D Morgan Plc Waste Management licence No: 37019 Annual Tonnage: 0.0	Issue Date: 20/02/1991 Effective Date: 20/02/1991 Modified: - Surrendered Date: - Expiry Date: 12/02/2009 Cancelled Date: - Status: Effective Site Name: - Correspondence Address: -
35C	724	NE	329850 367460	Site Address: Sea View Farm 2, Ewloe, Deeside, Flintshire, CH5 3AH Type: Landfill taking other wastes Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: SP3394FL EPR reference: - Operator: - Waste Management licence No: 37019 Annual Tonnage: 0.0	Issue Date: 20/02/1991 Effective Date: 20/02/1991 Modified: - Surrendered Date: - Expiry Date: 12/02/2009 Cancelled Date: - Status: Effective Site Name: - Correspondence Address: -
36C	724	NE	329850 367460	Site Address: Sea View Farm 2, Ewloe, Deeside, Flintshire, CH5 3AH Type: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: SP3394FL EPR reference: - Operator: D Morgan Plc Waste Management licence No: 0 Annual Tonnage: 0.0	Issue Date: 20/02/1991 Effective Date: 20/02/1991 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective Site Name: - Correspondence Address: -
37C	724	NE	329850 367460	Site Address: Sea View Farm 2, Ewloe, Flintshire, Deeside, Flintshire, CH5 3AH Type: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: SP3394FL EPR reference: - Operator: D Morgan Plc Waste Management licence No: 37019 Annual Tonnage: 0.0	Issue Date: 20/02/1991 Effective Date: 20/02/1991 Modified: - Surrendered Date: - Expiry Date: 12/02/2009 Cancelled Date: - Status: Effective Site Name: - Correspondence Address: -
38C	726	NE	329851 367461	Site Address: Old Aston Hill, Ewloe, Deeside, Flintshire, CH5 3AH Type: Landfill taking other wastes Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: MOR001 EPR reference: SP3394FL/V002 Operator: D Morgan Plc Waste Management licence No: 37019 Annual Tonnage: 1000000.0	Issue Date: 20/02/1991 Effective Date: - Modified: 31/10/2001 Surrendered Date: 0 Expiry Date: 0 Cancelled Date: 0 Status: Closure Site Name: Sea View Farm 2 Correspondence Address: -
Not shown	1311	W	327655 366255	Site Address: Ewloe Barn Industrial Estate, Mold Road, Alltami, Mold, Flintshire, CH7	Issue Date: 16/06/2005 Effective Date: -

ID	Distance (m)	Direction	NGR	Details	
				4EG Type: Household, Commercial & Industrial Waste T Stn Size: >= 25000 tonnes < 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: FWC001 EPR reference: - Operator: Flintshire Waste Management And Contract Services Ltd Waste Management licence No: 37266 Annual Tonnage: 24999.0	Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Waste Recycling Facility, Alltami Correspondence Address: Steven Blay, Plas Aros, Nercwys, Mold, Flintshire, CH7 4EG
Not shown	1311	W	327655 366255	Site Address: Ewloe Barn Industrial Estate, Mold Road, Alltami, Mold, Flintshire, CH7 4EG Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: FWC001 EPR reference: - Operator: Flintshire Waste Management And Contract Services Ltd Waste Management licence No: 37266 Annual Tonnage: 24999.0	Issue Date: 16/06/2005 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Waste Recycling Facility, Alltami Correspondence Address: Plas Aros, Nercwys, Mold, Flintshire, CH7 4EG
Not shown	1321	SW	327659 366218	Site Address: Ewloe Barn Industrial Estate, Mold Road, Alltami, Mold, Flintshire, CH7 6LG Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: FWM001 EPR reference: VP3294FM/A001 Operator: Flintshire Waste Management & Contract Services Ltd Waste Management licence No: 37206 Annual Tonnage: 4999.0	Issue Date: 16/11/2000 Effective Date: - Modified: - Surrendered Date: 0 Expiry Date: 0 Cancelled Date: 0 Status: Revoked Site Name: Ewloe Waste Transfer Station Correspondence Address: -
Not shown	1323	SW	327658 366217	Site Address: Ewloe Waste Transfer Station, Alltami, Mold, Flintshire, CH7 6LG Type: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: VP3294FM EPR reference: - Operator: Flintshire Waste Management & Contract Services Ltd Waste Management licence No: 0 Annual Tonnage: 0.0	Issue Date: 16/11/2000 Effective Date: 16/11/2000 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Revoked Site Name: - Correspondence Address: -
Not shown	1323	SW	327658 366217	Site Address: Ewloe Waste Transfer Station, Alltami, , , Mold, Flintshire, CH7 6LG Type: Household, Commercial & Industrial Waste T Stn Size: - Environmental Permitting Regulations (Waste) Licence Number: VP3294FM EPR reference: - Operator: Flintshire Waste Management & Contract Services Ltd Waste Management licence No: 37206 Annual Tonnage: 0.0	Issue Date: 16/11/2000 Effective Date: 16/11/2000 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Revoked Site Name: - Correspondence Address: -
Not shown	1323	SW	327658 366217	Site Address: Ewloe Waste Transfer Station, Alltami, , , Mold, Flintshire, CH7 6LG Type: Household, Commercial & Industrial Waste T Stn	Issue Date: 16/11/2000 Effective Date: 16/11/2000 Modified: - Surrendered Date: - Expiry Date: -

ID	Distance (m)	Direction	NGR	Details	
				Size: - Environmental Permitting Regulations (Waste) Licence Number: VP3294FM EPR reference: - Operator: Flintshire Waste Management & Contract Services Ltd Waste Management licence No: 37206 Annual Tonnage: 0.0	Cancelled Date: - Status: Revoked Site Name: - Correspondence Address: -
Not shown	1323	SW	327658 366217	Site Address: Ewloe Waste Transfer Station, Alltami, Mold, Flintshire, CH7 6LG Type: Household, Commercial & Industrial Waste T Stn Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: VP3294FM EPR reference: - Operator: - Waste Management licence No: 37206 Annual Tonnage: 0.0	Issue Date: 16/11/2000 Effective Date: 16/11/2000 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Revoked Site Name: - Correspondence Address: -
Not shown	1323	SW	327658 366217	Site Address: Ewloe Waste Transfer Station, Alltami, Flintshire, Mold, Flintshire, CH7 6LG Type: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: VP3294FM EPR reference: - Operator: Flintshire Waste Management & Contract Services Ltd Waste Management licence No: 37206 Annual Tonnage: 0.0	Issue Date: 16/11/2000 Effective Date: 16/11/2000 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Revoked Site Name: - Correspondence Address: -
Not shown	1341	SW	327703 366084	Site Address: Ewloe Barn Industrial Estate, Mold Road, Alltami, Mold, Flintshire, CH7 6LG Type: Household, Commercial & Industrial Waste T Stn Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: TBS002 EPR reference: BP3797SZ/V004 Operator: Thorncliffe Building Supplies Ltd Waste Management licence No: 37266 Annual Tonnage: 125000.0	Issue Date: 16/06/2005 Effective Date: 15/09/2008 Modified: 23/09/2015 Surrendered Date: 0 Expiry Date: 0 Cancelled Date: 0 Status: Modified Site Name: Ewloe Waste Transfer Station Correspondence Address: -
Not shown	1343	SW	327702 366083	Site Address: Ewloe Waste Transfer Station, Mold Road, Alltami, Mold, Flintshire, CH7 6LG Type: Household, Commercial & Industrial Waste T Stn Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: BP3797SZ EPR reference: - Operator: - Waste Management licence No: 37266 Annual Tonnage: 125000.0	Issue Date: 04/04/2017 Effective Date: 04/04/2017 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective Site Name: - Correspondence Address: -
Not shown	1343	SW	327702 366083	Site Address: Ewloe Waste Transfer Station, Mold Road, Alltami, Mold, Flintshire, CH7 6LG Type: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: BP3797SZ EPR reference: - Operator: Thorncliffe Building Supplies Ltd Waste Management licence No: 0 Annual Tonnage: 125000.0	Issue Date: 30/11/2015 Effective Date: 30/11/2015 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective Site Name: - Correspondence Address: -

ID	Distance (m)	Direction	NGR	Details	
Not shown	1343	SW	327702 366083	Site Address: Ewloe Waste Transfer Station, Mold Road, Alltami, , Mold, Flintshire, CH7 6LG Type: Household, Commercial & Industrial Waste T Stn Size: - Environmental Permitting Regulations (Waste) Licence Number: BP3797SZ EPR reference: - Operator: Thorncliffe Building Supplies Ltd Waste Management licence No: 37266 Annual Tonnage: 125000.0	Issue Date: 26/09/2017 Effective Date: 26/09/2017 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective Site Name: - Correspondence Address: -
Not shown	1343	SW	327702 366083	Site Address: Ewloe Barn Industrial Estate, Mold Road, Alltami, Mold, Flintshire, CH7 6LG Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: FWC001 EPR reference: - Operator: Flintshire Waste Management & Contract Services Ltd Waste Management licence No: 37266 Annual Tonnage: 24999.0	Issue Date: 16/06/2005 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Flintshire Waste Management Correspondence Address: Flintshire Waste Management, Ewlow Barn Industrial Estate, Mold Road, Alltami, Flintshire, CH7 6LG
Not shown	1343	SW	327702 366083	Site Address: Ewloe Waste Transfer Station, Mold Road, Alltami, , Mold, Flintshire, CH7 6LG Type: Household, Commercial & Industrial Waste T Stn Size: - Environmental Permitting Regulations (Waste) Licence Number: BP3797SZ EPR reference: - Operator: Thorncliffe Building Supplies Ltd Waste Management licence No: 37266 Annual Tonnage: 125000.0	Issue Date: 26/09/2017 Effective Date: 26/09/2017 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective Site Name: - Correspondence Address: -
Not shown	1343	SW	327702 366083	Site Address: Ewloe Barn Industrial Estate, Mold Road, Alltami, Mold, Flintshire, CH7 6LG Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: TBS002 EPR reference: BP3797SZ/T001 Operator: Thorncliffe Building Supplies Ltd Waste Management licence No: 37266 Annual Tonnage: 24999.0	Issue Date: 16/06/2005 Effective Date: 15/09/2008 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Transferred Site Name: Ewloe Waste Transfer Station Correspondence Address: -
Not shown	1343	SW	327702 366083	Site Address: Thorncliffe Building Supplies Ltd, Ewloe Waste Transfer Station, Mold Road, Mold, Flintshire, CH7 6LG Type: 75kte HCI Waste Transfer Station Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: BP3797SZ EPR reference: - Operator: Thorncliffe Building Supplies Ltd Waste Management licence No: 37266 Annual Tonnage: 125000.0	Issue Date: 30/11/2015 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective Site Name: Ewloe Waste Transfer Station Correspondence Address: -
Not shown	1343	SW	327702 366083	Site Address: Ewloe Barn Industrial Estate, Mold Road, Alltami, Mold, Flintshire, CH7 6LG Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes	Issue Date: 16/06/2005 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: -

ID	Distance (m)	Direction	NGR	Details	
				Environmental Permitting Regulations (Waste) Licence Number: FWC001 EPR reference: - Operator: Flintshire Waste Management & Contract Services Ltd Waste Management licence No: 37266 Annual Tonnage: 24999.0	Status: Issued Site Name: Flintshire Waste Management Correspondence Address: Flintshire Waste Management, Ewlow Barn Industrial Estate, Mold Road, Alltami, Flintshire, CH7 6LG
Not shown	1343	SW	327702 366083	Site Address: Ewloe Waste Transfer Station, Mold Road, Alltami, Flintshire, Mold, Flintshire, CH7 6LG Type: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: BP3797SZ EPR reference: - Operator: Thorncliffe Building Supplies Ltd Waste Management licence No: 37266 Annual Tonnage: 125000.0	Issue Date: 26/09/2017 Effective Date: 26/09/2017 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective Site Name: - Correspondence Address: -
Not shown	1410	S	329065 365093	Site Address: Land / Premises At, Standard Road, Spencers Industrial Est, Buckley, Flintshire, CH7 3LY Type: Co-Disposal Landfill Site Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: FLI015 EPR reference: BP3390VA/V003 Operator: Flintshire County Council Waste Management licence No: 37073 Annual Tonnage: 0.0	Issue Date: 21/07/1993 Effective Date: 25/09/2009 Modified: 10/09/2013 Surrendered Date: 0 Expiry Date: 0 Cancelled Date: 0 Status: Modified Site Name: Standard Landfill Site Correspondence Address: -
Not shown	1411	S	329064 365092	Site Address: Standard Landfill Site, Land / Premises At, Spencers Industrial Est, , Buckley, Flintshire, CH7 3LY Type: Co-Disposal Landfill Site Size: - Environmental Permitting Regulations (Waste) Licence Number: BP3390VA EPR reference: - Operator: Flintshire County Council Waste Management licence No: 37073 Annual Tonnage: 0.0	Issue Date: 30/07/2018 Effective Date: 30/07/2018 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective Site Name: - Correspondence Address: -
Not shown	1411	S	329064 365092	Site Address: Standard Landfill Site, Land / Premises At, Spencers Industrial Est, , Buckley, Flintshire, CH7 3LY Type: Co-Disposal Landfill Site Size: - Environmental Permitting Regulations (Waste) Licence Number: BP3390VA EPR reference: - Operator: Flintshire County Council Waste Management licence No: 37073 Annual Tonnage: 0.0	Issue Date: 30/07/2018 Effective Date: 30/07/2018 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective Site Name: - Correspondence Address: -
Not shown	1411	S	329064 365092	Site Address: Standard Landfill Site, Land / Premises At, Spencers Industrial Est, Flintshire, Buckley, Flintshire, CH7 3LY Type: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: BP3390VA EPR reference: - Operator: Flintshire County Council Waste Management licence No: 37073 Annual Tonnage: 0.0	Issue Date: 21/07/1993 Effective Date: 21/07/1993 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective Site Name: - Correspondence Address: -
Not shown	1411	S	329064 365092	Site Address: Land / Premises At, Standard Road, Spencers Industrial Est, Buckley, Flintshire, CH7 3LY	Issue Date: 21/07/1993 Effective Date: 25/09/2009 Modified: 10/09/2013

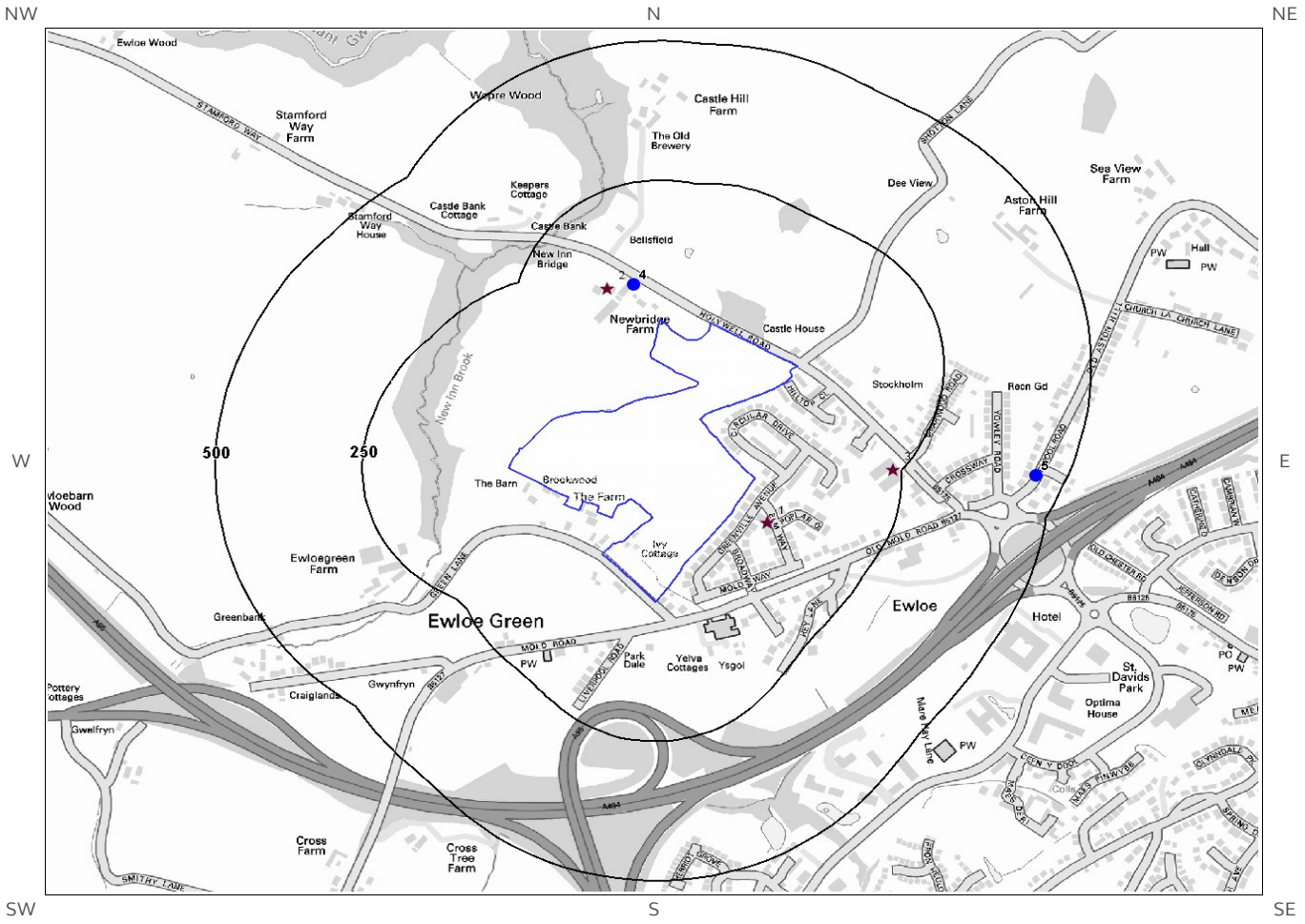
ID	Distance (m)	Direction	NGR	Details	
				Type: Co-Disposal Landfill Site Size: >= 25000 tonnes < 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: FLI015 EPR reference: EA/EPR/BP3390VA/V003 Operator: Flintshire County Council Waste Management licence No: 37073 Annual Tonnage: 0.0	Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Standard Landfill Site Correspondence Address: -
Not shown	1411	S	329064 365092	Site Address: Standard Landfill Site, Land / Premises At, Spencers Industrial Est, Buckley, Flintshire, CH7 3LY Type: Co-Disposal Landfill Site Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: BP3390VA EPR reference: - Operator: - Waste Management licence No: 37073 Annual Tonnage: 0.0	Issue Date: 21/07/1993 Effective Date: 21/07/1993 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective Site Name: - Correspondence Address: -
Not shown	1411	S	329064 365092	Site Address: Standard Landfill Site, Land / Premises At, Spencers Industrial Est, Buckley, Flintshire, CH7 3LY Type: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: BP3390VA EPR reference: - Operator: Flintshire County Council Waste Management licence No: 0 Annual Tonnage: 0.0	Issue Date: 21/07/1993 Effective Date: 21/07/1993 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective Site Name: - Correspondence Address: -
Not shown	1474	W	327481 366254	Site Address: Parrys Quarry, Pinfold Lane, Alltami, Mold, Flintshire, CH7 6NY Type: Physical Treatment Facility Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: MOL013 EPR reference: SE3590HJ/ Operator: Mold Investments Ltd Waste Management licence No: 37277 Annual Tonnage: 100000.0	Issue Date: 24/02/2006 Effective Date: 12/09/2015 Modified: 24/02/2012 Surrendered Date: 0 Expiry Date: 0 Cancelled Date: 0 Status: Transferred Site Name: Parrys Quarry Waste Transfer & Reprocessing Centre Correspondence Address: -
Not shown	1475	W	327480 366253	Site Address: Parrys Quarry, Pinfold Lane, Alltami, Mold, Flintshire, CH7 6NY Type: Physical Treatment Facility Size: >= 25000 tonnes < 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: PAR018 EPR reference: EA/EPR/YP3794FW/A001 Operator: Robin Jones & Sons Ltd Waste Management licence No: 37277 Annual Tonnage: 75000.0	Issue Date: 24/02/2006 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Parrys Quarry Waste Transfer & Reprocessing Centre Correspondence Address: -
Not shown	1475	W	327480 366253	Site Address: Parrys Quarry Waste Transfer & Reprocessing Centre, Alltami, , , Mold, Flintshire, CH7 6NY Type: Physical Treatment Facility Size: - Environmental Permitting Regulations (Waste) Licence Number: TB3590HJ EPR reference: - Operator: Mold Investments Limited Waste Management licence No: 37277 Annual Tonnage: 100000.0	Issue Date: 11/09/2015 Effective Date: 11/09/2015 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective Site Name: - Correspondence Address: -
Not shown	1475	W	327480 366253	Site Address: Parrys Quarry, Pinfold Lane, Alltami, Mold, Flintshire, CH7 6NY Type: Physical Treatment Facility Size: >= 75000 tonnes	Issue Date: 24/02/2006 Effective Date: - Modified: 24/02/2012 Surrendered Date: -

ID	Distance (m)	Direction	NGR	Details	
				Environmental Permitting Regulations (Waste) Licence Number: PAR018 EPR reference: YP3794FW/V002 Operator: Robin Jones & Sons Ltd Waste Management licence No: 37277 Annual Tonnage: 100000.0	Expiry Date: - Cancelled Date: - Status: Modified Site Name: Parrys Quarry Waste Transfer & Reprocessing Centre Correspondence Address: -
Not shown	1475	W	327480 366253	Site Address: Parrys Quarry Waste Transfer & Reprocessing Centre, Alltami, Mold, Flintshire, CH7 6NY Type: Physical Treatment Facility Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: TB3590HJ EPR reference: - Operator: - Waste Management licence No: 37277 Annual Tonnage: 100000.0	Issue Date: 11/09/2015 Effective Date: 11/09/2015 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective Site Name: - Correspondence Address: -
Not shown	1475	W	327480 366253	Site Address: Parrys Quarry Waste Transfer & Reprocessing Centre, Alltami, Mold, Flintshire, CH7 6NY Type: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: TB3590HJ EPR reference: - Operator: Mold Investments Limited Waste Management licence No: 0 Annual Tonnage: 100000.0	Issue Date: 11/09/2015 Effective Date: 11/09/2015 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective Site Name: - Correspondence Address: -
Not shown	1475	W	327480 366253	Site Address: Parrys Quarry Waste Transfer & Reprocessing Centre, Alltami, , , Mold, Flintshire, CH7 6NY Type: Physical Treatment Facility Size: - Environmental Permitting Regulations (Waste) Licence Number: TB3590HJ EPR reference: - Operator: Mold Investments Limited Waste Management licence No: 37277 Annual Tonnage: 100000.0	Issue Date: 11/09/2015 Effective Date: 11/09/2015 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective Site Name: - Correspondence Address: -
Not shown	1475	W	327480 366253	Site Address: Parrys Quarry Waste Transfer & Reprocessing Centre, Alltami, Flintshire, Mold, Flintshire, CH7 6NY Type: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: TB3590HJ EPR reference: - Operator: Mold Investments Limited Waste Management licence No: 37277 Annual Tonnage: 100000.0	Issue Date: 11/09/2015 Effective Date: 11/09/2015 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective Site Name: - Correspondence Address: -
Not shown	1486	SW	327861 365653	Site Address: Brookhill Landfill Site, Brookhill Way, Pinfold Ind Estate, Buckley, Flintshire, CH7 3PS Type: Household, Commercial & Industrial Waste T Stn Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: FLI017 EPR reference: BP3391EL/T001 Operator: Flintshire County Council Waste Management licence No: 100198 Annual Tonnage: 0.0	Issue Date: 29/11/2007 Effective Date: 08/04/2009 Modified: - Surrendered Date: 0 Expiry Date: 0 Cancelled Date: 0 Status: Transferred Site Name: Brookhill Transfer Station Correspondence Address: -
Not shown	1487	SW	327860 365652	Site Address: Brookhill Transfer Station, Pinfold Ind Estate, Buckley, Flintshire, CH7 3PS	Issue Date: 29/11/2007 Effective Date: 29/11/2007 Modified: -

ID	Distance (m)	Direction	NGR	Details	
				Type: Household, Commercial & Industrial Waste T Stn Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: BP3391EL EPR reference: - Operator: - Waste Management licence No: 100198 Annual Tonnage: 74999.0	Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective Site Name: - Correspondence Address: -
Not shown	1487	SW	327860 365652	Site Address: Brookhill Transfer Station, Pinfold Ind Estate, , , Buckley, Flintshire, CH7 3PS Type: Household, Commercial & Industrial Waste T Stn Size: - Environmental Permitting Regulations (Waste) Licence Number: BP3391EL EPR reference: - Operator: Flintshire County Council Waste Management licence No: 100198 Annual Tonnage: 74999.0	Issue Date: 29/11/2007 Effective Date: 29/11/2007 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective Site Name: - Correspondence Address: -
Not shown	1487	SW	327860 365652	Site Address: Brookhill Transfer Station, Pinfold Ind Estate, , , Buckley, Flintshire, CH7 3PS Type: Household, Commercial & Industrial Waste T Stn Size: - Environmental Permitting Regulations (Waste) Licence Number: BP3391EL EPR reference: - Operator: Flintshire County Council Waste Management licence No: 100198 Annual Tonnage: 74999.0	Issue Date: 29/11/2007 Effective Date: 29/11/2007 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective Site Name: - Correspondence Address: -
Not shown	1487	SW	327860 365652	Site Address: Brookhill Transfer Station, Pinfold Ind Estate, Buckley, Flintshire, CH7 3PS Type: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: BP3391EL EPR reference: - Operator: Flintshire County Council Waste Management licence No: 0 Annual Tonnage: 74999.0	Issue Date: 29/11/2007 Effective Date: 29/11/2007 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective Site Name: - Correspondence Address: -
Not shown	1487	SW	327860 365652	Site Address: Brookhill Landfill Site, Brookhill Way, Pinfold Ind Estate, Buckley, Flintshire, CH7 3PS Type: Special Waste Transfer Station Size: >= 25000 tonnes < 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: ADW001 EPR reference: - Operator: A D Waste Ltd Waste Management licence No: 100198 Annual Tonnage: 0.0	Issue Date: 29/11/2007 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Brookhill Landfill Site Correspondence Address: 5/7 Grosvenor Court, Foregate Street, Chester, Cheshire, CH1 1HG
Not shown	1487	SW	327860 365652	Site Address: Brookhill Transfer Station, Pinfold Ind Estate, Flintshire, Buckley, Flintshire, CH7 3PS Type: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: BP3391EL EPR reference: - Operator: Flintshire County Council Waste Management licence No: 100198 Annual Tonnage: 74999.0	Issue Date: 29/11/2007 Effective Date: 29/11/2007 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective Site Name: - Correspondence Address: -

ID	Distance (m)	Direction	NGR	Details	
Not shown	1487	SW	327860 365652	Site Address: Brookhill Landfill Site, Brookhill Way, Pinfold Ind Estate, Buckley, Flintshire, CH7 3PS Type: Household, Commercial & Industrial Waste T Stn Size: >= 25000 tonnes < 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: FLI017 EPR reference: EA/EPR/BP3391EL/T001 Operator: Flintshire County Council Waste Management licence No: 100198 Annual Tonnage: 74999.0	Issue Date: 29/11/2007 Effective Date: 08/04/2009 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Transferred Site Name: Brookhill Transfer Station Correspondence Address: -
Not shown	1487	SW	327860 365652	Site Address: Brookhill Landfill Site, Brookhill Way, Pinfold Ind Estate, Buckley, Flintshire, CH7 3PS Type: Special Waste Transfer Station Size: >= 25000 tonnes < 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: FLI017 EPR reference: EA/EPR/BP3391EL/T001 Operator: Flintshire County Council Waste Management licence No: 100198 Annual Tonnage: 74999.0	Issue Date: 29/11/2007 Effective Date: 08/04/2009 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Transferred Site Name: Brookhill Transfer Station Correspondence Address: -

4. Current Land Use Map



4. Current Land Uses

4.1 Current Industrial Data

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

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

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1	60	SE	Electricity Sub Station	329309 366645	Clwyd, CH5	Electrical Features	Infrastructure and Facilities
2	107	NW	H W Oultram	329038 367065	Newbridge Farm & Filling Station, Holywell Road, Ewloe, Deeside, Clwyd, CH5 3BS	Dairy Farming	Farming
3	236	E	Motorepair	329524 366740	Holywell Road, Ewloe, Deeside, Clwyd, CH5 3BS	Vehicle Repair, Testing and Servicing	Repair and Servicing

4.2 Petrol and Fuel Sites

Records of petrol or fuel sites within 500m of the study site: 2

The following petrol or fuel site records provided by Catalist are represented as points on the Current Land Use map:

ID	Distance (m)	Direction	NGR	Company	Address	LPG	Status
4	78	NW	329082 367072	DRAGON	Holywell Road, Ewloe, Deeside, Flintshire, CH5 3BS	No	Open
5	451	SE	329767 366729	OBSOLETE	Liverpool Road, Ewloe, Deeside, Flintshire, CH5 3AR	Not Applicable	Obsolete

4.3 National Grid High Voltage Underground Electricity Transmission Cables

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

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

Database searched and no data found.

4.4 National Grid High Pressure Gas Transmission Pipelines

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

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

Database searched and no data found.

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5. Geology

5.1 Artificial Ground and Made Ground

Database searched and no data found.

