Land adjacent to Alpha Windows, Abenbury Way Wrexham Industrial Estate

Phase 1 Contaminated Land Assessment (Desk Study)

For: Alpha Windows & Blueprint Architectural

Date: August 2025

Report Ref: R3458-R01-v1

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LAND ADJACENT TO ALPHA WINDOWS, ABENBURY WAY, WREXHAM INDUSTIRAL ESTATE

PHASE 1 CONTAMINATED LAND ASSESSMENT (DESK STUDY)

For: Alpha Windows & Blueprint Architectural

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EXECUTIVE SUMMARY

Project Reference	R3458-R01-v1
Site Location	Land adjacent to Alpha Windows, Abenbury Way, Wrexham Industrial Estate
Development Proposals	The planning proposals of which have been granted by Wrexham County Brough Council (WCBC) involve the construction of an industrial unit within a parcel of land in Wrexham Industrial Estate which is currently undeveloped.
Previous Site Investigations	There are no previous intrusive ground investigations available for the Site.
Historical Summary	Historical mapping shows the Site to form part of a wider area of open fields likely in agricultural use until the 1982. Historical mapping shows the Site to be part of Wrexham Industrial Estate although no developments have taken place on the Site over its mapped history the Site lies adjacent to a single industrial unit with a larger warehouse unit to the immediate south. As of earliest mapping 1899 to 2003, and aerial imagery 2006-2025, the Site has remained vacant. The Site presently (2025) is a well-maintained parcel of green space, with low lying grass and thick vegetation on the northern boundary.
Ground Conditions / Geology & hydrogeology	Geological mapping by the British Geological Survey (BGS) mapping shows the Site to be underlain by superficial deposits of Glacial Till (Boulder Clay) and bedrock of the Kinnerton Sandstone Formation – sandstone. A nearby BGS borehole entry (~75m north) reported boulder clay to 41.7m bgl. BGS mapping reports the Site to be underlain by landscaped ground. Landscaped ground may be described as worked, made or disturbed ground. There are no former developments on the Site therefore it is suspected that if the underlain by made ground, it would likely to have been derived from neighbouring sites within the industrial estate during their development.
Radon	Less than 1% of homes are at or above the action level for radon and hence no protection measures are required within new buildings on the Site.
Unexploded Ordnance (UXO)	The UXO risk mapping identifies the Site as within an area of Low risk. The preliminary UXO report states that there are no known historical records of bombing on the Site during World War One and World War Two, and that there have been no bombing decoys recorded within 5km of the Site. The report confirms that there are records of potential bombing within 5km of the Site and that the Site was once part of the Royal Ordnance Factory (ROF).
Contamination	Based on the available information, the following contamination sources have been identified: • Made / disturbed ground described by the BGS as 'landscaped ground' is mapped on Site although there is no evidence to suggest that the Site itself has been previously developed. Contaminants associated with made ground will depend upon

	its composition and can typically be associated with contaminants including heavy metals, poly aromatic hydrocarbons (PAHs) and asbestos. If made ground comprises reworked natural ground then there may be little or no associated contamination. • The area has historically been part of military land although there is no indication that the Site has previously been developed.
Recommendations	It is recommended that a limited intrusive Site investigation is undertaken to confirm the composition and chemistry of shallow ground which has been described by the BGS as 'landscaped ground'. This should be undertaken utilising trial-pits to permit the inspection of Site soils and collection of representative samples of shallow soils for chemical testing. A detailed desk study is recommended to assess, and potentially zone, the Unexploded Ordnance (UXO) hazard level on the Site. This should be undertaken prior to undertaking any intrusive Site investigation. An environmental pollution incident management plan and unexpected contamination protocol should be produced and implemented during construction.

1 Introduction

1.1 General

1.1.1 Smith Grant LLP (SGP) understand that Alpha Windows has been granted planning (P/2022/0411) by Wrexham County Borough Council (WCBC) for the construction of an industrial unit within a parcel of land in Wrexham Industrial Estate. The land, hereby referred to as 'Site' is located adjacent to Alpha Windows off Abenbury Road. Condition 8 and 9 of the planning permission requires a phased investigation to identify the extent of contamination, and any measures required to remediate the Site.

1.1.2 It is understood that the current Site is an undeveloped and in a vacant state, situated within the north-west corner of the wider area of Wrexham Industrial Estate. It is understood that Wrexham Industrial Estate was formerly used by the Ministry of Defence for the manufacture of explosives as the Royal Ordnance Factory (ROF), Wrexham which came in operation from 1941 and ceased in 1945. It is unknown if such operations were carried out on the Site, and therefore a review of historical developments on the Site is essential in confirming any former operations carried out by ROF.

1.1.3 SGP was duly instructed to produce a carry out a contaminated land assessment that will assist in identifying any potential constraints to the development proposals in relation to contaminated land and satisfy (or partially satisfy depending on the findings) Condition 8 which relates to contaminated land. This initial Phase 1 Contaminated Land Assessment reviews a variety of information and summarises the likelihood of contamination that may be present on the Site.

1.2 Scope and Objectives of the Report

1.2.1 This following report describes the Phase 1 Contaminated Land Assessment (Desk Study) undertaken by SGP in accordance with the brief agreed with the client. The assessment has been prepared with reference to the Planning Practice Guidance provided in relation to land affected by contamination[1] land stability[2] under the National Planning Policy Framework (NPPF)[3].

1.2.2 The assessment comprised a review of third-party information on the environmental setting of the Site and the Site's previous and current uses with respect to potential risks to the environment or human health, and a Site inspection. This report contains a qualitative risk assessment, and where appropriate makes recommendations for further investigation and remedial actions appropriate to the proposed future use of the Site.

[1] Planning Practice Guidance (PPG): Land Affected by Contamination, issued 12 June 2014, last updated 22 July 2019, www.gov.uk
[2] Planning Practice Guidance (PPG): Land Stability, issued 6 March 2014, last updated 22 July 2019, www.gov.uk
[3] National Planning Policy Framework (NPPF), issued 27 March 2012, last updated 12 December 2024

2 Planning Policy, Legislative and Technical Context

2.1 Planning

2.1.1 The main driver within a planning context for contaminated land assessment is as specified within the Planning Practice Guidance provided in relation to land affected by contamination which forms part of the NPPF 2024[3].

2.1 Local Planning Policy and Guidance

2.1.1 WCBC has adopted the Wrexham Local Development Plan (LDP)[4] as of 20/12/23. It forms part of the statutory development plan alongside Future Wales: The National Plan 2040[5]. This sets out the Council's overall vision, strategic objectives, spatial strategy and strategic planning policies from 2013-2028. It contains policies and sections involving 'Environment and Conservation'; it does not, however, mention land contamination.

2.2 Legislative Context

2.2.1 Land contamination can harm human health, groundwaters, surface waters, soils, ecosystems and property. As such it is controlled, either directly or indirectly, through a range of legislation, including, but not limited to:

- Part IIA of the Environmental Protection Act 1990: establishes a system for identifying and remediating statutorily defined 'contaminated land'; and focuses on addressing contaminated land that meets the specific legal definition and cannot be dealt with via other means, including planning.
- Water Environment Regulations 2017: replaces previous legislation and outlines duties of regulators in relation to characterisation and classification of water bodies, environmental permitting, abstraction, and impoundment of water.
- Environmental Permitting Regulations 2016: impose provisions to prevent ground and water contamination from operations requiring an Environmental Permit to operate; and implement controls for operations relating to the treatment or handling of contaminated soils.

[4] Wrexham County Borough Local Development Plan 2013-2028, Adopted 20th December 2023 (Accessed July 2025)
[5] Future Wales The National Plan 2040 (Accessed July 2025)

2.3 National Best Practice and Guidance

2.3.1 The Environment Agency (EA) Land Contamination: Risk Management Guidance[6] provides an overarching framework for the assessment and investigation of land contamination. It is understood that Natural Resources Wales (NRW) has adopted the EA LCRM Guidance.

2.3.2 It is designed to be used in a range of regulatory and management contexts such as voluntary remediation, planning, assessing liabilities or under the Part 2A contaminated land regime. The guidance sets out a phased approach to the assessment of land contamination and specifies requirements for reports produced as part of the process, including Preliminary Risk Assessments (PRAs) and Generic and Detailed Quantitative Risk Assessments (GQRAs and DQRAs).

2.3.3 The EA Guidance is supported by, and cross-refers to, an extensive range of additional statutory and non-statutory guidance relating to aspects such as Site investigations, protection of groundwater, understanding and managing asbestos, definition of waste and the specific investigation and assessment procedures under Part IIA. Where necessary, such guidance is referred to in the following report.

2.3.4 The contaminated land assessment within this report has taken full account of the above planning context, legislation and best practice guidance, and where necessary, such guidance is referenced.

[6] Land Contamination: Risk Management, issued 5th June 2019, last updated 20th July 2023

3 Assessment Methodology

3.1 Scope

3.1.1 In undertaking this assessment, SGP has carried out the following activities:

- visit to view the existing Site and its setting;
- review of comprehensive historical mapping information;
- review of comprehensive environmental setting information (geology, hydrology, hydrogeology, industrial land uses, mineral excavation / extraction, landfilling / waste management activities);
- review of information relating to potential unexploded ordnance (UXO).
- review of development proposals;
- development of preliminary conceptual Site model (CSM) with regards to ground contamination; and,
- provision of recommendations for further investigations and mitigation, where deemed necessary.
- Consultation with local authority to ascertain what data and reporting they hold regarding the Site.

3.1.2 The information has been used to determine:

i. the potential for any ground contamination to be present on or near the Site due to historical and/or current land uses; and,

ii. the potential for any such contamination to pose a constraint to the proposed use of the Site and / or impact the surrounding environment.

3.1.3 Information has also been obtained on general expected ground conditions at the Site and stability / physical ground conditions where these may constrain the planned development are included where relevant. Formal recommendations with regards to geotechnical considerations are not included.

3.1.4 Similarly, ecological surveys have not been carried out, although reference is made to relevant information and SGP observations, where deemed relevant and applicable.

3.2 Sources of Information

3.2.1 The baseline data has been gathered through a desk top study and an area visit. No additional survey or field work has been undertaken as part of this assessment. In undertaking the assessment reference was made to the following background information:

Table 3.1: Background Information Sources

Date and reference	Author and source	Purpose and information content
Background and topographical information		
http://mapapps.bgs.ac.uk	British Geological Survey (BGS).	distribution of geological units at surface including drift and artificial deposits, faults and mineral outcrops, borehole logs.
www.ordnancesurvey.co.uk	Ordnance Survey (OS), Explorer Map, 1: 10,000	general mapping information including structures, boundaries, ground features, water features etc.
www.magic.gov.uk	multi-agency	web-based interactive map containing information on nature conservation areas
Historical data		
Satellite imagery	Various	recent historical features
Groundsure Report Historical Mapping ref: GS-S38-KF3-CKV-7IY (provided in Appendix B)	Groundsure	historical mapping at 1:2,500, and 1: 10,560/1:10,000 scales.
Information Review		
Groundsure Report Datasheet GS-6T4-FH5-NQ4-E1P; July 2025 (provided in Appendix B)	Groundsure	hydrological, waste, hazardous substances, geological, land uses, and natural stability hazards based on historical data and geological records.
www.zeticauxo.com (ref: 337301-350457_30072025 and PA024170). Provided in Appendix D.	Zetica	unexploded bomb risk mapping and pre-desk-study assessment detailing the expected UXO risk.
Local Authority Environmental Search Provided in Appendix D.	WCBC	Consultation with the Local Authority regarding contamination and pollution associated with the Site. Includes BAE Systems Phase 1 report Desk Study for Potential Explosive Contamination at Wrexham Industrial Estate, Dated 2001
Consultants Coal Mining Report (ref:GS-ZBJ-MNT-XPJ-EG7) Provided in Appendix G.	The Coal Authority	Information pertaining to any previous mining activity, investigation or remedial activity and further information.

Note: websites were accessed in August 2025

3.3 Area Visit

3.3.1 An inspection of the Site and the immediate surrounding area was undertaken by an SGP consultant, on the 14th August 2025.

3.3.2 A photographic record of salient features and general Site views is provided in Appendix A.

3.4 Local Authority Consultation

3.4.1 SGP has consulted with the Local Authority Contaminated Land Officer (CLO) under their charged 'Environmental Consultant search' with regards to the Site and its setting within Wrexham Industrial Estate. Information was provided by the CLO on 05.08.25 with a brief summary of the Royal Ordnance Factory history as well as a phase 1 desk study pertaining to an area located off-Site but within the Wrexham I.E area. These are summarised below with a copy of the correspondence provided in Appendix D.

- The limited information available indicates that the above property is on land that was formerly used by the Ministry of Defence (MoD) between 1941 and 1945 for the manufacture of explosives (including solventless cordite) which was served by its own railway. The Site covered 1,400 acres.
- Due to the historic use of the land, it is likely that the above property will need to be considered further under Part 2A. It should be noted that the fact that the area is likely to be considered under Part 2A does not necessarily mean that it will be determined as 'Contaminated Land' as any future assessment undertaken may find that there is no significant risk. It is not possible to advise you of a likely time when such an assessment may take place.
- In the context of other potential contaminated land Sites that have been identified to date, the Site in question is currently considered to be of a lower priority. However, should new information come to light, or if there is a change in guidance or any of the other factors that we consider when prioritising and planning Part 2A works the priority may change.
- Some Sites on the Industrial Estate have had ground contamination issues assessed. These have mainly been the result of a planning condition requiring a contamination assessment for the development of the Site. Some assessments have shown no contamination to have been present, whilst others have shown some contamination that has required remediation measures for the Site's safe development. In many of these cases the contamination was not necessarily due to the Sites former use by Royal Ordnance but by subsequent operations on the Site or made ground.
- Due to the former use of the Site as military land, and it forming part of the industrial estate, the Contaminated Land Team recommended standard conditions be applied to the permissions if granted requiring the assessment and remediation (if required) of the land to render it suitable for the proposed development.

- There are no records of any landfills within 250m of the Site.
- No records show any previous Site investigations taking place.

3.4.2 WCBC has provided a desk study report of the surrounding area (See Appendix D). The report is titled as; BAE Systems - Desk Study for potential explosive contamination at Wrexham Industrial Estate (February 2001). The report focuses on an area located 1.3km southeast of the Site.

4 Site Details and Proposed Development

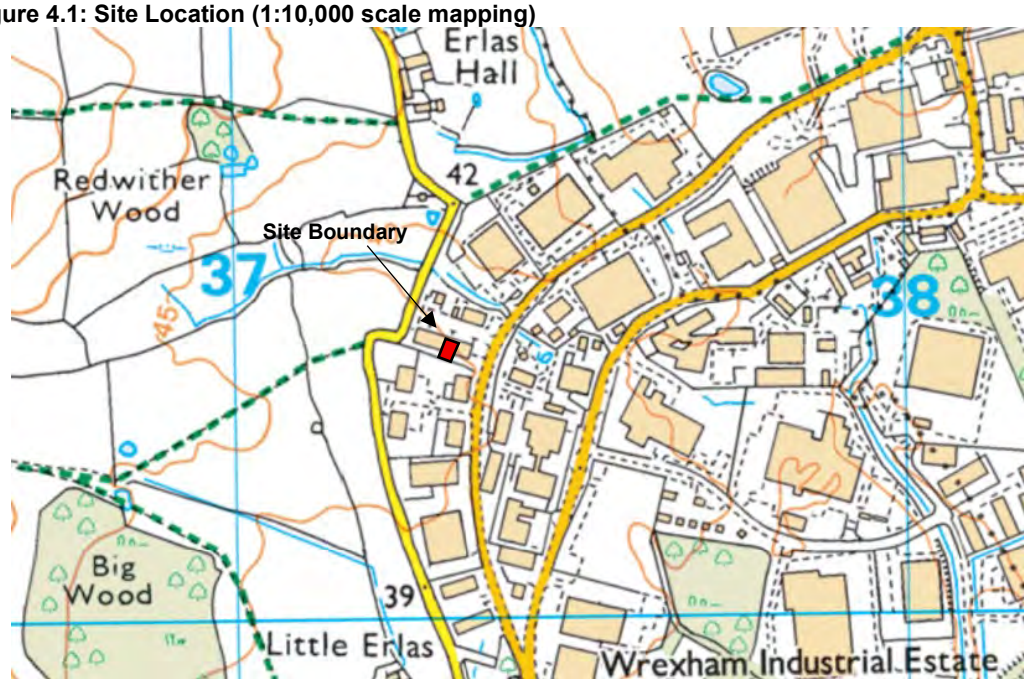
4.1 Site Details

4.1.1 The Site is located approximately 3.8km east of Wrexham Town Centre. Accessed off Abenbury Way to the east, it lies within the far northwest corner of Wrexham Industrial Estate as shown below in Figure 4.1. The area is at present in a vacant and currently unused state, composed of low-lying open grassland.

Table 4.1: Site Details

Address	Land adjacent to Alpha Windows, Abenbury Way, Wrexham Industrial Estate
National Grid Reference	337320 350468
Local Authority	Wrexham County Borough Council (WCBC)
Site Area	Approximately 0.07 Ha
Current Use of Sites	The Site is currently unused grassed area located in between two industrial units with car parking to the south
Proposed Use	Construction of an industrial unit

Figure 4.1: Site Location (1:10,000 scale mapping)



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4.2 Proposed Development

4.2.1 The development proposals of which have been granted by WCBC involves the construction of a new industrial unit to the adjacent west of Alpha Windows. The proposed Site development plan can be seen in Drawing D122/005. The development is to consist of hardstanding under the building development and car parking area. There appears to be green areas to the rear and east side of the proposed building.

5 Development History and Current Status

5.1 Historical Development

5.1.1 A summary of significant features, developments and land uses shown on historical Ordnance Survey maps is provided below. The full summary table is provided in Appendix C. Copies of selected maps are provided in Drawings D01-D07.

5.1.2 Only key features of interest are summarised below; for full details reference should be made to the complete set of historical mapping, as provided by Groundsure and the summary table (provided in Appendix B and Appendix C, respectively). Where key features have been observed their distance to the closest part of the respective proposed development is made.

On-Site features

- Historical mapping shows the Site to form part of a wider area of open fields likely in agricultural use until the 1982. Historical mapping shows the Site to be part of Wrexham Industrial Estate although no developments have taken place on the Site over its mapped history the Site lies adjacent to a single industrial unit with a larger warehouse unit to the immediate south.

- There are no features mapped on Site from 1899-2003 according to Ordnance Survey historical maps. Reviewing aerial imagery from 2006 onwards there are no developments or features of note on Site; it is presented as a small parcel of grassed land lying adjacent to industrial units.

Off-Site features

- The area around the Site to the north, south, east and west has remained undeveloped on available historical mapping from 1899-1912. There is a significant gap in mapping coverage as next mapping from 1961 shows a mineral railway siding to the east at approximately 180m. From 1982 mapping the area to the south and east of the Site had an already established small development composed of a few small detached commercial / industrial premises with associated access roads. This development forms part of the now wider Wrexham Industrial Estate.

- A series of ponds were noted to surround the Site at varying distances (pre-1982) with the closest pond situated at approximately 130m north of the Site and the second closest at 150m southeast. The majority of the ponds appear to have been infilled between 1982 and 2003 and have been redeveloped with commercial / industrial developments. The last pond notable within the nearby area was located 130m north of the Site and is still present associated with Erlas Cottage.

- Between 1968 and 2025 large-scale industrial development had occurred to the south and east of the Site. This included the construction of factories, industrial units, car parking and new roads. This industrial area would be known as the Wrexham Industrial Estate. The land to the north and west of the Site has remained in agricultural use with a series of large open fields. To the far north-west lies the Redwither wood and Clays Farm.

- The Alpha Windows building appears to have been constructed in 2018 to the immediate west of the Site. This building is still present.

5.2 Adequacy of Information

5.2.1 Whilst there are some gaps in the historical map coverage, it is considered that the available mapping provides adequate coverage of the Site and immediate surroundings to inform the assessment of potential ground conditions and contamination status of the Site.

5.3 Present Land Condition

5.3.1 A summary of existing significant features, recent activities and land uses shown on contemporaneous aerial photography, Site inspections and anecdotal evidence is provided in Table 5.2 below.

Table 5.2: Present Land Condition

Site Description	The Site is described as a small square parcel of land within the northwestern area of the Wrexham Industrial Estate. The Site lies between two light industrial premises. There are no structures, buildings or footpaths present on the Site. The area to the north of the Site is lined with dense tree and shrub vegetation. The topography of the Site appeared to be mostly flat and slightly uneven ground conditions for walking. It should be noted at to the immediate north of the Site, through the dense vegetation the levels drop down to reach a surface water stream.
Access	The Site can be easily accessed on foot with no limiting fencing or vegetation present. The site can be accessed off Abenbury Road.
Boundaries	**North** – Dense vegetation including trees and shrubs, followed further north by a surface water stream. **East** – Palisade fencing and further industrial unit comprising a meat and poultry factory with shop, warehouse and grill. There were no obvious signs of any tanks. **South** – Car parking on concrete hardstanding, further south lies industrial units including a large gym (Body Tech Wrexham). **West –** Medium sized warehouse building for Alpha Windows with office space.
Services / Wayleaves	SGP has not obtained service plans as part of this assessment. No clear evidence of underground utilities were observed.
Rights of Way	There are no public rights of way across the Site.
Structures	There were no structures identified on the Site.
Surfaces / Vegetation	Well maintained grassed area with dense vegetation to the north.
Contamination Sources	No significant signs of contamination were observed.

6 Site Characterisation

6.1.1 The physical setting of the Site has been derived from the review of information detailed in Section 2. Key details are summarised below; for full details reference should be made to the supporting information provided in Appendix B.

Table 6.1: Environmental Setting

Setting and Topography	The Site is located approximately 3.8km from Wrexham Town Centre. The Site is located at an elevation of approximately 40m Above Ordnance Datum (AOD), with a flat and even topography, as shown by spot heights on contemporary OS mapping.
Geology / Ground Conditions	BGS, historical OS mapping and Site observations indicate the potential ground conditions to be: Made ground: BGS mapping reports that the Site lies within an area of known landscaped ground. Described as either made ground, worked ground or disturbed ground with a variable composition. Superficial Deposits: BGS mapping shows the Site to be underlain by Devensian Glacial Till (clay, sand, gravel). Bedrock: BGS mapping shows the Site to be underlain by bedrock of the Early-Triassic Kinnerton Sandstone Formation. Faults: The Groundsure Report has identified a geological fault located 325m southeast of the Site. The displacement of this fault is unknown. BGS Records *On-Site* There are no BGS records is located on Site. *Off-Site* There are two BGS records within 200m of the Site. The first is 83m north of the Site and the second is 130m north of the Site. **SJ35SE205 (83m north):** This BGS Borehole reveals that deposits of Glacial Till (Boulder Clay) were recorded up to a depth of 41.7m bgl. There does not appear to be any further descriptions of strata within this log. This infers that there was no presence of made ground during excavation. **SJ35SE32 (130m north):** This BGS Borehole reveals that topsoil was present up to a depth of 0.30m bgl, overlying a thick layer of boulder clay (Till) that was recorded up to a depth of 18m bgl where the borehole was terminated. There was no made ground referenced within the log.
	Compressible ground – **Negligible**

Ground Stability (Natural Soils)	Running sands – **Very Low**
	Shrinking and swelling clays – **Very low**
	Ground dissolution – **Negligible**
	Landslides – **Very low**
	Collapsible ground – **Very low**
Hydrology / Drainage	Groundsure has identified the closest surface water feature is an Inland River (not influenced by normal tidal action) located 14m northeast from the Site. One existing licensed discharge to controlled waters has been identified by Groundsure: • Miscellaneous Discharges – surface water (415m E): permit no: CM0207601 On-Site drainage appeared to be limited to infiltration through vegetated surfaces. The Site is at a low risk of groundwater flooding. The Site is not at high risk from surface water flooding, however There is a high risk of surface water flooding (1 in 30-year flood return period) within 50m of the Site. This is associated with the watercourse located at 14m to the north.
Hydrogeology / Groundwater	The aquifer designations of the underlying geological units are: <u>Superficial Deposits</u> • Till, Devensian – Secondary Undifferentiated Aquifer Groundwater vulnerability = low <u>Bedrock:</u> • Kinnerton Sandstone Formation –Principal Aquifer Groundwater vulnerability = Low The Site is located in a type 3 (total catchment) Source Protection Zone.
Excavation / Mining	The Groundsure report states that surface ground workings are associated with several small ponds within the surroundings of the Site ranging from 234m to 243m to the southwest, east and north. Most of the ponds identified have been infilled to allow developments at Wrexham Industrial Estate. The Site is located within a coal mining reporting area. The Site is located within a coal mining area as defined by the Coal Authority. Given this detail a Consultants Coal Mining Report and a Coal Mining Risk Assessment (CMRA) were obtained and are summarised below: <u>Consultants Coal Mining Report (ref: GS-ZBJ-MNT-XPJ-EG7)</u> The Consultants Coal Mining Report does not identify any known coal seams located beneath the Site.

	There are no records of any historical underground mining or unrecorded shallow workings on the Site. There are no records of any shafts located on Site or within 100m of the Site.
Landfill / Waste Disposal	*Active* The Groundsure Report does not identify any active / recent landfills located on or within the vicinity of the Site. *Historical* The Groundsure report has not identified any historical landfills located within 1km of the Site. WCBC has stated they have no records of any landfill within 250m of the Site.
Neighbouring Land use / Nearby Contaminative Activities	The immediate neighbouring land uses include commercial and industrial developments. The land to the adjacent North of the Site is composed of a small area of woodland and open grassland. The Alpha Windows facility is located to the adjacent west of the Site The features are not considered likely to impact the Site due to the limited contamination that can be attributed to their nearby presence. There are no recorded pollution incidents located within 250m of the Site.
Radon	The Site lies within an area where between <1% of homes are estimated to be at or above the Radon Action Level.
UXO Risk	The UXO risk map identifies the Site as located within an area of Low Risk. A copy the risk map and pre-desk study assessment is provided in Appendix C (ref: 337301-350457_30072025 & PA024170).
Nature Conservation	No areas of the Site, or surrounding land within 500m, have been identified as statutory designated nature conservation Sites. The Site is within an SSSI Impact Risk Zone. No other invasive weeds, such as Japanese Knotweed were observed during the Site visit, although a formal survey has not been undertaken by SGP.

7 Preliminary Conceptual Site Model

7.1 Methodology

7.1.1 Information from the desk study has been used to identify the likely source-pathway-target relationships that may exist at the Site during and following the proposed development. Principal factors that may determine potential sources of contaminants at the Site, receptor vulnerability and potential pathways have been identified and each assessed in turn to derive a Conceptual Site Model (CSM).

7.2 On-Site Sources

- There is potential for made / worked / disturbed ground to be present on site of unknown depth and composition. This is described by the BGS as 'landscaped ground'. It is considered unlikely to present a significant risk owing to the fact the Site has been vacant through its mapped history. If made ground is found on Site, its composition and suspected source will determine what contaminants may be associated. 'Typical' made ground of urban origin could give rise to heavy metals, PAHs, hydrocarbons and/or asbestos.

- According to WCBC the Site falls within an area of former military land used by the ROF (1938-1945). The ROF undertook the manufacture of 'flashless' cordite, an explosive used in the Second World War. From review of the historical mapping and provided ROF layout plan, however, no buildings or infrastructure (such as mineral railway lines) were present on the Site. The risk of contamination associated with manufacturing of munitions on the Site is therefore considered as negligible.

7.2.1 Off-Site Sources

- A series of infilled ponds were noted to surround the Site at varying distances (pre-1982) with the closest pond situated 130m north of the Site. The nature of the material used to infill the ponds is unknown. Ground gas generation from infilled ponds is possible but given the distance to the Site and the size of the former ponds, it is considered these are unlikely to affect the Site.

7.3 Potential Receptors

7.3.1 The sensitivity of the proposed use of the Site is considered low with respect to human health. The receptors considered within the environmental risk assessment for the proposed development are:

- construction workers who may be exposed to contaminants during preparatory and construction works;
- future Site visitors;
- buildings / structures.
- controlled waters: underlying Secondary Undifferentiated Aquifer and Principal Bedrock Aquifer

7.4 Human Health Risk Assessment

7.4.1 The potential for significant contamination to be present that may pose an acute risk to construction workers during the development is considered as low across the Site

7.4.2 The long-term risk to future Site users is considered low across the Site.

7.5 Property Risk Assessment

7.5.1 The potential for chemical attack on construction materials is unknown and should be confirmed.

7.6 Controlled Waters Risk Assessment

7.6.1 The Site is in an area of low sensitivity as far as groundwater is concerned. Superficial deposits support a Secondary Undifferentiated Aquifer. The bedrock supports a Principal Aquifer. Sources of mobile contaminants which could migrate into the underlying aquifer are considered negligible however as the Site lies on potential made ground there is the potential for unexpected contamination particularly when considering the industrial nature of the Site's surroundings.

7.6.2 The closest surface watercourse (stream) located 14m to the north / northeast of the Site boundary. Due to the proximity to the Site, there is potential that during any construction works then surface run-off of silts could occur.

7.6.3 Preliminary Conceptual Site Model (CSM)

7.6.4 The preliminary CSM has been derived for the Site using the information described above, describing the potential contamination sources, pathways and receptors and is summarised below in Table 7.1.

7.6.5 The approach to the risk assessment summarised below in Table 7.1, follows the methodology presented within Ciria C552 'Contaminated Land Risk Assessment A Guide to Good Practice', further details of which, are provided in Appendix E.

Table 7.1: Preliminary Conceptual Site Model

Receptor	Source / Contaminant	Pathway / Exposure	Severity/ Consequence of Risk	Probability of Risk Occurring	Anticipated Risk (in absence of mitigation)	Further Works Recommended
1. humans – construction workers	Metals / PAHs, asbestos, hydrocarbons	dermal contact / ingestion / inhalation – short term exposure	**Small to Medium**	**Unlikely**– BGS mapping confirms the presence of made / disturbed or worked ground on the Site described as 'landscaped ground'. Deep made ground deposits are not expected to be present. Contaminants may be present in potential made ground; however, thresholds for industrial / commercial use are unlikely to be exceeded and exposure is likely to be limited under the development proposals with side-wide hardstanding.	**Low Risk**	A limited Site investigation should be undertaken to confirm ground conditions across the Site. Appropriate personal protective equipment (PPE), Site management and good housekeeping should be implemented during construction works. An unexpected contamination protocol should be developed to address the investigation and remediation should any unexpected contamination be identified during the construction phase.
2. humans – future Site users / visitors	Metals / PAHs asbestos, hydrocarbons	dermal contact / ingestion / inhalation	**Small to Medium**	**Unlikely –** contaminants may be present in potential made ground; however, thresholds for industrial / commercial use are unlikely to be exceeded and exposure is likely to be limited under the development proposals with side-wide hardstanding.	**Low Risk**	A limited Site investigation should be undertaken to confirm ground conditions across the Site. Mitigated through provision of surfaced hardstanding / built development.
	Ground gas (methane, carbon dioxide)	accumulation within voids, confined spaces and service runs to asphyxiant and/or	**Small**	**Unlikely** – Ground gasses arising may arise from infilled ponds within the surroundings of the Site. This is considering highly unlikely, and the risk is low.	**Low Risk**	No further works required.
	Radon gas from bedrock		**Negligible**	**Unlikely –** 1% of homes are estimated to be at or above the Action level.	**Negligible Risk**	No further action required.

Receptor	Source / Contaminant	Pathway / Exposure	Severity/ Consequence of Risk	Probability of Risk Occurring	Anticipated Risk (in absence of mitigation)	Further Works Recommended
	VOC vapours from soil / groundwater sources	otherwise toxic concentrations	**Small**	**Unlikely** – no sources of hydrocarbon contaminants have been identified, however the composition of made ground remains unconfirmed.	**Low Risk**	Appropriate personal protective equipment (PPE), Site management and good housekeeping should be implemented during construction works.
3. humans – adjacent Site users	Metals / PAHs/asbestos	windblown / dermal contact / ingestion / inhalation	**Small**	**Low likelihood -** Significant concentrations of mobile contaminants which could be remobilised during construction works are unlikely to be present.	**Low Risk**	Dust suppression techniques may be required during construction works.
4. property / services	Ground gas (methane, carbon dioxide)	accumulation within voids, confined spaces and service runs to flammable concentrations	**Small**	**Unlikely** – Ground gasses arising may arise from infilled ponds within the surroundings of the Site. This is considering highly unlikely, and the risk is low.	**Low Risk**	No further works required.
	pH, sulphate.	chemical attack of buried concrete	**Small to Medium**	**Low Likelihood / Likely –** Soils containing high pH and sulphates are unlikely to be present based on the available information,	**Medium to Low Risk**	A Limited Site investigation should be undertaken to confirm ground conditions across the Site If made ground deposits are encountered representative samples should be submitted to determine aggressive concrete conditions.

Receptor	Source / Contaminant	Pathway / Exposure	Severity/ Consequence of Risk	Probability of Risk Occurring	Anticipated Risk (in absence of mitigation)	Further Works Recommended
5. vegetation / landscaping	leachable metals / metalloids may be present within landscaped ground although grasses looked healthy during the Site walkover.	plant uptake	**Small**	**Unlikely** – Vegetation appeared to be in a healthy state during the Site walkover.	**Low Risk**	No further works required.
6. ecosystems / protected habitats & species	leachable metals / metalloids / PAHs / hydrocarbons	Aeolian processes via dust deposition	**Negligible**	**Unlikely –** No protected species/habitats within 500m of the Site.	**Negligible Risk**	No further works required.
7. surface waters	Leachable contaminants including Metals / PAHs	migration via shallow groundwater / surface water run-off.	**Medium**	**Low Likelihood** – During construction works there is the potential during wet conditions that surface run-off of silts could enter the nearby surface watercourse / stream to the north.	**Medium to Medium/Low Risk**	Management of silt run-off during construction works in wet conditions should be employed during the construction phase. An environmental pollution incident management plan should be produced and implemented during construction.

Receptor	Source / Contaminant	Pathway / Exposure	Severity/ Consequence of Risk	Probability of Risk Occurring	Anticipated Risk (in absence of mitigation)	Further Works Recommended
8. groundwater Superficial Deposits Secondary Undifferentiated Aquifer Bedrock: Kinnerton Sandstone Formation – Principal Aquifer	leachable metals / metalloids / PAHs / hydrocarbons	migration via saturated zone	**Medium**	**Low Likelihood to unlikely –** Leachable contaminants may be present within Made Ground, if present on Site which may be mobilised to the underlying Secondary Undifferentiated Aquifer. The Principal aquifer is only expected at significant depth on Site and the underlying soils are anticipated as cohesive which may limit vertical and lateral migration. The Proposed Development is likely to comprise hardstanding which will limit the infiltration of rainwater.	**Medium/Low Risk to Low Risk**	Undertake a limited Site investigation to establish the presence and composition of any made ground and its potential risk to controlled waters.

7.6.6 Other Considerations

Ground Stability – Natural Hazards

7.6.7 According to the Groundsure report, the Site is in an area where risks from running sands, shrink swell clays, collapsible deposits, and landslides is very low. Compressible deposits and ground dissolution of soluble rocks are considered as negligible.

Unexploded Ordnance

7.6.8 The UXO risk mapping identifies the Site as within an area of Low risk. The Pre-Desk Study Assessment UXO report (PA024170) also defines the Site to be within an area of low risk stating that:

- During World War Two (WWII), the Royal Ordnance Factory (ROF) Wrexham was established on land encompassing the Site. The factory produced explosive propellants, particularly cordite. In 1945, ROF Wrexham closed. The land has been redeveloped into an industrial estate.
- There are no readily available records have been found indicating that the Site was bombed during World War One., There are, however, potential records of bombing within 5km of the Site.
- There are no readily available records have been found indicating that the Site was bombed during WWII. There are, however, potential records of bombing within 5km of the Site.
- No bombing decoys were identified within 5km of the Site.

7.6.9 The UXO Report states that a detailed desk study is recommended to assess, and potentially zone, the UXO hazard level on the Site.

7.6.10 The UXO mapping and pre-desk study assessment is contained within Appendix C.

8 Conclusions and Recommendations

8.1.1 Summary

Site

8.1.1. Since the earliest available mapping (1899) the Site was part of the wider surroundings, open fields and agricultural land. From the 1960's the Site became part of the Wrexham Industrial Estate although no developments have taken place on the Site over its mapped history. The Site lies in between two industrial units with car parking and a larger warehouse unit to the south. During the walkover, the Site is still unused and has become a well-maintained parcel of green space.

Surroundings

8.1.2. The surroundings of the Site to the north, south, east and west has remained undeveloped on available historical mapping from 1899-1912. Despite the gaps in mapping coverage, from the 1960s major developments took place as the surrounding land developed into Wrexham Industrial Estate. From 1982 mapping the immediate surrounding to the south and east of the Site had an already established small developments composed of commercial / industrial premises with associated access roads and car parking. By 2018, a warehouse is located to the west. This development forms part of the now wider Wrexham Industrial Estate.

8.2. Findings of Contamination Risk Assessment

8.2.1. The Site does not appear to have been previously developed and is located in between existing two commercial/light industrial units. The BGS has mapped the Site and surroundings as comprising 'landscaped ground'. There is no evidence to show that the Site may have been previously developed. Deep deposits of made ground are considered unlikely to be present. The nature of contamination would be dependent upon the presence and composition of made ground. Made ground of an urban origin could contain concentrations of heavy metals, PAHs and/or asbestos whereas reworked natural soils are less likely to contain any anthropogenic materials or contaminants.