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

5.2 Superficial Ground and Drift Geology

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

Lex Code	Description	Rock Type
HEAD-XCZSV	HEAD	CLAY, SILT, SAND AND GRAVEL
TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON
GFDUD-XSV	GLACIOFLUVIAL DEPOSITS, DEVENSIAN	SAND AND GRAVEL

5.3 Bedrock and Solid Geology

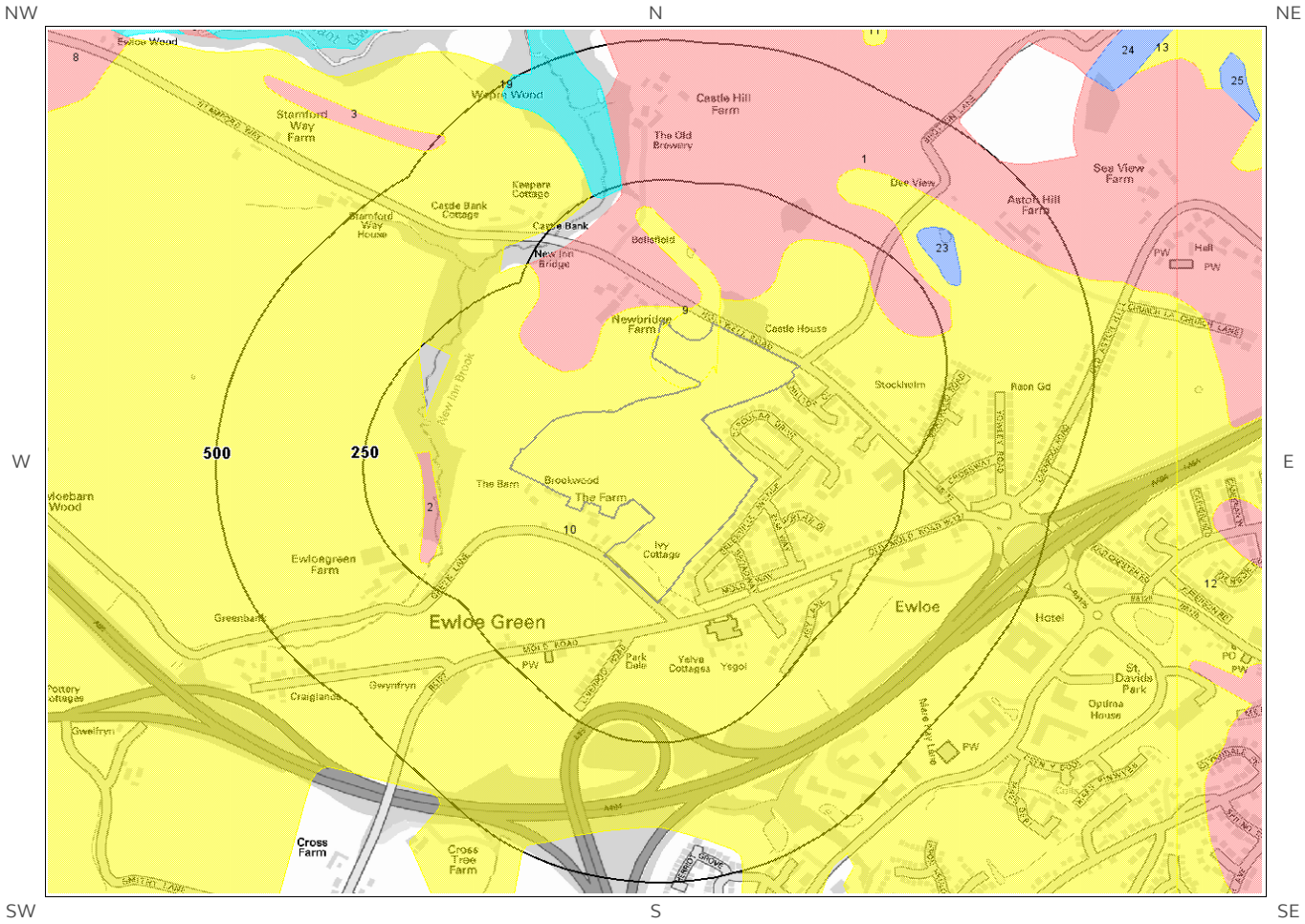
The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION	MUDSTONE, SILTSTONE AND SANDSTONE
HLR-SDST	HOLLIN ROCK	SANDSTONE
PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION	MUDSTONE, SILTSTONE AND SANDSTONE
PMCM-SDST	PENNINE MIDDLE COAL MEASURES FORMATION	SANDSTONE
PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION	MUDSTONE, SILTSTONE AND SANDSTONE

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

6 Hydrogeology and Hydrology

6a. Aquifer Within Superficial Geology



Site Outline

250
500
Search Buffers (m)

Principal Aquifer

Secondary (A) Aquifer - Permeable Layers

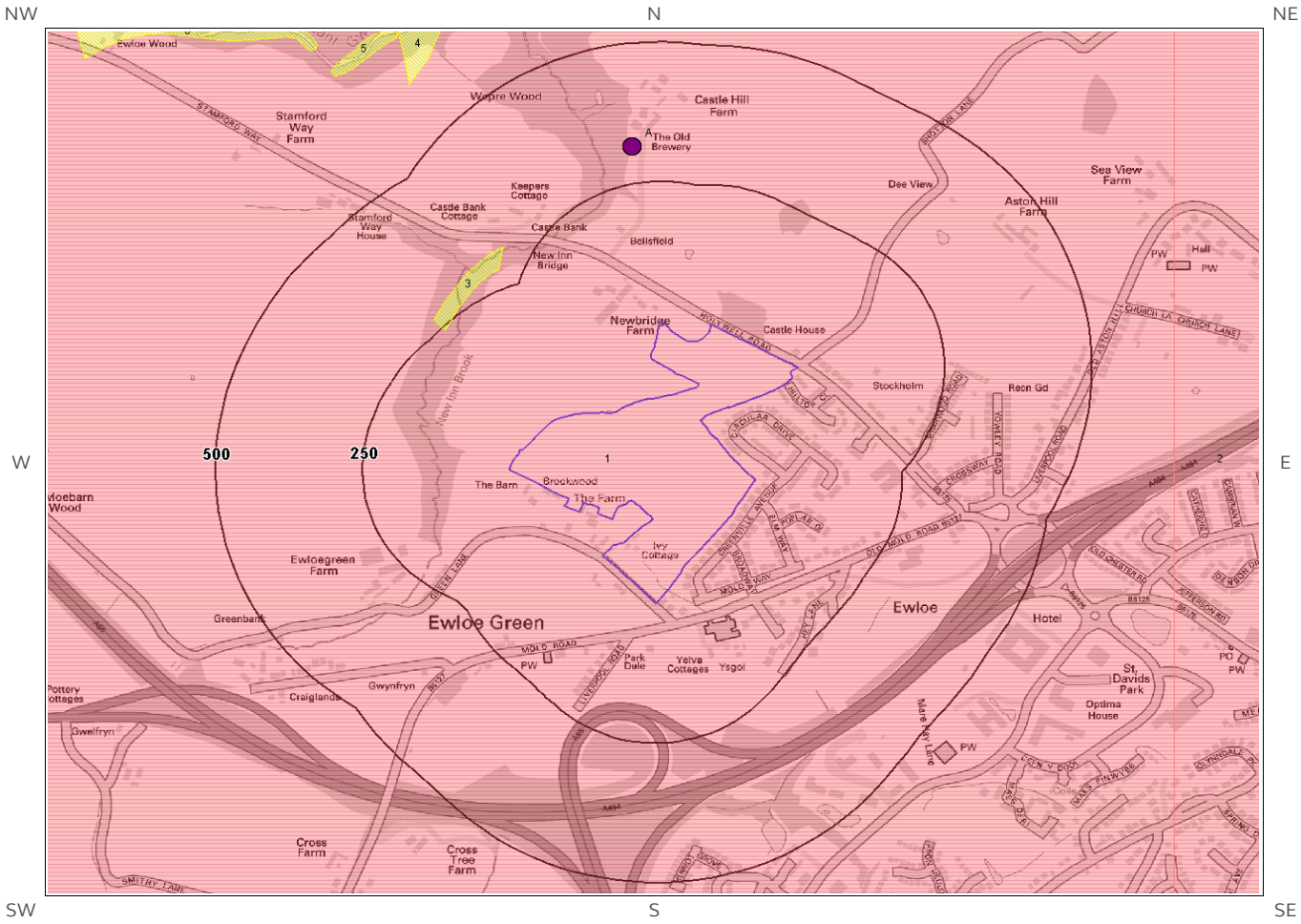
Secondary (B) Aquifer - Lower Permeability Layers

Secondary Aquifer - Undifferentiated Layers

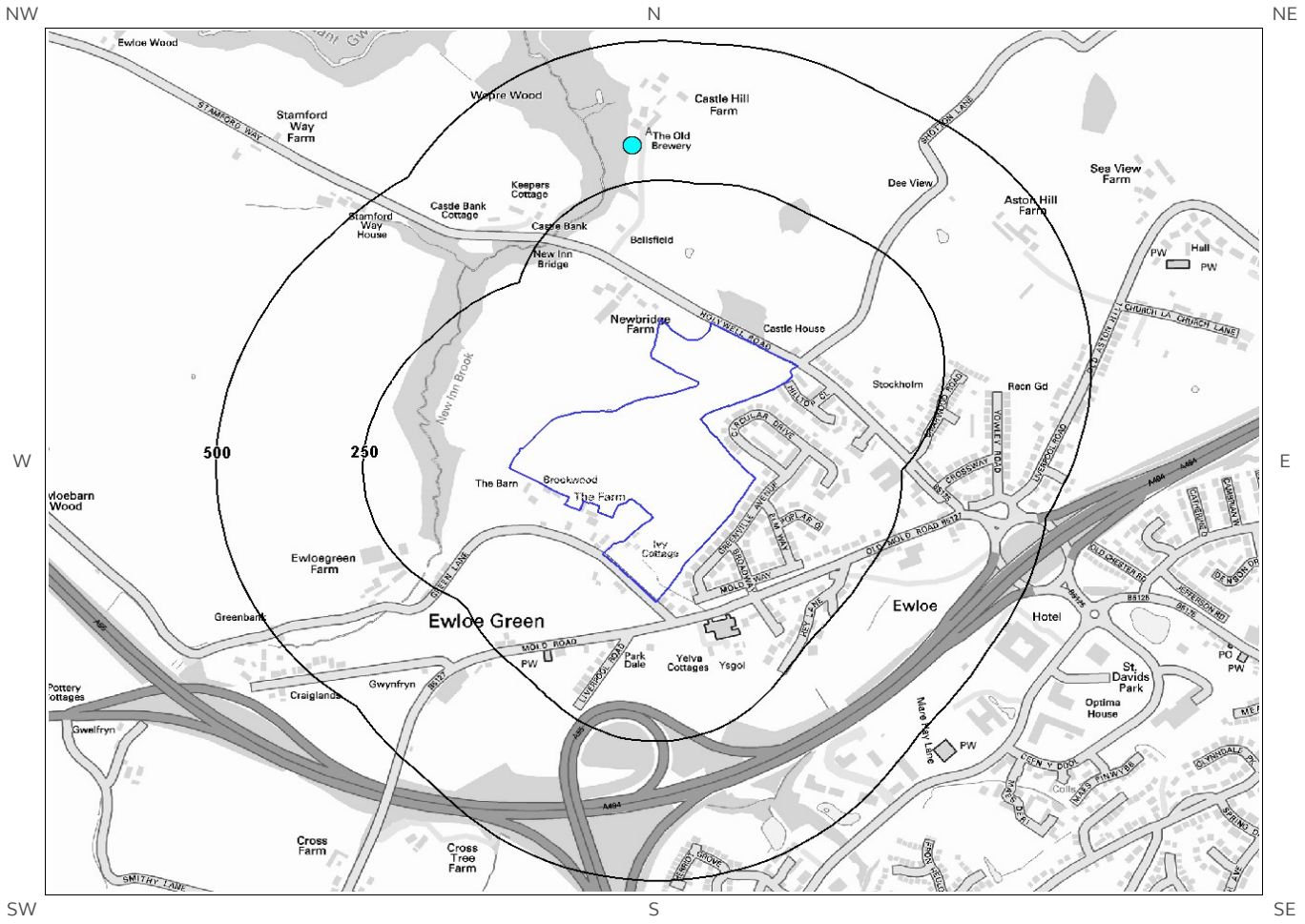
Unproductive

Unknown (lakes and landslip)

6b. Aquifer Within Bedrock Geology and Abstraction Licences



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



Site Outline

250
500
Search Buffers (m)

Source Protection Zone 1 - Inner Catchment

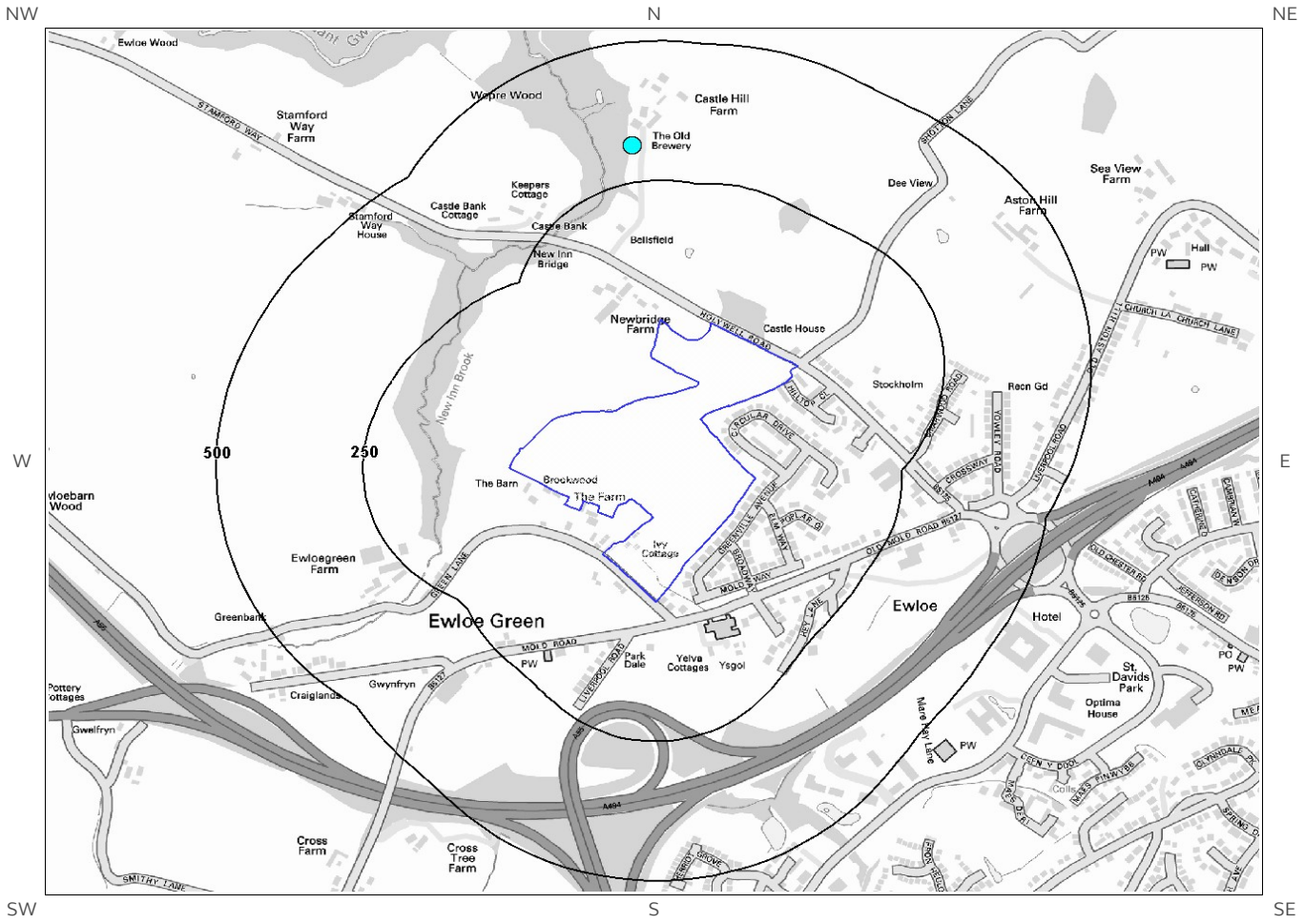
Source Protection Zone 2 - Outer Catchment

Source Protection Zone 3 - Total Catchment

Source Protection Zone 4 - Zone of Special Interest

Potable Water Abstraction Licence

6d. Hydrogeology – Source Protection Zones within confined aquifer



Site Outline

250
500
Search Buffers (m)

Source Protection Zone 1 - Inner Catchment

Source Protection Zone 2C - Outer Catchment within Confined Aquifer

Source Protection Zone 3C - Total Catchment within Confined Aquifer

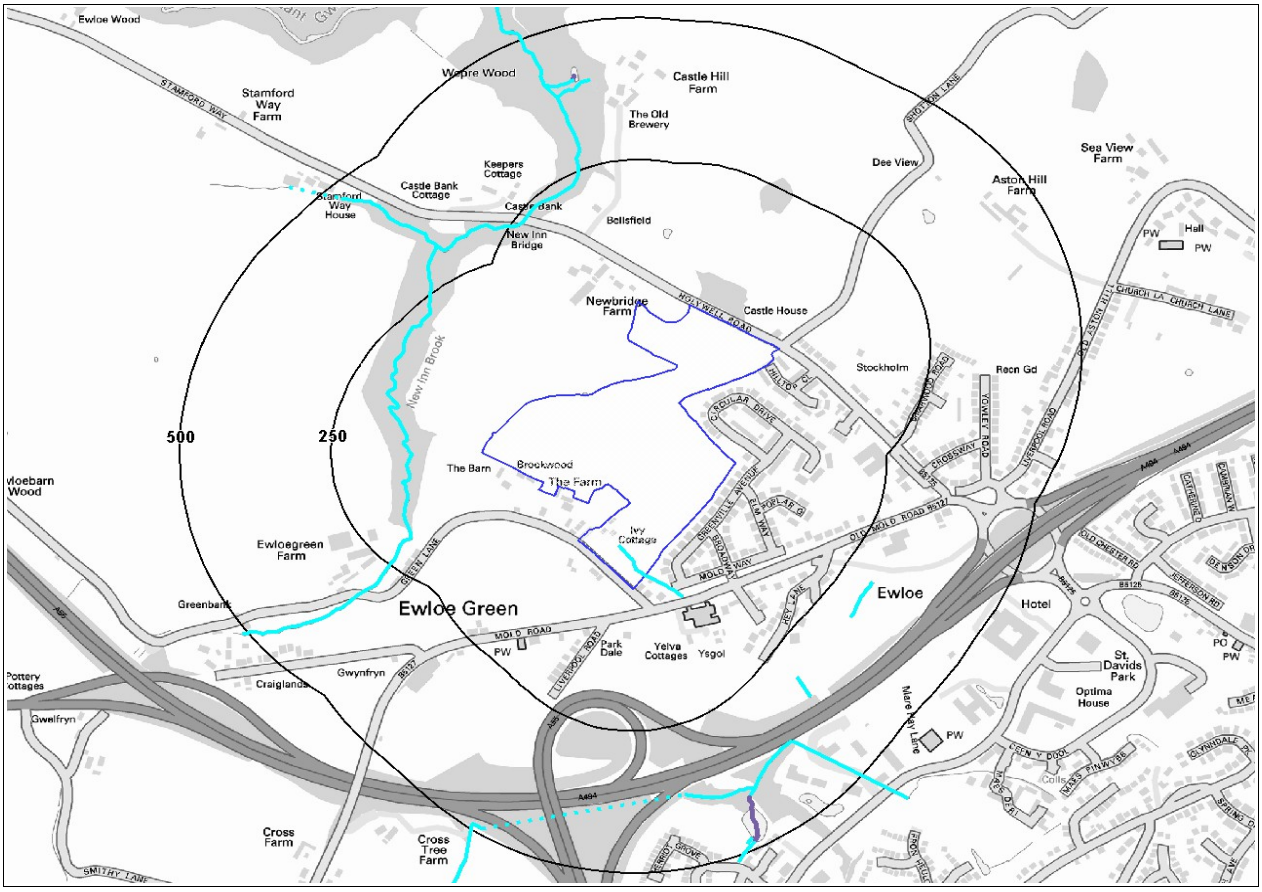
Potable Water Abstraction Licence

6e. Hydrology – Watercourse Network and River Quality

NW N NE

W E

SW S SE



Site Outline

250
500
Search Buffers (m)

Watercourse type

- Tidal River
- Inland River
- Canal
- Lock or Flight of Locks
- Lake, Reservoir, or Marsh
- Foreshore
- Drain or Transfer

Watercourse level

- On ground surface
- Underground or Elevated
- Level unknown

- General Quality Assessment: Biology
- General Quality Assessment: Chemistry

6.Hydrogeology and Hydrology

6.1 Aquifer within Superficial Deposits

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

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

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

ID	Distance (m)	Direction	Designation	Description
9	0	On Site	Secondary (undifferentiated)	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
10	0	On Site	Secondary (undifferentiated)	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
1	24	N	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
2	131	W	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
19	241	NW	Unknown (lakes+landslip)	Unknown
23	292	NE	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
3	486	NW	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

6.2 Aquifer within Bedrock Deposits

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

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

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

ID	Distance (m)	Direction	Designation	Description
1	0	On Site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
3	244	NW	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

ID	Distance (m)	Direction	Designation	Description
				in different locations due to the variable characteristics of the rock type

6.3 Groundwater Abstraction Licences

Groundwater Abstraction Licences within 2000m of the study site — Identified

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

ID	Distance (m)	Direction	NGR	Details	
8A	315	N	329080 367320	Status: Historical Licence No: 24/67/10/0126 Details: Water Bottling Direct Source: EAW Groundwater Point: 50M DEEP, 200MM DIA. BOREHOLE Data Type: Point Name: Grant-Findlay	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 07/06/1996 Expiry Date: - Issue No: 100 Version Start Date: 07/06/1996 Version End Date:
9A	315	N	329080 367320	Status: Historical Licence No: 24/67/10/0136 Details: Water Bottling Direct Source: EAW Groundwater Point: 50M DEEP, 200MM DIA. BOREHOLE Data Type: Point Name: Grant-Findlay	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 17/07/2001 Expiry Date: 17/07/2004 Issue No: 1 Version Start Date: 01/04/2003 Version End Date:

6.4 Surface Water Abstraction Licences

Surface Water Abstraction Licences within 2000m of the study site — Identified

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

ID	Distance (m)	Direction	NGR	Details	
Not shown	1783	SE	330770 365730	Status: Historical Licence No: 24/67/10/0065 Details: Spray Irrigation - Direct Direct Source: EAW Surface Water Point: GROOMSDALE BROOK Data Type: Point Name: Hawarden Golf Club Ltd	Annual Volume (m^3): - Max Daily Volume (m^3): - Application No: - Original Start Date: 06/06/1967 Expiry Date: - Issue No: 100 Version Start Date: 01/04/2004 Version End Date:
Not shown	1966	SE	330850 365520	Status: Historical Licence No: WA/067/0010/014 Details: Spray Irrigation - Direct Direct Source: EAW Surface Water Point: RESERVOIR AT HAWARDEN GOLF CLUB Data Type: Point Name: Hawarden Golf Club Limited	Annual Volume (m^3): 2000 Max Daily Volume (m^3): 30 Application No: - Original Start Date: 01/04/2015 Expiry Date: 31/03/2027 Issue No: 1 Version Start Date: 01/04/2015 Version End Date:
Not shown	1966	SE	330850 365520	Status: Historical Licence No: 24/67/10/0065	Annual Volume (m^3): 2000 Max Daily Volume (m^3): 30

ID	Distance (m)	Direction	NGR	Details	
				Details: Spray Irrigation - Direct Direct Source: EAW Surface Water Point: SURFACE WATER RESERVOIR AT HAWARDEN GOLF CLUB Data Type: Point Name: Hawarden Golf Club Ltd	Application No: - Original Start Date: 06/06/1967 Expiry Date: - Issue No: 102 Version Start Date: 19/10/2005 Version End Date:
Not shown	1966	SE	330850 365520	Status: Historical Licence No: 24/67/10/0162 Details: Spray Irrigation - Direct Direct Source: EAW Surface Water Point: SURFACE WATER RESERVOIR AT HAWARDEN GOLF CLUB Data Type: Point Name: Hawarden Golf Club Ltd	Annual Volume (m^3): 2000 Max Daily Volume (m^3): 30 Application No: - Original Start Date: 01/04/2008 Expiry Date: 31/03/2015 Issue No: 2 Version Start Date: 17/05/2010 Version End Date:

6.5 Potable Water Abstraction Licences

Potable Water Abstraction Licences within 2000m of the study site — Identified

The following Potable Water Abstraction Licences records are represented as points, lines and regions on the SPZ and Potable Water Abstraction Licences Map (6c):

ID	Distance (m)	Direction	NGR	Details	
1A	315	N	329080 367320	Status: Historical Licence No: 24/67/10/0126 Details: Water Bottling Direct Source: EAW Groundwater Point: 50M DEEP, 200MM DIA. BOREHOLE Data Type: Point Name: Grant-Findlay	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 07/06/1996 Expiry Date: - Issue No: 100 Version Start Date: Version End Date:
2A	315	N	329080 367320	Status: Historical Licence No: 24/67/10/0136 Details: Water Bottling Direct Source: EAW Groundwater Point: 50M DEEP, 200MM DIA. BOREHOLE Data Type: Point Name: Grant-Findlay	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 17/07/2001 Expiry Date: 17/07/2004 Issue No: 1 Version Start Date: Version End Date:

6.6 Source Protection Zones

Source Protection Zones within 500m of the study site — None identified

Database searched and no data found.

6.7 Source Protection Zones within Confined Aquifer

Source Protection Zones within the Confined Aquifer within 500m of the study site None identified

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

Database searched and no data found.

6.8 Groundwater Vulnerability and Soil Leaching Potential

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

Distance (m)	Direction	Classification	Soil Vulnerability Category	Description
0	On Site	Minor Aquifer/Low Leaching Potential	L	Soils in which pollutants are unlikely to penetrate the soil layer because either water movement is largely horizontal, or they have the ability to attenuate diffuse pollutants.
486	NE	Minor Aquifer/High Leaching Potential	H2	Deep, permeable, coarse textured soils which readily transmit a wide range of pollutants because of their rapid drainage and low attenuation potential.

6.9 River Quality

Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site Identified

6.9.1 Biological Quality:

Biological Quality data describes water quality in terms of 83 groups of macroinvertebrates, some of which are pollution sensitive. The results are graded from A ('Very Good') to F ('Bad').

The following Biological Quality records are shown on the Hydrology Map (6e):

ID	Distance (m)	Direction	NGR	River Quality Grade	Biological Quality Grade				
					2005	2006	2007	2008	2009
Not shown	1392	NW	327700 367500	River Name: Wepre Brook Reach: Tidal Limit - Conf. Alltami Brook End/Start of Stretch: Start of Stretch NGR	B	B	B	B	B

6.9.2 Chemical Quality:

Chemical quality data is based on the General Quality Assessment Headline Indicators scheme (GQAHI). In England, each chemical sample is measured for ammonia and dissolved oxygen. In Wales, the samples are measured for biological oxygen demand (BOD), ammonia and dissolved oxygen. The results are graded from A ('Very Good') to F ('Bad').

The following Chemical Quality records are shown on the Hydrology Map (6e):

ID	Distance (m)	Direction	NGR	River Quality Grade	Chemical Quality Grade				
					2005	2006	2007	2008	2009
Not shown	1392	NW	327700 367500	River Name: Wepre Brook Reach: Tidal Limit - Conf. Alltami Brook End/Start of Stretch: Start of Stretch NGR	B	B	B	B	-

6.10 Ordnance Survey MasterMap Water Network

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

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

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

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
1	0 On Site	-	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
2	0 On Site	-	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
3	0 On Site	-	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
8	0 On Site	-	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
9	0 On Site	-	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
10	0 On Site	-	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
4	25 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
11	25 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
5	28 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
12	28 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
6	117 W	New Inn Brook	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.8
13	117 W	New Inn Brook	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.8
7	229 NW	New Inn Brook	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
14	229	New Inn Brook	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: On ground surface

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
	NW			Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
8	300 SW	New Inn Brook	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
15	300 SW	New Inn Brook	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
9	302 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
16	302 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
10	308 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 0.8
17	308 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 0.8
11	314 NW	-	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
18	314 NW	-	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
12	324 SW	New Inn Brook	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.7
19	324 SW	New Inn Brook	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.7
13	357 SW	New Inn Brook	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.6
20	357 SW	New Inn Brook	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions)

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
				Average Width in Watercourse Section (m): 1.6
14	371 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: Not provided Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	371 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: Not provided Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
15	372 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	372 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
16	373 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.2
Not shown	373 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.2
17	374 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	374 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
18	383 N	-	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
19	383 N	New Inn Brook	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.8
Not shown	383 N	-	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	383 N	New Inn Brook	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.8

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
20	401 N	-	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	401 N	-	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
21	404 N	-	Lake, loch or reservoir.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 9.3
22	404 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	404 N	-	Lake, loch or reservoir.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 9.3
Not shown	404 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
23	410 N	New Inn Brook	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.5
Not shown	410 N	New Inn Brook	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.5
24	412 SE	-	Lake, loch or reservoir.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 16.7
Not shown	412 SE	-	Lake, loch or reservoir.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 16.7
25	474 NW	-	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: Not provided Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
32	474 NW	-	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: Not provided Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
26	479	-	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: On ground surface

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
	SE			Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
27	479 SE	-	Lake, loch or reservoir.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 16.7
Not shown	479 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	479 SE	-	Lake, loch or reservoir.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 16.7
28	485 SE	-	Lake, loch or reservoir.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.3
Not shown	485 SE	-	Lake, loch or reservoir.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.3
29	487 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	487 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
30	490 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.5
Not shown	490 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.5
31	493 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	493 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
32	495 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions)

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
				Average Width in Watercourse Section (m): 1.7
Not shown	495 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Dee Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.7

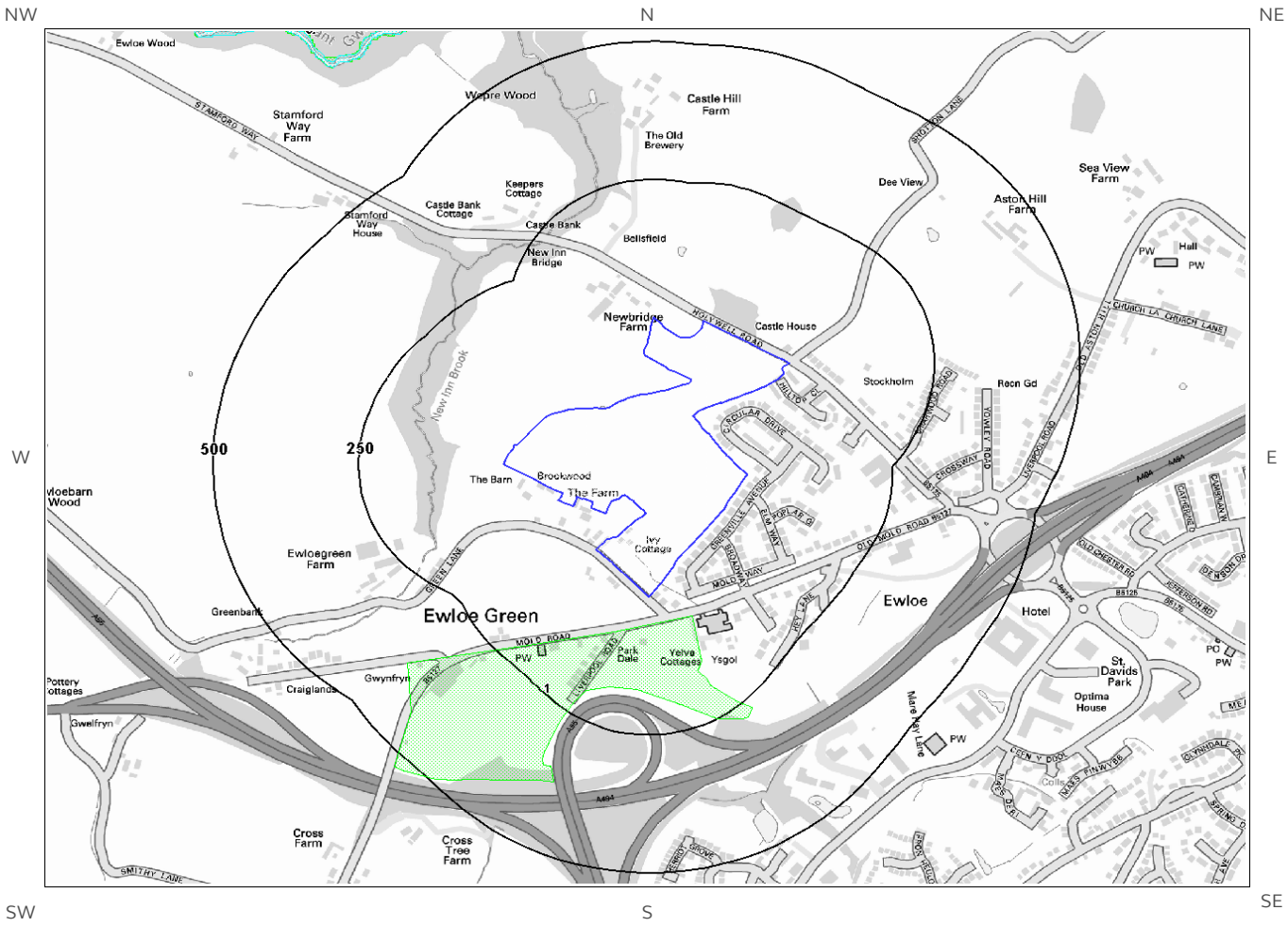
6.11 Surface Water Features

Surface water features within 250m of the study site Identified

The following surface water records are not represented on mapping:

Distance (m)	Direction
0	On Site
0	On Site
28	SE
116	W
228	NW
236	SW

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



Site Outline

100
250
Search Buffers (m)

Zone 2 Floodplain

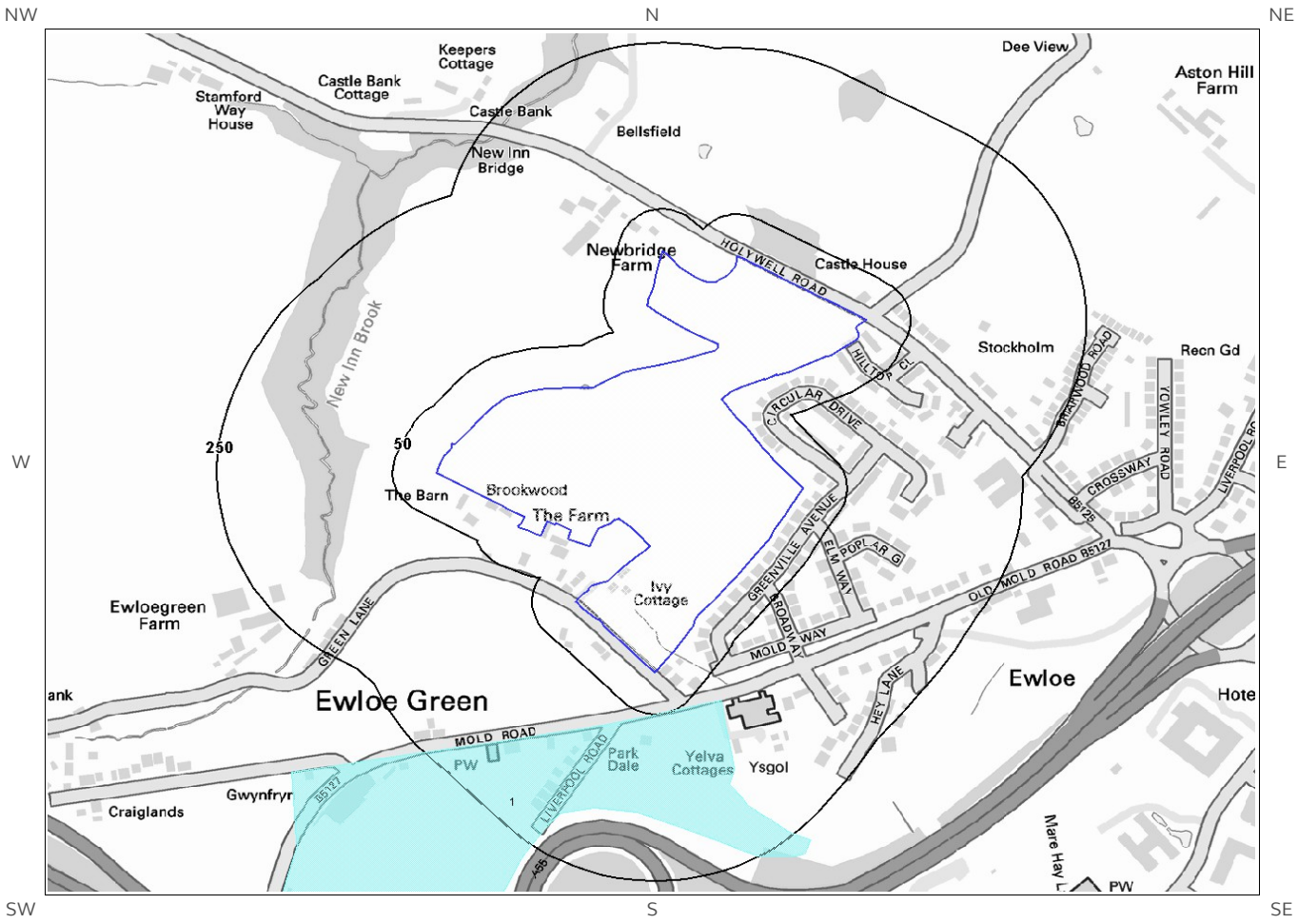
Zone 3 Floodplain

Flood Defences

Area used for Flood Storage

Area Benefiting from Flood Defences

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



Site Outline

100
250
Search Buffers (m)

RoFRaS Rating

- Very Low
- Low
- Medium
- High

7 Flooding

7.1 River and Coastal Zone 2 Flooding

Environment Agency/Natural Resources Wales Zone 2 floodplain within 250m — Identified

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

ID	Distance (m)	Direction	Update	Type
1	48	S	20-Jun-2019	Zone 2 - (Fluvial /Tidal Models)

7.2 River and Coastal Zone 3 Flooding

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

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

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

Highest risk of flooding onsite — Very Low

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

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

Any relevant data within 250m is represented on the RoFRaS Flood map. Data to 50m is reported in the table below.

ID	Distance (m)	Direction	RoFRas flood Risk
1	49.0	S	Low

7.4 Flood Defences

Flood Defences within 250m of the study site — None identified

Database searched and no data found.

7.5 Areas benefiting from Flood Defences

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

7.6 Areas benefiting from Flood Storage

Areas used for Flood Storage within 250m of the study site — None identified

7.7 Groundwater Flooding Susceptibility Areas

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

Clearwater Flooding or Superficial Deposits Flooding — Superficial Deposits Flooding

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

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

Potential at Surface

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

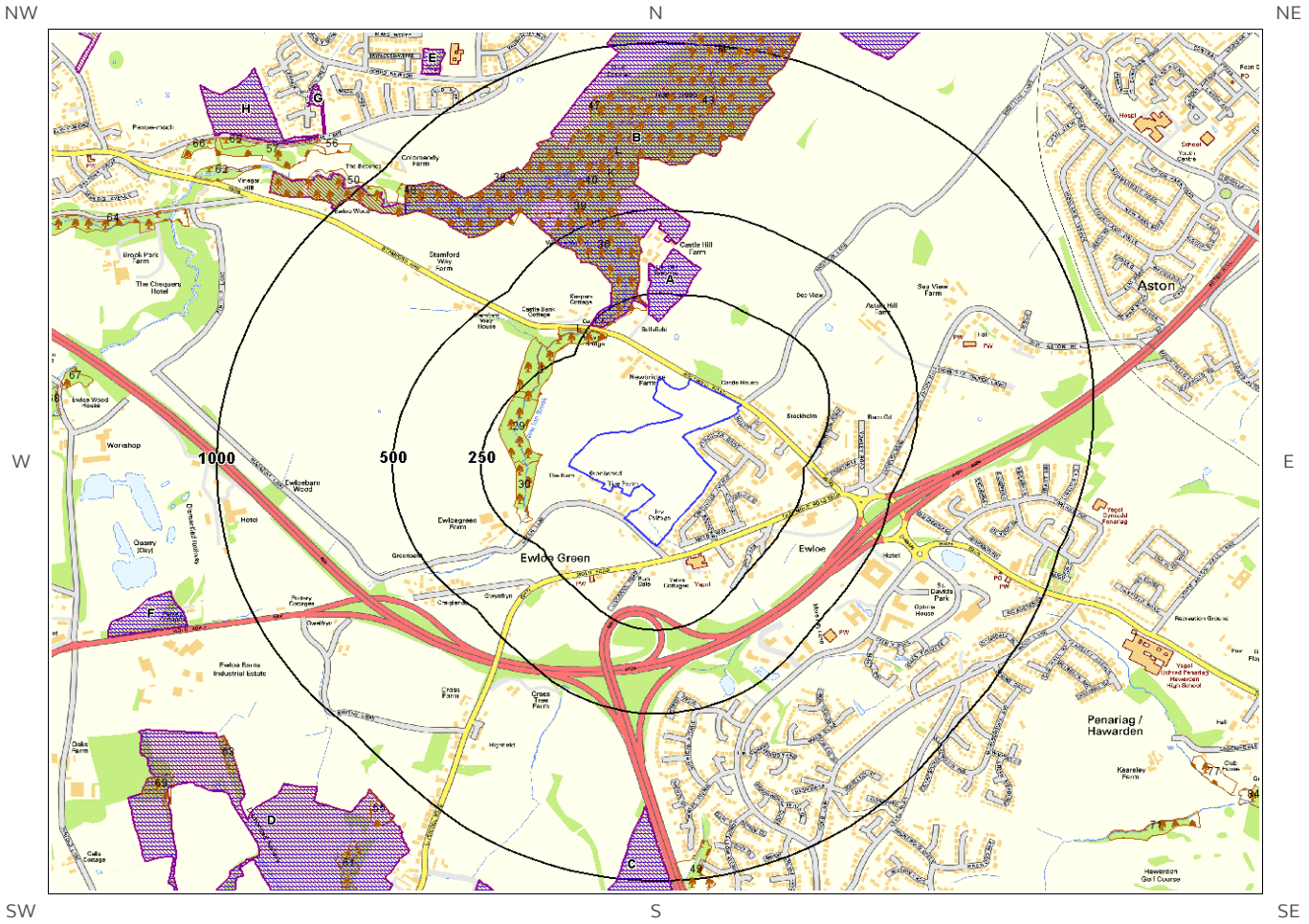
7.8 Groundwater Flooding Confidence Areas

British Geological Survey confidence rating in this result — High

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

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

8. Designated Environmentally Sensitive Sites Map



Site Outline

100
250
Search Buffers (m)

AONB

National Park

SSSI

Special Protection Areas

Nitrate Vulnerable Zones

Green Belt

Environmentally Sensitive Areas

Special Areas of Conservation

World Heritage Sites

Nitrate Sensitive Areas

Ancient Woodland

National Nature Reserve

Local Nature Reserves

Ramsar Sites

8. Designated Environmentally Sensitive Sites

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

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

13

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

ID	Distance (m)	Direction	SSSI Name	Data Source
14A	166	N	CONNAH'S QUAY PONDS AND WOODLAND	Natural Resources Wales
15B	212	NW	CONNAH'S QUAY PONDS AND WOODLAND	Natural Resources Wales
16C	778	S	BUCKLEY CLAYPITS AND COMMONS	Natural Resources Wales
17D	1088	SW	BUCKLEY CLAYPITS AND COMMONS	Natural Resources Wales
18E	1098	NW	CONNAH'S QUAY PONDS AND WOODLAND	Natural Resources Wales
19F	1178	W	BUCKLEY CLAYPITS AND COMMONS	Natural Resources Wales
20G	1186	NW	CONNAH'S QUAY PONDS AND WOODLAND	Natural Resources Wales
21H	1192	NW	CONNAH'S QUAY PONDS AND WOODLAND	Natural Resources Wales
22	1286	N	CONNAH'S QUAY PONDS AND WOODLAND	Natural Resources Wales
Not shown	1286	SW	BUCKLEY CLAYPITS AND COMMONS	Natural Resources Wales
Not shown	1706	N	CONNAH'S QUAY PONDS AND WOODLAND	Natural Resources Wales
Not shown	1757	N	CONNAH'S QUAY PONDS AND WOODLAND	Natural Resources Wales
Not shown	1999	S	BUCKLEY CLAYPITS AND COMMONS	Natural Resources Wales

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

0

Database searched and no data found.

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

13

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

ID	Distance (m)	Direction	SAC Name	Data Source
1A	166	N	Deeside and Buckley Newt sites	Natural Resources Wales
2B	212	NW	Deeside and Buckley Newt sites	Natural Resources Wales
3C	778	S	Deeside and Buckley Newt sites	Natural Resources Wales
4D	1088	SW	Deeside and Buckley Newt sites	Natural Resources Wales
5E	1098	NW	Deeside and Buckley Newt sites	Natural Resources Wales
6F	1178	W	Deeside and Buckley Newt sites	Natural Resources Wales
7G	1186	NW	Deeside and Buckley Newt sites	Natural Resources Wales
8H	1192	NW	Deeside and Buckley Newt sites	Natural Resources Wales
Not shown	1286	N	Deeside and Buckley Newt sites	Natural Resources Wales
Not shown	1286	SW	Deeside and Buckley Newt sites	Natural Resources Wales
Not shown	1706	N	Deeside and Buckley Newt sites	Natural Resources Wales
Not shown	1757	N	Deeside and Buckley Newt sites	Natural Resources Wales
Not shown	1999	S	Deeside and Buckley Newt sites	Natural Resources Wales

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

61

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

ID	Distance (m)	Direction	Ancient Woodland Name	Data Source
29	83	W	UNKNOWN	Restored Ancient Woodland Site
30	89	W	UNKNOWN	Ancient and Semi-Natural Woodland
31I	192	NW	UNKNOWN	Restored Ancient Woodland Site
32J	192	NW	UNKNOWN	Restored Ancient Woodland Site
33I	196	NW	UNKNOWN	Restored Ancient Woodland Site
34	205	N	UNKNOWN	Restored Ancient Woodland Site
35J	221	NW	UNKNOWN	Ancient Replanted Woodland
36	233	NW	UNKNOWN	Restored Ancient Woodland Site
37K	517	N	UNKNOWN	Ancient Replanted Woodland
38	528	NW	UNKNOWN	Ancient and Semi-Natural Woodland
39	548	NW	UNKNOWN	Restored Ancient Woodland Site
40	610	N	UNKNOWN	Restored Ancient Woodland Site
41	614	NW	UNKNOWN	Ancient and Semi-Natural Woodland
42K	621	N	UNKNOWN	Restored Ancient Woodland Site
43	634	N	UNKNOWN	Restored Ancient Woodland Site
44L	681	N	UNKNOWN	Restored Ancient Woodland Site
45L	710	N	UNKNOWN	Restored Ancient Woodland Site
46M	776	N	UNKNOWN	Ancient and Semi-Natural Woodland
47	798	N	UNKNOWN	Ancient and Semi-Natural Woodland
48	850	NW	UNKNOWN	Ancient and Semi-Natural Woodland
49	886	S	UNKNOWN	Ancient and Semi-Natural Woodland
50	916	NW	UNKNOWN	Ancient and Semi-Natural Woodland
51M	977	N	UNKNOWN	Ancient Replanted Woodland
52	1018	N	UNKNOWN	Ancient Replanted Woodland
Not shown	1045	S	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	1071	N	UNKNOWN	Ancient and Semi-Natural Woodland
55	1088	SW	UNKNOWN	Restored Ancient Woodland Site
56	1103	NW	UNKNOWN	Restored Ancient Woodland Site
57	1139	NW	UNKNOWN	Restored Ancient Woodland

ID	Distance (m)	Direction	Ancient Woodland Name	Data Source
				Site
Not shown	1160	S	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	1178	N	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	1194	N	UNKNOWN	Ancient and Semi-Natural Woodland
61	1225	SW	UNKNOWN	Restored Ancient Woodland Site
62	1240	NW	UNKNOWN	Ancient and Semi-Natural Woodland
63	1270	SW	UNKNOWN	Ancient and Semi-Natural Woodland
64	1291	NW	UNKNOWN	Restored Ancient Woodland Site
65	1296	NW	UNKNOWN	Ancient and Semi-Natural Woodland
66	1354	NW	UNKNOWN	Restored Ancient Woodland Site
67	1375	W	UNKNOWN	Ancient and Semi-Natural Woodland
68	1449	W	UNKNOWN	Ancient and Semi-Natural Woodland
69	1451	SW	UNKNOWN	Restored Ancient Woodland Site
Not shown	1452	N	UNKNOWN	Ancient and Semi-Natural Woodland
71	1539	SE	UNKNOWN	Restored Ancient Woodland Site
Not shown	1550	N	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	1556	SW	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	1560	W	UNKNOWN	Restored Ancient Woodland Site
Not shown	1561	NW	UNKNOWN	Restored Ancient Woodland Site
Not shown	1589	N	UNKNOWN	Restored Ancient Woodland Site
77	1599	SE	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	1660	W	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	1660	W	UNKNOWN	Restored Ancient Woodland Site
Not shown	1665	NW	UNKNOWN	Restored Ancient Woodland Site
Not shown	1673	NW	UNKNOWN	Restored Ancient Woodland Site
Not shown	1685	N	UNKNOWN	Restored Ancient Woodland Site
Not shown	1707	W	UNKNOWN	Restored Ancient Woodland Site

ID	Distance (m)	Direction	Ancient Woodland Name	Data Source
84	1764	SE	UNKNOWN	Ancient Replanted Woodland
Not shown	1849	W	UNKNOWN	Restored Ancient Woodland Site
Not shown	1868	W	UNKNOWN	Restored Ancient Woodland Site
Not shown	1906	W	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	1942	W	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	2000	SE	UNKNOWN	Ancient Replanted Woodland

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

2

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

ID	Distance (m)	Direction	LNR Name	Data Source
Not shown	1424	NW	GATHERING GROUNDS WOODS & LLWYNI POND	Natural Resorces Wales
Not shown	1530	N	GATHERING GROUNDS WOODS & LLWYNI POND	Natural Resorces Wales

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

9. Natural Hazards Findings

9.1 Detailed BGS GeoSure Data

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

9.1.1 Shrink Swell

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

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

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

9.1.2 Landslides

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

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

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

9.1.3 Soluble Rocks

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

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

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

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

9.1.4 Compressible Ground

Maximum Compressible Ground* hazard rating identified on the study site — Negligible

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

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

9.1.5 Collapsible Rocks

Maximum Collapsible Rocks* hazard rating identified on the study site — Very Low

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

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

9.1.6 Running Sand

Maximum Running Sand*[*] hazard rating identified on the study site — Very Low

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

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

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

9.2 Radon

9.2.1 Radon Affected Areas

Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The site is in a Radon Affected Area, as greater than 30% of properties are above the Action Level.

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

9.2.2 Radon Protection

Is the property in an area where Radon Protection are required for new properties or extensions to existing
ones as described in publication BR211 by the Building Research Establishment? Full radon protective measures are necessary.

10. Mining

10.1 Coal Mining

Coal mining areas within 75m of the study site — Identified

The following coal mining information provided by the Coal Authority is not represented on Mapping:

Distance (m)	Direction	Details
0	On Site	The site lies in or in proximity to the coal mining reporting area as defined by the Coal Authority

10.2 Non-Coal Mining

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

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

Distance (m)	Direction	Name	Commodity	Assessment of likelihood
0.0	On Site	Not available	Iron Ore (Bedded)	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered

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

10.3 Brine Affected Areas

Brine affected areas within 75m of the study site — None identified
Guidance: No Guidance Required.

Contact Details

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

British Geological Survey Enquiries
Kingsley Dunham Centre
Keyworth, Nottingham NG12 5GG
Tel: 0115 936 3143.
Fax: 0115 936 3276.
Email:
Web:**www.bgs.ac.uk**
BGS Geological Hazards Reports and general geological enquiries:
enquiries@bgs.ac.uk

Natural Resources Wales
Ty Cambria
29 Newport Road
Cardiff
CF24 0TP
Tel: 0300 065 3000
Email: enquiries@naturalresourceswales.gov.uk

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

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

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

Local Authority
Authority: Sir y Fflint - Flintshire County Council
Phone: 01352 752 121
Web: http://www.flintshire.gov.uk
Address: County Hall, Mold, Flintshire, CH7 6NB

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

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

Standard Terms and Conditions

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

https://www.groundsure.com/terms-and-conditions-feb11-2019

Groundsure
LOCATION INTELLIGENCE

ID Geoenvironmental Limited

CALEDONIAN HOUSE, TATTON STREET,
KNUTSFORD, WA16 6AG

Groundsure Reference:	GS-6222584
Your Reference:	5022
Report Date	6 Aug 2019
Report Delivery Method:	Email - pdf

Geo Insight

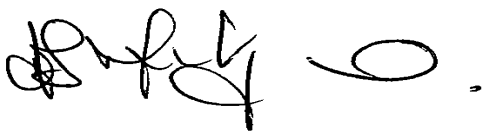
Address: HOLYWELL ROAD, EWLOE GREEN, CH5 3BS

Dear Sir/ Madam,

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

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

Yours faithfully,



Managing Director
Groundsure Limited

Enc.
Groundsure Geo Insight

Geo Insight

Address:	**HOLYWELL ROAD, EWLOE GREEN, CH5 3BS**
Date:	**6 Aug 2019**
Reference:	**GS-6222584**
Client:	**ID Geoenvironmental Limited**

NW N NE

W E

SW S SE

Aerial Photograph Capture date:	07-May-2017
Grid Reference:	329042,366739
Site Size:	9.9967ha

Groundsure
LOCATION INTELLIGENCE

Contents Page

Overview of Findings

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

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

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

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

Section 2: Geology 1:50,000 Scale		
2.1 Artificial Ground	2.1.1 Is there any Artificial Ground/ Made Ground present beneath the study site?	No
	2.1.2 Are there any records relating to permeability of artificial ground within the study site*boundary?	No
2.2 Superficial Geology and Landslips	2.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site?*	Yes
	2.2.2 Are there any records of permeability of superficial ground within 500m of the study site?	Yes
	2.2.3 Are there any records of landslip within 500m of the study site boundary?	Yes
	2.2.4 Are there any records relating to permeability of landslips within the study site* boundary?	No

Section 2: Geology 1:50,000 Scale

2.3 Bedrock, Solid Geology and linear features	2.3.1 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.	
	2.3.2 Are there any records relating to permeability of bedrock ground within the study site boundary?	Yes
	2.3.3 Are there any records of linear features within 500m of the study site boundary?	Yes

Section 3: Radon

3. Radon	3.1Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?	The property is in a Radon Affected Area, as greater than 30% of properties are above the Action Level.
	3.2Radon Protection	Full radon protective measures are necessary.