8.2.2. Contamination that may pose a significant constraint to the proposed industrial development is not anticipated as concentrations of contaminants are unlikely to exceed commercial land use screening values.

8.2.3. The proposed industrial use of the Site is considered of low sensitivity with development proposals consisting of the construction of a single industrial unit and car parking. Considering the proposed development, the history of the Site and the anticipated contaminants, the risk to human health is low with exposure largely mitigated by the proposed extensive hardstanding and building cover. The main risk to human health is to construction workers, particularly during

any excavation works which may result in the direct contact / inhalation of contaminants, if present.

8.2.4. Based on the available information, no significant constraints have been identified to the Proposed Development with regards to ground contamination and it is concluded that the Site is suitable for the proposed use, however recommendations are provided below which will support the feasibility study and proposed uses of the Site.

8.3. Recommendations

8.3.1. At present the composition and chemistry of the soils beneath the Site remain uncertain. It is recommended that a limited Site investigation is undertaken across the Site, utilising trial-pits permit the inspection of Site soils and collection of representative samples of shallow soils for chemical testing.

8.3.2. Consideration should also be given to the submission of foundation bearing strata for pH and soluble sulphate testing to identify aggressive concrete conditions if made ground deposits are present.

8.3.3. A further detailed desk study is recommended to assess the UXO risk of the Site. This should be undertaken prior to commencement of any intrusive Site investigation and/or construction.

8.3.4. A protocol to deal with unexpected contamination together with an environmental pollution incident plan should be developed and implemented during the construction phase. Management of silt run-off during construction works in wet conditions should be employed during the construction phase in light of the nearby surface watercourse.

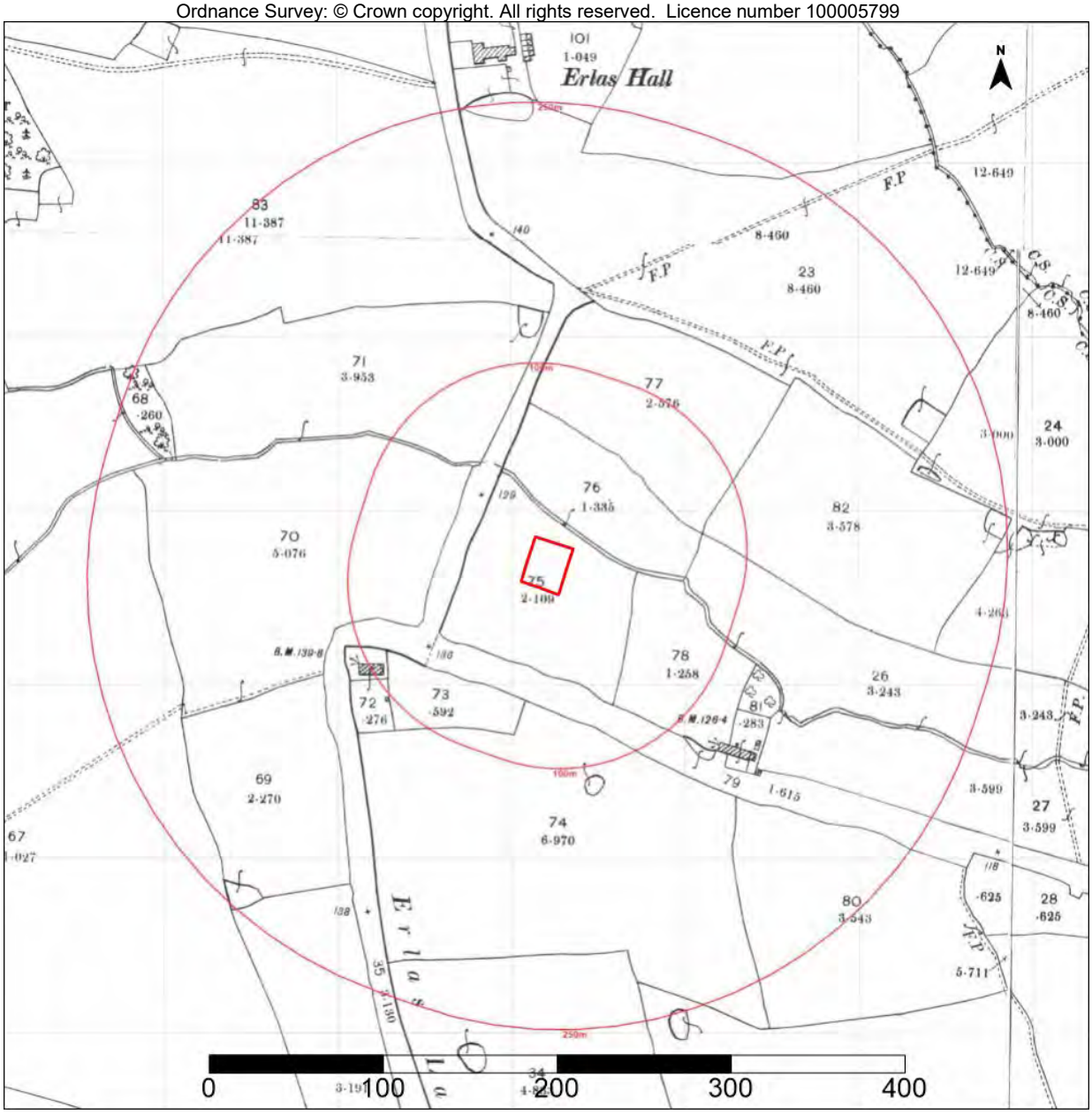
8.4. Limitations

8.4.1. This report has been prepared by SGP for the sole and exclusive use of Alpha Windows & Blueprint Architectural**.** Reasonable skill, care and diligence has been exercised within the budget available, and in accordance with the technical requirements of the brief. Notwithstanding the efforts made by the professional team in undertaking the assessment and preparing this report, it is possible that other ground conditions and contamination as yet undetected may exist. Reliance on the findings of this report must therefore be limited accordingly. Such reliance must be based on the whole report and not on extracts which may lead to incomplete or incorrect conclusions when taken out of context.

8.4.2. SGP reserves the right to alter any of the foregoing information in the event of new information being disclosed or provided and in the light of changes to legislation, guidelines and responses by the statutory and regulatory authorities.

Drawings

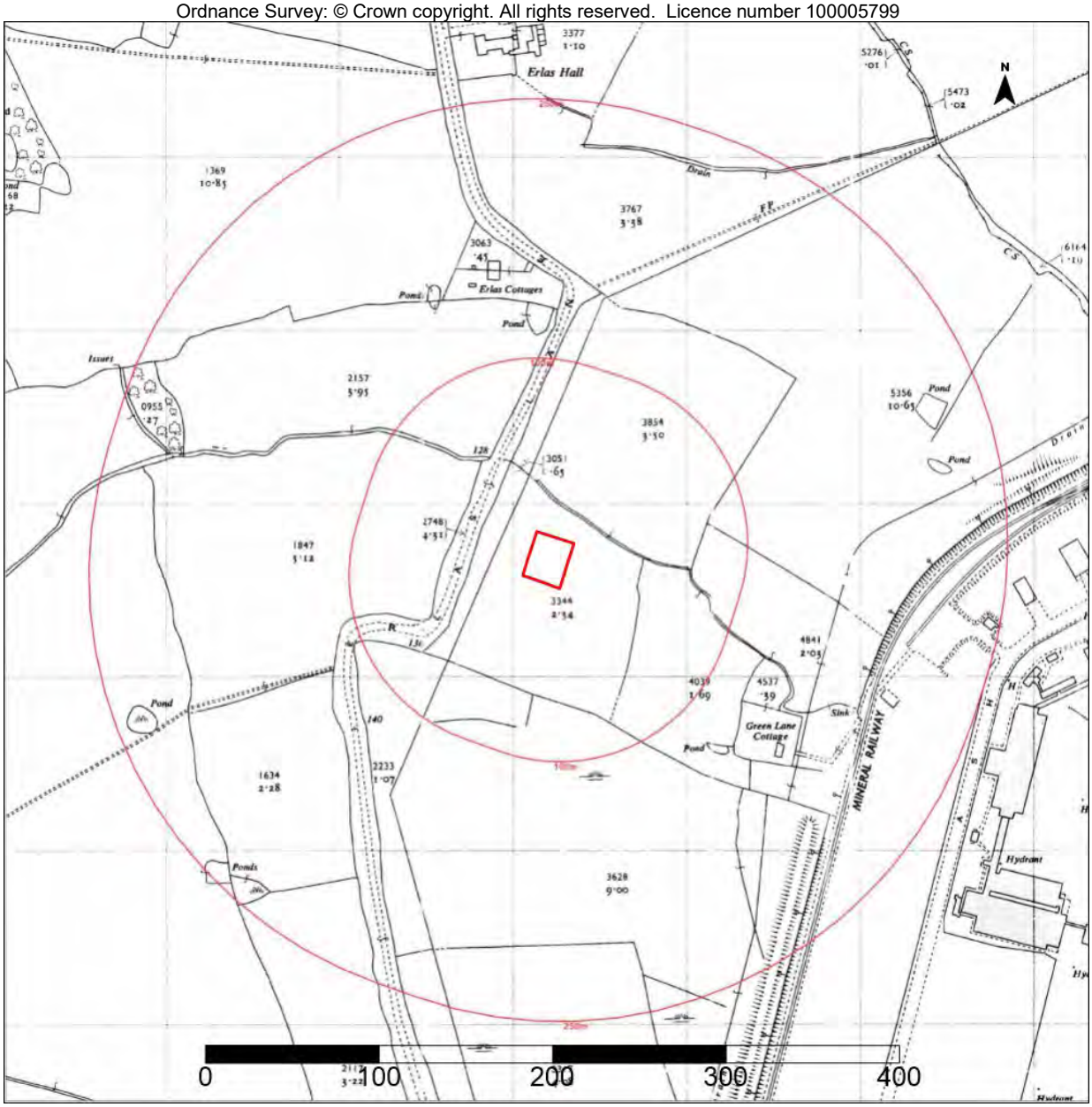
Ordnance Survey: © Crown copyright. All rights reserved. Licence number 100005799



D01: Historical Map – 1899 (1:2,500 scale)

Shows the Site part of extensive agricultural land.

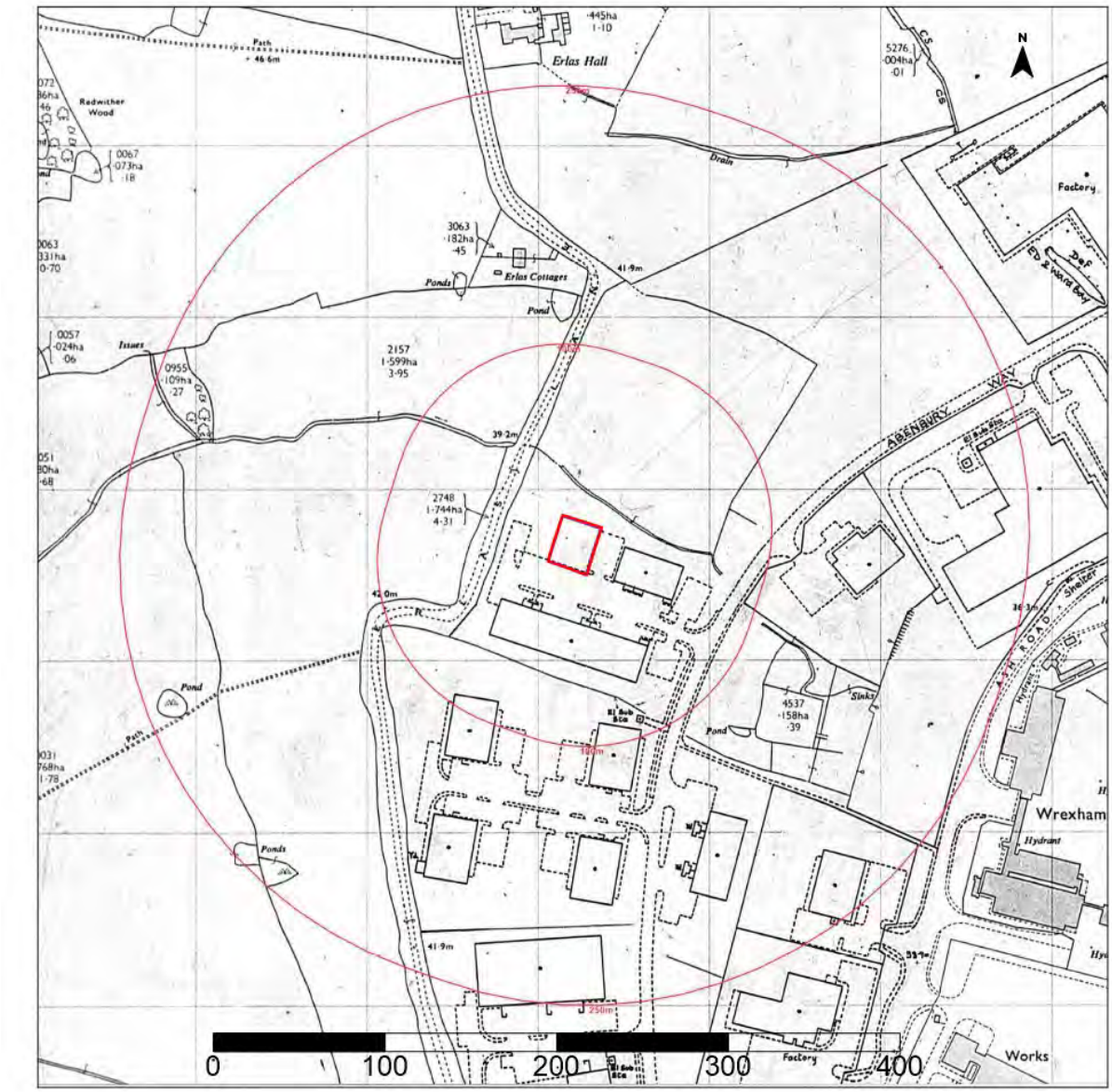
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D02: Historical Map – 1961 (1:2,500 scale)

Showing the mineral railway to the east.

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D03: Historical Map – 1982 (1:2,500 scale)

Shows the development of the industrial estate adjacent to / surrounding the Site.

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D04: Historical Map – 1994 (1:10,000 scale)

Shows the expansion of the Wrexham Industrial Estate development.

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D05: Historical Map - 2003 (1:2,500)

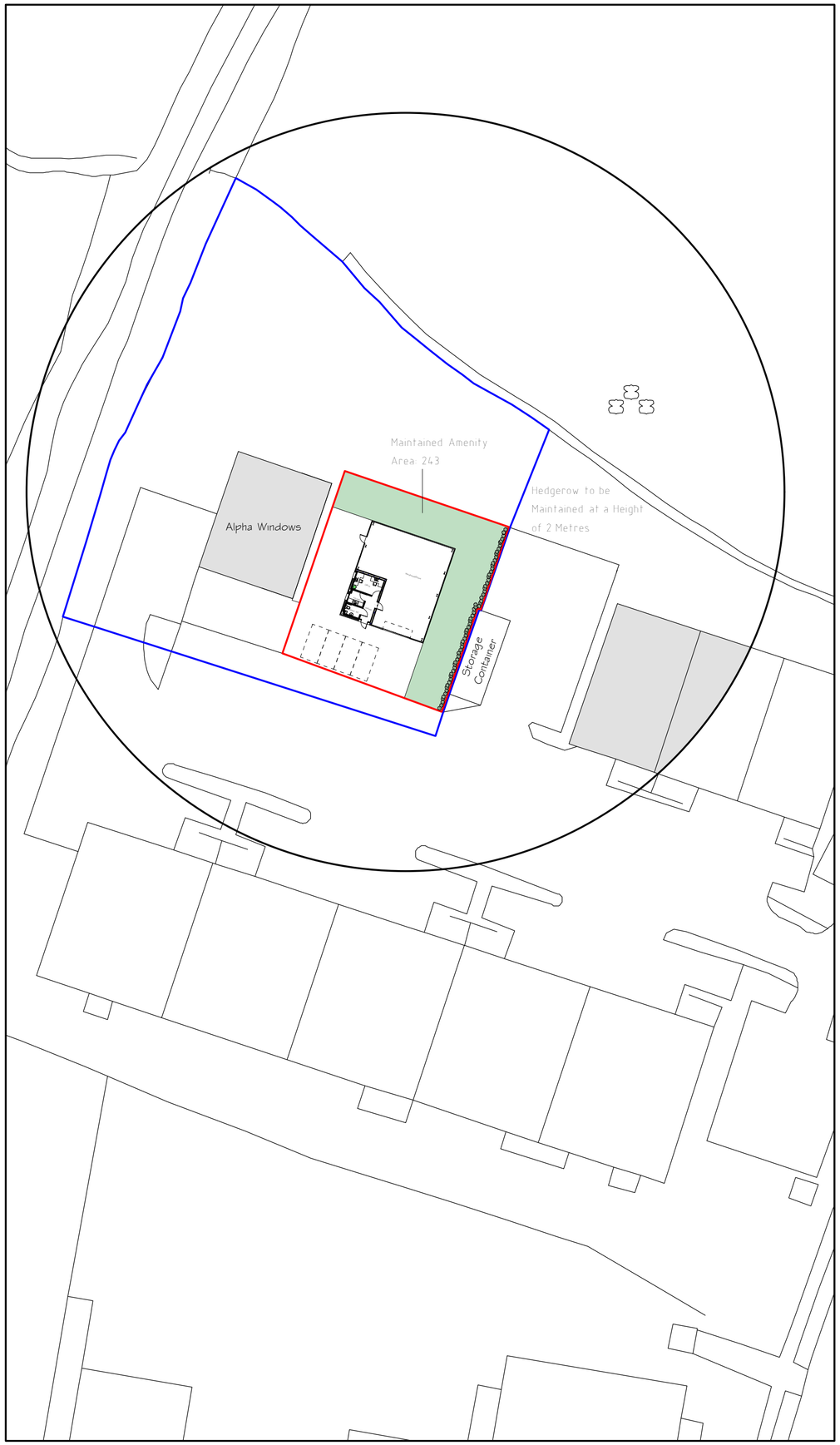
Shows the Site lies vacant adjacent to industrial units to the east and south.