Section 4: Ground Workings	On-site	0-50m	51-250	251-500	501-1000
4.1 Historical Surface Ground Working Features from Small Scale Mapping	5	2	40	Not Searched	Not Searched
4.2 Historical Underground Workings from Small Scale Mapping	0	0	5	18	60
4.3 Current Ground Workings	0	0	2	7	16

Section 5: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
5.1 Historical Mining	0	0	5	20	60
5.2 Coal Mining	1	0	0	0	0
5.3 Johnson Poole and Bloomer Mining Area	3	0	1	0	9
5.4 Non-Coal Mining*	1	0	2	0	6
5.5 Non–Coal Mining Cavities	0	0	0	0	0
5.5 Natural Cavities	0	0	0	1	1

Section 5: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
5.6 Brine Extraction	0	0	0	0	0
5.7 Gypsum Extraction	0	0	0	0	0
5.8 Cornwall and Devon Metalliferous Mining	0	0	0	0	0
5.9 Clay Mining	0	0	0	0	0

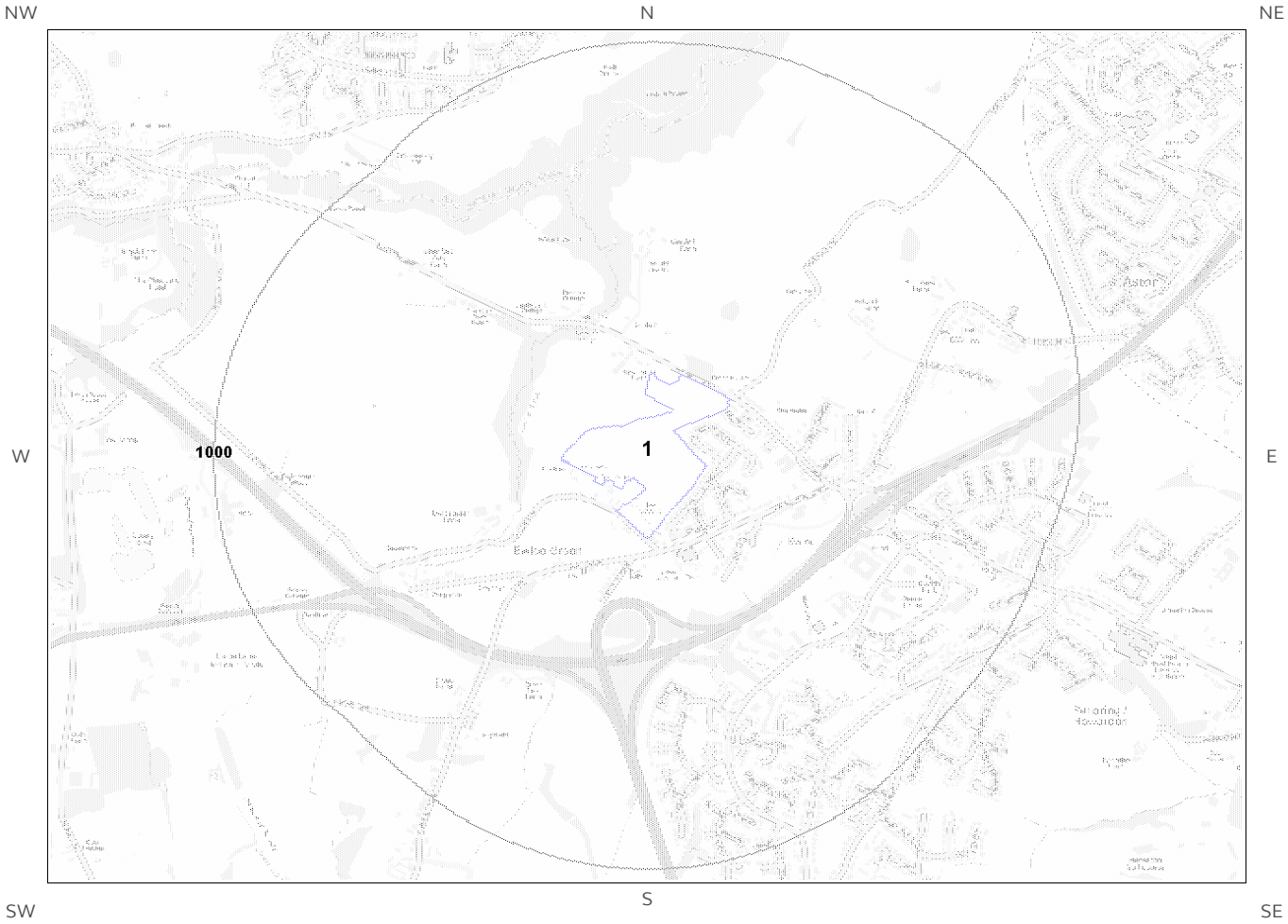
Section 6: Natural Ground Subsidence	On-site
6.1 Shrink-Swell Clay	Very Low
6.2 Landslides	Very Low
6.3 Ground Dissolution of Soluble Rocks	Negligible
6.4 Compressible Deposits	Negligible
6.5 Collapsible Deposits	Very Low
6.5 Running Sand	Very Low

Section 7: Borehole Records	On-site	0-50m	51-250
7 BGS Recorded Boreholes	0	3	29

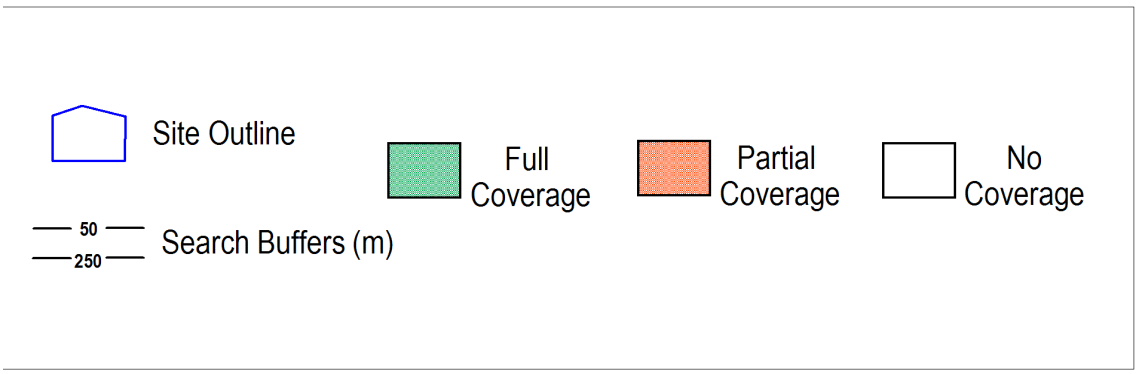
Section 8: Estimated Background Soil Chemistry	On-site	0-50m	51-250
8 Records of Background Soil Chemistry	14	6	0

Section 9: Railways and Tunnels	On-site	0-50m	51-250	250-500
9.1 Tunnels	0	0	0	Not Searched
9.2 Historical Railway and Tunnel Features	0	0	2	Not Searched
9.3 Historical Railways	0	0	0	Not Searched
9.4 Active Railways	0	0	0	Not Searched
9.5 Railway Projects	0	0	0	0

1:10,000 Scale Availability



1_10,000 Availability Legend



Availability of 1:10,000 Scale Geology Mapping

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

ID	Distance	Artificial Coverage	Superficial Coverage	Bedrock Coverage	Mass Movement Coverage
1	0.0	No deposits are mapped	No coverage	No coverage	No coverage

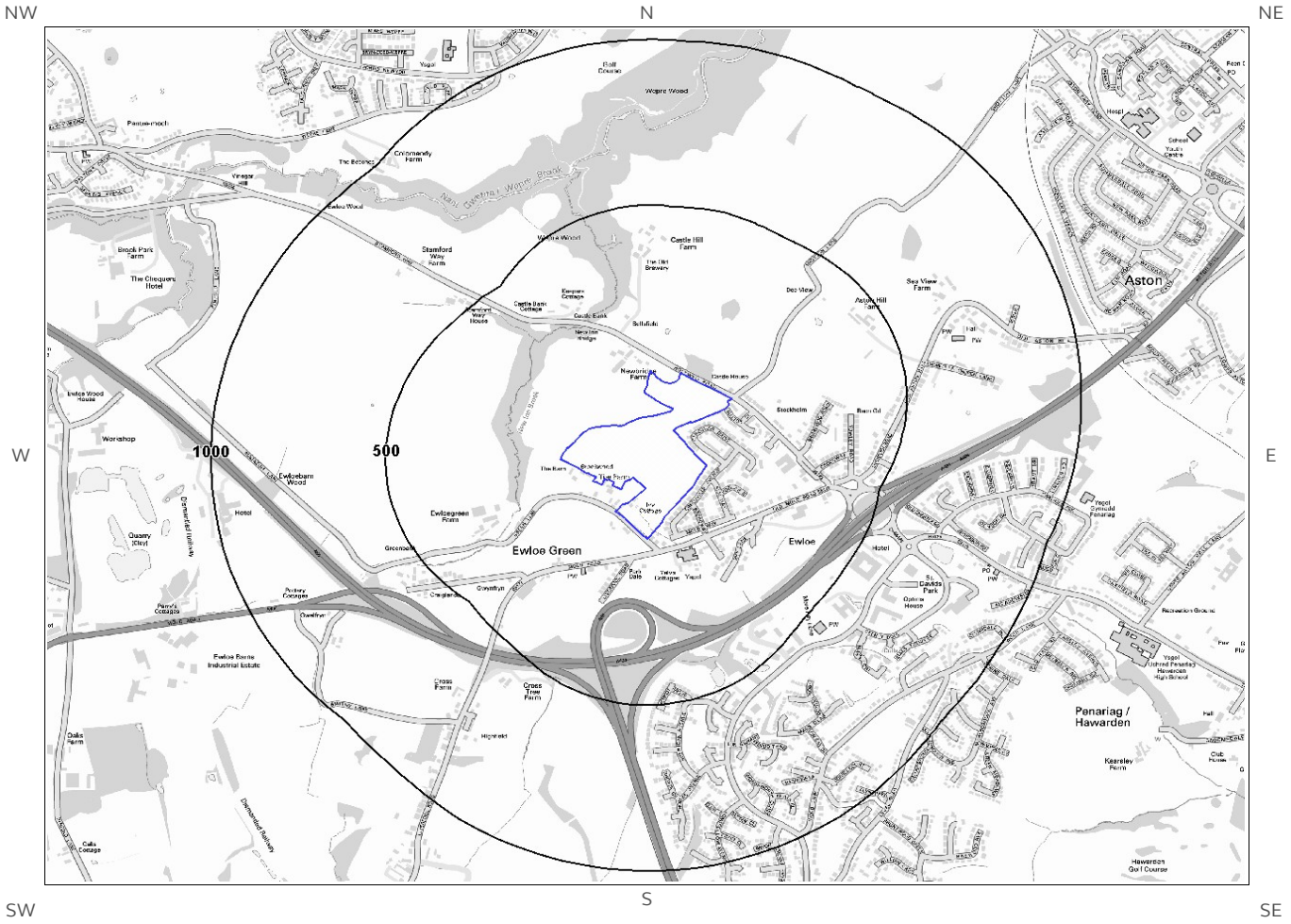
Guidance: The 1:10,000 scale geological interpretation is the most detailed generally available from BGS and is the scale at which most geological surveying is carried out in the field. The database is presented as four types of geology (artificial, mass movement, superficial and bedrock), although not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

The definitions of coverage are as follows:

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

1 Geology (1:10,000 scale).

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



Artificial Ground Legend

Site Outline

500
1000
Search Buffers (m)

Made Ground (undivided)

Disturbed Ground (undivided)

Worked Ground (undivided)

Landscaped Ground (undivided)

Infilled Ground

Reclaimed Ground

1. Geology 1:10,000 scale

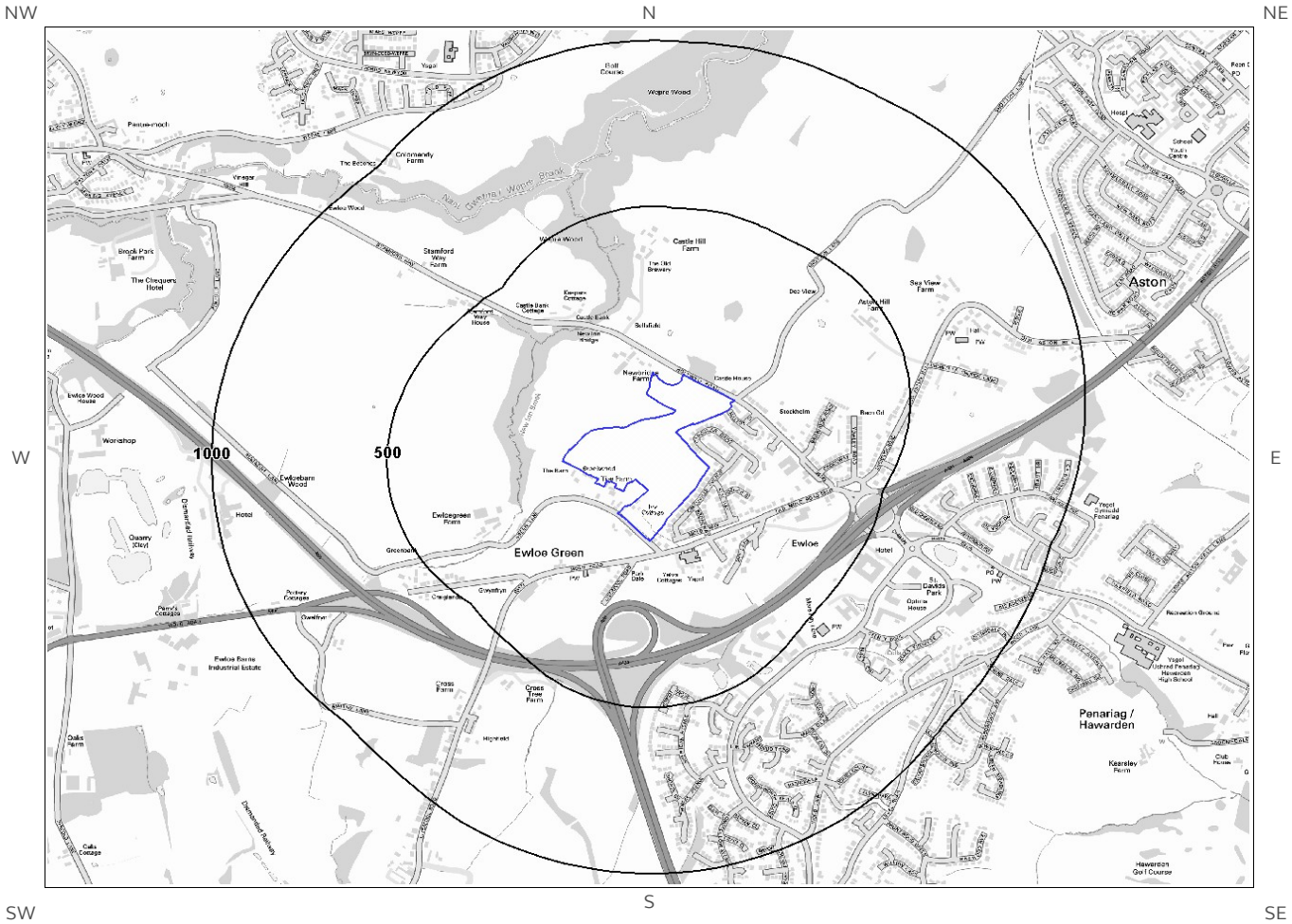
1.1 Artificial Ground

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

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

Database searched and no data found.

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



Artificial Ground Legend

Site Outline

500
1000
Search Buffers (m)

1.2 Superficial Deposits and Landslips

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

1.2.1 Superficial Deposits/ Drift Geology

Are there any records of Superficial Deposits/ Drift Geology within 500m of the study site boundary at 1:10,000 scale? No

Database searched and no data found.

1.2.2 Landslip

Are there any records of Landslip within 500m of the study site boundary at 1:10,000 scale?

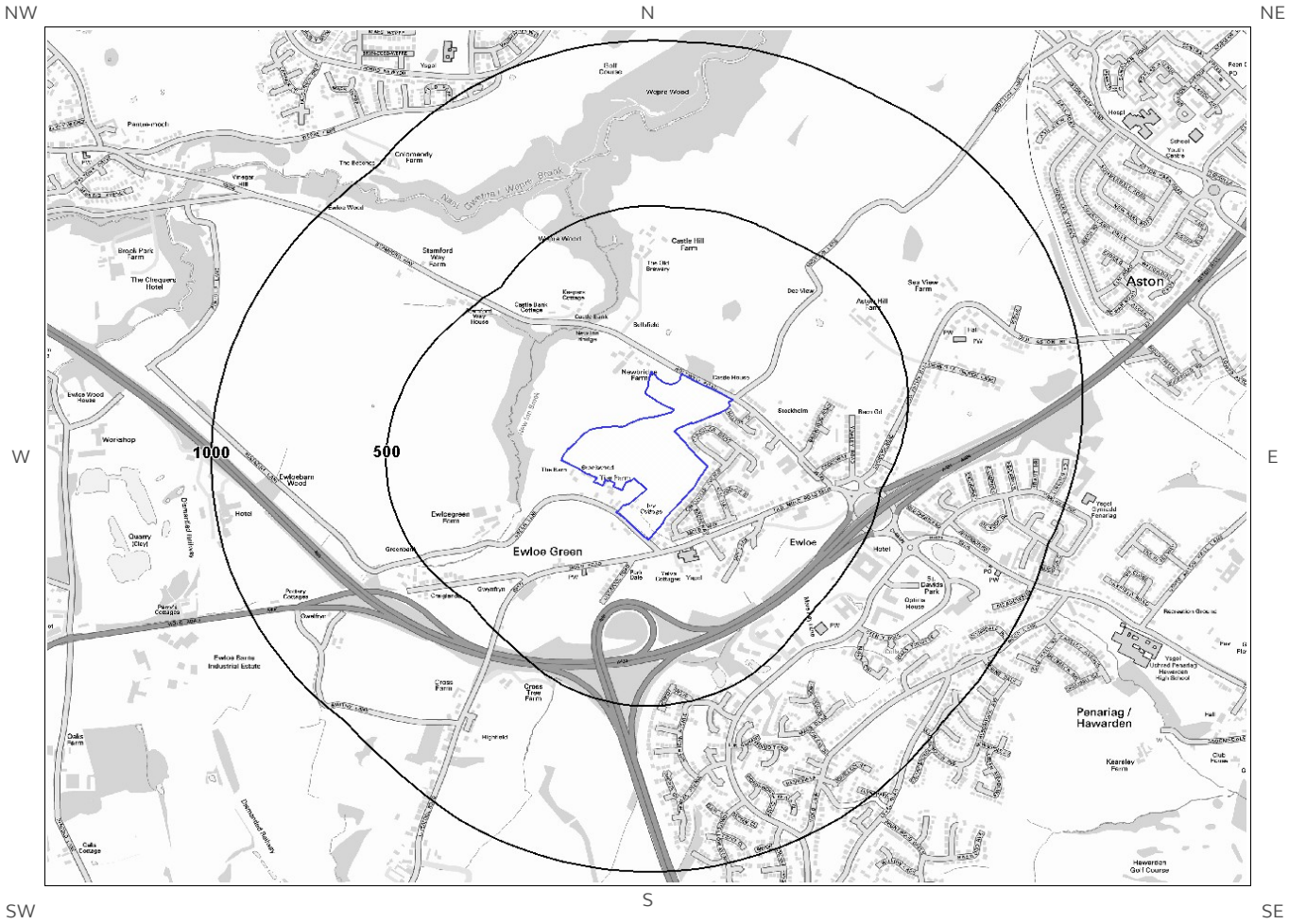
No

Database searched and no data found.

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

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

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



Bedrock and linear features Legend

Site Outline

500
1000
Search Buffers (m)

1.3 Bedrock and linear features

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

1.3.1 Bedrock/ Solid Geology

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

Database searched and no data found at this scale.

1.3.2 Linear features

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

Database searched and no data found at this scale.

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

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

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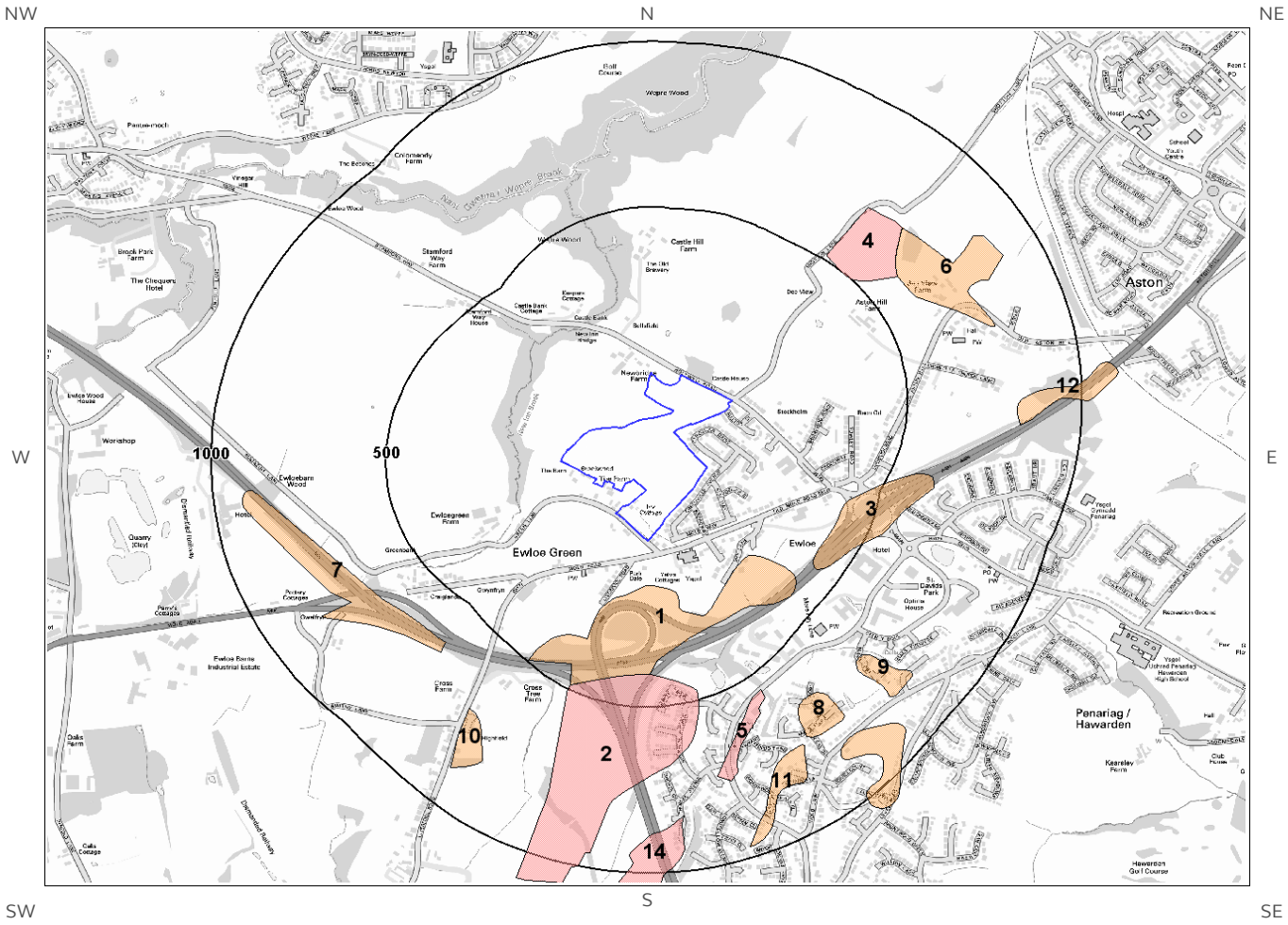
2 Geology 1:50,000 Scale

2.1 Artificial Ground map



Site Outline

500
1000
Search Buffers (m)

Made Ground (undivided)

Disturbed Ground (undivided)

Worked Ground (undivided)

Landscaped Ground (undivided)

Infilled Ground

Reclaimed Ground

2. Geology 1:50,000 scale

2.1 Artificial Ground

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 108

2.1.1 Artificial/ Made Ground

Are there any records of Artificial/ Made Ground within 500m of the study site boundary? Yes

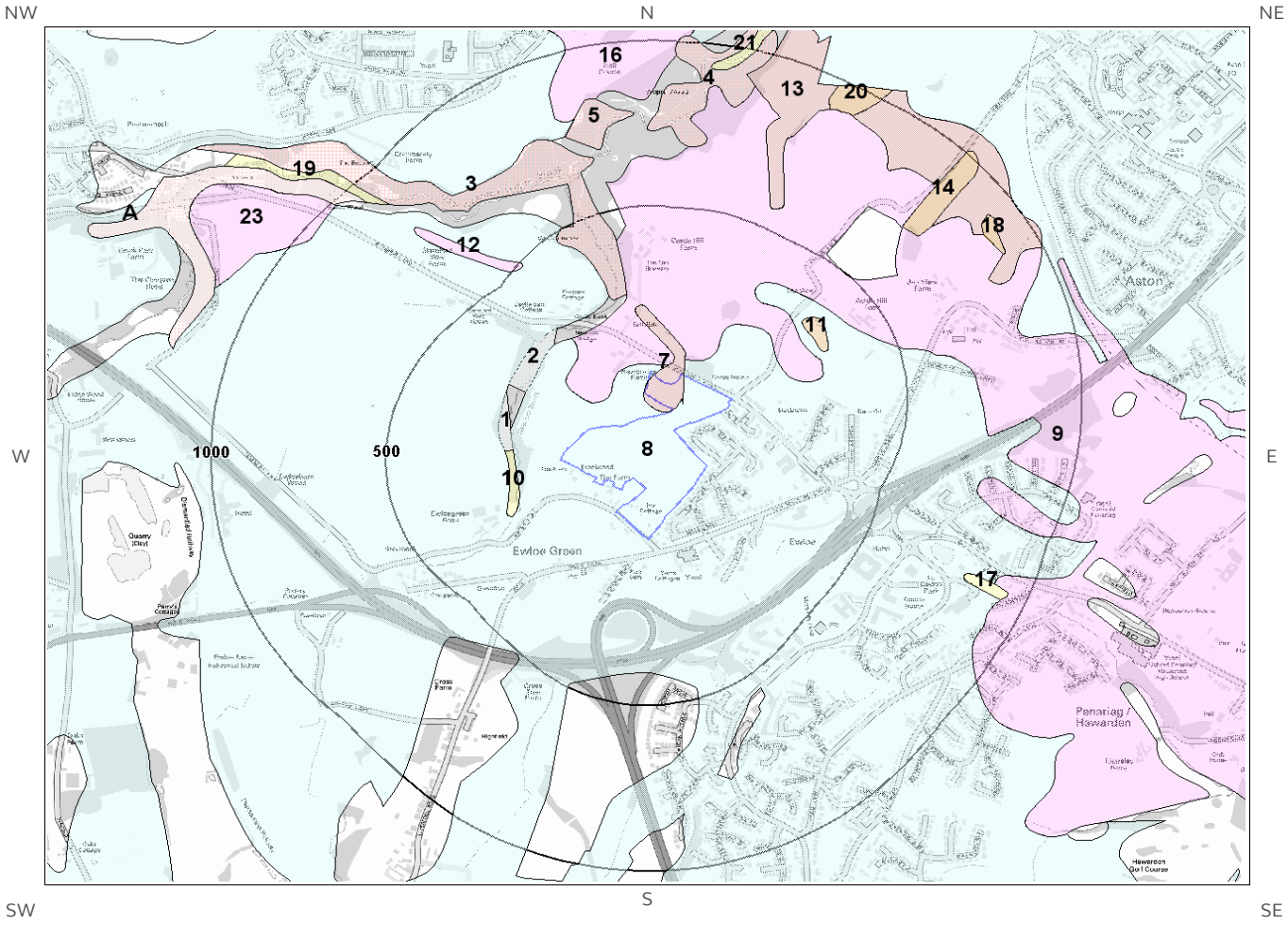
ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	133.0	S	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
2	400.0	S	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT
3	401.0	SE	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
4	498.0	NE	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT

2.1.2 Permeability of Artificial Ground

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

Database searched and no data found.

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



Site Outline

500
1000
Search Buffers (m)

2.2 Superficial Deposits and Landslips

2.2.1 Superficial Deposits/ Drift Geology

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

ID	Distance	Direction	LEX Code	Description	Rock Description
7	0.0	On Site	HEAD-XCZSV	HEAD	CLAY, SILT, SAND AND GRAVEL
8	0.0	On Site	TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON
9	24.0	N	GFDUD-XSV	GLACIOFLUVIAL DEPOSITS, DEVENSIAN	SAND AND GRAVEL
10	131.0	W	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL
11	292.0	NE	LDE-XCZ	LACUSTRINE DEPOSITS	CLAY AND SILT
12	486.0	NW	GFDUD-XSV	GLACIOFLUVIAL DEPOSITS, DEVENSIAN	SAND AND GRAVEL

2.2.2 Permeability of Superficial Ground

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

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

2.2.3 Landslip

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

ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	141.0	W	SLIP-UKNOWN	LANDSLIDE DEPOSITS	UNKNOWN/UNCLASSIFIED ENTRY
2	205.0	NW	SLIP-UKNOWN	LANDSLIDE DEPOSITS	UNKNOWN/UNCLASSIFIED ENTRY
3	241.0	NW	SLIP-UKNOWN	LANDSLIDE DEPOSITS	UNKNOWN/UNCLASSIFIED ENTRY

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

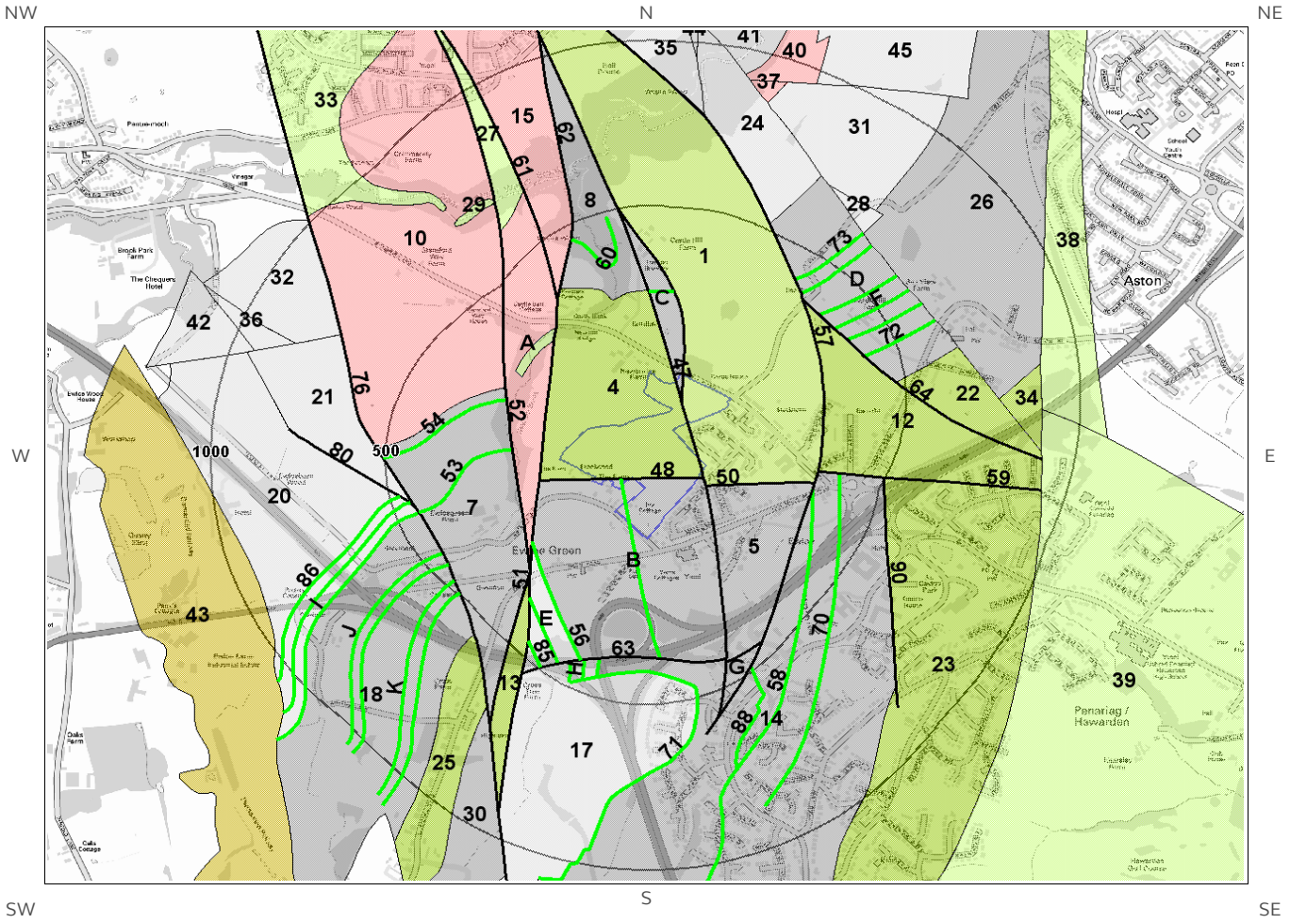
This Geology shows the main components as discrete layers, there are: Artificial/ Made Ground, Superficial/ Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

2.2.4 Landslip Permeability

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

Database searched and no data found.

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



Site Outline

500
1000
Search Buffers (m)

2.3 Bedrock, Solid Geology & linear features

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 108

2.3.1 Bedrock/Solid Geology

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

ID	Distance	Direction	LEX Code	Rock Description	Rock Age
1	0.0	On Site	PMCM-SDST	PENNINE MIDDLE COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
2B	0.0	On Site	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
3C	0.0	On Site	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
4	0.0	On Site	HLR-SDST	HOLLIN ROCK - SANDSTONE	WESTPHALIAN
5	32.0	SE	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
6A	52.0	W	GS-SDAR	GWESPYR SANDSTONE - SANDSTONE AND [SUBEQUAL/SUBORDINATE] ARGILLACEOUS ROCKS, INTERBEDDED	NAMURIAN
7	131.0	W	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
8	241.0	NW	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
9A	244.0	NW	BSG-MDST	BOWLAND SHALE FORMATION - MUDSTONE	VISEAN
10	252.0	NW	GS-SDAR	GWESPYR SANDSTONE - SANDSTONE AND [SUBEQUAL/SUBORDINATE] ARGILLACEOUS ROCKS, INTERBEDDED	NAMURIAN
11E	253.0	SW	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
12	265.0	E	HLR-SDST	HOLLIN ROCK - SANDSTONE	WESTPHALIAN
13	306.0	SW	HLR-SDST	HOLLIN ROCK - SANDSTONE	WESTPHALIAN
14	311.0	E	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
15	342.0	NW	GS-SDAR	GWESPYR SANDSTONE - SANDSTONE AND [SUBEQUAL/SUBORDINATE] ARGILLACEOUS ROCKS, INTERBEDDED	NAMURIAN
16D	358.0	NE	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN

ID	Distance	Direction	LEX Code	Rock Description	Rock Age
17	385.0	S	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
18	430.0	SW	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
19G	435.0	SE	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
20	435.0	W	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
21	438.0	W	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
22	473.0	E	HLR-SDST	HOLLIN ROCK - SANDSTONE	WESTPHALIAN
23	495.0	SE	HLR-SDST	HOLLIN ROCK - SANDSTONE	WESTPHALIAN

2.3.2 Permeability of Bedrock Ground

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

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

2.3.3 Linear features

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

ID	Distance	Direction	Category Description	Feature Description
46B	0.0	On Site	ROCK	Coal seam, inferred
47	0.0	On Site	FAULT	Fault, inferred, displacement unknown
48	0.0	On Site	FAULT	Fault, inferred, displacement unknown
49C	0.0	On Site	FAULT	Fault, inferred, displacement unknown
50	32.0	SE	FAULT	Fault, inferred, displacement unknown
51	52.0	W	FAULT	Fault, inferred, displacement unknown
52	131.0	W	FAULT	Fault, inferred, displacement unknown
53	141.0	W	ROCK	Coal seam, inferred
54	226.0	NW	ROCK	Coal seam, inferred
55C	241.0	N	ROCK	Coal seam, inferred
56	253.0	SW	ROCK	Coal seam, inferred
57	265.0	E	FAULT	Fault, inferred, displacement unknown
58	312.0	E	ROCK	Coal seam, inferred
59	322.0	E	FAULT	Fault, inferred, displacement unknown
60	338.0	N	ROCK	Coal seam, inferred

ID	Distance	Direction	Category Description	Feature Description
61	342.0	NW	FAULT	Fault, inferred, displacement unknown
62	342.0	NW	FAULT	Fault, inferred, displacement unknown
63	357.0	S	FAULT	Fault, inferred, displacement unknown
64	358.0	NE	FAULT	Fault, inferred, displacement unknown
65D	358.0	NE	ROCK	Coal seam, inferred
66E	360.0	SW	ROCK	Coal seam, inferred
67F	363.0	NE	ROCK	Coal seam, inferred
68D	375.0	NE	ROCK	Coal seam, inferred
69F	377.0	NE	ROCK	Coal seam, inferred
70	379.0	SE	ROCK	Coal seam, inferred
71	385.0	S	ROCK	Coal seam, inferred
72	401.0	E	ROCK	Coal seam, inferred
73	403.0	NE	ROCK	Coal seam, inferred
74H	405.0	SW	ROCK	Coal seam, inferred
75G	426.0	SE	FAULT	Fault, inferred, displacement unknown
76	430.0	SW	FAULT	Fault, inferred, displacement unknown
77H	430.0	SW	ROCK	Coal seam, inferred
78G	435.0	SE	FAULT	Fault, inferred, displacement unknown
79I	435.0	W	ROCK	Coal seam, inferred
80	438.0	W	FAULT	Fault, inferred, displacement unknown
81J	439.0	SW	ROCK	Coal seam, inferred
82H	442.0	S	ROCK	Coal seam, inferred
83I	448.0	W	ROCK	Coal seam, inferred
84J	451.0	SW	ROCK	Coal seam, inferred
85	457.0	SW	ROCK	Coal seam, inferred
86	472.0	W	ROCK	Coal seam, inferred
87K	473.0	SW	ROCK	Coal seam, inferred
88	487.0	SE	ROCK	Coal seam, inferred
89K	494.0	SW	ROCK	Coal seam, inferred
90	495.0	SE	FAULT	Fault, inferred, displacement unknown

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

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

3 Radon Data

3.1 Radon Affected Areas

Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The property is in a Radon Affected Area, as greater than 30% of properties are above the Action Level.

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

3.2 Radon Protection

Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment? Full radon protective measures are necessary.

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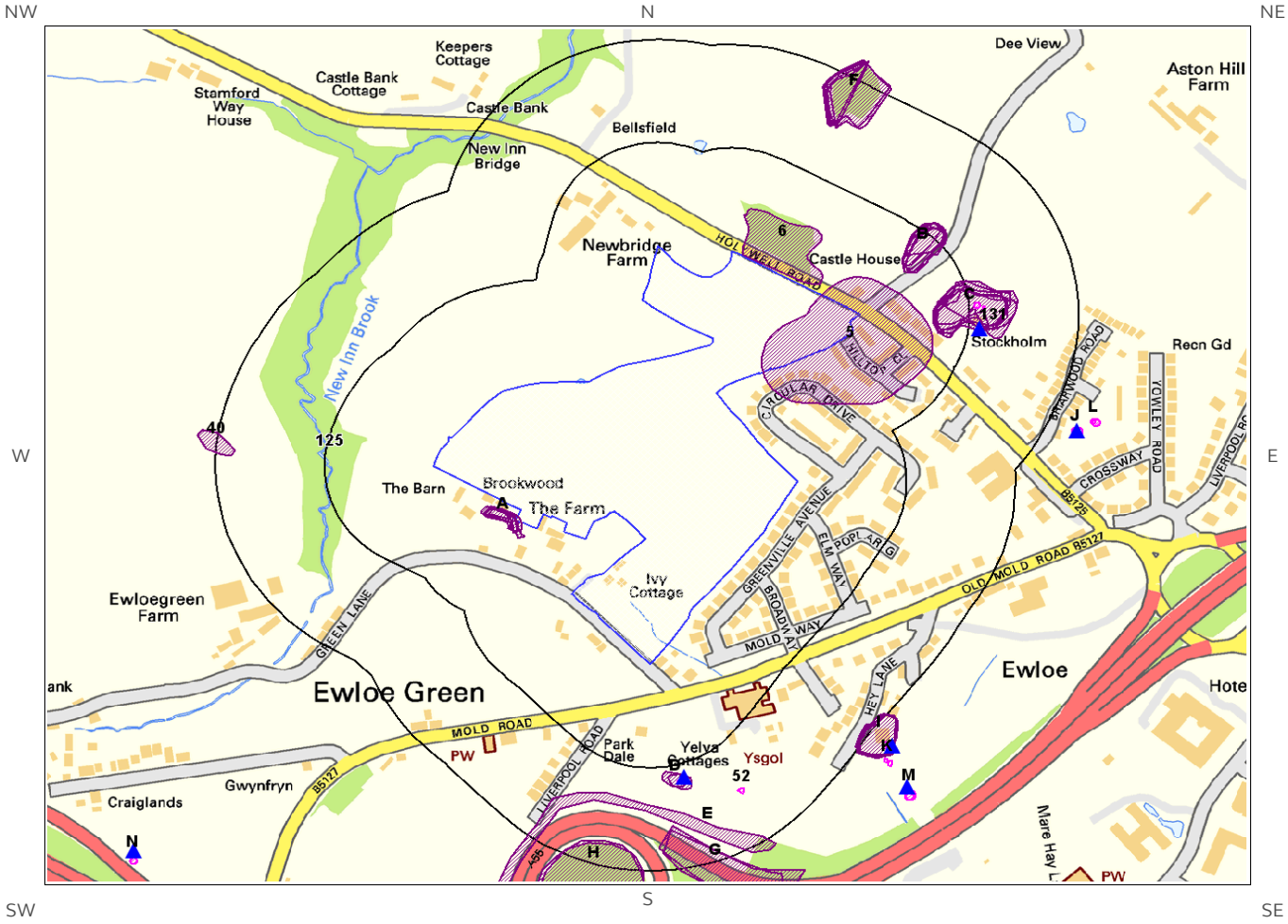
4 Ground Workings map



Ground Workings Legend

Site Outline

125
250
Search Buffers (m)

Historic Surface Ground Workings

Historic Underground Workings

Current Ground Workings

4 Ground Workings

4.1 Historical Surface Ground Working Features derived from Historical Mapping

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

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

ID	Distance (m)	Direction	NGR	Use	Date
1A	0.0	On Site	328958 366677	Pond	1909
2A	0.0	On Site	328963 366672	Ponds	1898
3A	0.0	On Site	328958 366678	Pond	1938
4A	0.0	On Site	328964 366677	Pond	1960
5	0.0	On Site	329369 366894	Old Colliery	1869
6	2.0	NE	329272 367008	Unspecified Heap	1869
7A	4.0	W	328952 366679	Pond	1869
8B	72.0	NE	329434 367004	Unspecified Heap	1938
9B	72.0	NE	329434 367004	Unspecified Heap	1938
10B	76.0	NE	329436 367003	Unspecified Heap	1960
11B	76.0	NE	329436 367003	Unspecified Heap	1970
12B	77.0	NE	329437 367003	Unspecified Heap	1869
13B	77.0	NE	329435 367008	Unspecified Heap	1910
14B	78.0	NE	329432 367011	Unspecified Heap	1898
15B	78.0	NE	329432 367011	Unspecified Heap	1948
16C	83.0	E	329487 366934	Unspecified Ground Workings	1910
17C	84.0	E	329487 366929	Unspecified Heap	1948
18C	84.0	E	329494 366937	Unspecified Heap	1970
19C	86.0	E	329489 366932	Unspecified Heap	1960
20C	86.0	E	329488 366930	Unspecified Ground Workings	1938
21C	86.0	E	329488 366930	Unspecified Ground Workings	1938

ID	Distance (m)	Direction	NGR	Use	Date
22C	88.0	E	329495 366928	Unspecified Heap	1869
23C	90.0	E	329491 366940	Unspecified Heap	1898
24B	90.0	NE	329437 367017	Unspecified Heap	1987
25B	90.0	NE	329437 367017	Unspecified Heap	1981
26D	131.0	S	329148 366363	Refuse Heap	1948
27D	136.0	S	329154 366360	Unspecified Heap	1960
28E	164.0	S	328967 366267	Unspecified Ground Workings	1987
29E	164.0	S	328967 366267	Unspecified Ground Workings	1991
30F	186.0	NE	329357 367192	Refuse Heap	1948
31F	187.0	NE	329360 367190	Unspecified Heap	1869
32F	187.0	NE	329344 367195	Unspecified Heap	1938
33F	187.0	NE	329344 367195	Unspecified Heap	1938
34F	188.0	NE	329327 367192	Unspecified Heap	1960
35F	189.0	NE	329324 367196	Unspecified Ground Workings	1910
36G	197.0	S	329202 366264	Cuttings	1991
37G	202.0	S	329217 366259	Cuttings	1987
38H	219.0	S	329050 366243	Unspecified Heap	1991
39H	222.0	S	329054 366239	Unspecified Heap	1987
40	228.0	W	328623 366771	Pond	1991
41I	241.0	SE	329380 366417	Unspecified Heap	1938
42I	241.0	SE	329380 366417	Unspecified Heap	1938
43I	243.0	SE	329381 366415	Unspecified Heap	1909
44I	243.0	SE	329380 366414	Unspecified Heap	1960
45I	243.0	SE	329380 366414	Unspecified Heap	1970
46I	245.0	SE	329381 366417	Unspecified Heap	1948
47I	245.0	SE	329381 366417	Unspecified Heap	1898

4.2 Historical Underground Working Features derived from Historical Mapping

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

Are there any Historical Underground Working Features within 1000m of the study site boundary? Yes

The following Historical Underground Working Features are provided by Groundsure:

ID	Distance (m)	Direction	NGR	Use	Date
48C	131.0	E	329495 366937	Unspecified Old Shaft	1948
49C	131.0	E	329495 366937	Unspecified Shaft	1898
50C	140.0	E	329503 366934	Unspecified Old Shaft	1960
51D	144.0	S	329153 366360	Unspecified Shaft	1898
52	182.0	SE	329224 366348	Coal Pit	1898
53I	269.0	SE	329391 366405	Old Coal Shafts	1948
54I	275.0	SE	329394 366403	Unspecified Old Shaft	1898
55I	275.0	SE	329395 366401	Unspecified Old Shafts	1960
56J	279.0	SE	329607 366786	Old Coal Shafts	1948
57J	279.0	SE	329607 366786	Unspecified Old Shafts	1898
58K	282.0	SE	329391 366385	Old Coal Shafts	1948
59J	282.0	SE	329612 366784	Unspecified Old Shafts	1960
60K	286.0	SE	329395 366382	Unspecified Old Shafts	1960
61L	294.0	SE	329628 366796	Old Coal Shafts	1948
62L	294.0	SE	329628 366796	Unspecified Old Shafts	1898
63L	296.0	SE	329632 366795	Unspecified Old Shafts	1960
64M	324.0	SE	329416 366350	Old Coal Shafts	1948
65M	324.0	SE	329416 366350	Unspecified Old Shaft	1898
66M	327.0	SE	329419 366344	Unspecified Disused Shaft	1970
67M	327.0	SE	329418 366342	Unspecified Disused Shaft	1981
Not shown	422.0	NW	328893 367364	Unspecified Old Shaft	1898
Not shown	445.0	N	328993 367436	Unspecified Levels	1898

ID	Distance (m)	Direction	NGR	Use	Date
Not shown	452.0	N	329010 367448	Unspecified Levels	1898
Not shown	519.0	N	328944 367498	Unspecified Old Shaft	1898
Not shown	524.0	S	329404 365874	Colliery	1898
73N	582.0	SW	328526 366270	Old Coal Shafts	1948
74N	582.0	SW	328526 366270	Unspecified Old Shaft	1898
75N	585.0	SW	328528 366264	Unspecified Old Shaft	1960
Not shown	591.0	S	329343 365848	Unspecified Disused Mine	1960
Not shown	592.0	S	329369 365900	Colliery	1869
Not shown	621.0	SE	329612 366116	Unspecified Old Shafts	1960
Not shown	621.0	SE	329612 366118	Old Coal Shafts	1948
Not shown	621.0	SE	329612 366118	Unspecified Old Shaft	1898
Not shown	648.0	SE	329384 365906	Unspecified Shaft	1869
Not shown	664.0	SE	329781 366113	Unspecified Old Mine	1960
Not shown	667.0	SE	329688 366143	Unspecified Shaft	1869
Not shown	669.0	SE	329686 366133	Old Coal Shafts	1948
Not shown	669.0	SE	329686 366133	Unspecified Shafts	1898
Not shown	672.0	SE	329687 366130	Unspecified Old Shafts	1960
Not shown	706.0	SW	328599 365842	Old Colliery	1898
Not shown	727.0	SE	329768 366146	Unspecified Shaft	1869
Not shown	732.0	SE	329766 366134	Old Coal Shaft	1948
Not shown	732.0	SE	329766 366134	Unspecified Shafts	1898
Not shown	765.0	SE	329988 366402	Unspecified Disused Shafts	1981
Not shown	765.0	SE	329988 366402	Unspecified Disused Shafts	1987
Not shown	765.0	SE	329988 366402	Unspecified Disused Shafts	1991
Not shown	768.0	SE	329989 366402	Unspecified Old Shafts	1898
Not shown	776.0	SE	329993 366393	Unspecified Old Shafts	1898
Not shown	780.0	SE	329998 366396	Unspecified Disused Shafts	1987
Not shown	780.0	SE	329998 366396	Unspecified Disused Shafts	1981
Not shown	780.0	SE	329998 366396	Unspecified Disused Shafts	1991

ID	Distance (m)	Direction	NGR	Use	Date
Not shown	785.0	SW	328621 365888	Unspecified Disused Shafts	1991
Not shown	785.0	SW	328621 365888	Unspecified Disused Shafts	1987
Not shown	785.0	SW	328621 365888	Unspecified Disused Shafts	1970
Not shown	790.0	SW	328620 365886	Unspecified Disused Shafts	1981
Not shown	791.0	SW	328616 365889	Old Coal Shafts	1948
Not shown	792.0	SW	328618 365886	Unspecified Old Shafts	1960
Not shown	803.0	SE	329824 366092	Unspecified Shaft	1869
Not shown	818.0	SE	329827 366073	Unspecified Shafts	1898
Not shown	837.0	SW	328593 365846	Unspecified Shaft	1869
Not shown	852.0	SW	328571 365847	Unspecified Shaft	1898
Not shown	854.0	SW	328569 365842	Unspecified Disused Shafts	1991
Not shown	854.0	SW	328569 365842	Unspecified Disused Shafts	1987
Not shown	855.0	SW	328571 365843	Unspecified Disused Shafts	1981
Not shown	855.0	SW	328573 365842	Unspecified Old Shafts	1960
Not shown	856.0	SW	328569 365843	Old Coal Shafts	1948
Not shown	862.0	SW	328745 365720	Unspecified Disused Shaft	1991
Not shown	864.0	SW	328744 365718	Unspecified Disused Shaft	1970
Not shown	887.0	SW	328722 365702	Unspecified Disused Shaft	1987
Not shown	889.0	SW	328723 365702	Unspecified Disused Shaft	1981
Not shown	894.0	SW	328507 365845	Unspecified Disused Shafts	1987
Not shown	894.0	SW	328507 365845	Unspecified Disused Shafts	1991
Not shown	894.0	SW	328507 365845	Unspecified Disused Shafts	1970
Not shown	896.0	SW	328503 365851	Old Coal Shafts	1948
Not shown	896.0	SW	328503 365851	Unspecified Shaft	1898
Not shown	897.0	SW	328505 365844	Unspecified Disused Shafts	1981
Not shown	899.0	SW	328506 365843	Unspecified Old Shafts	1960
Not shown	931.0	SW	328441 365854	Unspecified Disused Shafts	1991
Not shown	931.0	SW	328441 365854	Unspecified Disused Shafts	1987
Not shown	931.0	SW	328441 365854	Unspecified Disused Shafts	1970

ID	Distance (m)	Direction	NGR	Use	Date
Not shown	936.0	SW	328441 365852	Unspecified Disused Shafts	1981
Not shown	939.0	SW	328441 365849	Unspecified Old Shafts	1960
Not shown	939.0	SW	328439 365851	Old Coal Shafts	1948

4.3 Current Ground Workings

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

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

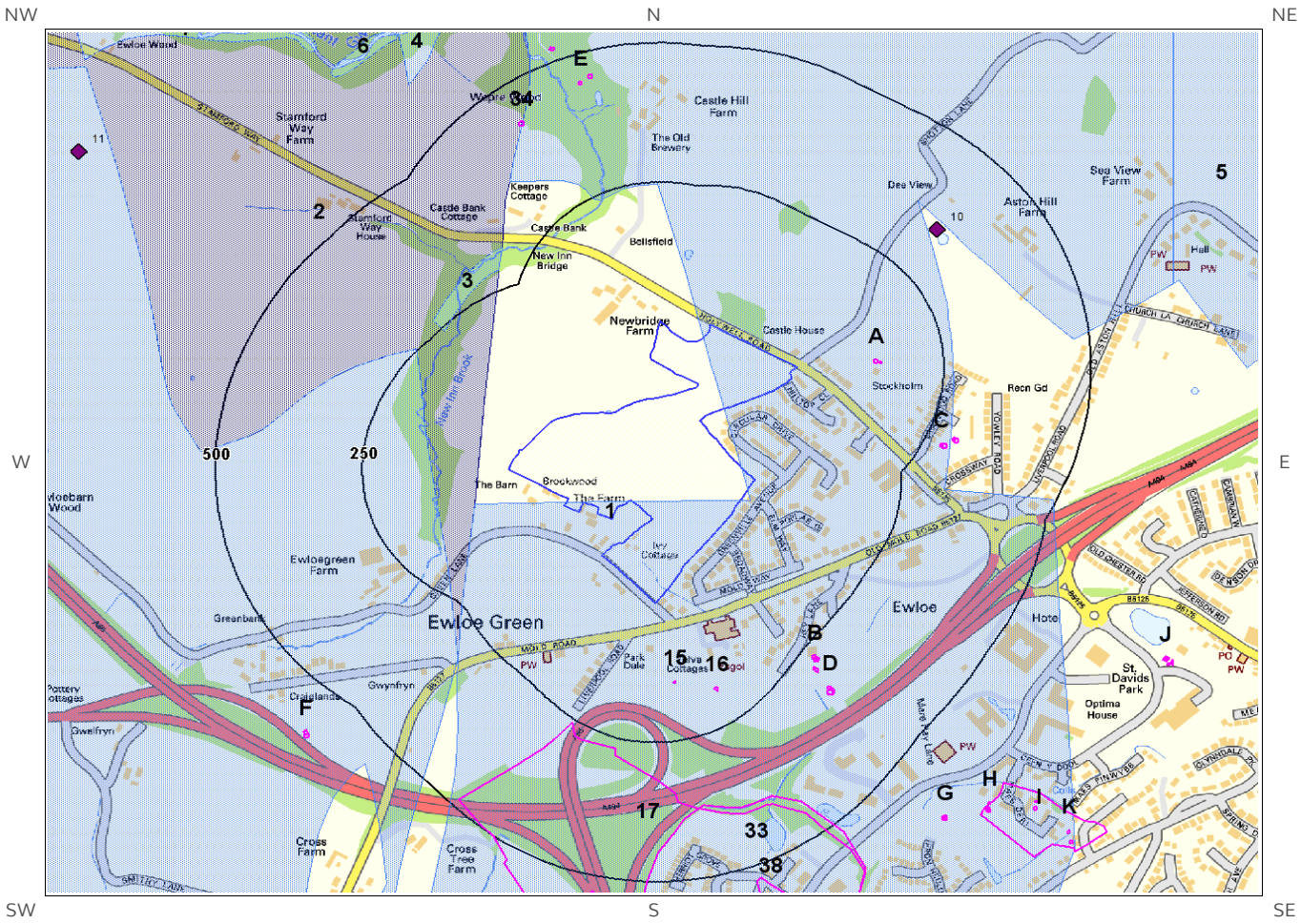
The following Current Ground Workings information is provided by British Geological Survey:

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
131	137.0	E	329497 366908	Lead	Ashton Hill Farm	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
132D	142.0	S	329158 366365	Coal, Deep	Ewloe Green	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
133K	280.0	SE	329397 366403	Coal, Deep	Ewloe Green	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
134L	284.0	SE	329609 366785	Coal, Deep	Boar's Head	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
135M	323.0	SE	329414 366353	Coal, Deep	Ewloe Green	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	346.0	S	329249 366181	Coal, Deep	Ewloe Green	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	378.0	SE	329353 366204	Clay & Shale	Ewloe Green	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	419.0	NW	328899 367359	Lead	Castle Hill Brewery	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
Not shown	436.0	N	329004 367427	Lead	Castle Hill	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	504.0	N	328944 367478	Lead	Castle Hill	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
141N	580.0	SW	328527 366276	Coal, Deep	Ewloegreen Farm	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	622.0	SE	329615 366124	Coal, Deep	Aston Hall Colliery Pit	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	649.0	N	329025 367650	Sandstone	Wepre Wood	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	675.0	N	329463 367630	Sand	Wepre Wood	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	686.0	S	329368 365862	Coal, Deep	Aston Hall Colliery	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	735.0	SE	329769 366138	Coal, Deep	Aston Hall Colliery Pit	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	765.0	SW	328549 365990	Sandstone	Cross Farm	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	771.0	SE	329991 366403	Coal, Deep	Aston Hall Colliery Pit	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	783.0	E	330126 367092	Sand	Ricketty Houses	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	785.0	SW	328619 365898	Coal, Deep	Cross Tree	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	827.0	SE	329840 366078	Coal, Deep	Aston Hall Colliery	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	846.0	SW	328576 365854	Coal, Deep	Cross Tree	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	888.0	E	330236 367079	Sand	Ricketty Houses	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
Not shown	889.0	SW	328509 365857	Coal, Deep	Cross Tree	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	935.0	N	329003 367935	Sand	Wepre Wood	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased

5 Mining, Extraction & Natural Cavities map



Mining, Extraction and Natural Cavities Legend

Site Outline

Search Buffers (m) — 250 — 500

Historical Mining

Non-Coal Mining Cavities

Natural Cavities (point data)

Natural Cavities (polygon data)

Non-Coal Mining

- Highly likely
- Likely
- Unlikely
- Highly unlikely
- Rare

5 Mining, Extraction & Natural Cavities

5.1 Historical Mining

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

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

The following Historical Mining information is provided by Groundsure:

ID	Distance (m)	Direction	NGR	Details	Date
12A	131.0	E	329495 366937	Unspecified Old Shaft	1948
13A	131.0	E	329495 366937	Unspecified Shaft	1898
14A	140.0	E	329503 366934	Unspecified Old Shaft	1960
15	144.0	S	329153 366360	Unspecified Shaft	1898
16	182.0	SE	329224 366348	Coal Pit	1898
17	257.0	SW	329047 365711	Opencast Workings	1981
18B	269.0	SE	329391 366405	Old Coal Shafts	1948
19B	275.0	SE	329394 366403	Unspecified Old Shaft	1898
20B	275.0	SE	329395 366401	Unspecified Old Shafts	1960
21C	279.0	SE	329607 366786	Old Coal Shafts	1948
22C	279.0	SE	329607 366786	Unspecified Old Shafts	1898
23B	282.0	SE	329391 366385	Old Coal Shafts	1948
24C	282.0	SE	329612 366784	Unspecified Old Shafts	1960
25B	286.0	SE	329395 366382	Unspecified Old Shafts	1960
26C	294.0	SE	329628 366796	Old Coal Shafts	1948
27C	294.0	SE	329628 366796	Unspecified Old Shafts	1898
28C	296.0	SE	329632 366795	Unspecified Old Shafts	1960
29D	324.0	SE	329416 366350	Old Coal Shafts	1948
30D	324.0	SE	329416 366350	Unspecified Old Shaft	1898
31D	327.0	SE	329419 366344	Unspecified Disused Shaft	1970

ID	Distance (m)	Direction	NGR	Details	Date
32D	327.0	SE	329418 366342	Unspecified Disused Shaft	1981
33	372.0	S	329047 365644	Opencast Workings	1987
34	422.0	NW	328893 367364	Unspecified Old Shaft	1898
35E	445.0	N	328993 367436	Unspecified Levels	1898
36E	452.0	N	329010 367448	Unspecified Levels	1898
37	519.0	N	328944 367498	Unspecified Old Shaft	1898
38	524.0	S	329404 365874	Colliery	1898
39F	582.0	SW	328526 366270	Unspecified Old Shaft	1898
40F	582.0	SW	328526 366270	Old Coal Shafts	1948
41F	585.0	SW	328528 366264	Unspecified Old Shaft	1960
Not shown	591.0	S	329343 365848	Unspecified Disused Mine	1960
Not shown	592.0	S	329369 365900	Colliery	1869
44G	621.0	SE	329612 366116	Unspecified Old Shafts	1960
45G	621.0	SE	329612 366118	Old Coal Shafts	1948
46G	621.0	SE	329612 366118	Unspecified Old Shaft	1898
Not shown	648.0	SE	329384 365906	Unspecified Shaft	1869
48I	664.0	SE	329781 366113	Unspecified Old Mine	1960
49H	667.0	SE	329688 366143	Unspecified Shaft	1869
50H	669.0	SE	329686 366133	Old Coal Shafts	1948
51H	669.0	SE	329686 366133	Unspecified Shafts	1898
52H	672.0	SE	329687 366130	Unspecified Old Shafts	1960
Not shown	706.0	SW	328599 365842	Old Colliery	1898
54I	727.0	SE	329768 366146	Unspecified Shaft	1869
55I	732.0	SE	329766 366134	Old Coal Shaft	1948
56I	732.0	SE	329766 366134	Unspecified Shafts	1898
57J	765.0	SE	329988 366402	Unspecified Disused Shafts	1987
58J	765.0	SE	329988 366402	Unspecified Disused Shafts	1981
59J	765.0	SE	329988 366402	Unspecified Disused Shafts	1991
60J	768.0	SE	329989 366402	Unspecified Old Shafts	1898

ID	Distance (m)	Direction	NGR	Details	Date
61J	776.0	SE	329993 366393	Unspecified Old Shafts	1898
62J	780.0	SE	329998 366396	Unspecified Disused Shafts	1987
63J	780.0	SE	329998 366396	Unspecified Disused Shafts	1981
64J	780.0	SE	329998 366396	Unspecified Disused Shafts	1991
Not shown	785.0	SW	328621 365888	Unspecified Disused Shafts	1987
Not shown	785.0	SW	328621 365888	Unspecified Disused Shafts	1991
Not shown	785.0	SW	328621 365888	Unspecified Disused Shafts	1970
Not shown	790.0	SW	328620 365886	Unspecified Disused Shafts	1981
Not shown	791.0	SW	328616 365889	Old Coal Shafts	1948
Not shown	792.0	SW	328618 365886	Unspecified Old Shafts	1960
71K	803.0	SE	329824 366092	Unspecified Shaft	1869
72K	818.0	SE	329827 366073	Unspecified Shafts	1898
Not shown	837.0	SW	328593 365846	Unspecified Shaft	1869
Not shown	852.0	SW	328571 365847	Unspecified Shaft	1898
Not shown	854.0	SW	328569 365842	Unspecified Disused Shafts	1991
Not shown	854.0	SW	328569 365842	Unspecified Disused Shafts	1987
Not shown	855.0	SW	328571 365843	Unspecified Disused Shafts	1981
Not shown	855.0	SW	328573 365842	Unspecified Old Shafts	1960
Not shown	856.0	SW	328569 365843	Old Coal Shafts	1948
Not shown	862.0	SW	328745 365720	Unspecified Disused Shaft	1991
Not shown	864.0	SW	328744 365718	Unspecified Disused Shaft	1970
Not shown	887.0	SW	328722 365702	Unspecified Disused Shaft	1987
Not shown	889.0	SW	328723 365702	Unspecified Disused Shaft	1981
Not shown	894.0	SW	328507 365845	Unspecified Disused Shafts	1987
Not shown	894.0	SW	328507 365845	Unspecified Disused Shafts	1991
Not shown	894.0	SW	328507 365845	Unspecified Disused Shafts	1970
Not shown	896.0	SW	328503 365851	Old Coal Shafts	1948
Not shown	896.0	SW	328503 365851	Unspecified Shaft	1898
Not shown	897.0	SW	328505 365844	Unspecified Disused Shafts	1981

ID	Distance (m)	Direction	NGR	Details	Date
Not shown	899.0	SW	328506 365843	Unspecified Old Shafts	1960
Not shown	931.0	SW	328441 365854	Unspecified Disused Shafts	1970
Not shown	931.0	SW	328441 365854	Unspecified Disused Shafts	1987
Not shown	931.0	SW	328441 365854	Unspecified Disused Shafts	1991
Not shown	936.0	SW	328441 365852	Unspecified Disused Shafts	1981
Not shown	939.0	SW	328441 365849	Unspecified Old Shafts	1960
Not shown	939.0	SW	328439 365851	Old Coal Shafts	1948

5.2 Coal Mining

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

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

The following Coal Mining information provided by the Coal Authority is not represented on Mapping:

Distance (m)	Direction	Details
0.0	On Site	The site lies in or in proximity to the coal mining reporting area as defined by the Coal Authority

5.3 Johnson Poole and Bloomer

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

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

The following information provided by JPB is not represented on mapping: In addition to being located inside an area where The Coal Authority have information on coal mining activities, Johnson Poole & Bloomer (JPB) have information such as mining plans and maps held within their archive of mining activities that have occurred within 1km of this property which may supplement this information. Further details and a quote for services can be obtained by emailing this report to enquiries.gs@jpb.co.uk.