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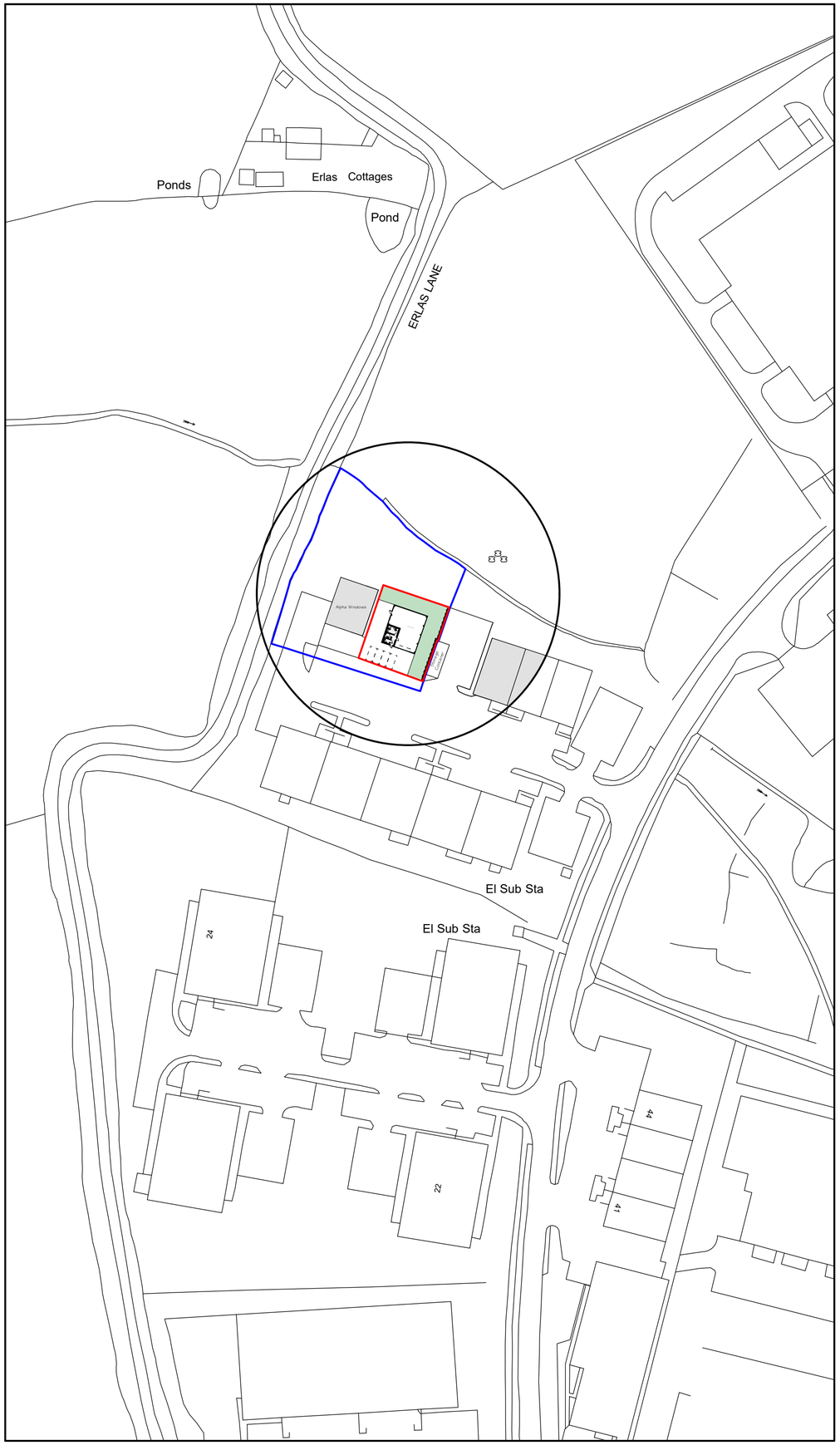


D06: Aerial Map – 2023

Shows the Site to be a green open space between two industrial building units' part of the wider Wrexham Industrial Estate.



Site Plan 1:500

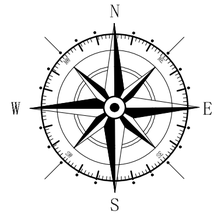


Location Plan 1:1250

Hedgerow mix as follows:

5%	Blackthorn	(Prunus spinosa)
80%	Hawthorn	(Cataegus monogyna)
5%	Holly	(Ilex aquifolium)
5%	Field Maple	(Acer campestre)
5%	Hazel	(Corylus avellana)

Transplants to be of British provenance and should be 40-60mm bare rooted 1+1 transplants. Hedgerows to be planted in 2 staggered rows, 450mm apart within each row plants shall be planted at 300mm spacing.



Key

- Surrounding Buildings
- Application Site
- Land Owned by Client

Rev	Date	Detail	Initial
E	08/24	Design Amends	L.F.
D	04/24	Design Amends	L.R.
C	11/22	Biodiversity Net Gain	L.F.
B	05/22	Boundary Update	A.V.
A	04/22	Design Amends	D.J.E.

Project:
Proposed Industrial Unit at,
Land adjacent Alpha Windows,
Abenbury Way, Wrexham,
LL13 9UZ

Title:
Planning: Site & Location Plan

Scale: (A2)
1:500 & 1:1250

Drawn By:
E.M.Jackson

Date:
April 2022

Drawing No:
D122/005

Sheet:
1 of 1

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APPENDIX A

Photographic Record

R3458 Alpha Windows
Phase 1 Walkover Photolog



14.08.25 – View from the southern boundary of the Site. Low lying grassed area.



14.08.25 - View from the southern boundary of the Site. Low lying grassed area.



14.08.25 – View along the western boundary, the Alpha Windows building lies to the immediate west as pictured.



14.08.25 – View along the northern boundary.



14.08.25 – Dense vegetation at northern boundary.



14.08.25 – Dense vegetation and minor surface water stream located off-site to the immediate north.





R3458 Alpha Windows
Phase 1 Walkover Photolog

<table>
<tr><td>14.08.25 – Large overhanging tree in the northeast corner. No other features of note on Site.</td><td>14.08.25 – View of the ground over the whole site, slightly uneven low lying grassed area.</td></tr>
<tr><td>
14.08.25 – View along the eastern boundary with palisade fencing separating the site from neighbouring development.</td><td>
14.08.25 – A small wasp nest was located at the centre of the Site.</td></tr>
<tr><td>
14.08.25 – View across the whole site from the southern boundary.</td><td>
14.08.25 – View of the southern boundary immediately on hardstanding surfaces / car parking area.</td></tr>
<tr><td>
14.08.25 – View of the whole Site from the northwestern boundary point.</td><td>No Photograph</td></tr>
</table>

APPENDIX B

Groundsure Report
(Including Historical Maps)

Groundsure LOCATION INTELLIGENCE

Enviro+Geo Insight

Wrexham Industrial Estate

Order Details

Date: 30/07/2025

Your ref: R3458

Our Ref: GS-6T4-FH5-NQ4-E1P

Site Details

Location: 337320 350468

Area: 0.07 ha

Authority: Wrecsam - Wrexham County Borough Council ↗



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Summary of findings p. 2 >

OS MasterMap site plan p.14 >

Aerial image p. 9 >

Insight User Guide ↗

Contact us with any questions at:
info@groundsure.com ↗
01273 257 755

Certified B Corporation

Summary of findings

Page	Section	Past land use >	On site	0-50m	50-250m	250-500m	500-2000m
15 >	1.1 >	Historical industrial land uses >	0	0	1	4	-
16 >	1.2 >	Historical tanks >	0	0	0	3	-
16 >	1.3 >	Historical energy features >	0	0	11	11	-
17	1.4	Historical petrol stations	0	0	0	0	-
18	1.5	Historical garages	0	0	0	0	-
18 >	1.6 >	Historical military land >	0	0	1	0	-
Page	Section	Past land use - un-grouped >	On site	0-50m	50-250m	250-500m	500-2000m
19 >	2.1 >	Historical industrial land uses >	0	0	2	4	-
20 >	2.2 >	Historical tanks >	0	0	0	19	-
21 >	2.3 >	Historical energy features >	0	0	25	49	-
24	2.4	Historical petrol stations	0	0	0	0	-
24	2.5	Historical garages	0	0	0	0	-
Page	Section	Waste and landfill >	On site	0-50m	50-250m	250-500m	500-2000m
25	3.1	Active or recent landfill	0	0	0	0	-
25	3.2	Historical landfill (BGS records)	0	0	0	0	-
26	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
26	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
26	3.5	Historical waste sites	0	0	0	0	-
26	3.6	Licensed waste sites	0	0	0	0	-
26 >	3.7 >	Waste exemptions >	0	0	12	5	-
Page	Section	Current industrial land use >	On site	0-50m	50-250m	250-500m	500-2000m
29 >	4.1 >	Recent industrial land uses >	0	3	16	-	-
31 >	4.2 >	National Geographic Database (NGD) - Current or recent tanks >	0	0	10	-	-
31	4.3	Current or recent petrol stations	0	0	0	0	-
32	4.4	Electricity cables	0	0	0	0	-
32	4.5	Gas pipelines	0	0	0	0	-

32	4.6	Sites determined as Contaminated Land	0	0	0	0	-
32	4.7	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
32	4.8	Regulated explosive sites	0	0	0	0	-
33	4.9	Hazardous substance storage/usage	0	0	0	0	-
33	4.10	Historical licensed industrial activities (IPC)	0	0	0	0	-
33 >	**4.11 >**	**Licensed industrial activities (Part A(1)) >**	0	0	6	17	-
37 >	**4.12 >**	**Licensed pollutant release (Part A(2)/B) >**	0	0	4	2	-
38 >	**4.13 >**	**Radioactive Substance Authorisations >**	0	0	0	4	-
39 >	**4.14 >**	**Licensed Discharges to controlled waters >**	0	1	0	5	-
40	4.15	Pollutant release to surface waters (Red List)	0	0	0	0	-
40	4.16	Pollutant release to public sewer	0	0	0	0	-
40	4.17	List 1 Dangerous Substances	0	0	0	0	-
40	4.18	List 2 Dangerous Substances	0	0	0	0	-
40 >	**4.19 >**	**Pollution Incidents (EA/NRW) >**	0	0	0	2	-
41	4.20	Pollution inventory substances	0	0	0	0	-
41	4.21	Pollution inventory waste transfers	0	0	0	0	-
41	4.22	Pollution inventory radioactive waste	0	0	0	0	-

Page	Section	**Hydrogeology >**	On site	0-50m	50-250m	250-500m	500-2000m
42 >	**5.1 >**	**Superficial aquifer >**	Identified (within 500m)				
44 >	**5.2 >**	**Bedrock aquifer >**	Identified (within 500m)				
46 >	**5.3 >**	**Groundwater vulnerability >**	Identified (within 50m)				
47	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
47	5.5	Groundwater vulnerability- local information	None (within 0m)				
48 >	**5.6 >**	**Groundwater abstractions >**	0	0	0	0	13
51 >	**5.7 >**	**Surface water abstractions >**	0	0	0	1	0
52	5.8	Potable abstractions	0	0	0	0	0
52 >	**5.9 >**	**Source Protection Zones >**	1	0	0	0	-
52	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-

Page	Section	**Hydrology >**	On site	0-50m	50-250m	250-500m	500-2000m

53 >	6.1 >	Water Network (OS MasterMap) >	0	4	7	-	-
54 >	6.2 >	Surface water features >	0	2	4	-	-
55 >	6.3 >	WFD Surface water body catchments >	1	-	-	-	-
55 >	6.4 >	WFD Surface water bodies >	0	0	0	-	-
56 >	6.5 >	WFD Groundwater bodies >	1	-	-	-	-

Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
57	7.1	Risk of flooding from rivers and the sea	None (within 50m)				
57	7.2	Historical Flood Events	0	0	0	-	-
57	7.3	Flood Defences	0	0	0	-	-
58	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
58	7.5	Flood Storage Areas	0	0	0	-	-
59	7.6	Flood Zone 2	None (within 50m)				
59	7.7	Flood Zone 3	None (within 50m)				

Page	Section	Surface water flooding >	
60 >	8.1 >	Surface water flooding >	1 in 30 year, Greater than 1.0m (within 50m)

Page	Section	Groundwater flooding >	
62 >	9.1 >	Groundwater flooding >	Low (within 50m)

Page	Section	Environmental designations >	On site	0-50m	50-250m	250-500m	500-2000m
63	10.1	Sites of Special Scientific Interest (SSSI)	0	0	0	0	0
64	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
64	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
64	10.4	Special Protection Areas (SPA)	0	0	0	0	0
64	10.5	National Nature Reserves (NNR)	0	0	0	0	0
65	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
65 >	10.7 >	Designated Ancient Woodland >	0	0	0	4	7
66	10.8	Biosphere Reserves	0	0	0	0	0
66	10.9	Forest Parks	0	0	0	0	0
66	10.10	Marine Conservation Zones	0	0	0	0	0
66	10.11	Green Belt	0	0	0	0	0

66	10.12	Proposed Ramsar sites	0	0	0	0	0
67	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
67	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
67	10.15	Nitrate Sensitive Areas	0	0	0	0	0
67	10.16	Nitrate Vulnerable Zones	0	0	0	0	0
68 >	**10.17 >**	**SSSI Impact Risk Zones >**	1	-	-	-	-
69	10.18	SSSI Units	0	0	0	0	0
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
70	11.1	World Heritage Sites	0	0	0	-	-
70	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
70	11.3	National Parks	0	0	0	-	-
70	11.4	Listed Buildings	0	0	0	-	-
71	11.5	Conservation Areas	0	0	0	-	-
71	11.6	Scheduled Ancient Monuments	0	0	0	-	-
71	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	**Agricultural designations >**	On site	0-50m	50-250m	250-500m	500-2000m
72 >	**12.1 >**	**Agricultural Land Classification >**	Grade 3a (within 250m)				
73	12.2	Open Access Land	0	0	0	-	-
73	12.3	Tree Felling Licences	0	0	0	-	-
73	12.4	Environmental Stewardship Schemes	0	0	0	-	-
73	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
74	13.1	Priority Habitat Inventory	0	0	0	-	-
74	13.2	Habitat Networks	0	0	0	-	-
74	13.3	Open Mosaic Habitat	0	0	0	-	-
74	13.4	Limestone Pavement Orders	0	0	0	-	-
Page	Section	**Geology 1:10,000 scale >**	On site	0-50m	50-250m	250-500m	500-2000m
75 >	**14.1 >**	**10k Availability >**	Identified (within 500m)				
76 >	**14.2 >**	**Artificial and made ground (10k) >**	1	0	0	2	-

77 >	14.3 >	Superficial geology (10k) >	1	0	0	3	-
78	14.4	Landslip (10k)	0	0	0	0	-
79 >	14.5 >	Bedrock geology (10k) >	1	0	0	3	-
80 >	14.6 >	Bedrock faults and other linear features (10k) >	0	0	0	2	-
Page	Section	Geology 1:50,000 scale >	On site	0-50m	50-250m	250-500m	500-2000m
81 >	15.1 >	50k Availability >	Identified (within 500m)				
82 >	15.2 >	Artificial and made ground (50k) >	1	0	0	1	-
83 >	15.3 >	Artificial ground permeability (50k) >	1	0	-	-	-
84 >	15.4 >	Superficial geology (50k) >	1	0	0	2	-
85 >	15.5 >	Superficial permeability (50k) >	Identified (within 50m)				
85	15.6	Landslip (50k)	0	0	0	0	-
85	15.7	Landslip permeability (50k)	None (within 50m)				
86 >	15.8 >	Bedrock geology (50k) >	1	0	0	1	-
87 >	15.9 >	Bedrock permeability (50k) >	Identified (within 50m)				
87 >	15.10 >	Bedrock faults and other linear features (50k) >	0	0	0	1	-
Page	Section	Boreholes >	On site	0-50m	50-250m	250-500m	500-2000m
88 >	16.1 >	BGS Boreholes >	0	0	2	-	-
Page	Section	Natural ground subsidence >					
89 >	17.1 >	Shrink swell clays >	Very low (within 50m)				
90 >	17.2 >	Running sands >	Very low (within 50m)				
92 >	17.3 >	Compressible deposits >	Negligible (within 50m)				
93 >	17.4 >	Collapsible deposits >	Very low (within 50m)				
94 >	17.5 >	Landslides >	Very low (within 50m)				
95 >	17.6 >	Ground dissolution of soluble rocks >	Negligible (within 50m)				
Page	Section	Mining and ground workings >	On site	0-50m	50-250m	250-500m	500-2000m
97	18.1	BritPits	0	0	0	0	-
98 >	18.2 >	Surface ground workings >	0	0	8	-	-
98	18.3	Underground workings	0	0	0	0	0
98	18.4	Underground mining extents	0	0	0	0	-

99	18.5	Historical Mineral Planning Areas	0	0	0	0	-
99	18.6	Non-coal mining	0	0	0	0	0
99	18.7	JPB mining areas	None (within 0m)				
99	18.8	The Coal Authority non-coal mining	0	0	0	0	-
100	18.9	Researched mining	0	0	0	0	-
100	18.10	Mining record office plans	0	0	0	0	-
100	18.11	BGS mine plans	0	0	0	0	-
100 >	**18.12 >**	**Coal mining >**	Identified (within 0m)				
101	18.13	Brine areas	None (within 0m)				
101	18.14	Gypsum areas	None (within 0m)				
101	18.15	Tin mining	None (within 0m)				
101	18.16	Clay mining	None (within 0m)				
Page	Section	Ground cavities and sinkholes	On site	0-50m	50-250m	250-500m	500-2000m
102	19.1	Natural cavities	0	0	0	0	-
102	19.2	Mining cavities	0	0	0	0	0
102	19.3	Reported recent incidents	0	0	0	0	-
102	19.4	Historical incidents	0	0	0	0	-
Page	Section	**Radon >**					
104 >	**20.1 >**	**Radon >**	Less than 1% (within 0m)				
Page	Section	**Soil chemistry >**	On site	0-50m	50-250m	250-500m	500-2000m
106 >	**21.1 >**	**BGS Estimated Background Soil Chemistry >**	1	1	-	-	-
106	21.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
106	21.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-
Page	Section	**Railway infrastructure and projects >**	On site	0-50m	50-250m	250-500m	500-2000m
107	22.1	Underground railways (London)	0	0	0	-	-
107	22.2	Underground railways (Non-London)	0	0	0	-	-
108	22.3	Railway tunnels	0	0	0	-	-
108 >	**22.4 >**	**Historical railway and tunnel features >**	0	0	3	-	-
108	22.5	Royal Mail tunnels	0	0	0	-	-

108	22.6	Historical railways	0	0	0	-	-
109	22.7	Railways	0	0	0	-	-
109	22.8	Crossrail 2	0	0	0	0	-
109	22.9	HS2	0	0	0	0	-

Recent aerial photograph



Capture Date: 01/06/2023

Site Area: 0.07ha

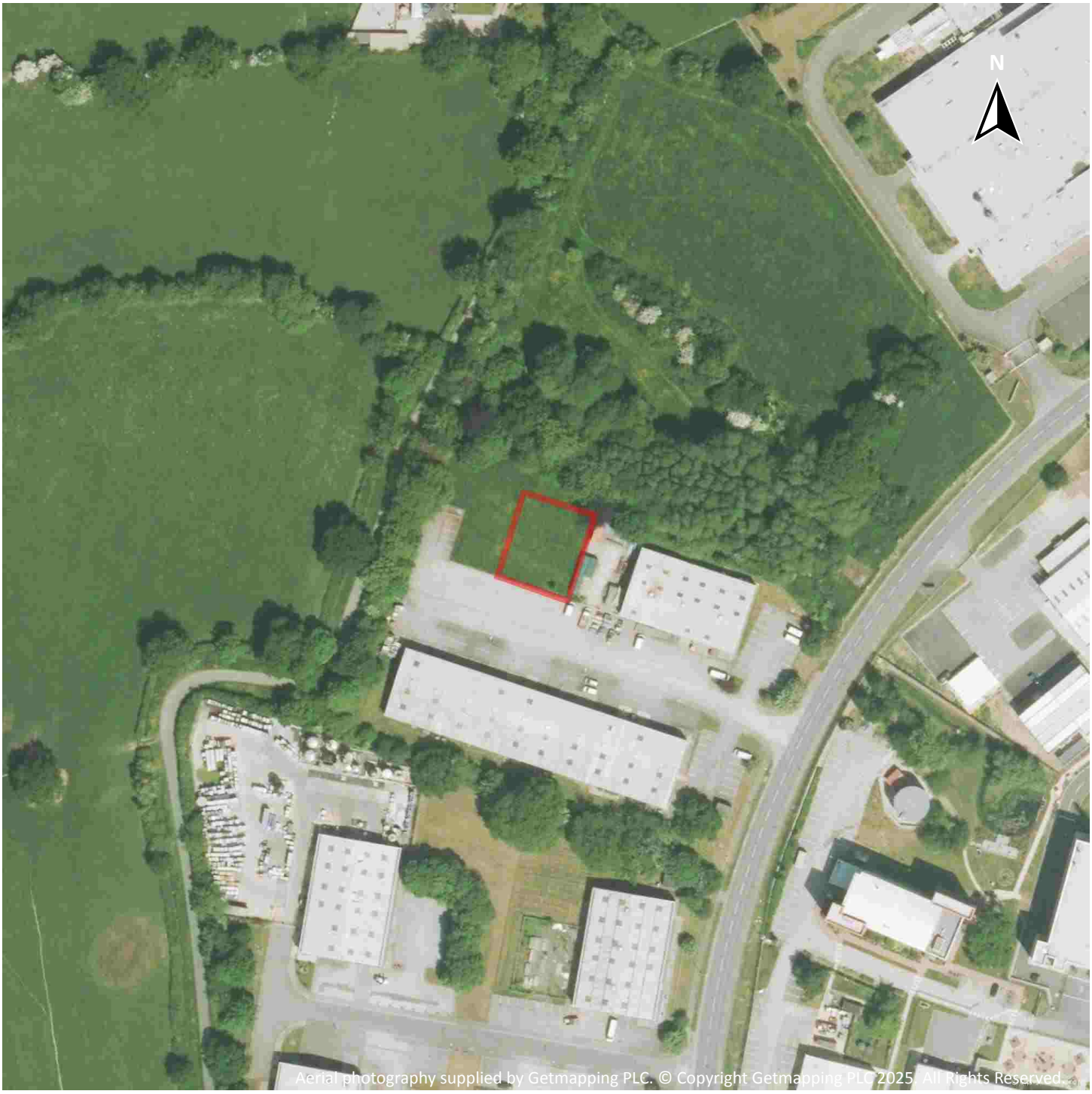
Recent site history - 2020 aerial photograph



Capture Date: 10/04/2020

Site Area: 0.07ha

Recent site history - 2013 aerial photograph



Capture Date: 09/06/2013

Site Area: 0.07ha

Recent site history - 2003 aerial photograph



Capture Date: 04/08/2003

Site Area: 0.07ha

Recent site history - 2000 aerial photograph



Capture Date: 04/09/2000

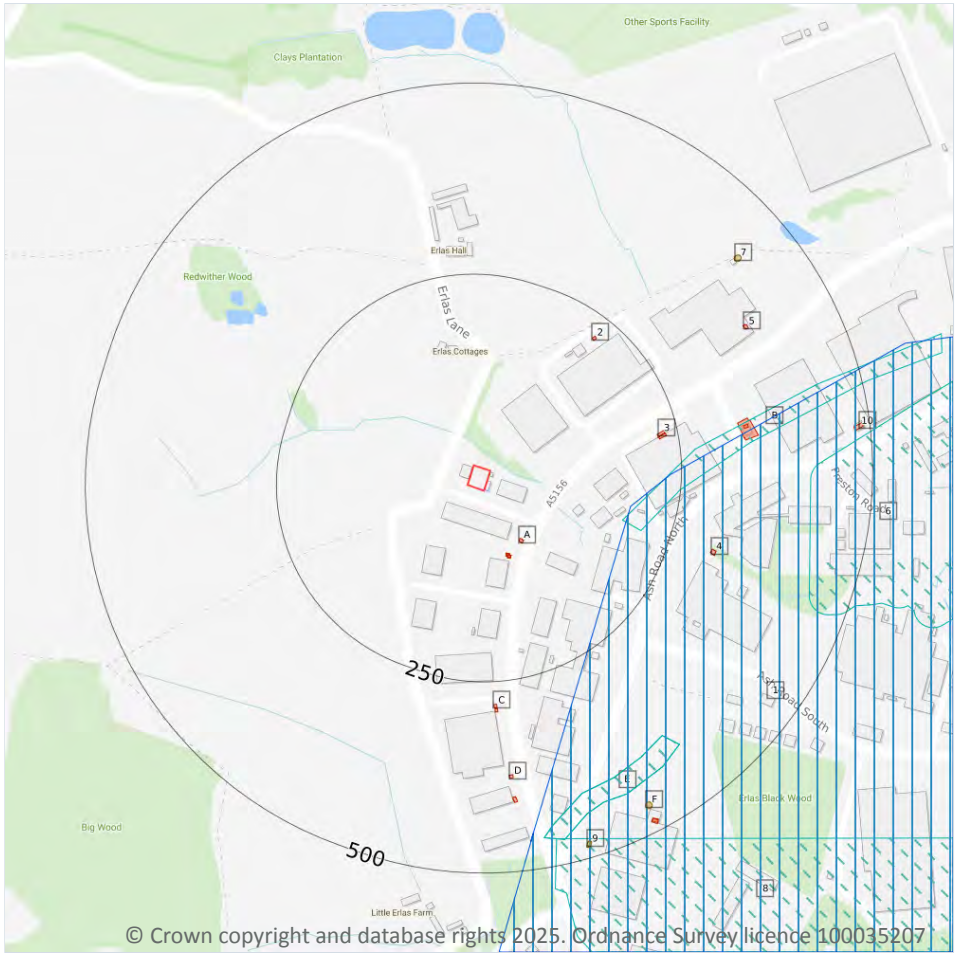
Site Area: 0.07ha

OS MasterMap site plan



Site Area: 0.07ha

1 Past land use



Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

Historical military land

1.1 Historical industrial land uses

Records within 500m	5

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

Features are displayed on the Past land use map on **page 15 >**

ID	Location	Land use	Dates present	Group ID
B	184m E	Railway Sidings	1960 - 1968	860347

ID	Location	Land use	Dates present	Group ID
E	396m SE	Railway Sidings	1960	971799
E	396m SE	Railway Sidings	1968	1003238
6	419m E	Unspecified Commercial/Industrial	1949	822083
8	465m S	Unspecified Commercial/Industrial	1964	995209

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m	**3**

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

Features are displayed on the Past land use map on **page 15 >**

ID	Location	Land use	Dates present	Group ID
7	422m NE	Unspecified Tank	1982 - 1999	150816
F	460m SE	Unspecified Tank	1990 - 1999	130367
9	478m S	Unspecified Tank	1985 - 1994	132183

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m	**22**

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

Features are displayed on the Past land use map on **page 15 >**

ID	Location	Land use	Dates present	Group ID
A	78m SE	Electricity Substation	1990 - 1999	78987

ID	Location	Land use	Dates present	Group ID
A	87m S	Electricity Substation	1988	77200
A	87m S	Electricity Substation	1990	82894
A	87m S	Electricity Substation	1990	84935
A	87m S	Electricity Substation	1982	89259
A	90m S	Electricity Substation	1994	70692
A	90m S	Electricity Substation	1995	72754
A	90m S	Electricity Substation	1995	84289
A	90m S	Electricity Substation	1999	90110
2	218m NE	Electricity Substation	1994 - 1999	72679
3	223m E	Electricity Substation	1982 - 1999	70081
C	280m S	Electricity Substation	1982 - 1990	72736
C	285m S	Electricity Substation	1994 - 1999	77714
4	307m E	Electricity Substation	1990 - 1999	74781
B	329m E	Electricity Substation	1988 - 1999	88482
B	336m E	Electricity Substation	1995	89023
D	373m S	Electricity Substation	1994 - 1999	75366
5	381m NE	Electricity Substation	1982 - 1999	91060
D	402m S	Electricity Substation	1982 - 1999	73076
10	479m E	Electricity Substation	1982 - 1988	72028
F	482m SE	Electricity Substation	1990	69245
F	482m SE	Electricity Substation	1994 - 1999	85871

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m	0

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

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m	0

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

This data is sourced from Ordnance Survey / Groundsure.

1.6 Historical military land

Records within 500m	1

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

Features are displayed on the Past land use map on **page 15 >**

ID	Location	Site Name	Date of Operation	Activities
1	189m E	ROF Wrexham	c.1938 - 1988	c. WW2: Produced cordite,; post WW2: Cordite production ceased in 1945 an the area was used as an industrial estate by the Welsh Development Agency to boost the local economy; Explosives Factory

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

2 Past land use - un-grouped



Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

2.1 Historical industrial land uses

Records within 500m	6

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

Features are displayed on the Past land use - un-grouped map on **page 19 >**

ID	Location	Land Use	Date	Group ID
B	184m E	Railway Sidings	1960	860347
B	184m E	Railway Sidings	1968	860347
I	396m SE	Railway Sidings	1960	971799

ID	Location	Land Use	Date	Group ID
I	396m SE	Railway Sidings	1968	1003238
1	419m E	Unspecified Commercial/Industrial	1949	822083
2	465m S	Unspecified Commercial/Industrial	1964	995209

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m	**19**

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

Features are displayed on the Past land use - un-grouped map on **page 19 >**

ID	Location	Land Use	Date	Group ID
J	422m NE	Unspecified Tank	1982	150816
J	422m NE	Unspecified Tank	1988	150816
J	422m NE	Unspecified Tank	1990	150816
J	422m NE	Unspecified Tank	1990	150816
J	423m NE	Unspecified Tank	1994	150816
J	423m NE	Unspecified Tank	1999	150816
J	423m NE	Unspecified Tank	1995	150816
J	423m NE	Unspecified Tank	1995	150816
K	460m SE	Unspecified Tank	1990	130367
K	460m SE	Unspecified Tank	1990	130367
K	461m SE	Unspecified Tank	1994	130367
K	461m SE	Unspecified Tank	1999	130367
K	461m SE	Unspecified Tank	1995	130367
K	461m SE	Unspecified Tank	1995	130367
L	478m S	Unspecified Tank	1993	132183
L	478m S	Unspecified Tank	1994	132183
L	479m S	Unspecified Tank	1986	132183

ID	Location	Land Use	Date	Group ID
L	479m S	Unspecified Tank	1991	132183
L	479m S	Unspecified Tank	1985	132183

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m	**74**

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

Features are displayed on the Past land use - un-grouped map on **page 19 >**

ID	Location	Land Use	Date	Group ID
A	78m SE	Electricity Substation	1990	78987
A	78m SE	Electricity Substation	1990	78987
A	80m SE	Electricity Substation	1994	78987
A	80m SE	Electricity Substation	1999	78987
A	80m SE	Electricity Substation	1995	78987
A	80m SE	Electricity Substation	1995	78987
A	87m S	Electricity Substation	1982	89259
A	87m S	Electricity Substation	1988	77200
A	87m S	Electricity Substation	1990	84935
A	87m S	Electricity Substation	1990	82894
A	90m S	Electricity Substation	1994	70692
A	90m S	Electricity Substation	1999	90110
A	90m S	Electricity Substation	1995	84289
A	90m S	Electricity Substation	1995	72754
C	218m NE	Electricity Substation	1994	72679
C	218m NE	Electricity Substation	1999	72679
C	218m NE	Electricity Substation	1995	72679
C	218m NE	Electricity Substation	1995	72679

ID	Location	Land Use	Date	Group ID
D	223m E	Electricity Substation	1982	70081
D	223m E	Electricity Substation	1988	70081
D	223m E	Electricity Substation	1990	70081
D	224m E	Electricity Substation	1994	70081
D	224m E	Electricity Substation	1999	70081
D	224m E	Electricity Substation	1995	70081
D	224m E	Electricity Substation	1995	70081
E	280m S	Electricity Substation	1982	72736
E	280m S	Electricity Substation	1988	72736
E	280m S	Electricity Substation	1990	72736
E	280m S	Electricity Substation	1990	72736
E	285m S	Electricity Substation	1994	77714
E	285m S	Electricity Substation	1999	77714
E	285m S	Electricity Substation	1995	77714
E	285m S	Electricity Substation	1995	77714
F	307m E	Electricity Substation	1990	74781
F	307m E	Electricity Substation	1990	74781
F	307m E	Electricity Substation	1994	74781
F	307m E	Electricity Substation	1999	74781
F	307m E	Electricity Substation	1995	74781
F	307m E	Electricity Substation	1995	74781
B	329m E	Electricity Substation	1988	88482
B	329m E	Electricity Substation	1990	88482
B	329m E	Electricity Substation	1990	88482
B	332m E	Electricity Substation	1994	88482
B	332m E	Electricity Substation	1999	88482
B	332m E	Electricity Substation	1995	88482
B	336m E	Electricity Substation	1995	89023

ID	Location	Land Use	Date	Group ID
G	373m S	Electricity Substation	1994	75366
G	373m S	Electricity Substation	1999	75366
G	373m S	Electricity Substation	1995	75366
G	373m S	Electricity Substation	1995	75366
H	381m NE	Electricity Substation	1982	91060
H	381m NE	Electricity Substation	1988	91060
H	381m NE	Electricity Substation	1990	91060
H	381m NE	Electricity Substation	1990	91060
H	382m NE	Electricity Substation	1994	91060
H	382m NE	Electricity Substation	1999	91060
H	382m NE	Electricity Substation	1995	91060
H	382m NE	Electricity Substation	1995	91060
G	402m S	Electricity Substation	1982	73076
G	402m S	Electricity Substation	1988	73076
G	402m S	Electricity Substation	1990	73076
G	402m S	Electricity Substation	1990	73076
G	404m S	Electricity Substation	1994	73076
G	404m S	Electricity Substation	1999	73076
G	404m S	Electricity Substation	1995	73076
G	404m S	Electricity Substation	1995	73076
M	479m E	Electricity Substation	1982	72028
M	479m E	Electricity Substation	1988	72028
K	482m SE	Electricity Substation	1990	69245
K	482m SE	Electricity Substation	1990	69245
K	482m SE	Electricity Substation	1994	85871
K	482m SE	Electricity Substation	1999	85871
K	482m SE	Electricity Substation	1995	85871
K	482m SE	Electricity Substation	1995	85871

This data is sourced from Ordnance Survey / Groundsure.

2.4 Historical petrol stations

Records within 500m	0

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

This data is sourced from Ordnance Survey / Groundsure.

2.5 Historical garages

Records within 500m	0

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

This data is sourced from Ordnance Survey / Groundsure.

3 Waste and landfill



Site Outline

Search buffers in metres (m)

Waste exemptions

3.1 Active or recent landfill

Records within 500m	0

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

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

3.2 Historical landfill (BGS records)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

3.3 Historical landfill (LA/mapping records)

Records within 500m	0

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

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

3.4 Historical landfill (EA/NRW records)

Records within 500m	0

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

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

3.5 Historical waste sites

Records within 500m	0

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

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

3.6 Licensed waste sites

Records within 500m	0

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

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

3.7 Waste exemptions

Records within 500m	17

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

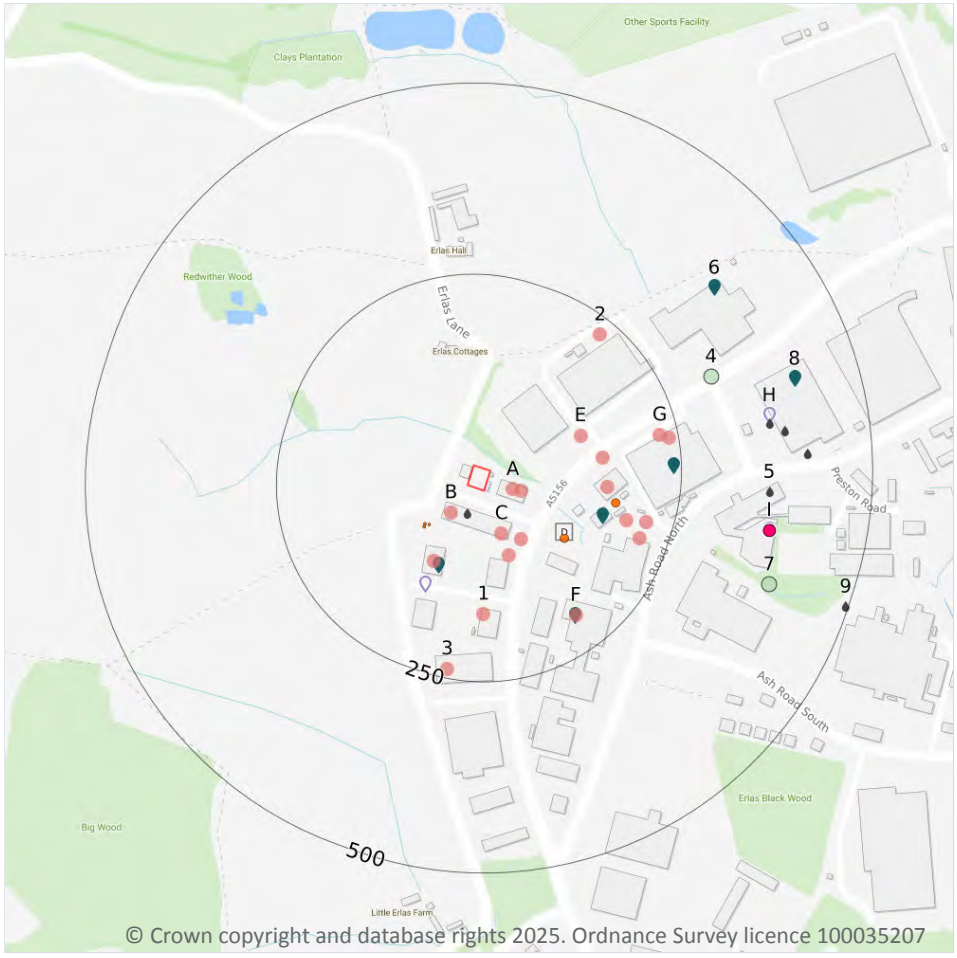
Features are displayed on the Waste and landfill map on **page 25 >**