5.4 Non-Coal Mining

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

Are there any Non-Coal Mining areas within 1000m of the study site boundary? Yes

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

ID	Distance (m)	Direction	Name	Commodity	Assessment of likelihood
1	0.0	On Site	Not available	Iron Ore (Bedded)	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered
2	52.0	W	Not available	Vein Mineral	Sporadic underground mining of restricted extent may have occurred. Potential for difficult ground conditions are unlikely and localised and are at a level where they need not be considered
3	244.0	NW	Not available	Vein Mineral	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered
4	602.0	NW	Not available	Vein Mineral	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered
5	656.0	E	Not available	Iron Ore (Bedded)	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered
6	677.0	NW	Not available	Vein Mineral	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered
7	763.0	NW	Not available	Vein Mineral	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered
Not shown	857.0	N	Not available	Vein Mineral	Sporadic underground mining of restricted extent may have occurred. Potential for difficult ground conditions are unlikely and localised and are at a level where they need not be considered
Not shown	887.0	E	Not available	Vein Mineral	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered

5.5 Non-Coal Mining Cavities

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

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

Database searched and no data found.

5.6 Natural Cavities

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

Are there any Natural Cavities within 1000m of the study site boundary? Yes

The following Natural Cavities information provided by Peter Brett Associates:

ID	Distance (m)	Direction	NGR	Superficial Deposits	Bedrock Deposits	Cavity Type and Number
10	342.0	NE	329600 367170	-	Carboniferous Limestone Supergroup, Lower Coal Measures, Middle Coal Measures, Millstone Grit Group, Upper Carboniferous Limestone	Swallow Hole x 1
11	919.0	NW	328140 367310	-	Carboniferous Limestone Supergroup, Lower Coal Measures, Middle Coal Measures, Millstone Grit Group, Upper Carboniferous Limestone	Swallow Hole x 1

5.7 Brine Extraction

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

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

Database searched and no data found.

5.8 Gypsum Extraction

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

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

Database searched and no data found.

5.9 Cornwall and Devon Metalliferous Mining

This dataset provides information on metalliferous mining areas in Cornwall/Devon and is derived from records held by Mining Searches UK.

Are there any Cornwall and Devon Metalliferous Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

5.10 Clay Mining

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

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

Database searched and no data found.

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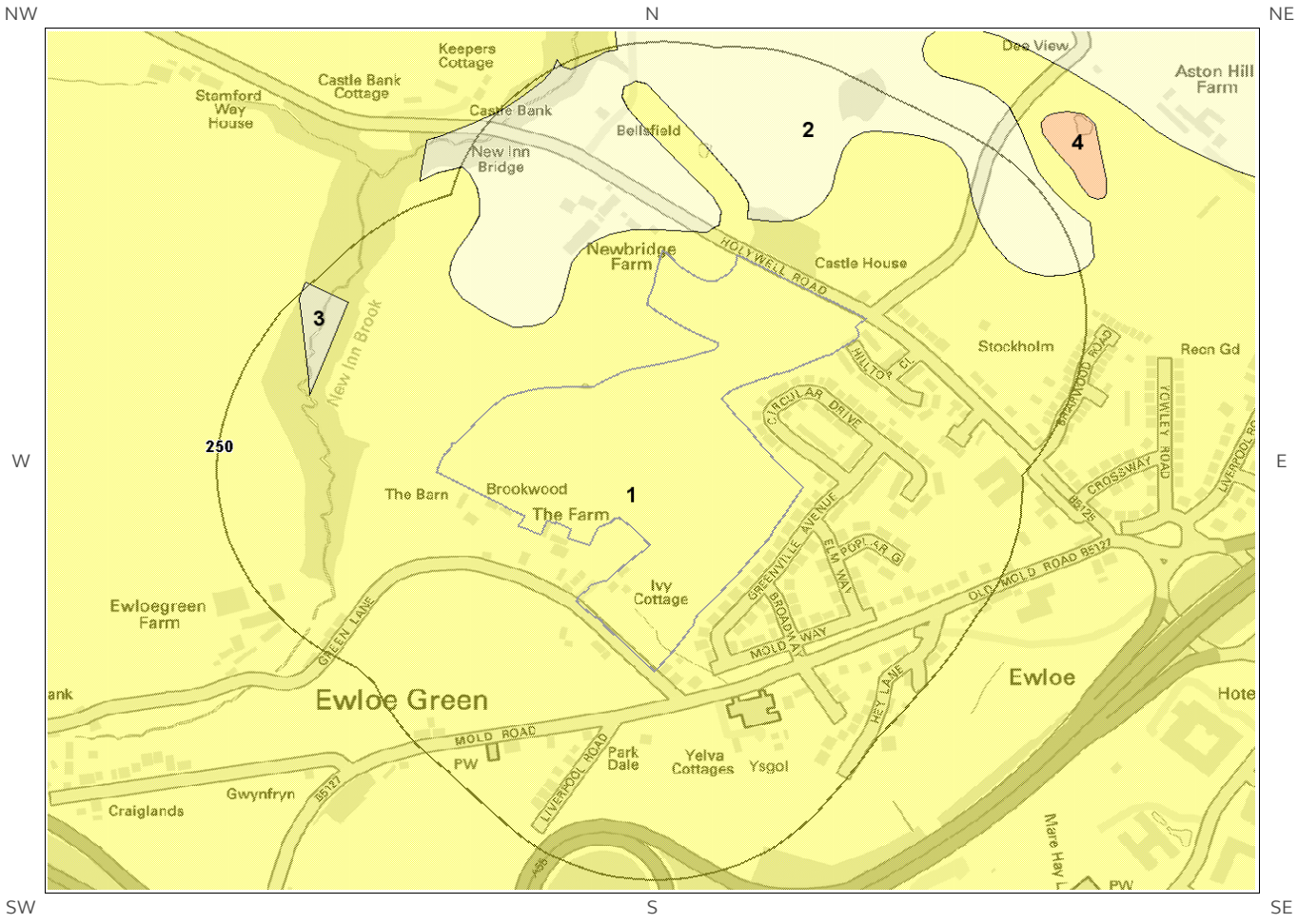
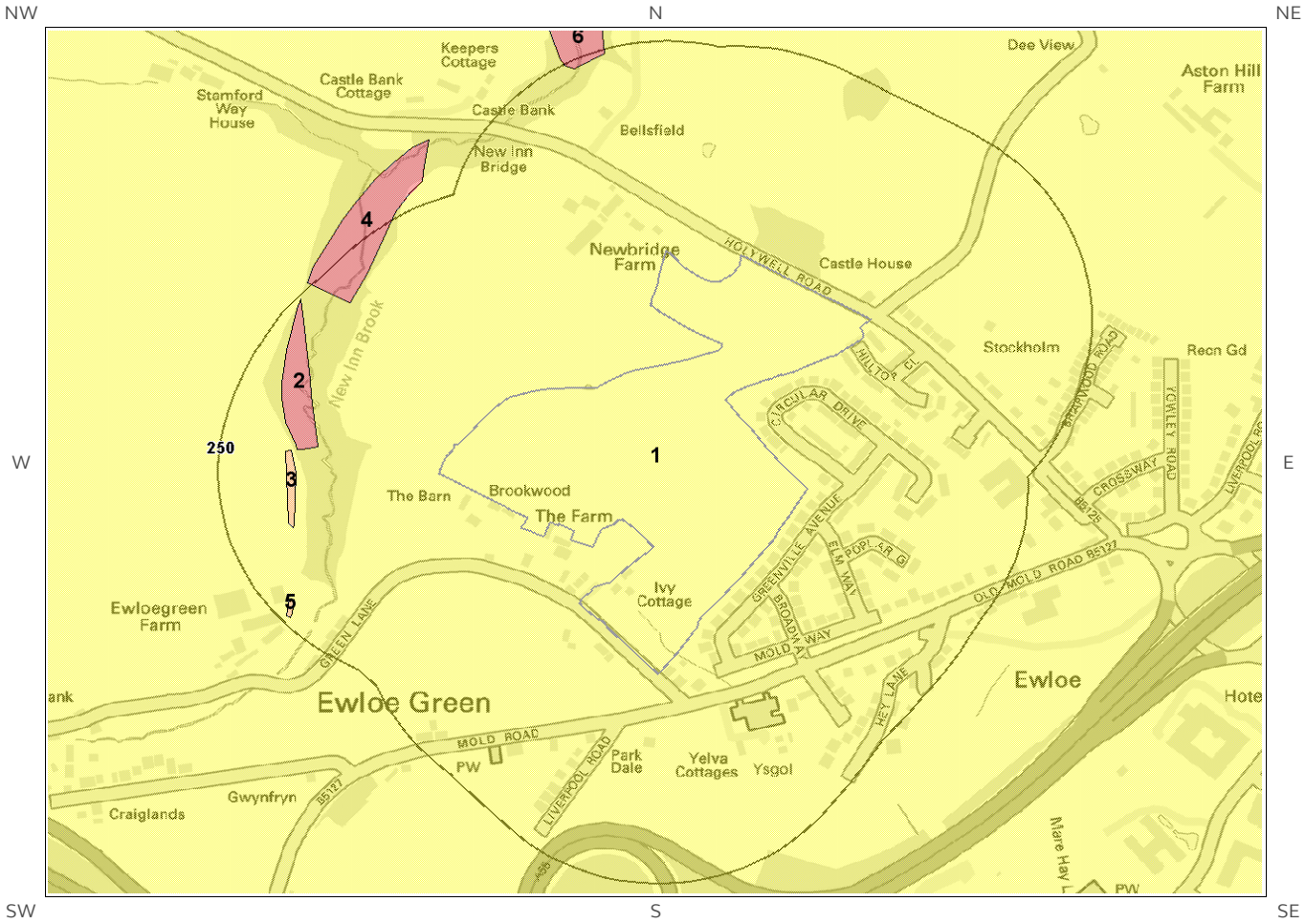
6 Natural Ground Subsidence

6.1 Shrink-Swell Clay map



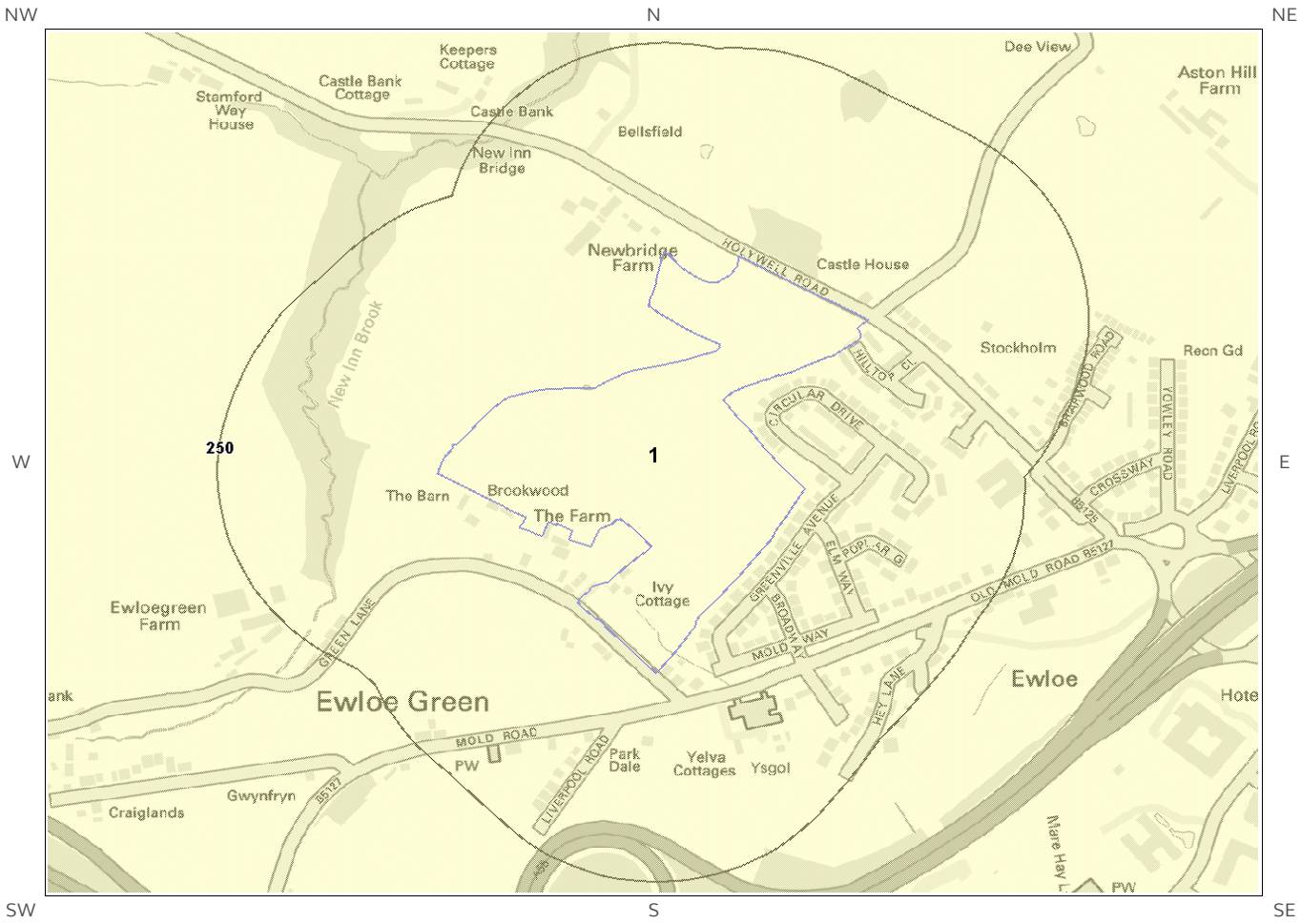
Shrink Swell Clay Legend

6.2 Landslides map



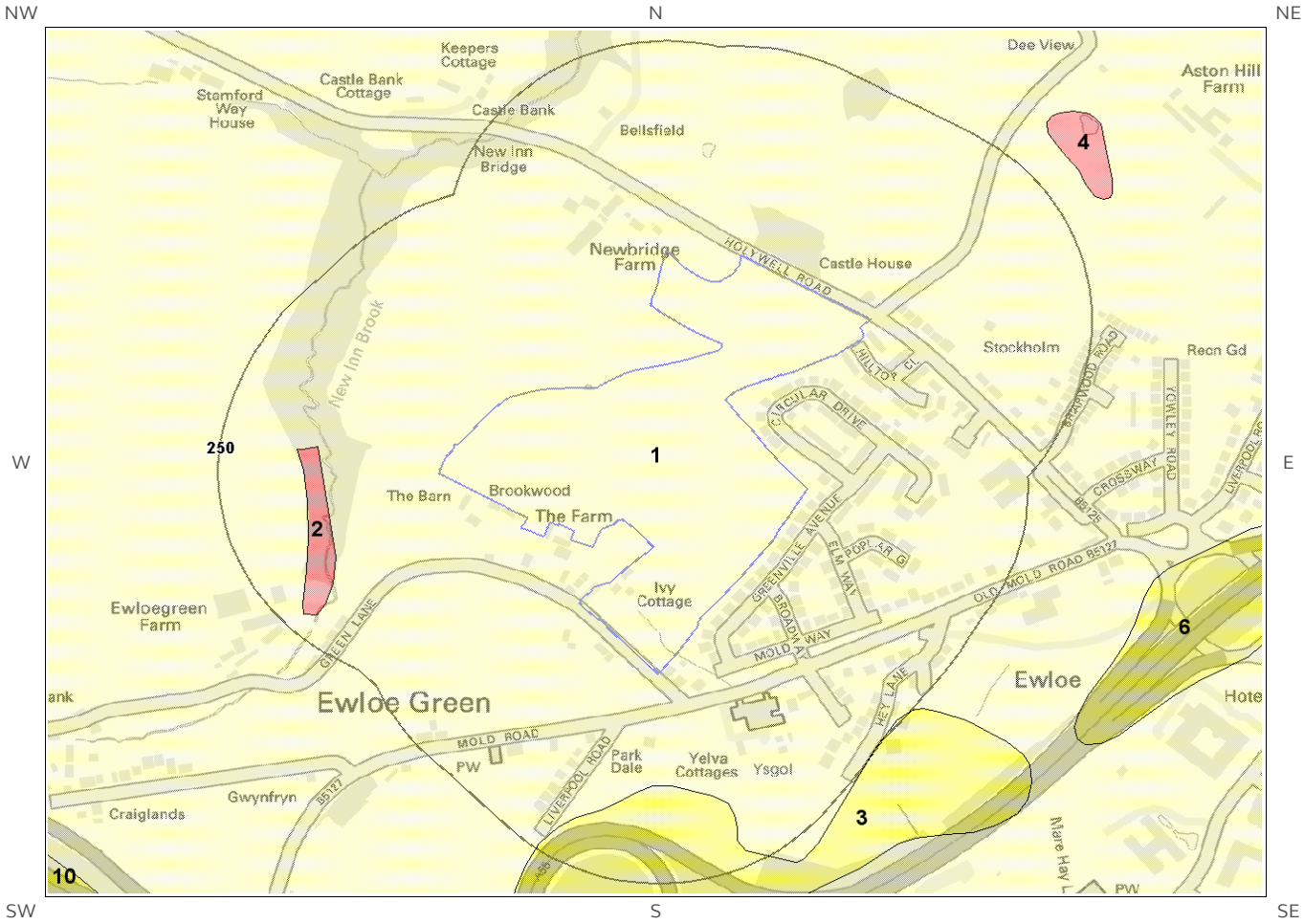
Landslides Legend

6.3 Ground Dissolution of Soluble Rocks map



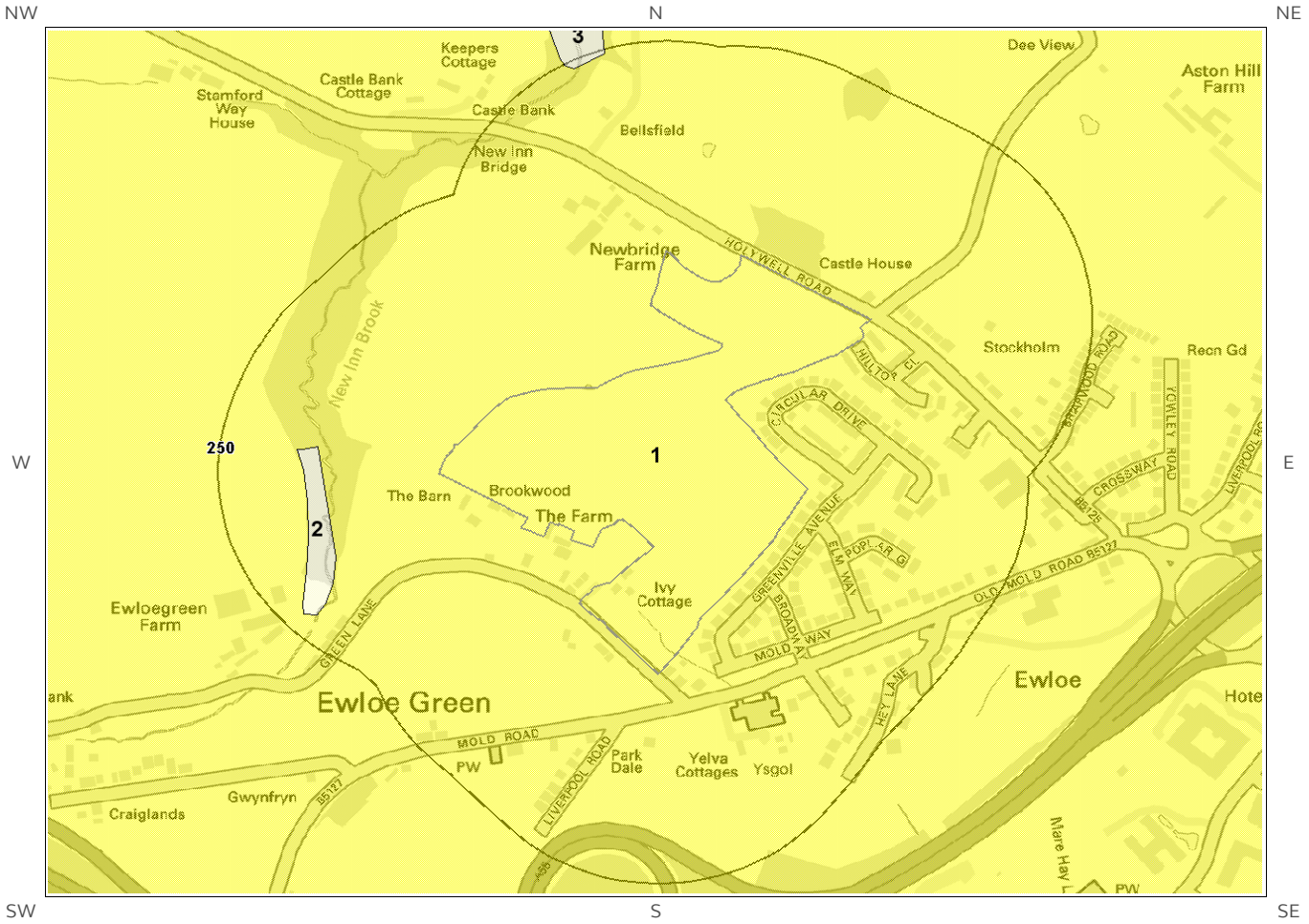
Ground Dissolution Soluble Rocks Legend

6.4 Compressible Deposits map



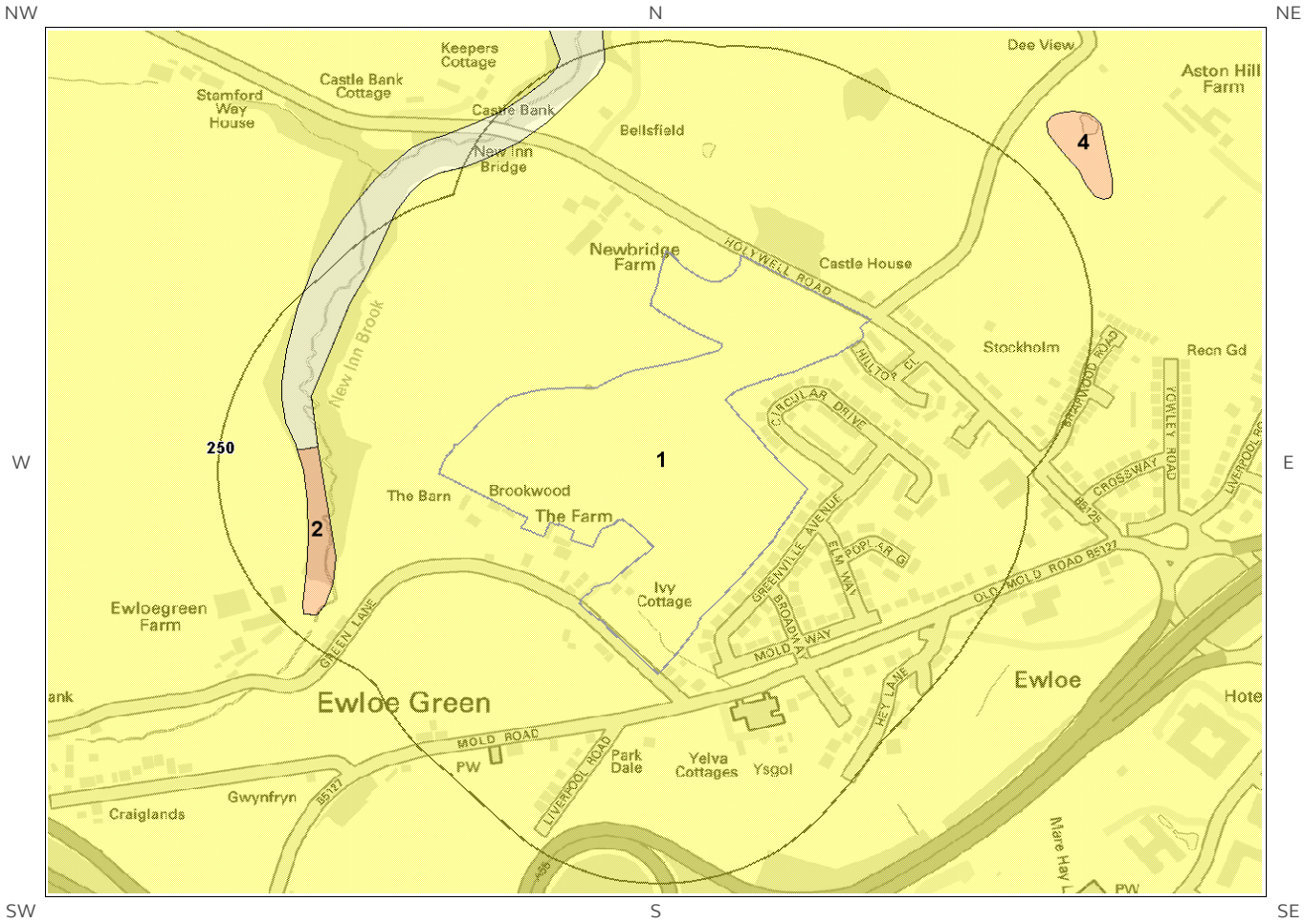
Compressible Deposits Legend

6.5 Collapsible Deposits map



Collapsible Deposits Legend

6.6 Running Sand map



Running Sand Legend

6 Natural Ground Subsidence

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

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

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

6.1 Shrink-Swell Clays

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

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Ground conditions predominantly low plasticity. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with shrink-swell clays.
2	24.0	N	Negligible	Ground conditions predominantly non-plastic. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely likely due to potential problems with shrink-swell clays.