ID	Location	Site	Reference	Category	Sub-Category	Description
A	156m N	Erlas Hall, Erlas, Wrecsam, Ll139ud	NRW-WME014329	Treating waste exemption	On a farm	Aerobic composting and associated prior treatment
A	156m N	Erlas Hall, Erlas, Wrecsam, Ll139ud	NRW-WME014329	Treating waste exemption	On a farm	Cleaning, washing, spraying or coating relevant waste
A	156m N	Erlas Hall, Erlas, Wrecsam, Ll139ud	NRW-WME014329	Treating waste exemption	On a farm	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
A	156m N	Erlas Hall, Erlas, Wrecsam, Ll139ud	NRW-WME014329	Storing waste exemption	On a farm	Storage of waste in secure containers
A	156m N	Erlas Hall, Erlas, Wrecsam, Ll139ud	NRW-WME014329	Using waste exemption	On a farm	Use of waste for a specified purpose
A	156m N	Erlas Hall, Erlas, Wrecsam, Ll139ud	NRW-WME014329	Storing waste exemption	On a farm	Storage of waste in a secure place
A	156m N	Erlas Hall, Erlas, Wrecsam, Ll139ud	NRW-WME014329	Disposing of waste exemption	On a farm	Deposit of waste from dredging of inland waters
A	156m N	Erlas Hall, Erlas, Wrecsam, Ll139ud	NRW-WME014329	Disposing of waste exemption	On a farm	Burning waste in the open
A	156m N	Erlas Hall, Erlas, Wrecsam, Ll139ud	NRW-WME014329	Treating waste exemption	On a farm	Anaerobic digestion at premises used for agriculture and burning of resultant biogas
A	156m N	Erlas Hall, Erlas, Wrecsam, Ll139ud	NRW-WME014329	Using waste exemption	On a farm	Spreading waste on agricultural land to confer benefit
A	156m N	Erlas Hall, Erlas, Wrecsam, Ll139ud	NRW-WME014329	Using waste exemption	On a farm	Use of waste in construction
1	171m SE	Specialist Building Products T/a Ecodek, Ecodek, Unit 13, Abenbury Way, Wrexham, Wrecsam, Ll139uz	NRW-WME029714	Using waste exemption	Not on a farm	Use of waste to manufacture finished goods
B	466m E	W&s Waste Management Ltd, Unit 3e Yard 2, Wrexham Enterprise Park, Wrexham, Clywd, Ll139jt	NRW-WME009916	Storing waste exemption	Not on a farm	Storage of waste in secure containers

ID	Location	Site	Reference	Category	Sub-Category	Description
B	466m E	W&s Waste Management Ltd, Unit 3e Yard 2, Wrexham Enterprise Park, Wrexham, Clywd, Ll139jt	NRW-WME009916	Storing waste exemption	Not on a farm	Storage of waste in a secure place
B	469m E	W&s Waste Management Ltd, W&s Waste Management Ltd, Unit 3e Yard 2, Wrexham Enterprise Park, Wrexham, Ll13 9jt	NRW-WME041914	Storing waste exemption	Not on a farm	Storage of waste in a secure place
B	469m E	W&s Waste Management Ltd, W&s Waste Management Ltd, Unit 3e Yard 2, Wrexham Enterprise Park, Wrexham, Ll13 9jt	NRW-WME041914	Storing waste exemption	Not on a farm	Storage of waste in secure containers
2	483m N	United Utilities, Manor Farm, Eyton, Wrexham, Wrecsam, Ll13 0sn	NRW-WME096221	Storing waste exemption	Not on a farm	Storage of sludge

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

4 Current industrial land use



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Site Outline

Search buffers in metres (m)

- Recent industrial land uses
- NGD current or recent tanks
- Part A(1) industrial activities
- Licensed pollutant release (Part A(2)/B)
- Radioactive Substance Authorisations
- Licensed Discharges to controlled waters
- Pollution Incidents (EA/NRW)

4.1 Recent industrial land uses

Records within 250m	19

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 29 >**

ID	Location	Company	Address	Activity	Category
A	35m E	Oakhouse Foods	Unit 32, Abenbury Way, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9UZ	Catering and Non Specific Food Products	Foodstuffs
B	42m SW	Technical Colour Supplies Ltd	Unit 30, Abenbury Way, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9UZ	Rubber, Silicones and Plastics	Industrial Products

ID	Location	Company	Address	Activity	Category
A	47m E	Bicks Meats	Unit 31, Abenbury Way, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9UZ	Fish, Meat and Poultry Products	Foodstuffs
C	60m S	Day's Rental	Abenbury Way, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9UZ	Vehicle Hire and Rental	Hire Services
C	80m SE	Electricity Sub Station	Clwyd, LL13	Electrical Features	Infrastructure and Facilities
C	91m S	Electricity Sub Station	Clwyd, LL13	Electrical Features	Infrastructure and Facilities
B	108m SW	Almetron Ltd	Unit 24, Abenbury Way, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9UZ	Colours, Chemicals and Water Softeners and Supplies	Industrial Products
E	126m E	Gas Governor	Clwyd, LL13	Gas Features	Infrastructure and Facilities
E	148m E	Electricity Sub Station	Clwyd, LL13	Electrical Features	Infrastructure and Facilities
E	155m E	J C B Transmissions	Unit 4, Abenbury Way, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9WB	Special Purpose Machinery and Equipment	Industrial Products
1	161m S	Store 4 Sure	Unit 22, Abenbury Way, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9UZ	Container and Storage	Transport, Storage and Delivery
E	189m E	Electricity Sub Station	Clwyd, LL13	Electrical Features	Infrastructure and Facilities
F	202m SE	Ipsen	Ash Road North, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9UF	Medical Equipment, Supplies and Pharmaceuticals	Industrial Products
E	212m E	Electricity Sub Station	Clwyd, LL13	Electrical Features	Infrastructure and Facilities
E	214m E	Electricity Sub Station	Clwyd, LL13	Electrical Features	Infrastructure and Facilities
G	227m E	Electricity Sub Station	Clwyd, LL13	Electrical Features	Infrastructure and Facilities
2	229m NE	Electricity Sub Station	Clwyd, LL13	Electrical Features	Infrastructure and Facilities
3	238m S	HSS Hire Service Group Ltd	Unit 38 39 and 40, Abenbury Way, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9UZ	Construction and Tool Hire	Hire Services

ID	Location	Company	Address	Activity	Category
G	238m E	Solvay	Unit 2, Abenbury Way, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9UZ	Adhesives and Sealants	Industrial Products

This data is sourced from Ordnance Survey.

4.2 National Geographic Database (NGD) - Current or recent tanks

Records within 250m	**10**

Current or recent tanks identified from the Ordnance Survey NGD.

Features are displayed on the Current industrial land use map on **page 29 >**

ID	Location	Tank description	Activity	Date first identified
B	70m SW	Roofed Storage Tank	Commercial Activity: Distribution Or Storage	17/06/2017
B	70m SW	Roofed Storage Tank	Commercial Activity: Distribution Or Storage	17/06/2017
B	74m SW	Roofed Storage Tank	Commercial Activity: Distribution Or Storage	17/06/2017
B	74m SW	Roofed Storage Tank	Commercial Activity: Distribution Or Storage	17/06/2017
B	77m SW	Roofed Storage Tank	Commercial Activity: Distribution Or Storage	17/06/2017
B	77m SW	Roofed Storage Tank	Commercial Activity: Distribution Or Storage	17/06/2017
D	117m SE	Roofed Storage Tank	Commercial Activity: Distribution Or Storage	31/05/2013
D	117m SE	Roofed Storage Tank	Commercial Activity: Distribution Or Storage	31/05/2013
E	164m E	Roofed Storage Tank	Commercial Activity: Distribution Or Storage	17/06/2017
E	164m E	Roofed Storage Tank	Commercial Activity: Distribution Or Storage	17/06/2017

This data is sourced from Ordnance Survey.

4.3 Current or recent petrol stations

Records within 500m	**0**

Open, closed, under development and obsolete petrol stations.

This data is sourced from Experian.

4.4 Electricity cables

Records within 500m	0

High voltage underground electricity transmission cables.

This data is sourced from National Grid.

4.5 Gas pipelines

Records within 500m	0

High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.6 Sites determined as Contaminated Land

Records within 500m	0

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

This data is sourced from Local Authority records.

4.7 Control of Major Accident Hazards (COMAH)

Records within 500m	0

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

This data is sourced from the Health and Safety Executive.

4.8 Regulated explosive sites

Records within 500m	0

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

This data is sourced from the Health and Safety Executive.

4.9 Hazardous substance storage/usage

Records within 500m	0

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

This data is sourced from Local Authority records.

4.10 Historical licensed industrial activities (IPC)

Records within 500m	0

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

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

4.11 Licensed industrial activities (Part A(1))

Records within 500m	23

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

Features are displayed on the Current industrial land use map on **page 29 >**

ID	Location	Details	
B	141m SW	Operator: Almetron Ltd Installation Name: Wrexham Metal Finishing Chemicals Process: - Permit Number: YP3736UX Original Permit Number: -	EPR Reference: - Issue Date: 28/11/2007 Effective Date: 28/11/2007 Last date noted as effective: 28/04/2025 Status: Effective
B	141m SW	Operator: Almetron Ltd Installation Name: Wrexham Metal Finishing Chemicals Process: PRODUCING ORGANIC CHEMICALS SUCH AS: (IV) ORGANIC COMPOUNDS CONTAINING NITROGEN (FOR EXAMPLE AMINES, AMIDES, NITROUS-, NITRO- OR AZO-COMPOUNDS, NITRATES, NITRILES, NITROGEN HETEROCYCLICS, CYANATES, ISOCYANATES, DI-ISOCYANATES AND DI-ISOCYANATE PREPOLYMERS) Permit Number: YP3736UX Original Permit Number: -	EPR Reference: - Issue Date: 28/11/2007 Effective Date: 28/11/2007 Last date noted as effective: 28/04/2025 Status: Effective

ID	Location	Details	
B	141m SW	Operator: Almetron Ltd Installation Name: Wrexham Metal Finishing Chemicals Process: PRODUCING INORGANIC CHEMICALS SUCH AS: (IV) SALTS (FOR EXAMPLE AMMONIUM CHLORIDE, POTASSIUM CHLORATE, POTASSIUM CARBONATE, SODIUM CARBONATE, PERBORATE, SILVER NITRATE, CUPRIC ACETATE, AMMONIUM PHOSPHOMOLYBDATE) Permit Number: YP3736UX Original Permit Number: -	EPR Reference: - Issue Date: 28/11/2007 Effective Date: 28/11/2007 Last date noted as effective: 28/04/2025 Status: Effective
B	141m SW	Operator: ALMETRON LTD Installation Name: WREXHAM METAL FINISHING EPR/YP3736UX Process: INORGANIC CHEMICALS; SALTS EG AMMONIUM CHLORIDE Permit Number: YP3736UX Original Permit Number: YP3736UX	EPR Reference: - Issue Date: 28/11/2007 Effective Date: 28/11/2007 Last date noted as effective: 17/11/2015 Status: EFFECTIVE
B	141m SW	Operator: ALMETRON LTD Installation Name: WREXHAM METAL FINISHING EPR/YP3736UX Process: ORGANIC CHEMICALS; NITROGEN CONTAINING COMPOUNDS EG AMINES Permit Number: YP3736UX Original Permit Number: YP3736UX	EPR Reference: - Issue Date: 28/11/2007 Effective Date: 28/11/2007 Last date noted as effective: 17/11/2015 Status: EFFECTIVE
B	141m SW	Operator: ALMETRON LTD Installation Name: WREXHAM METAL FINISHING CHEMICALS Process: - Permit Number: YP3736UX Original Permit Number: YP3736UX	EPR Reference: - Issue Date: 28/11/2007 Effective Date: 28/11/2007 Last date noted as effective: 01/12/2016 Status: EFFECTIVE
H	372m E	Operator: CAPARO STEEL PRODUCTS LIMITED Installation Name: WREXHAM WIRE EPR/BX6774IN Process: ASSOCIATED PROCESS Permit Number: KP3231ZB Original Permit Number: BX6774IN	EPR Reference: - Issue Date: 28/03/2013 Effective Date: 28/03/2013 Last date noted as effective: 17/11/2015 Status: EFFECTIVE
H	372m E	Operator: CAPARO STEEL PRODUCTS LIMITED Installation Name: WREXHAM WIRE EPR/BX6774IN Process: DISPOSAL OF > 50 T/D NON-HAZARDOUS WASTE (> 100 T/D IF ONLY AD) INVOLVING PHYSICO-CHEMICAL TREATMENT Permit Number: KP3231ZB Original Permit Number: BX6774IN	EPR Reference: - Issue Date: 28/03/2013 Effective Date: 28/03/2013 Last date noted as effective: 17/11/2015 Status: EFFECTIVE

ID	Location	Details	
H	372m E	Operator: CAPARO STEEL PRODUCTS LIMITED Installation Name: WREXHAM WIRE EPR/BX6774IN Process: SURFACE TREATING METALS AND PLASTICS; ELECTROLYTIC/CHEMICAL >30 CU M Permit Number: KP3231ZB Original Permit Number: BX6774IN	EPR Reference: - Issue Date: 28/03/2013 Effective Date: 28/03/2013 Last date noted as effective: 17/11/2015 Status: EFFECTIVE
H	372m E	Operator: CAPARO WIRE LTD Installation Name: WREXHAM WIRE Process: OTHER WASTE DISPOSAL; NON-HAZARDOUS WASTE >50T/D BY PHYSICO-CHEMICAL TREATMENT Permit Number: ZP3336LN Original Permit Number: BX6774IN	EPR Reference: - Issue Date: 26/06/2006 Effective Date: 26/06/2006 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
H	372m E	Operator: CAPARO WIRE LIMITED Installation Name: WREXHAM WIRE Process: OTHER WASTE DISPOSAL; NON-HAZARDOUS WASTE >50T/D BY PHYSICO-CHEMICAL TREATMENT Permit Number: BX6774IN Original Permit Number: BX6774IN	EPR Reference: - Issue Date: 26/11/2004 Effective Date: 26/11/2004 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
H	372m E	Operator: CAPARO WIRE LIMITED Installation Name: WREXHAM WIRE Process: SURFACE TREATING METALS AND PLASTICS; ELECTROLYTIC/CHEMICAL >30 CU M Permit Number: BX6774IN Original Permit Number: BX6774IN	EPR Reference: - Issue Date: 26/11/2004 Effective Date: 26/11/2004 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
H	372m E	Operator: CAPARO WIRE LTD Installation Name: WREXHAM WIRE Process: SURFACE TREATING METALS AND PLASTICS; ELECTROLYTIC/CHEMICAL >30 CU M Permit Number: ZP3336LN Original Permit Number: BX6774IN	EPR Reference: - Issue Date: 26/06/2006 Effective Date: 26/06/2006 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
H	372m E	Operator: CAPARO STEEL PRODUCTS LIMITED Installation Name: WREXHAM WIRE Process: CREATED BY IED - DISPOSAL OF > 50 T/D NON-HAZARDOUS WASTE (> 100 T/D IF ONLY AD) INVOLVING PHYSICO-CHEMICAL TREATMENT Permit Number: KP3231ZB Original Permit Number: BX6774IN	EPR Reference: - Issue Date: 28/03/2013 Effective Date: 28/03/2013 Last date noted as effective: 01/07/2013 Status: EFFECTIVE
H	372m E	Operator: CAPARO STEEL PRODUCTS LIMITED Installation Name: WREXHAM WIRE EPR/BX6774IN Process: - Permit Number: BX6774IN Original Permit Number: KP3231ZB	EPR Reference: - Issue Date: 28/03/2013 Effective Date: 28/03/2013 Last date noted as effective: 01/12/2016 Status: EFFECTIVE

ID	Location	Details	
I	373m E	Operator: GILLETTE UK LTD Installation Name: - Process: INORGANIC CHEMICALS; NON METALS ETC EG CALCIUM CARBIDE Permit Number: BK3824 Original Permit Number: BK3824	EPR Reference: - Issue Date: 09/10/2003 Effective Date: 09/10/2003 Last date noted as effective: 01/10/2004 Status: SUPERSEDED BY PAS
I	373m E	Operator: GILLETTE UK LTD Installation Name: - Process: INORGANIC CHEMICALS; USING MERCURY/CADMIUM AND COMPOUNDS IF RELEASE INTO AIR Permit Number: BK3824 Original Permit Number: BK3824	EPR Reference: - Issue Date: 09/10/2003 Effective Date: 09/10/2003 Last date noted as effective: 01/10/2004 Status: SUPERSEDED BY PAS
I	373m E	Operator: GILLETTE UK LTD Installation Name: WREXHAM ZINC AIR CELL Process: INORGANIC CHEMICALS; USING MERCURY/CADMIUM AND COMPOUNDS IF RELEASE INTO AIR Permit Number: BK3824IX Original Permit Number: BK3824IX	EPR Reference: - Issue Date: 09/10/2003 Effective Date: 09/10/2003 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
I	373m E	Operator: GILLETTE UK LTD Installation Name: WREXHAM ZINC AIR CELL Process: INORGANIC CHEMICALS; NON METALS ETC EG CALCIUM CARBIDE Permit Number: UP3431UH Original Permit Number: BK3824IX	EPR Reference: - Issue Date: 02/11/2007 Effective Date: 06/11/2007 Last date noted as effective: 17/11/2015 Status: SURRENDER EFFECTIVE
I	373m E	Operator: GILLETTE UK LTD Installation Name: WREXHAM ZINC AIR CELL Process: INORGANIC CHEMICALS; USING MERCURY/CADMIUM AND COMPOUNDS IF RELEASE INTO AIR Permit Number: UP3431UH Original Permit Number: BK3824IX	EPR Reference: - Issue Date: 02/11/2007 Effective Date: 06/11/2007 Last date noted as effective: 17/11/2015 Status: SURRENDER EFFECTIVE
I	373m E	Operator: GILLETTE UK LTD Installation Name: WREXHAM ZINC AIR CELL Process: INORGANIC CHEMICALS; NON METALS ETC EG CALCIUM CARBIDE Permit Number: AP3933LR Original Permit Number: BK3824IX	EPR Reference: - Issue Date: 03/03/2006 Effective Date: 03/03/2006 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
I	373m E	Operator: GILLETTE UK LTD Installation Name: WREXHAM ZINC AIR CELL Process: INORGANIC CHEMICALS; USING MERCURY/CADMIUM AND COMPOUNDS IF RELEASE INTO AIR Permit Number: AP3933LR Original Permit Number: BK3824IX	EPR Reference: - Issue Date: 03/03/2006 Effective Date: 03/03/2006 Last date noted as effective: 17/11/2015 Status: SUPERCEDED

ID	Location	Details	
I	373m E	Operator: GILLETTE UK LTD Installation Name: WREXHAM ZINC AIR CELL Process: INORGANIC CHEMICALS; NON METALS ETC EG CALCIUM CARBIDE Permit Number: BK3824IX Original Permit Number: BK3824IX	EPR Reference: - Issue Date: 09/10/2003 Effective Date: 09/10/2003 Last date noted as effective: 17/11/2015 Status: SUPERCEDED

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

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

Records within 500m **6**

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

Features are displayed on the Current industrial land use map on **page 29 >**

ID	Location	Address	Details	
B	112m S	Almetron Ltd,Wrexham Metal Finishing Chemicals, Unit 24, Abenbury Way, Wrexham Industrial Estate, LL13 9UZ	Process: Use of Organic Chemicals Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified. Date of enforcement: No Enforcement Notified. Comment: No Enforcement Notified.
E	157m E	Cytec UK Holdings Ltd, Abenbury Way, Wrexham Industrial Estate, Wrexham, LL13 9UZ	Process: Coating Processes Status: Current Permit Permit Type: Part B	Enforcement: No Enforcement Notified. Date of enforcement: No Enforcement Notified. Comment: No Enforcement Notified.
F	202m SE	Ipsen Biopharm Ltd, Unit 9, Ash Road North, Wrexham Industrial Estate, Wrexham, LL13 9UF	Process: Plant Health and Biocides Products Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified. Date of enforcement: No Enforcement Notified. Comment: No Enforcement Notified.
G	240m E	Cytec Engineered Materials Ltd, Abenbury Way, Wrexham Industrial Estate,Wrexham, LL13 9UZ	Process: Coating Processes Status: Current Permit Permit Type: Part A2	Enforcement: No Enforcement Notified. Date of enforcement: No Enforcement Notified. Comment: No Enforcement Notified.
6	378m NE	Waste Oil Burners, Unit 3 Abenbury Way, Wrexham Industrial Estate, Wrexham, LL13 9US	Process: Timber Manufacture Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified. Date of enforcement: No Enforcement Notified. Comment: No Enforcement Notified.