6.2 Landslides

The following Landslides information provided by the British Geological Survey:

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

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

6.3 Ground Dissolution of Soluble Rocks

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

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

6.4 Compressible Deposits

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

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

6.5 Collapsible Deposits

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

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

6.6 Running Sands

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

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

7 Borehole Records map

Borehole Records Legend

Site Outline

Borehole Locations

125
250
Search Buffers (m)

7 Borehole Records

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

Records of boreholes within 250m of the study site boundary: 32

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
1	15.0	NE	329150 367010	SJ26NE32	12.1	NEW INN BRIDGE FARM
2	24.0	NE	329140 367030	SJ26NE21	12.2	PROPOSED HAWARDEN BY-PASS. 1
3	50.0	NE	329250 367040	SJ26NE1100	-9999	MARE HAY COLLIERY
4	55.0	NE	329280 367030	SJ26NE1101	-9999	MARE HAY COLLIERY, ENGINE OR WATER SHAFT
5	69.0	NE	329318 367026	SJ26NE1210	40	WEPCE OPENCAST SITE. 684
6	74.0	NE	329256 367064	SJ26NE1246	59	WEPCE OPENCAST SITE. 685
7	113.0	N	329215 367116	SJ26NE1230	56	WEPCE OPENCAST SITE. 1020
8	130.0	NE	329450 367020	SJ26NE895	-9999	MARE HAY COLLIERY, ENGINE PIT
9	139.0	E	329500 366930	SJ26NE896	-9999	NEW MARE HAY COLLIERY
10	145.0	S	329150 366360	SJ26NE1013	-9999	COAL PIT
11A	150.0	SE	329460 366800	SJ26NE1569	-9999	FORMER ATS DEPOT HOLYWELL ROAD EWLOE WS2
12A	151.0	SE	329470 366810	SJ26NE1565	-9999	FORMER ATS DEPOT HOLYWELL ROAD EWLOE 1
13	152.0	SE	329440 366780	SJ26NE1567	-9999	FORMER ATS DEPOT HOLYWELL ROAD EWLOE 3
14A	157.0	SE	329460 366790	SJ26NE1571	-9999	FORMER ATS DEPOT HOLYWELL ROAD EWLOE WS4
15	159.0	N	329180 367160	SJ26NE232	12.19	CASTLE HILL COLLIERY, O/C. 1
16	160.0	NE	329397 367088	SJ26NE1211	71	WEPCE OPENCAST SITE. 686
17A	165.0	SE	329480 366800	SJ26NE1568	-9999	FORMER ATS DEPOT HOLYWELL ROAD EWLOE WS1
18	171.0	SE	329470 366780	SJ26NE1566	-9999	FORMER ATS DEPOT HOLYWELL ROAD EWLOE 2
19	174.0	N	329140 367183	SJ26NE1229	47	WEPCE OPENCAST SITE. 115

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
20	175.0	E	329460 366760	SJ26NE1570	-9999	FORMER ATS DEPOT HOLYWELL ROAD EWLOE WS3
21	184.0	W	328690 366770	SJ26NE89	16.76	PARK HILL COLLIERY O/C. 10
22B	189.0	N	329209 367192	SJ26NE1256	56	WEPCE OPENCAST SITE. 1021
23	191.0	NE	329356 367144	SJ26NE1212	25	WEPCE OPENCAST SITE. 786 ?
24	196.0	W	328680 366700	SJ26NE90	21.34	PARK HILL COLLIERY O/C. 11
25B	197.0	N	329210 367200	SJ26NE233	12.19	CASTLE HILL COLLIERY, O/C. 2
26	211.0	N	329260 367208	SJ26NE1255	46.46	WEPCE OPENCAST SITE. 1017
27	218.0	NW	328680 366850	SJ26NE88	27.43	PARK HILL COLLIERY O/C. 9
28	219.0	SW	328690 366620	SJ26NE1056	-9999	UNNAMED SHAFT
29	222.0	S	329130 366280	SJ26NE771	24	HAWARDEN BY-PASS, (EXPLORATION ASSOCIATES). NO.58
30	233.0	NE	329506 367108	SJ26NE1243	70.9	WEPCE OPENCAST SITE. 1128
31	242.0	NE	329360 367200	SJ26NE894	-9999	MARE HAY COLLIERY
32	244.0	N	329200 367246	SJ26NE1228	60	WEPCE OPENCAST SITE. 1074

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

#1: scans.bgs.ac.uk/sobi_scans/boreholes/147001
#2: scans.bgs.ac.uk/sobi_scans/boreholes/146990
#3: scans.bgs.ac.uk/sobi_scans/boreholes/148078
#4: scans.bgs.ac.uk/sobi_scans/boreholes/148079
#5: scans.bgs.ac.uk/sobi_scans/boreholes/148188
#6: scans.bgs.ac.uk/sobi_scans/boreholes/148225
#7: scans.bgs.ac.uk/sobi_scans/boreholes/148209
#8: scans.bgs.ac.uk/sobi_scans/boreholes/147873
#9: scans.bgs.ac.uk/sobi_scans/boreholes/147874
#10: scans.bgs.ac.uk/sobi_scans/boreholes/147991
#15: scans.bgs.ac.uk/sobi_scans/boreholes/147201
#16: scans.bgs.ac.uk/sobi_scans/boreholes/148189
#19: scans.bgs.ac.uk/sobi_scans/boreholes/148208
#21: scans.bgs.ac.uk/sobi_scans/boreholes/147058
#22B: scans.bgs.ac.uk/sobi_scans/boreholes/148235
#23: scans.bgs.ac.uk/sobi_scans/boreholes/148190
#24: scans.bgs.ac.uk/sobi_scans/boreholes/147059
#25B: scans.bgs.ac.uk/sobi_scans/boreholes/147202
#26: scans.bgs.ac.uk/sobi_scans/boreholes/148234
#27: scans.bgs.ac.uk/sobi_scans/boreholes/147057
#28: scans.bgs.ac.uk/sobi_scans/boreholes/148034
#29: scans.bgs.ac.uk/sobi_scans/boreholes/147747
#30: scans.bgs.ac.uk/sobi_scans/boreholes/148222
#31: scans.bgs.ac.uk/sobi_scans/boreholes/147872
#32: scans.bgs.ac.uk/sobi_scans/boreholes/148207

8 Estimated Background Soil Chemistry

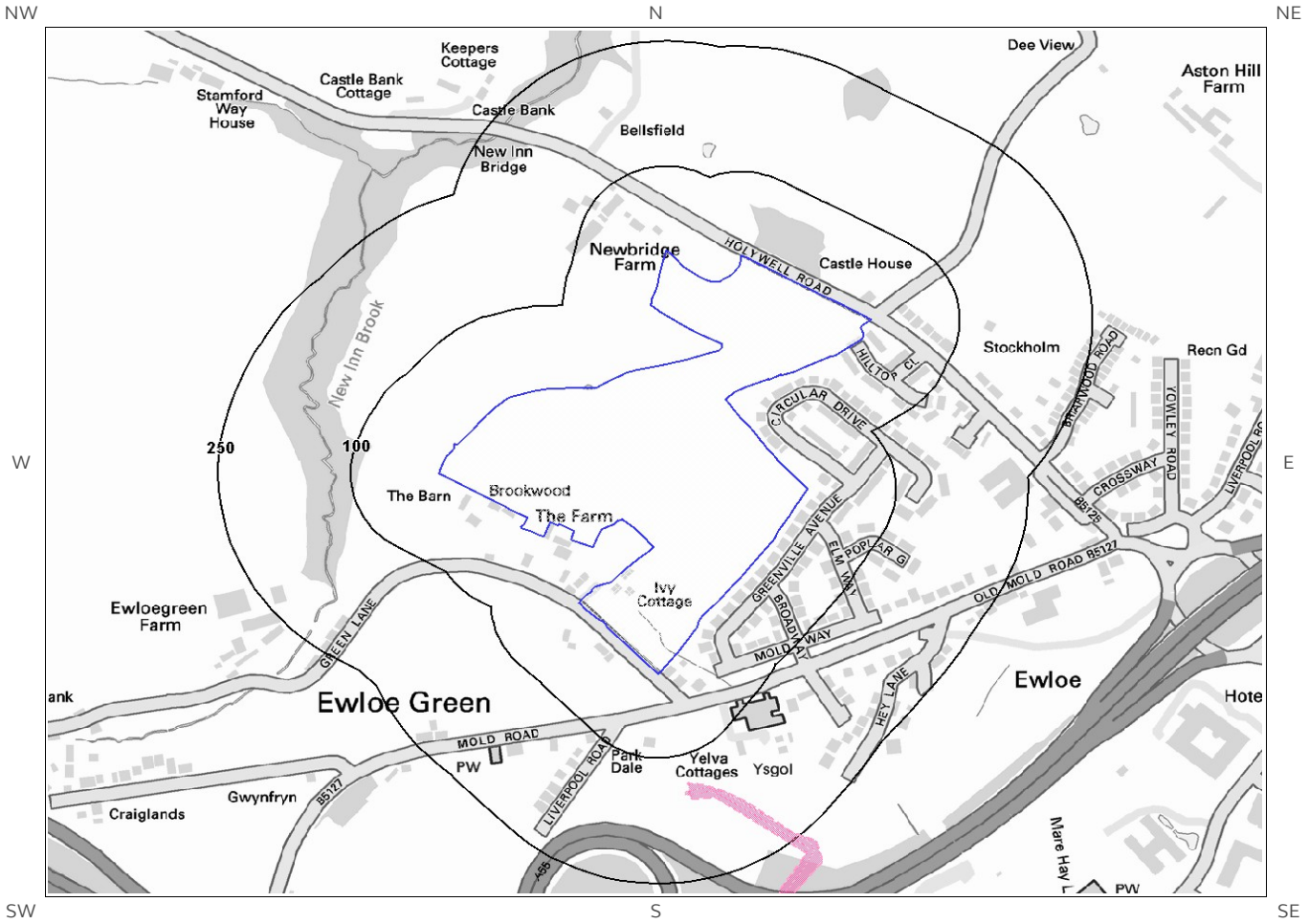
Records of background estimated soil chemistry within 250m of the study site boundary: 20

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

Distance (m)	Direction	Sample Type	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Nickel (Ni)	Lead (Pb)
0.0	On Site	RuSoilExAs	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	RuSoilExAs	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	RuSoilExAs	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	RuSoilExAs	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
2.0	NE	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
2.0	S	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
24.0	N	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
32.0	SE	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
42.0	NW	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
45.0	N	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg

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

9 Railways and Tunnels map



Railways and Tunnels Legend

- Site Outline
- Search Buffers (m) — 250 — 500
- Underground or Partially Underground Railway / Subway System
- Railway Tunnel (OS Mapping)
- Abandoned or Dismantled Railway (OpenStreetMap)
- Railway Track (OS Mapping)
- Railway Track (OpenStreetMap)
- High Speed 2
- High Speed 2 Revised Proposed Route
- Crossrail 1
- Railway and/or Tunnel Feature from Historical Mapping

9 Railways and Tunnels

9.1 Tunnels

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

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

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

Database searched and no data found.

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

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

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

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

Database searched and no data found.

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

9.2 Historical Railway and Tunnel Features

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

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

Have any historical railway or tunnel features been identified within 250m of the study site boundary? Yes

ID	Distance (m)	Direction	NGR	Details	Date
1	134	S	329273 366088	Railway Sidings	1898
2	143	S	329272 366083	Railway Sidings	1899

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

9.3 Historical Railways

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

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

Database searched and no data found.

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

9.4 Active Railways

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

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

Database searched and no data found.

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

9.5 Railway Projects

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

Is the study site within 5km of the route of the High Speed 2 rail project?	No
Is the study site within 500m of the route of the Crossrail 1 rail project?	No

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

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

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

Contact Details

Groundsure Helpline

Telephone: 08444 159 000
info@groundsure.com

British Geological Survey Enquiries

Kingsley Dunham Centre
Keyworth, Nottingham NG12 5GG
Tel: 0115 936 3143.
Fax: 0115 936 3276.
Email:**enquiries@bgs.ac.uk**
Web:**www.bgs.ac.uk**
BGS Geological Hazards Reports and general geological enquiries

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The Coal Authority

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www.coal.gov.uk

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https://www.gov.uk/government/organisations/public-health-england
Email: **enquiries@phe.gov.uk**
Main switchboard: 020 7654 8000

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Website:**http://www.peterbrett.com/home**

Standard Terms and Conditions

Groundsure's Terms and Conditions can be viewed online at this link:
https://www.groundsure.com/terms-and-conditions-feb11-2019

The Coal Authority

CON29M
coal mining report

HOLYWELL ROAD, EWLOE GREEN, CH5 3BS, FLINTSHIRE

Known or potential coal mining risks

Further action

These additional reports can give further detail on the risks identified:

- Subsidence claims 50m buffer report

For more information please see our Further action reports on page 9

Professional opinion

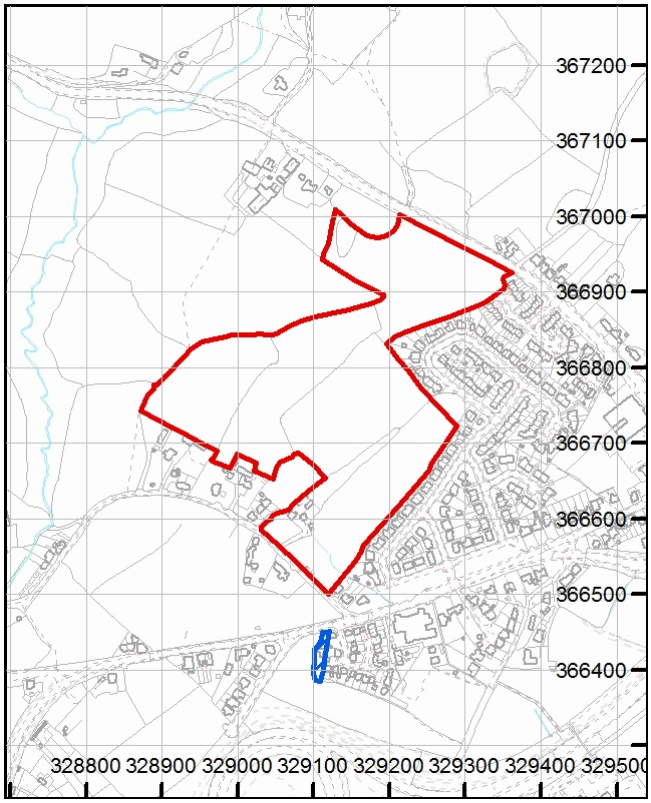
According to the official mining information records held by the Coal Authority at the time of this search, evidence of, or the potential for, coal mining related features have been identified. It is unlikely that these features will impact on the stability of the enquiry boundary.

Enquiry boundary

Key

Approximate position of enquiry boundary shown

Coal claims



We can confirm that the location is **on the coalfield**

Map data

This report is prepared in accordance with the latest Law Society's Guidance Notes 2018, the User Guide 2018 and the Coal Authority's Terms and Conditions applicable at the time the report was produced.

Accessibility

If you would like this information in an alternative format, please contact our communications team on 0345 762 6848 or email communications@coal.gov.uk.

Site investigations

The following site investigation(s) took place in the location area:

A site investigation was carried out in January 1992 by Manchester Geotechnical Ltd., Coal Pit Lane, off Wigan Road, Atherton, M29 0RT Tel:0942 896118.

A site investigation was carried out in September 1986 by NKC Geotech Ltd., 25 Grosvenor Road, Wrexham, LL11 1BT..

Additional information regarding these investigations may be available from the company or companies listed above.

Detailed findings

Information provided by the Coal Authority in this report is compiled in response to the Law Society's CON29M Coal Mining enquiries. The said enquiries are protected by copyright owned by the Law Society of 113 Chancery Lane, London WC2A 1PL.

The Coal Authority owns the copyright in this report and the information used to produce this report is protected by our database rights. All rights are reserved and unauthorised use is prohibited. If we provide a report for you, this does not mean that copyright and any other rights will pass to you. However, you can use the report for your own purposes.

1 Past underground coal mining

The property is in a surface area that could be affected by underground mining in 3 seams of coal at 60m to 140m depth, and last worked in 1906.

Any movement in the ground due to coal mining activity associated with these workings should have stopped by now.

2 Present underground coal mining

The property is not within a surface area that could be affected by present underground mining.

3 Future underground coal mining

The property is not in an area where the Coal Authority has received an application for, and is currently considering whether to grant a licence to remove or work coal by underground methods.

The property is not in an area where a licence has been granted to remove or otherwise work coal using underground methods.

The property is not in an area likely to be affected from any planned future underground coal mining.

However, reserves of coal exist in the local area which could be worked at some time in the future.

No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

4 Mine entries

There are no recorded coal mine entries known to the Coal Authority within, or within 20 metres, of the boundary of the property.

This information is based on the information that the Coal Authority has at the time of this enquiry.

Based on the Coal Authority's knowledge of the mining circumstances at the time of this enquiry, there may be unrecorded mine entries in the local area that do not appear on Coal Authority records.

5 Coal mining geology

The Coal Authority is not aware of any damage due to geological faults or other lines of weakness that have been affected by coal mining.

6 Past opencast coal mining

The property is not within the boundary of an opencast site from which coal has been removed by opencast methods.

7 Present opencast coal mining

The property does not lie within 200 metres of the boundary of an opencast site from which coal is being removed by opencast methods.

8 Future opencast coal mining

There are no licence requests outstanding to remove coal by opencast methods within 800 metres of the boundary.

The property is not within 800 metres of the boundary of an opencast site for which a licence to remove coal by opencast methods has been granted.

9 Coal mining subsidence

There are 2 claims within 50 metres of the property boundary that do not match the property address. These are shown on the enquiry boundary plot.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The Coal Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

If further subsidence damage claims information is required, please visit www.groundstability.com.

10 Mine gas

The Coal Authority has no record of a mine gas emission requiring action.

11 Hazards related to coal mining

The property has not been subject to remedial works, by or on behalf of the Coal Authority, under its Emergency Surface Hazard Call Out procedures.

12 Withdrawal of support

The property is not in an area where a notice to withdraw support has been given.

The property is not in an area where a notice has been given under section 41 of the Coal Industry Act 1994, cancelling the entitlement to withdraw support.

13 Working facilities order

The property is not in an area where an order has been made, under the provisions of the Mines (Working Facilities and Support) Acts 1923 and 1966 or any statutory modification or amendment thereof.

14 Payments to owners of former copyhold land

The property is not in an area where a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

Statutory cover

Coal mining subsidence

In the unlikely event of any coal mining related subsidence damage, the Coal Authority or the mine operator has a duty to take remedial action in respect of subsidence caused by the withdrawal of support from land or property in connection with lawful coal mining operations.

When the works are the responsibility of the Coal Authority, our dedicated public safety and subsidence team will manage the claim. The house or land owner ("the owner") is covered for these works under the terms of the Coal Mining Subsidence Act 1991 (as amended by the Coal Industry Act 1994). Please note, this Act does not apply where coal was worked or gotten by virtue of the grant of a gale in the Forest of Dean, or any other part of the Hundred of St. Briavels in the county of Gloucester.

If you believe your land or property is suffering from coal mining subsidence damage and you need more information on what to do next, please use the following link to our website which sets out what your rights are and what you need to consider before making a claim.
www.gov.uk/government/publications/coal-mining-subsidence-damage-notice-form

Coal mining hazards

Our public safety and subsidence team provide a 24 hour a day, 7 days a week hazard reporting service, to help protect the public from hazards caused by past coal workings, such as a mine shaft or shallow working collapse. To report any hazards please call 01623 646 333. Further information can be found on our website: www.gov.uk/coalauthority.

Glossary

Key terms

adit - horizontal or sloped entrance to a mine

coal mining subsidence - ground movement caused by the removal of coal by underground mining

Coal Mining Subsidence Act 1991 - the Act setting out the duties of the Coal Authority to repair damage caused by coal mining subsidence

coal mining subsidence damage - damage to land, buildings or structures caused by the removal of coal by underground mining

coal seams - bed of coal of varying thickness

future opencast coal mining - a licence granted, or licence application received, by the Coal Authority to excavate coal from the surface

future underground coal mining - a licence granted, or licence application received, by the Coal Authority to excavate coal underground. Although it is unlikely, remaining coal reserves could create a possibility for future mining, which would be licensed by the Coal Authority

mine entries - collective name for shafts and adits

payments to owners of former copyhold land - historically, copyhold land gave rights to coal to the copyholder. Legislation was set up to allow others to work this coal, but they had to issue a notice and pay compensation if a copyholder came forward

shaft - vertical entry into a mine

site investigation - investigations of coal mining risks carried out with the Coal Authority's permission

stop notice - a delay to repairs because further coal mining subsidence damage may occur and it would be unwise to carry out permanent repairs

subsidence claim - a formal notice of subsidence damage to the Coal Authority since it was established on 31 October 1994

withdrawal of support - a historic notice informing landowners that the coal beneath their property was going to be worked

working facilities orders - a court order which gave permission, restricted or prevented coal mine workings

Further action reports

Subsidence claims 50m buffer report - gives information on coal mining subsidence claims within 50 metres of the property boundary. To order this report, use the same boundary as the CON29M mining report.

For more information and to order this report please visit:
https://www2.groundstability.com/subsidence-50m-buffer

The Coal Authority

Resolving the impacts of mining

Subsidence Buffer Report

HOLYWELL ROAD, EWLOE GREEN, CH5 3BS, FLINTSHIRE

Date of enquiry:	13 August 2019
Date enquiry received:	13 August 2019
Issue date:	13 August 2019
Our reference:	51002160465001
Your reference:	5022

Subsidence Buffer Report

This report is based on and limited to the records held by the Coal Authority at the time we answer the search. This report does not contain any details of damage notices or claims that are specific to the enquiry boundary.

Client name

ID GEOENVIRONMENTAL LIMITED

Enquiry address

HOLYWELL ROAD, EWLOE GREEN, CH5 3BS, FLINTSHIRE

Approximate position of property

How to contact us

0345 762 6848 (UK)
+44 (0)1623 637 000 (International)

200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

www.groundstability.com

/company/the-coal-authority
/thecoalauthority
/coalauthority

Claim information

There are 2 claims within 50 metres of the enquiry boundary that have been received since 31 October 1994. These are shown on the plan and detailed within this report.

This report does not contain any details of damage notices or claims that are specific to the enquiry boundary.

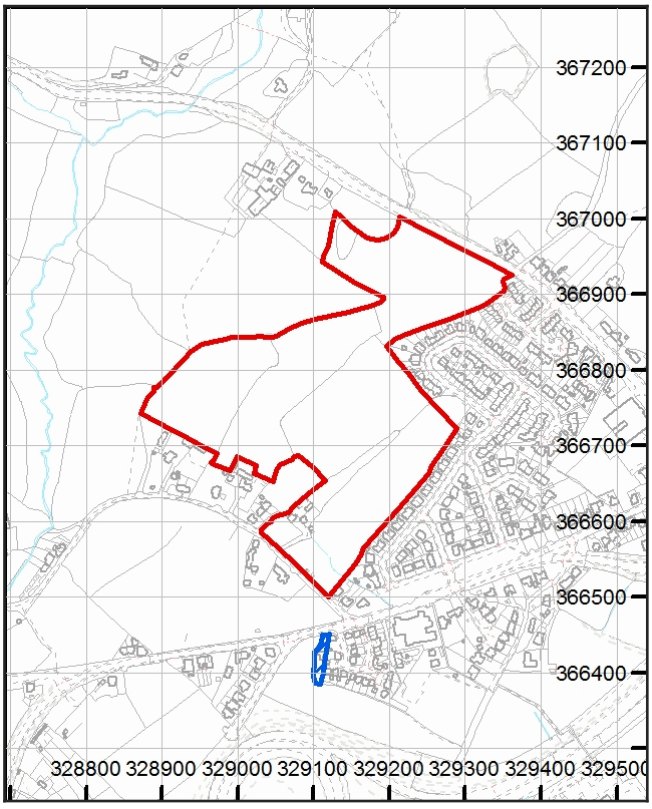
Claim reference	Claim type	Date claim received	Claim status	Claim value (£)	Address of claim	Distance from subject boundary (m)
CI-344534	Coal Authority claim	16 September 2013	Rejected - Legal/Limitation Grounds		PARK DALE, MOLD ROAD, EWLOE GREEN, DEESIDE, CLWYD CH5 3GU	48.6
CI-344142	Coal Authority claim	10 July 2013	Rejected - Legal/Limitation Grounds		PARK DALE, MOLD ROAD, EWLOE GREEN, DEESIDE, CLWYD CH5 3GU	48.6

Enquiry boundary

Key

Approximate position of enquiry boundary shown

Coal claims



How to contact us

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200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

www.groundstability.com

/company/the-coal-authority
/thecoalauthority
/coalauthority

From: Darren Moody <DarrenMoody@coal.gov.uk>
Sent: 16 August 2019 10:43
To: Brandon Rice-Birchall
Subject: [SPAM]RE: [External] CA Report Reference 51002159390001

Hi Brandon

The information below is a summary of the underground working data used to compile your Con29M (ref. 51002159390001)

Past

Object Id	Colliery	Seam Name	Seam Code	Mineral Name	Min Depth	Max Depth	Thick Indicator	Year	Ignore
98204	unnamed	YARD	KD040D	Coal	107.115	127	false	1906	☐
94410	unnamed	YARD	KD040D	Coal	117	141.811	false	1906	☐
96293	unnamed	MAIN	KE020D	Coal	122	133	false	1845	☐
99612	unnamed	YARD	KD040D	Coal	112	120.291	false	1906	☐
80429	unnamed	PREMIER (LOWER FOOT)	LB030D	Coal	75	115.017	false	1906	☐
94660	unnamed	MAIN	KE020D	Coal	123.158	125	false	1845	☐
96298	unnamed	MAIN	KE020D	Coal	61.79	66	false	1894	☐

I hope this information and our earlier discussion was useful but please do not hesitate to contact me again if you require any additional clarification on our data.

Kind regards

Darren

Darren Moody
Mining Consultant & Information Manager
The Coal Authority
☎ 01623 637 161
200 Lichfield Lane, Mansfield, Nottinghamshire, NG18 4RG
darrenmoody@coal.gov.uk
www.gov.uk/coalauthority

From: Brandon Rice-Birchall <brb@id-gsc.co.uk>
Sent: 16 August 2019 10:29
To: Darren Moody <DarrenMoody@coal.gov.uk>
Subject: FW: [External] CA Report Reference 51002159390001

Brandon Rice-Birchall
Director
For and on behalf of
iD GeoEnvironmental Limited

From: Brandon Rice-Birchall
Sent: 13 August 2019 09:32
To: 'Darren Moody' <DarrenMoody@coal.gov.uk>
Subject: RE: [External] CA Report Reference 51002159390001

Hi Darren,

Many thanks for your prompt reply. The BGS 10k map is dated 1990, so it may post-date the CA information so we will take that on board.

The CA viewer shows underground workings in the south of the site in seams LB030D, KD040D, and KE020D which I assume are the three seams at 60-140 depth mentioned in the CON29 report. Would it be possible to confirm the names of these seams, because if one is the Main seam then it is unlikely to outcrop on site as indicated by the BGS?

Regards

Brandon

Brandon Rice-Birchall
Director
For and on behalf of
iD GeoEnvironmental Limited

From: Darren Moody [mailto:DarrenMoody@coal.gov.uk]
Sent: 12 August 2019 16:12
To: Brandon Rice-Birchall <brb@id-gsc.co.uk>
Subject: [SPAM]FW: [External] CA Report Reference 51002159390001

Brandon

Thank you for your email.

Please refer to my response to your queries (in blue below).

I hope this clarifies the situation.

Kind regards

Darren

Darren Moody
Mining Consultant & Information Manager
The Coal Authority
☎ 01623 637 161
200 Lichfield Lane, Mansfield, Nottinghamshire, NG18 4RG
darrenmoody@coal.gov.uk
www.gov.uk/coalauthority

From: reports <reports@coal.gov.uk>
Sent: 09 August 2019 15:58
To: MIM Work-Tray <MIMWork-Tray@coal.gov.uk>
Subject: FW: [External] CA Report Reference 51002159390001

Good Afternoon MIM

This email has come in regarding the clients site from a con29m order and other data they have retrieve from our interactive viewer.

The questions are in the bullet point sections, the other questions in red have been answered by the commercial reports team.

The Coal Authority
Commercial Report Team
Retail Client Services

Email: Groundstability@coal.gov.uk
Website: www.groundstability.com

From: Brandon Rice-Birchall <brb@id-gsc.co.uk>
Sent: 09 August 2019 13:10
To: reports <reports@coal.gov.uk>
Subject: [External] CA Report Reference 51002159390001

Dear Sir/Madam

We undertaking a mining desk study and have purchased the attached CON29 report via Groundsure. The report does not indicate the presence of possible shallow coal within the site.

The report identifies two subsidence claims within 50m of the property – I have tried to order the follow on subsidence report, however I am locked out because this was ordered through Groundsure. Please can you provide a quotation for provision of the claims report.

Shaft Reference 329366-181 & 329366-247 lie to the south of the site. Please can you provide a quotation for provision of any shaft information relating to these shafts to assist with us the queries below.

I have a couple of queries with the report which I hope you will be able to help me with

- BGS geological maps 50k and 10k both infer the Main coal (2.17-4.5m thick) to outcrop in the south of the site, but this is not indicated as a coal outcrop on the CA Viewer. There is usually a good correlation with the BGS 10k map and the CA information. Is there any evidence to confirm the absence of the Main at this location? The majority of our data is inherited from the former National Coal Board and British Coal Corporation and would have been limited to the information in their possession at the time the data was created. You will be aware that the BGS regularly update their data and you should be mindful of this and any other relevant data not held by the Coal Authority when determining mining risk.
- The viewer and BGS maps indicate the presence of **shafts offsite** to the south 329366-181, 329366-247 and 329366-248 within the same fault block and down dip of the Main outcrop. Shaft 329366-181 is located in the approximate vicinity of the subsidence claims on the mining report and 329366-247 was found to be only 8.5m deep on treatment indicating the presence of shallow coal in the fault block. The CA have designated a Development High Risk Area associated with shaft 329366-181, and with probable shallow coal mineworkings NE of 329366-247. Is this likely to be the extent of the risk associated with the Main coal in this area? The majority of our data is inherited from the former National Coal Board and British Coal Corporation and would have been limited to the information in their possession at the time the data was created. You will be aware that the BGS regularly update their data and you should be mindful of this and any other relevant data not held by the Coal Authority when determining mining risk.
- At "Planning" level the CA viewer indicates both Probable Shallow Workings and a Development High Risk Area to the immediate NW of the site (image attached), however at "Coal Mining Data" Level, there is another area of Probable Shallow Workings that appears to extend onto the site. Should this additional area be considered as part of the Development High Risk Area? Only 'Probable Working' with a depth of 'Shallow' will be considered as high risk. The additional 'Probable Working' areas to which you refer are 'Moderate' depth i.e. 30-100m.
- Apologies for the above if they appear confusing – we are just trying to determine the likelihood of shallow coal, which seems more likely based on BGS information than immediately evident on the CA report.

Regards

Brandon

Brandon Rice-Birchall

Director
For and on behalf of
iD GeoEnvironmental Limited

Mobile: 07961 704 031
E-mail: brb@id-gsc.co.uk
Web: id-geo.co.uk

CGeol CHARTERED GEOLOGIST

iGeo ID GeoEnvironmental Limited

☑ NORTH WEST & MIDLANDS
Caledonian House
Tatton Street
Knutsford
Cheshire
WA16 6AG
Tel: 01565 755 557

☐ NORTH EAST & YORKSHIRE
The Stables
Aske Hall
Richmond
North Yorkshire
DL10 5HG
Tel: 01748 889 015

Appendix D

Our Reference: Ewloe Green-G-P001

Date: 2nd August 2019

Mr. Geoff Gaunt
The Meads,
Ffordd y Pentre,
Nercwys,
Mold,
Flintshire
CH7 4EL

iD GeoEnvironmental Limited

North West & Midlands
Caledonian House, Tatton Street,
Knutsford, Cheshire, WA16 6AG
t: 01565 755557

North East & Yorkshire
The Stables, Aske Hall, Aske,
Richmond
North Yorkshire, DL10 5HG
t: 01748 889010
www.id-geo.co.uk

Dear Mr Gaunt,

Land Off Holywell Road, Ewloe Green, Flintshire
Preliminary (Desk Study) Investigation

Further to your recent invitation we are pleased to provide a proposal for undertaking a preliminary (desk study) investigation in respect of the above land. It is understood that the site comprises approximately 10ha located to the south of Holywell Road, Ewloe Green, Flintshire.

Based on a brief review of the available information for the site, we consider that the following geoenvironmental factors are likely to influence the proposed residential development:

- The site is broadly located between Holywell Road (northern boundary) and the existing residential properties along Green Lane to the south. The overall site area is currently under split ownership, depicted as Site A and Site B on the site location plan provided (Core Design Drawing Ref. 18030-S2-101).
- Site A comprises 7.55ha of predominantly agricultural/ grazing land, whilst the smaller Site B area comprises 2.42ha of land which includes an existing residential property in the south, with associated grazing land/ paddocks for horses.
- The site is likely to be underlain by superficial deposits comprising areas of Glacial Till, Glaciofluvial, and Head deposits.
- Bedrock beneath the site is indicated to comprise the Hollin Rock Sandstone Formation in the northern and central portion, and Pennine Middle Coal Measures Formation in the south.
- The site lies within a coal mining reporting area and a coalfield consultation area as a result of the coal measures bedrock - It is therefore considered that there is potential for mining relating issues at the site.
- A number of mine entries are indicated to be present around the site, but none (recorded) indicated within the site. There are indications that coal workings are present beneath the southern portion of the site associated with the coal measures bedrock.
- Historical contamination sources may have been present on site.
- Mine workings may represent a risk of hazardous ground gas, although a more detailed review will be undertaken during the desk study.
- The client has indicated that there may be additional mineral resources in the area requiring further consideration.

Our proposal allows for the following scope of works:

- Obtaining and examining site-centred historical Ordnance Survey maps relating to the site and surrounding area.
- Undertaking an examination of published geological and hydrogeological maps.
- Obtaining an environmental database search (Envirocheck, Groundsure or similar).
- Requesting a Local Authority environmental search response.
- Obtaining a mining report from the Coal Authority.
- Undertaking initial consultation with the local authority regarding potential mineral resources (as requested by the client).
- Undertaking a site walkover survey.
- Undertaking a preliminary contamination risk assessment (PRA) and preparing a preliminary conceptual model for the site.
- Preparing a Preliminary (Desk Study) Investigation Report.
- Issue of an electronic pdf copy of the report.

Dependent on the initial findings of the above standard searches, additional enquiries may be necessary (e.g. obtaining coal shaft records, mine abandonment plans or local authority monitoring data) which may incur additional costs.

We assume that an Ordnance Survey basemap or topographical survey will be provided by the client upon instruction. An OS basemap could be provided, if required, at additional cost.

It is anticipated that, allowing for receipt of statutory search information, a final electronic report will be available within 3 weeks of receiving your written instruction to proceed.

Our fee for provision of the Preliminary Desk Study report for the site is **£** plus VAT.

Programme
We can make an **immediate start** on the Desk Study Investigation and anticipate the completed report will be issued within three weeks of your instruction.

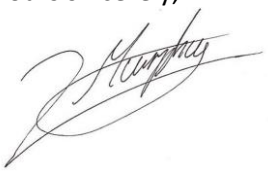
The report will also include tentative recommendations with respect to appropriate site preparatory and remedial works and discuss possible foundation solutions. A ground investigation cost proposal can be supplied with the report should this be required.

Terms and Conditions
The scope of work outlined in this proposal will be undertaken in accordance with our Standard Terms and Conditions, a copy of which are enclosed. Your attention is drawn to the Sections 8 and 9 of the terms and conditions which relate to provision of Professional Indemnity Insurance and Limitation of Liability respectively. We will be pleased to accept your instruction to proceed as acceptance of this proposal and agreement of our Terms and Conditions.

We understand that our report is solely for the benefit of Mr. Geoff Gaunt. If, however, at a later date, a third party wishes also to rely on the benefit of our report then we will consider any such request. Whether or not we enter into a warranty with a third party will be at our discretion, and subject to payment of a fee to cover our legal and incidental costs. We will also require approval from our insurers should more than one beneficiary require a warranty, or should the proposed warranty not be in our approved standard form.

It is hoped the above is sufficient for your present needs. However, should you require any further information, please contact the undersigned.

Yours sincerely,



Liam Murphy
Senior Geoenvironmental Engineer
BSc (Hons) FGS
for and on behalf of
iD GEOENVIRONMENTAL LIMITED

Terms and Conditions for the Appointment of iD Consultants

V008

1 DEFINITIONS AND INTERPRETATION

1.1 In this Agreement, unless the context otherwise requires, the following words and expressions have the following meanings:

"iD Consultants" and "iD" shall mean ID Structural Engineering Limited and ID Civils Design Limited whose registered offices are at 15 Newbiggin, Richmond, North Yorkshire, DL10 4DR and ID Geoenvironmental Limited whose registered offices are at Caledonian House, Tatton Street, Knutsford, Cheshire, WA16 6AG.

"Agreement" shall mean these Terms (entitled "Terms and Conditions for the Appointment of iD Consultants"), the Proposal, any document recording the Client's unequivocal acceptance of the Proposal and any other documents or parts of other documents expressly referred to in any of the foregoing;

"Client" shall mean the party for whom the Services are being provided by iD;

"Documents" shall mean all documents of any kind and includes plans, drawings, reports, programmes, specifications, Bills of Quantities, calculations, letters, e-mails, faxes, memoranda, films and photographs (including negatives), or any other form of record prepared or provided or received by, or on behalf of iD, and whether in paper form or stored electronically or on disk, or otherwise;

"Intellectual Property" includes all rights to, and any interests in, any patents, designs, trade marks, copyright, know-how, trade secrets and any other proprietary rights or forms of intellectual property (protectable by registration or not) in respect of any technology, concept, idea, data, programme or other software (including source and object codes), specification, plan, drawing, schedule, minutes, correspondence, scheme, formula, programme, design, system, process logo, mark, style, or other matter or thing, existing or conceived, used, developed or produced by any person;

"Parties" shall mean the Client and iD;

"Project" shall mean the project described in the Proposal and any enquiry from the Client on which iD has based its Proposal;

"Proposal" means the offer document prepared by iD in response to an enquiry or otherwise, in connection with the proposed provision of the Services;

"Services" means the work and services relating to the Project to be provided by iD pursuant to the Agreement and as set out in the Proposal and shall include any additions or amendments thereto made in accordance with these Terms;

"Terms" means these terms entitled "Terms and Conditions for the Appointment of iD";

1.2 Words importing the singular only shall also include the plural and vice versa, where the context requires.

1.3 Words importing persons or parties shall include firms, corporations and any organisation having legal capacity and vice versa, where the context requires; and words importing a particular gender include all genders.

1.4 The sub-headings to the clauses of these Terms are for convenience only and shall not affect the construction of the Agreement.

1.5 A reference to legislation includes that legislation as from time to time amended, re-enacted or substituted and any Orders in Council, orders, rules, regulations, schemes, warrants, by-laws, directives or codes of practice issued under any such legislation.

1.6 In the event of conflict between the documents forming part of the Agreement, the Proposal shall prevail, followed by the Terms.

2 APPOINTMENT & OBLIGATIONS OF iD

2.1 The Client agrees to engage iD and iD agrees to provide the Services in accordance with the provisions of the Agreement.

2.2 iD shall perform the Services using the reasonable standard of skill and care normally exercised by similar professional consultancy firms in performing similar services under similar conditions and shall use all reasonable endeavours to perform the Services in accordance with all relevant environmental and safety legislation.

3 OBLIGATIONS OF THE CLIENT

3.1 Throughout the period of this Agreement the Client shall afford to iD or procure the affording to iD of access to any site where access is required for the performance of the Services. In doing so, the Client accepts responsibility for ensuring that iD is notified in writing of all special site and/or plant conditions, including without prejudice to the generality of the foregoing, the existence and precise location of all underground services, cables, pipes, drains or underground buildings, constructions or any hazards known or suspected by the Client, which the Client shall clearly mark on the ground or identify on accurate location plans supplied to iD prior to the commencement of the Services. The Client shall also inform iD in writing of any relevant operating procedures including any site safe operating procedures and any other regulations relevant to the carrying out of the Services. The Client shall indemnify iD against all costs, claims, demands and expenses arising as a result of any non-disclosure in this respect, including but not limited to indemnification against any action brought by the owner of the land or otherwise. Whilst iD will scan all potential exploratory locations with a Cable Avoidance Tool, iD shall not be liable for any damage to underground services, cables, pipes, drains or underground buildings, constructions and the like which were either not marked on site or for which accurate plans were not provided.

3.2 If the Client discovers any conflict, defect or other fault in the information or designs provided by iD pursuant to the Agreement, he will advise iD in writing of such defect, conflict or other fault and iD shall have the right to rectify the same or where necessary, to design the solution for rectification of any works carried out by others pursuant the conflicting, defective or in any other way faulty information or designs.

4 INTELLECTUAL PROPERTY

4.1 The copyright in all Intellectual Property prepared by or on behalf of iD shall remain vested in iD. The Client shall have a non-exclusive licence to copy and use such Intellectual Property for purposes directly related to the Project. Such licence shall enable the Client to copy and use the Intellectual Property but solely for its own purposes in connection with the Project and such use shall not include any licence to reproduce any conceptual designs or professional opinions contained therein nor shall it include any license to amend any drawing, design or other Intellectual Property produced by iD.

4.2 Should the Client wish to use such Intellectual Property in connection with any other works or for any other purpose not directly related to the Project or wish to pass any Intellectual Property to any third party, it must obtain the prior written consent of iD. The giving of such consent shall be at the discretion of iD and shall be upon such terms as may be required by iD. iD shall not be liable for the use by any person of such Intellectual Property for any purpose other than that for which the same were prepared by or on behalf of iD.

4.3 Ownership of any proposals submitted to the Client that are not subsequently confirmed as part of the Services to be provided for the Client remain with iD and such proposals must not be used as the basis for any future work undertaken by the Client or a third party and no liability can be accepted howsoever arising from such proposals.

4.4 In the event of the Client being in default of payment of any fees or other amounts due, iD may suspend further use of the licence on giving 2 days' notice of the intention to do so. Use of the licence may be resumed on receipt of the outstanding amounts.

5 TITLE

6.1 iD shall transfer only such title or rights in respect of the Documents as it has, and if any part is purchased from a third party iD shall transfer only such title or rights as that party had and has transferred to iD.

6.2 Title in the Documents shall remain with and shall not pass to the Client until the amount due under the invoice(s) (including interest and costs) has been paid in full.

6 CONFIDENTIALITY

6.1 iD undertakes not to divulge or disclose to any third party without the written consent of the Client information which is designated confidential by the Client or which can reasonably be considered to be confidential and arises during the performance of the Services unless required to do so by law or necessary in the proper performance of its duties in relation to the Project, or in order to make full frank and proper disclosure to its insurers or intended insurers, or to obtain legal or accounting advice. Subject to this iD shall be permitted to use information related to the Services it provides in connection with the Project for the purposes of marketing its services and in proposals for work of a similar type.

7 THIRD PARTIES

7.1 The Agreement or any part thereof or any benefit or interest there-under may not be assigned by the Client without the prior written consent of iD. The giving of such consent shall be at the discretion of iD and iD will only agree to an assignment on its terms and in return for payment of a fee by the Client to iD to cover iD's legal and other costs associated with any assignment. iD will consider and may consent to any request from the Client for iD to enter a collateral warranty with a third party with regard to the Services provided under the Agreement. The giving of such consent shall be at the discretion of iD and iD will only enter a collateral warranty on its terms and in return for payment of a fee by the Client to iD to cover iD's legal and other costs associated with any collateral warranty.

7.2 The Agreement shall not confer and shall not purport to confer on any third party any benefit or any right to enforce any term of this Agreement for the purposes of the Contracts (Rights of Third Parties) Act 1999 or otherwise.

8 INSURANCE

8.1 iD warrants to the Client that there is in force a policy of Professional Indemnity insurance covering its liabilities for negligence under this Agreement, with a limit of indemnity of £2,000,000 (TWO MILLION POUNDS) but subject to separate annual aggregate limits of indemnity in respect of pollution/contamination claims of £2,000,000 and asbestos (£1,000,000). This policy is annually renewable and iD agrees to use reasonable endeavours to maintain such insurance at all times until six years from the date of the completion (or termination) of the Services under the Agreement, provided such insurance is available at commercially reasonable rates having regard, inter alia, to premiums required and policy terms obtainable. If for any period such insurance is not available at commercially reasonable rates, iD shall forthwith inform the Client and shall obtain in respect of such period such reduced level of Professional Indemnity insurance as is available and as would be fair and reasonable in the circumstances for iD to obtain.

9 LIMITATIONS ON LIABILITY

9.1 Unless otherwise agreed in writing, iD's liability under or in connection with the Agreement whether in contract, tort, negligence, breach of statutory duty or otherwise (other than in respect of personal injury or death) shall be limited to and shall not exceed the lesser of either two million pounds or 20 times the total value of invoices issued to the Client for consultancy work instructed under the Agreement. iD's liability in connection with any claim relating to asbestos shall not exceed £1,000,000. No action or proceedings under or in respect of the Agreement whether in contract, tort, negligence, under statute or otherwise shall be commenced against iD after the expiry of a period of six years from the date of the completion (or termination) of the Services under the Agreement.

9.2 iD shall not be liable for the cost of rectifying any defect, conflict or other fault in the information or designs provided by iD or for the cost of designing a solution for and rectifying any subsequent works carried out by others pursuant to the conflicting, defective or in any other way faulty information or designs, unless iD has been advised in writing of the same by the Client and has been given the opportunity to rectify the same or where necessary, to design the solution for rectification of any subsequent works carried out by others pursuant to the same.

10 PAYMENT

10.1 Invoices for services rendered will be submitted for payment in accordance with the Proposal. The due date for payment is the date of the invoice and the final date for payment is 14 days from the date of the invoice. If the Client disputes the amount included for payment in an invoice a written notice must be served on iD by the Client not later than 7 days before the final date for payment. If no notice is given the amount due shall be the amount stated in the invoice. If the Client shall fail to pay in full any sum due under the terms of the Agreement by the final payment date for that sum and no effective notice of intention to withhold payment has been issued, iD may serve written notice on the Client demanding payment within 14 days of such notice. If the Client shall fail to comply with such notice, iD shall be entitled to terminate its employment under the Agreement forthwith.

10.2 In the event of failure on the part of the Client to pay any monies in accordance with the foregoing payment provisions, iD will be entitled to charge interest on any monies owed to it by the Client, such interest to be at a rate of 8% above the base rate of a clearing bank from time to time calculated from the final date for payment to the date of actual payment on a compound basis. iD will also be entitled to claim any additional costs in collecting the debt plus compensation for time spent.

11 DELAY

11.1 iD will comply with any timescale agreed for completion of the Services unless delayed or prevented by circumstances beyond its reasonable control and in the event of any such circumstances arising iD undertakes to complete the Services within a reasonable period, but will not be liable to the Client for any delay as a result.

12 TERMINATION

12.1 The Agreement may be determined by either party in the event of the other making a composition or arrangement with its creditors, becoming bankrupt, or being a company, making a proposal for a voluntary arrangement for a composition of debts, or has a provisional liquidator appointed, or has a winding-up order made, or passes a resolution for voluntary winding-up (except for the purposes of a bona fide scheme of amalgamation or reconstruction), or has an administrator or an administrative receiver appointed to the whole or any part of its assets. Notice of determination must be given to the party which is insolvent by the other party.

12.2 If for any reason the performance of the Services by iD is suspended for a period in excess of three calendar months then iD shall be entitled to determine its appointment in respect of the Services by seven days written notice to the Client.

12.3 Any determination of the appointment of iD howsoever caused shall be without prejudice to the right of iD to require payment for all services performed up to the date of such determination including but not limited to payment of a fair and reasonable proportion of any figure identified in the Proposal or otherwise for fees in respect of a particular service which iD has started, but not completed.

13 NOTICES

13.1 Any notice provided for in the Agreement shall be in writing and shall be deemed to be properly given if delivered by hand or sent by first class post to the address of the relevant party as may have been notified by each party to the other or, in the absence of notification, to the address of iD set out above or to the registered address of the Client. Such notice shall be deemed to have been received on the day of delivery if delivered by hand or on the second working day after the day of posting if sent by first class post.

14 ENTIRE AGREEMENT

14.1 The Agreement constitutes the complete and entire agreement between the Client and iD with respect to the Services and supersedes any prior oral and/or written warranties, terms, conditions, communications and representations, whether express or implied and any claim against iD in respect of the Services can only be made in contract under the provisions of the Agreement and not otherwise under the law or tort or otherwise. iD will not be bound by any standard or printed terms or conditions furnished by the Client in any of its documents unless iD specifically states in writing separately from such documents that it intends such terms and conditions to apply.

14.2 No amendments, modifications or variation of the Agreement shall be valid unless made in writing and agreed to by both the Client and iD; such agreement must be recorded in writing by at least one of the Parties.

15 DISPUTES AND GOVERNING LAW

15.1 The Agreement shall be governed by and construed in accordance with English law and the Parties irrevocably and unconditionally submit to the jurisdiction of the English Courts.

15.2 Where the Housing Grants, Construction and Regeneration Act 1996 applies, any dispute between the Parties may be referred to adjudication in accordance with The Scheme for Construction Contracts Regulations 1998 or any amendment or modification thereof being in force at the time of the dispute, as applicable to England, Wales, Scotland and Northern Ireland.

Appendix E

Generic Notes – ID Geoenvironmental Investigations

Environmental Setting

General

Third party information obtained from the British Geological Survey (BGS), the Coal Authority and the Local Authority etc is presented in the Correspondence Appendix of this Geoenvironmental Report.

Geology, Mining & Quarrying

In order to establish the geological setting of a site, ID Geoenvironmental refer to BGS maps for the area, and the relevant geological memoir.

A coal mining report is obtained from the Coal Authority. Further information is sourced from the Local Authority and by reference to current and historical OS plans.

Landfills and other Historical Land Uses

ID Geoenvironmental obtain data from the Landmark Information Group, the Environment Agency and the Local Authority with respect to known areas of landfilling within 250m of the proposed development site. Reference is also made to historical OS plans, which are inspected for evidence of backfilled quarries, railway cuttings, colliery spoil tips etc.

Historical maps dating from the middle of the nineteenth century are also studied for evidence of historical land uses (i.e. gas works, foundries, chemical works) which may represent potential sources of contamination or ground instability.

Radon

Radon is a colourless, odourless gas, which is radioactive. It is formed in strata that contain uranium and radium (most notably granite), and can move though fissures eventually discharging to atmosphere, or the spaces under and within buildings. Where radon occurs in high concentrations, it can pose a risk to health.

In order to assess potential risks associated with radon gas, ID Geoenvironmental refer to BRE Report BR211, 2007: "*Radon: guidance on protective measures for new buildings*".

The level of protection needed is site-specific and is determined by reference to the maps contained in Annex A of BR211. These maps are derived from the Radon Atlas of England and Wales (2007), and indicate the highest radon potential within each 1km grid square.

If the site falls within a light grey square on the relevant map in Annex A then basic radon protection should be installed in new buildings; if the site falls within a dark grey square then full radon protection should be installed. **If the site is in an un-shaded square then no radon protection is needed.**

BR211 provides a preliminary indication of the measures required for a particular site, but it is also often beneficial to request a BR211 Radon Report from the BGS. The Annex A maps indicate the highest geological radon potential within each 1km grid square, but in many cases the radon potential varies considerably within the grid square. The BR211 Radon Report gives definitive guidance on the requirement for radon protective measures, and therefore may allow the adoption of a lower level of protection than that indicated in the Annex A maps.

ID Geoenvironmental typically obtain a BR211 Radon Report for all sites that fall within a shaded square on the relevant Annex A map.

When requesting a BR211 Radon Report from the BGS ID Geoenvironmental select the search radius carefully, since too large a search radius may result in the inclusion of areas of higher geological radon potential, and therefore in the recommendation of too high a level of protection.

Further details of the protective measures required, if appropriate, are provided in the Hazardous Gas section of this Geoenvironmental Report.

Hydrogeology

ID Geoenvironmental obtain information from the Environment Agency (EA) and the Landmark Information Group with respect to:

- groundwater quality
- recorded pollution incidents
- licensed groundwater abstractions

From 1 April 2010 the Environment Agency's Groundwater Protection Policy uses aquifer designations that are consistent with the Water Framework Directive. These designations reflect the importance of aquifers in terms of groundwater as a resource (drinking water supply) but also their role in supporting surface water flows and wetland ecosystems.

The aquifer designation data is based on geological mapping provided by the British Geological Survey.

These maps are split into two differing aquifer designations:

- **Superficial (Drift)** – permeable unconsolidated (loose) deposits such as sands and gravels.
- **Bedrock** – solid permeable formations such as sandstone, chalk or limestone.

The maps display the following aquifer designations:

- **Principal aquifers:** *"These are layers of rock or drift deposits that have high intergranular and/or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale. In most cases, principal aquifers are aquifers previously designated as major aquifer"*.
- **Secondary A** – *"permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers";*

- **Secondary B** - *predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers*

- **Unproductive Strata**: *These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow. However groundwater flow through such rocks, although imperceptible, does take place and needs to be considered in assessing the risk associated with persistent pollutants. Some non-aquifers can yield water in sufficient quantities for domestic use".*

Groundwater vulnerability is determined by 4 variables:

1. The presence and nature of overlying soil (the weathered zone affected by living organisms; soil in the UK can extend up to 2m in depth). Physical properties of the soil affect the downward passage of water and it's ability to attenuate pollutants. The EA make reference to a three-fold classification of soil types:-

   - Soils of **low** leaching potential are defined as *"soils in which the pollutants are unlikely to penetrate the soil layer because either water movement is largely horizontal, or they have the ability to attenuate diffuse pollutants".*
   - Soils of **intermediate** leaching potential are defined as *"soils which have a moderate ability to attenuate diffuse source pollutants or in which it is possible that some non-adsorbed diffuse source pollutants and liquid discharges could penetrate the soil layer".*
   - Soils of **high** leaching potential are defined as *"soils with little ability to attenuate diffuse source pollutants and in which non-adsorbed diffuse source pollutants and liquid discharges have the potential to move rapidly to underlying strata or to shallow groundwater".*

   In urban areas and restored mineral workings the soil information is based on fewer observations than elsewhere. A worst-case vulnerability (H) is therefore assumed for these areas and for current mineral workings by the EA. All are given a designation of **HU** unless proved otherwise.

2. The presence and nature of Drift, which often overlies bedrock. Where Drift is of substantial thickness and low permeability, it can provide an effective barrier to surface pollutant migration. Permeable Drift is classified as a Minor Aquifer except where it is in probable hydraulic continuity with a Major Aquifer, where it is regarded as part of the Major Aquifer unless proven otherwise by site investigation.

3. The nature of the geological strata (bedrock). Rocks that contain groundwater in exploitable quantities are called aquifers.

4. The depth of the unsaturated zone; i.e. that part of the aquifer which lies above the water table

The EA have also designated Source Protection Zones, which are based on proximity to a groundwater source (springs, wells and abstraction boreholes). The size of a Source Protection Zone is a function of the aquifer, volume of groundwater abstracted and the effective rainfall, and may vary from tens to several thousand hectares.

Hydrology

ID Geoenvironmental obtain information from the Environment Agency and the Landmark Information Group with respect to:

- surface water quality
- recorded pollution incidents
- licensed abstractions (groundwater & surface waters)
- licensed discharge consents
- site susceptibility to flooding

The EA have set **water quality** targets for all rivers. These targets are known as River Quality Objectives (RQO's). The water quality classification scheme used to set RQO planning targets is known as the River Ecosystem scheme. The scheme comprises five classes (RE1 to RE5) which reflect the chemical quality requirements of communities of plants and animals occurring in our rivers.

General Quality Assessment (GQA) grades reflect actual water quality. They are based on the most recent analytical testing undertaken by the EA. There are six GQA grades (denoted A to F) defined by the concentrations of biochemical oxygen demand, total ammonia and dissolved oxygen.

The susceptibility of a site to **flooding** is assessed by reference to a Flood Map on the Environment Agency's website. These maps provide show natural floodplains - areas potentially at risk of flooding if a river rises above its banks, or high tides and stormy seas cause flooding in coastal areas.

There are two different kinds of area shown on the Flood Map:

1. Dark blue areas could be flooded by the sea by a flood that has a 0.5% (1 in 200) or greater chance of happening each year, or by a river by a flood that has a 1% (1 in 100) or greater chance of happening each year

2. Light blue areas show the additional extent of an extreme flood from rivers or the sea. These outlying areas are likely to be affected by a major flood, with up to a 0.1% (1 in 1000) chance of occurring each year.

These two colours show the extent of the natural floodplain if there were no flood defences or certain other manmade structures and channel improvements

The maps also show all flood defences built in the last five years to protect against river floods with a 1% (1 in 100) chance of happening each year, or floods from the sea with a 0.5% (1 in 200) chance of happening each year, together with some, but not all, older defences and defences which protect against smaller floods.

The Agency's assessment of the likelihood of flooding from rivers and the sea at any location is based on the presence and effect of all flood defences, predicted flood levels, and ground levels.

It should also be noted that as the floodplain shown is the 1 in 100 year (or 1 in 200 year as appropriate), areas outside this may be flooded by more extreme floods (e.g. the 1 in 1000 year

flood). Also, parts of the areas shown at risk of flooding will be flooded by lesser floods (e.g. the 1 in 5 year flood). In some places due to the shape of the river valley, the smaller floods will flood a very similar extent to larger floods but to a lesser depth.

If a site falls within a floodplain, it is recommended that a flood survey be undertaken by a specialist consultant who can advise on appropriate mitigating measures; ie raising slab levels, provision of storage etc.

Furthermore, as discussed in Planning Policy Statement 25 (PPS25) a consequence of amendment 8 to Article 10 of The Town and Country Planning (General Development Procedure) Order 1995 ("the GDPO"), on 1st October 2006, LPAs are required to consult the Environment Agency on all applications for development in flood risk areas (except minor development), including those in areas with critical drainage problems and for any development on land exceeding 1 hectare outside flood risk areas.

COMAH & Explosive Sites

ID Geoenvironmental obtain information from the Landmark Information Group with respect to COMAH or explosive sites within 1km of the proposed development site. MMi's report refers to any that are present, and recommends that the Client seeks further advice from the HSE.

Areas around COMAH sites (chemical plants etc) are zoned with respect to the implementation of emergency plans. The HSE are a statutory consultee to the local planning authority for all COMAH sites. The COMAH site may have to revise it's emergency action plan if development occurs. This might be quite straightforward or could entail significant expenditure. Consequently, the COMAH site may object to a proposed development (although it is the Local Authority who have final say, and they are likely to place more weight on advice from the HSE).

Preliminary Conceptual Ground Model

The site's environmental setting (and proposed end use) is used by ID Geoenvironmental to assess the significance of any contamination encountered during the subsequent ground investigation

Assessment of contaminated land is based on an evaluation of pollutant linkages (source-pathway-receptor). Contaminants within the near surface strata represent a potential source of pollution. The environment (most notably groundwater), site workers and end users are potential targets.

Potential pollutant linkages are shown on a preliminary conceptual site model, presented as a Drawing in an Appendix to this Geoenvironmental Report. The preliminary model is revised in light of data arising from the subsequent ground investigation.