ID	Location	Address	Details	
8	415m E	Caparo Wire Ltd, PO Box 87, Ash Road North, Wrexham Industrial Estate, Wrexham, LL13 9JT	Process: Surface Cleaning Status: Historical Permit Permit Type: Part B	Enforcement: Enforcement Notified Date of enforcement: 30/03/2006 Comment: Wood processing

This data is sourced from Local Authority records.

4.13 Radioactive Substance Authorisations

Records within 500m **4**

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

Features are displayed on the Current industrial land use map on **page 29 >**

ID	Location	Address	Details	
I	373m E	Specwood Ltd, Duracell Global Business Management Group, 11 Ash Road, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9UF	Operator: Specwood Ltd Type: Disposal Of Radioactive Waste (was Rsa60 Section 6). Permission number: AG0500 Date of approval: 31/03/1991	Effective from: 31/03/1991 Last date of update: 01/01/2015 Status: Superseded By Variation
I	373m E	Specwood Ltd, Duracell Global Business Management Group, 11 Ash Road, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9UF	Operator: Specwood Ltd Type: Disposal Of Radioactive Waste (was Rsa60 Section 6). Permission number: AG0500 Date of approval: 22/10/1993	Effective from: 23/12/1993 Last date of update: 01/01/2015 Status: Superseded By Variation
I	373m E	Specwood Ltd, Duracell Global Business Management Group, 11 Ash Road, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9UF	Operator: Specwood Ltd Type: Disposal Of Radioactive Waste (was Rsa60 Section 6). Permission number: AG0500 Date of approval: 04/04/1995	Effective from: 04/04/1995 Last date of update: 01/01/2015 Status: Revoked/cancelled
I	373m E	Specwood Ltd, Duracell Global Business Management Group,11 Ash Road,wrexham Industrial Estate, Wrexham, Clwyd, LL13 9UF	Operator: Specwood Ltd Type: Keeping And Use Of Radioactive Materials (was Rsa60 Section 1). Permission number: AL0125 Date of approval: 31/03/1991	Effective from: 31/03/1991 Last date of update: 06/01/2005 Status: Superseded By Variation

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

4.14 Licensed Discharges to controlled waters

Records within 500m **6**

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

Features are displayed on the Current industrial land use map on **page 29 >**

ID	Location	Address	Details	
B	35m S	ROYALITEPLASTICSLTD	Effluent Type: UNSPECIFIED Permit Number: CM0134701 Permit Version: 2 Receiving Water: UNKNOWN	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 03/10/1991 Effective Date: 03/10/1991 Revocation Date: 28/05/1996
5	366m E	CAPAROSTEELPRODUCTSLTDASHROAD,CAPAROSTEELPRODUCTSLTD,ASHROADNORTH,WREXHAMINDESTATEWREXHAM,LL139JT	Effluent Type: UNSPECIFIED Permit Number: CM0207601 Permit Version: 1 Receiving Water: CLVRTD SCTN OF TRIB OF REDWITH	Status: REVOKED - UNSPECIFIED Issue date: 06/02/1990 Effective Date: 06/02/1990 Revocation Date: 06/11/1995
H	370m E	CAPAROSTEELPRODUCTSLTDASHROAD,ASHROAD,WREXHAMINDESTATE,WREXHAM,LL139JT	Effluent Type: TRADE DISCHARGES - UNSPECIFIED Permit Number: CM0069301 Permit Version: 2 Receiving Water: UN-NAMED TRIB. OF REDWITHER BR	Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV Issue date: 06/11/1995 Effective Date: 07/11/1995 Revocation Date: 24/04/2003
H	388m E	CAPAROSTEELPRODUCTSLTDASHROAD,ASHROAD,WREXHAMINDESTATE,WREXHAM,LL139JT	Effluent Type: TRADE DISCHARGES - UNSPECIFIED Permit Number: CM0069301 Permit Version: 1 Receiving Water: UN-NAMED TRIB. OF REDWITHER BR	Status: REVOKED - UNSPECIFIED Issue date: 17/02/1972 Effective Date: 17/02/1972 Revocation Date: 06/11/1995
H	415m E	CAPAROSTEELPRODUCTSLTDASHROAD,CAPAROSTEELPRODUCTSLTD,ASHROADNORTH,WREXHAMINDESTATEWREXHAM,LL139JT	Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: CM0207601 Permit Version: 0 Receiving Water: CLVRTD SCTN OF TRIB OF REDWITH	Status: Effective Issue date: 06/11/1995 Effective Date: 07/11/1995 Revocation Date: -
9	497m E	WREXHAMINDESTBRITISHCELANESES,WREXHAMINDESTBRITISHCELANES,BRITISHCELANESESITESUPERSEDED,SUPERSEDEDBYCM0134701	Effluent Type: UNSPECIFIED Permit Number: CM0052201 Permit Version: 1 Receiving Water: UN-NAMED TRIB OF REDWITHER BRO	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 17/10/1968 Effective Date: 17/10/1968 Revocation Date: 26/02/1993

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

4.15 Pollutant release to surface waters (Red List)

Records within 500m	0

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

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

4.16 Pollutant release to public sewer

Records within 500m	0

Discharges of Special Category Effluents to the public sewer.

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

4.17 List 1 Dangerous Substances

Records within 500m	0

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

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

4.18 List 2 Dangerous Substances

Records within 500m	0

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

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

4.19 Pollution Incidents (EA/NRW)

Records within 500m	2

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

Features are displayed on the Current industrial land use map on **page 29 >**

ID	Location	Details	
4	314m NE	Incident Date: 19/11/2003 Incident Identification: 202409 Pollutant: Sewage Materials Pollutant Description: Process Effluent	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
7	393m E	Incident Date: 09/01/2014 Incident Identification: 1192657 Pollutant: Specific Waste Materials Pollutant Description: Tyres	Water Impact: - Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)

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

4.20 Pollution inventory substances

Records within 500m	**0**

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

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

4.21 Pollution inventory waste transfers

Records within 500m	**0**

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

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

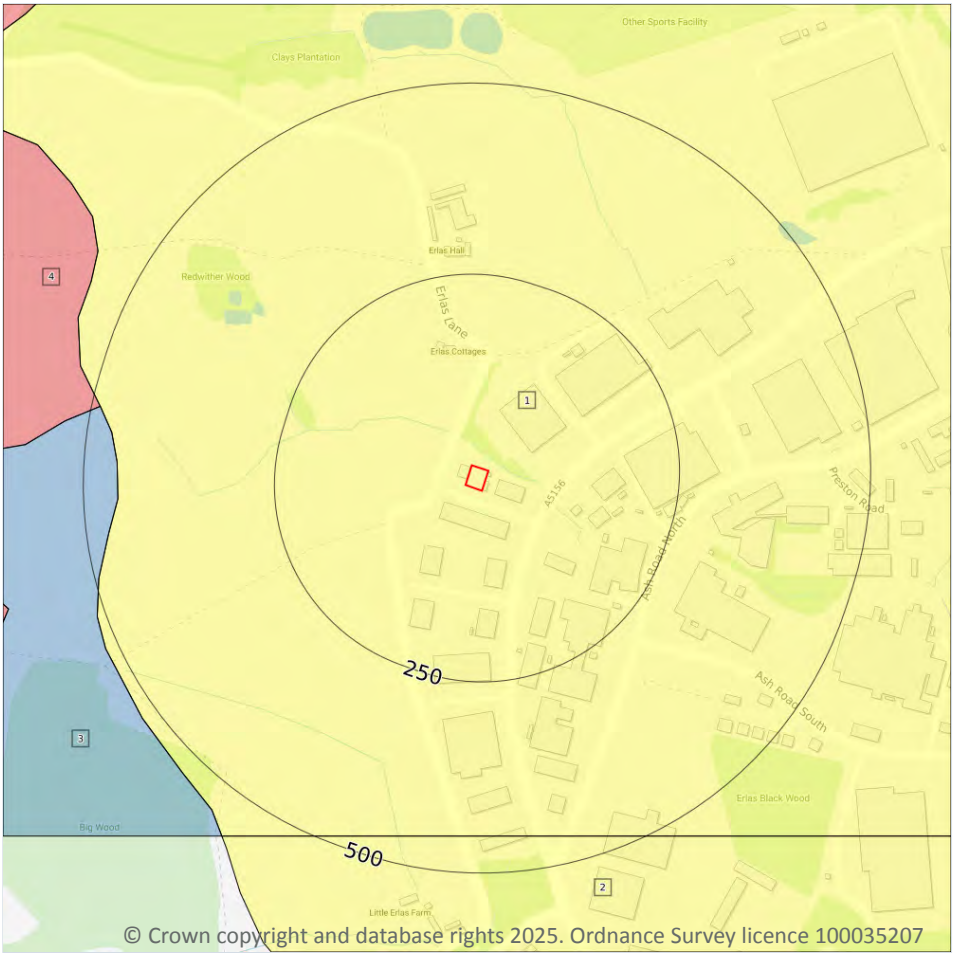
4.22 Pollution inventory radioactive waste

Records within 500m	**0**

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

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

5 Hydrogeology - Superficial aquifer



Site Outline

Search buffers in metres (m)

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

5.1 Superficial aquifer

Records within 500m	4

Aquifer status of groundwater held within superficial geology.

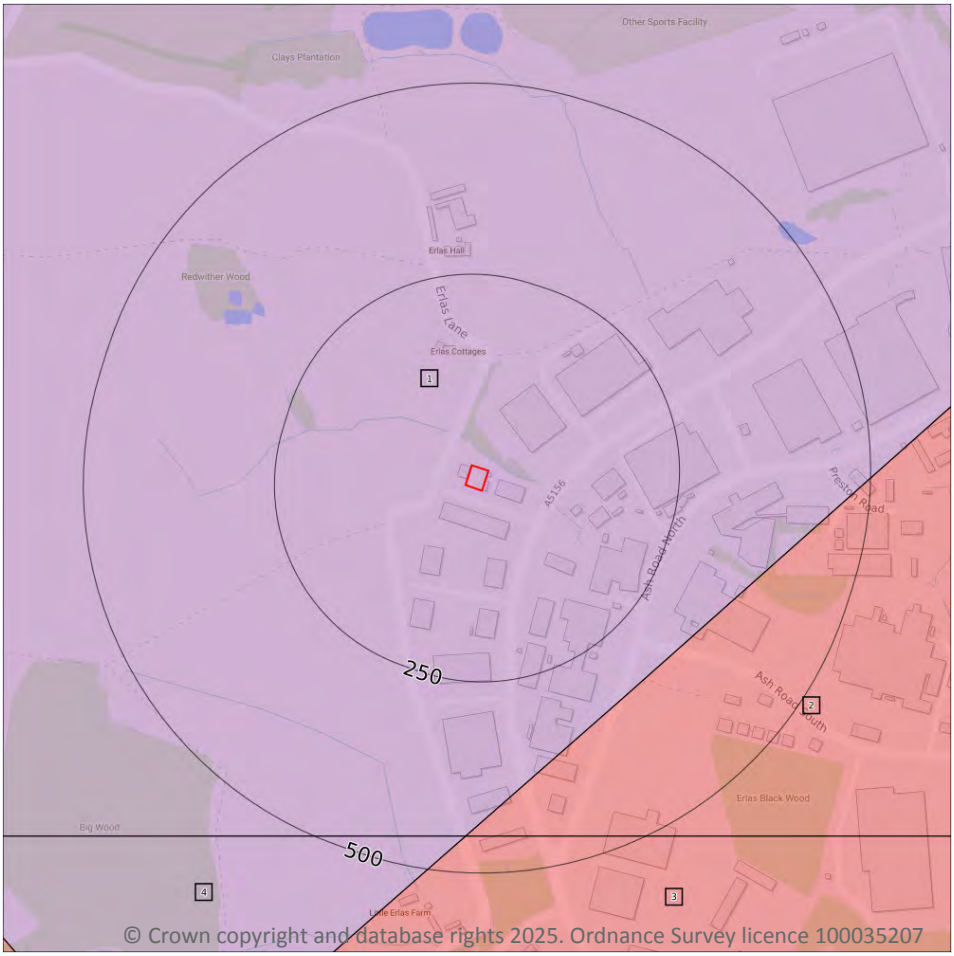
Features are displayed on the Hydrogeology map on **page 42 >**

ID	Location	Designation	Description
1	**On site**	**Secondary Undifferentiated**	**Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type**
2	452m S	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

ID	Location	Designation	Description
3	455m W	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
4	489m 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

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

Bedrock aquifer



Site Outline

Search buffers in metres (m)

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

5.2 Bedrock aquifer

Records within 500m	4

Aquifer status of groundwater held within bedrock geology.

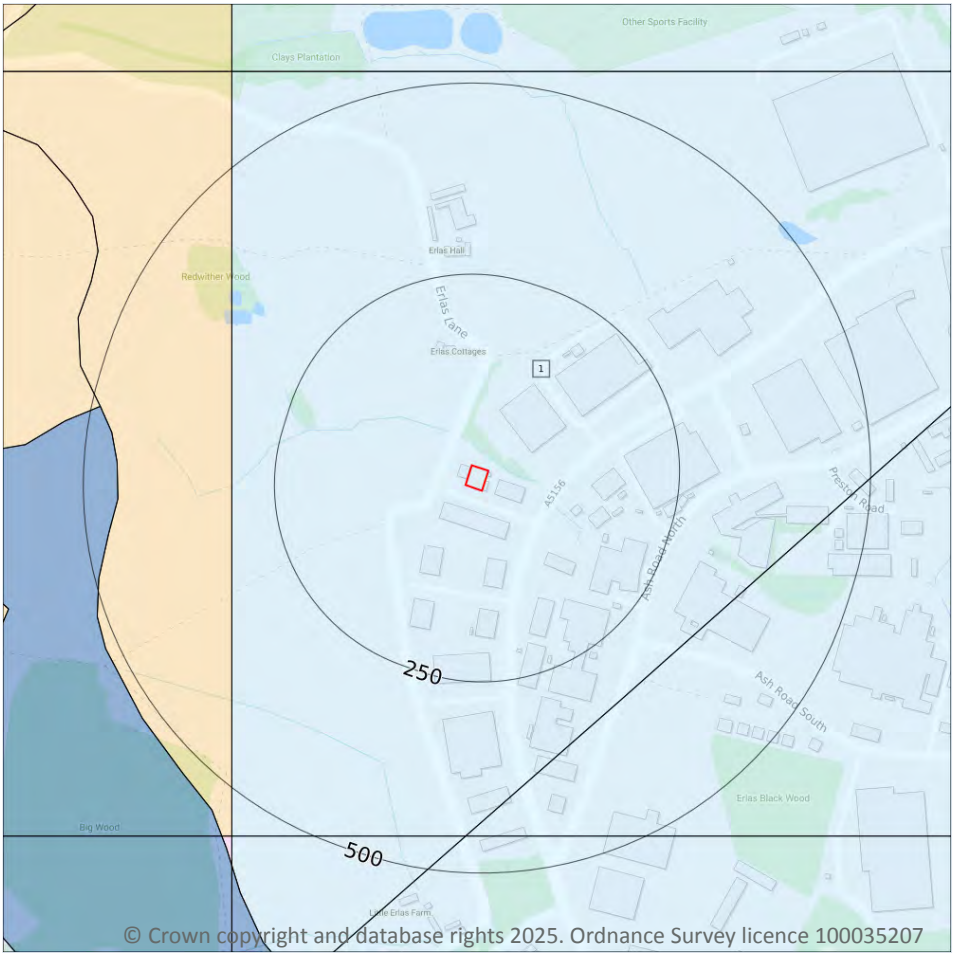
Features are displayed on the Bedrock aquifer map on **page 44 >**

ID	Location	Designation	Description
1	**On site**	**Principal**	**Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers**
2	325m SE	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

ID	Location	Designation	Description
3	452m S	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
4	452m S	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers

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

Groundwater vulnerability



Site Outline

Search buffers in metres (m)

Superficial vulnerability

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

Bedrock vulnerability

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

Other information

- Unproductive aquifer
- Soluble rock risk
- Local information

5.3 Groundwater vulnerability

Records within 50m	1

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

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

Features are displayed on the Groundwater vulnerability map on **page 46 >**

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

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

5.4 Groundwater vulnerability- soluble rock risk

Records on site	0

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

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

5.5 Groundwater vulnerability- local information

Records on site	0

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

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

Abstractions and Source Protection Zones



Site Outline

Search buffers in metres (m)

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

5.6 Groundwater abstractions

Records within 2000m	13

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

Features are displayed on the Abstractions and Source Protection Zones map on **page 48 >**

ID	Location	Details	
-	991m NE	Status: Historical Licence No: 24/67/9/0130 Details: General Farming & Domestic Direct Source: EAW Groundwater Point: WELL Data Type: Point Name: Taylor Easting: 337980 Northing: 351230	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 14/06/1968 Expiry Date: - Issue No: 100 Version Start Date: 14/06/1968 Version End Date: -
-	1631m SE	Status: Historical Licence No: 24/67/7/0213 Details: Process water Direct Source: EAW Groundwater Point: 144 M DEEP, 200MM DIA BH AW2 Data Type: Point Name: Calypso Soft Drinks Ltd Easting: 338360 Northing: 349190	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 10/09/1998 Expiry Date: 10/09/2001 Issue No: 100 Version Start Date: 10/09/1998 Version End Date: -
-	1631m SE	Status: Historical Licence No: 24/67/7/0222 Details: Process Water Direct Source: EAW Groundwater Point: 144 M DEEP, 200MM DIA BH AW2 Data Type: Point Name: Calypso Soft Drinks Ltd Easting: 338360 Northing: 349190	Annual Volume (m^3): 131400 Max Daily Volume (m^3): 600 Original Application No: - Original Start Date: 10/09/2001 Expiry Date: 31/03/2012 Issue No: 1 Version Start Date: 10/09/2001 Version End Date: -
-	1632m SE	Status: Historical Licence No: WA/067/0007/006 Details: Process Water Direct Source: EAW Groundwater Point: SPECTRUM BUSINESS PARK BOREHOLE AW2 Data Type: Point Name: Calypso Soft Drinks Ltd Easting: 338350 Northing: 349180	Annual Volume (m^3): 131400 Max Daily Volume (m^3): 600 Original Application No: - Original Start Date: 01/04/2012 Expiry Date: 31/03/2022 Issue No: 1 Version Start Date: 01/04/2012 Version End Date: -
-	1639m SE	Status: Historical Licence No: 24/67/7/0213 Details: Process water Direct Source: EAW Groundwater Point: 144M DEEP, 150MM DIA., OB1 Data Type: Point Name: Calypso Soft Drinks Ltd Easting: 338240 Northing: 349090	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 10/09/1998 Expiry Date: 10/09/2001 Issue No: 100 Version Start Date: 10/09/1998 Version End Date: -

ID	Location	Details	
-	1639m SE	Status: Historical Licence No: 24/67/7/0222 Details: Process Water Direct Source: EAW Groundwater Point: 144M DEEP, 150MM DIA., OB1 Data Type: Point Name: Calypso Soft Drinks Ltd Easting: 338240 Northing: 349090	Annual Volume (m^3): 131400 Max Daily Volume (m^3): 600 Original Application No: - Original Start Date: 10/09/2001 Expiry Date: 31/03/2012 Issue No: 1 Version Start Date: 10/09/2001 Version End Date: -
-	1639m SE	Status: Historical Licence No: WA/067/0007/006 Details: Process Water Direct Source: EAW Groundwater Point: 144M DEEP, 150MM DIA., OB1 Data Type: Point Name: Calypso Soft Drinks Ltd Easting: 338240 Northing: 349090	Annual Volume (m^3): 131400 Max Daily Volume (m^3): 600 Original Application No: - Original Start Date: 01/04/2012 Expiry Date: 31/03/2022 Issue No: 1 Version Start Date: 01/04/2012 Version End Date: -
-	1646m N	Status: Active Licence No: 24/67/7/0197 Details: Mineral Washing - Low Direct Source: Carboniferous strata at Llan y Pwll, Wrexham Point: - Data Type: Point Name: - Easting: 336870 Northing: 352070	Annual Volume (m^3): 195180 Max Daily Volume (m^3): 533.28 Original Application No: - Original Start Date: 03/12/2021 Expiry Date: - Issue No: - Version Start Date: - Version End Date: -
-	1646m N	Status: Historical Licence No: 24/67/7/0197 Details: Mineral Washing Direct Source: EAW Groundwater Point: BOREHOLE Data Type: Point Name: Lafarge Tarmac Trading Limited Easting: 336870 Northing: 352070	Annual Volume (m^3): 195180 Max Daily Volume (m^3): 533.28 Original Application No: - Original Start Date: 25/08/1982 Expiry Date: - Issue No: 103 Version Start Date: 27/03/2014 Version End Date: -
-	1741m SE	Status: Historical Licence No: 24/67/7/0213 Details: Process water Direct Source: EAW Groundwater Point: 144M DEEP, 150MM DIA. BOREHOLE AW1 Data Type: Point Name: Calypso Soft Drinks Ltd Easting: 338190 Northing: 348940	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 10/09/1998 Expiry Date: 10/09/2001 Issue No: 100 Version Start Date: 10/09/1998 Version End Date: -

ID	Location	Details	
-	1741m SE	Status: Historical Licence No: 24/67/7/0222 Details: Process Water Direct Source: EAW Groundwater Point: 144M DEEP, 150MM DIA. BOREHOLE AW1 Data Type: Point Name: Calypso Soft Drinks Ltd Easting: 338190 Northing: 348940	Annual Volume (m^3): 131400 Max Daily Volume (m^3): 600 Original Application No: - Original Start Date: 10/09/2001 Expiry Date: 31/03/2012 Issue No: 1 Version Start Date: 10/09/2001 Version End Date: -
-	1741m SE	Status: Historical Licence No: WA/067/0007/006 Details: Process Water - Medium Direct Source: Underground strata Point: - Data Type: Point Name: - Easting: 338190 Northing: 348940	Annual Volume (m^3): 131400 Max Daily Volume (m^3): 600 Original Application No: - Original Start Date: 02/10/2016 Expiry Date: 30/03/2027 Issue No: - Version Start Date: - Version End Date: -
-	1741m SE	Status: Historical Licence No: WA/067/0007/006 Details: Process Water Direct Source: EAW Groundwater Point: 144M DEEP, 150MM DIA. BOREHOLE AW1 Data Type: Point Name: Calypso Soft Drinks Ltd Easting: 338190 Northing: 348940	Annual Volume (m^3): 131400 Max Daily Volume (m^3): 600 Original Application No: - Original Start Date: 01/04/2012 Expiry Date: 31/03/2022 Issue No: 1 Version Start Date: 01/04/2012 Version End Date: -

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

5.7 Surface water abstractions

Records within 2000m	**1**

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

Features are displayed on the Abstractions and Source Protection Zones map on **page 48 >**

ID	Location	Details	
2	475m E	Status: Historical Licence No: 24/67/7/0178 Details: Non-Evaporative Cooling Direct Source: EAW Surface Water Point: TRIBUTARY OF REDWITHER BROOK Data Type: Point Name: Caparo Wire Ltd Easting: 337810 Northing: 350500	Annual Volume (m^3): 9955.74 Max Daily Volume (m^3): 27.276 Original Application No: - Original Start Date: 12/05/1972 Expiry Date: - Issue No: 100 Version Start Date: 01/04/2007 Version End Date: -

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

5.8 Potable abstractions

Records within 2000m	**0**

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

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

5.9 Source Protection Zones

Records within 500m	**1**

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

Features are displayed on the Abstractions and Source Protection Zones map on **page 48 >**

ID	Location	Type	Description
1	**On site**	**3**	**Total catchment**

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

5.10 Source Protection Zones (confined aquifer)

Records within 500m	**0**

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

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

6 Hydrology



Site Outline

Search buffers in metres (m)

Water Network (OS MasterMap)

Surface water features (wider than 5m)

Surface water features (narrower than 5m)

WFD River, canal and surface water transfer water bodies

WFD Lake water bodies

WFD Transitional and coastal water bodies

WFD Surface water body catchments boundaries

WFD Groundwater body boundaries

6.1 Water Network (OS MasterMap)

Records within 250m	11

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

Features are displayed on the Hydrology map on **page 53 >**

ID	Location	Type of water feature	Ground level	Permanence	Name
A	14m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

ID	Location	Type of water feature	Ground level	Permanence	Name
A	30m N	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
A	32m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
A	45m NW	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
B	52m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
C	68m E	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
C	100m E	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
C	147m SE	Lake, loch or reservoir.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
1	158m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
D	217m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
E	217m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m	**6**

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

Features are displayed on the Hydrology map on **page 53 >**

This data is sourced from the Ordnance Survey.

6.3 WFD Surface water body catchments

Records on site	1

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

Features are displayed on the Hydrology map on **page 53 >**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
A	**On site**	**River WB catchment**	**Clywedog - Dee to Gwenfro**	**GB111067052110**	**Clywedog - Dee**	**Dee**

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

6.4 WFD Surface water bodies

Records identified	1

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

Features are displayed on the Hydrology map on **page 53 >**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
-	1791m SE	River	Clywedog - Dee to Gwenfro	GB111067052110	Moderate	Fail	Moderate	2016

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

6.5 WFD Groundwater bodies

Records on site	1

Groundwater bodies are also covered by the Directive and the same regime of objectives and reporting detailed in the previous section is in place.

Features are displayed on the Hydrology map on **page 53 >**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
A	**On site**	**Dee Permo-Triassic Sandstone**	**GB41101G202400**	**Poor**	**Poor**	**Good**	**2019**

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

7 River and coastal flooding

7.1 Risk of flooding from rivers and the sea

Records within 50m	0

The chance of flooding from rivers and/or the sea in any given year, based on cells of 50m within the Risk of Flooding from Rivers and Sea (RoFRaS)/Flood Risk Assessment Wales (FRAW) models. Each cell is allocated one of four flood risk categories, taking into account flood defences and their condition. The risk categories for RoFRaS for rivers and the sea and FRAW for rivers are; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 100 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 100 chance) or High (greater than or equal to 1 in 30 chance). The risk categories for FRAW for the sea are; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 200 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 200 chance) or High (greater than or equal to 1 in 30 chance).

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

7.2 Historical Flood Events

Records within 250m	0

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

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

7.3 Flood Defences

Records within 250m	0

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

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

7.4 Areas Benefiting from Flood Defences

Records within 250m	0

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

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

7.5 Flood Storage Areas

Records within 250m	0

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

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

River and coastal flooding - Flood Zones

7.6 Flood Zone 2

Records within 50m	0

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

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

7.7 Flood Zone 3

Records within 50m	0

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

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

8 Surface water flooding



Site Outline
Search buffers in metres (m)

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

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

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

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

8.1 Surface water flooding

Highest risk on site	**1 in 100 year, 0.1m - 0.3m**
Highest risk within 50m	**1 in 30 year, Greater than 1.0m**

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

Features are displayed on the Surface water flooding map on **page 60 >**

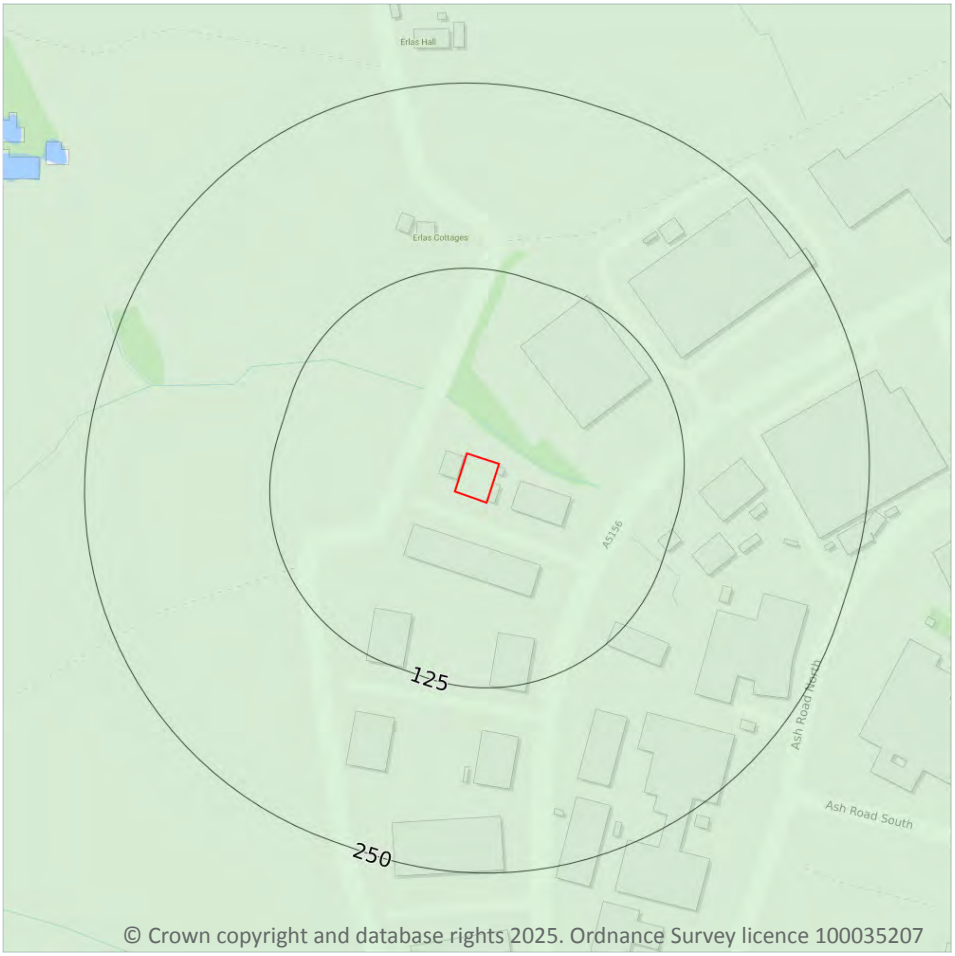
The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site.

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

Return period	Maximum modelled depth
1 in 1000 year	Between 0.1m and 0.3m
1 in 250 year	Between 0.1m and 0.3m
1 in 100 year	Between 0.1m and 0.3m
1 in 30 year	Negligible

This data is sourced from Ambiental Risk Analytics.

9 Groundwater flooding



Site Outline

Search buffers in metres (m)

High

Moderate - High

Moderate

Low

Negligible

9.1 Groundwater flooding

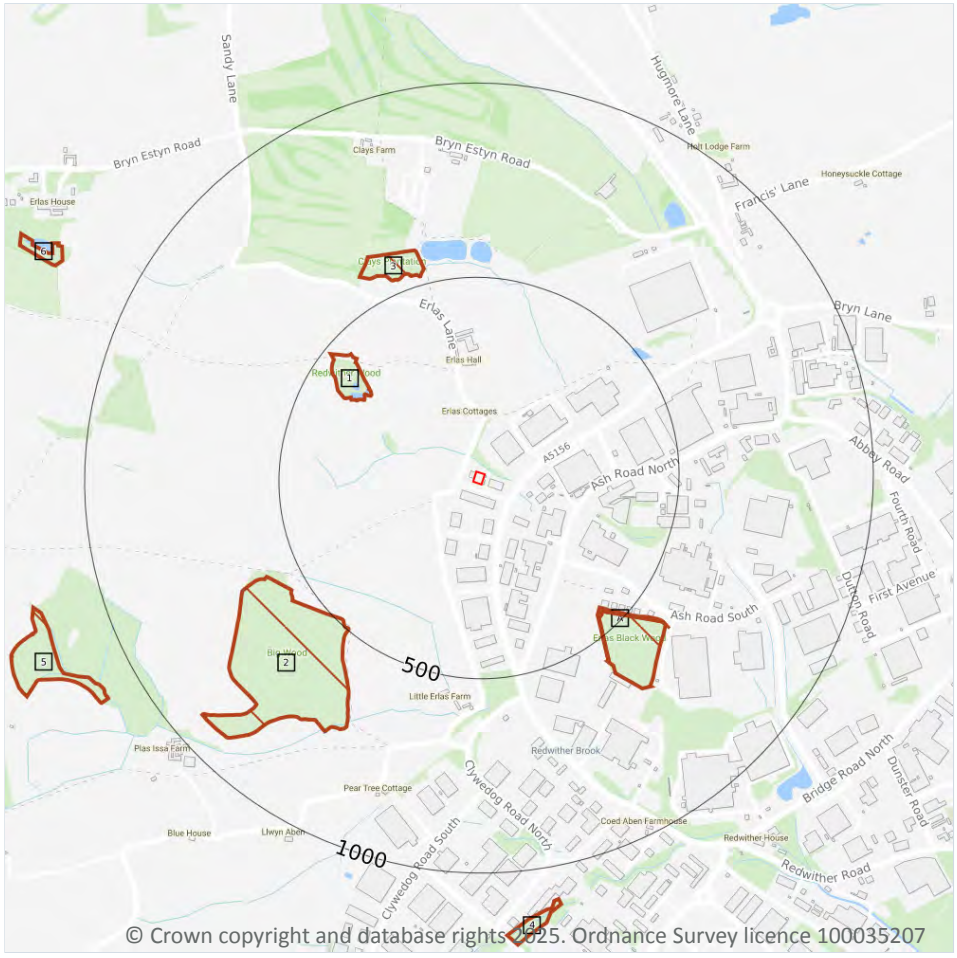
Highest risk on site	**Low**
Highest risk within 50m	**Low**

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

Features are displayed on the Groundwater flooding map on **page 62 >**

This data is sourced from Ambiental Risk Analytics.

10 Environmental designations



Site Outline

Search buffers in metres (m)

Designated Ancient Woodland

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m	0

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

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

10.2 Conserved wetland sites (Ramsar sites)

Records within 2000m	0

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

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

10.3 Special Areas of Conservation (SAC)

Records within 2000m	0

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

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

10.4 Special Protection Areas (SPA)

Records within 2000m	0

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

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

10.5 National Nature Reserves (NNR)

Records within 2000m	0

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

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

10.6 Local Nature Reserves (LNR)

Records within 2000m	0

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

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

10.7 Designated Ancient Woodland

Records within 2000m	11

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

Features are displayed on the Environmental designations map on **page 63 >**

ID	Location	Name	Woodland Type
1	334m NW	Unknown	Ancient Semi Natural Woodland
A	439m SE	Unknown	Restored Ancient Woodland Site
A	450m SE	Unknown	Restored Ancient Woodland Site
2	489m SW	Unknown	Ancient Semi Natural Woodland
3	523m N	Unknown	Restored Ancient Woodland Site
4	1085m S	Unknown	Ancient Semi Natural Woodland
5	1090m SW	Unknown	Ancient Semi Natural Woodland
6	1195m NW	Unknown	Ancient Semi Natural Woodland
-	1500m W	Unknown	Ancient Semi Natural Woodland
-	1690m NW	Unknown	Ancient Semi Natural Woodland
-	1772m SW	Unknown	Ancient Semi Natural Woodland

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

10.8 Biosphere Reserves

Records within 2000m	0

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

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

10.9 Forest Parks

Records within 2000m	0

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

This data is sourced from the Forestry Commission.

10.10 Marine Conservation Zones

Records within 2000m	0

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

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

10.11 Green Belt

Records within 2000m	0

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

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

10.12 Proposed Ramsar sites

Records within 2000m	0

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

This data is sourced from Natural England.

10.13 Possible Special Areas of Conservation (pSAC)

Records within 2000m	0

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

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

10.14 Potential Special Protection Areas (pSPA)

Records within 2000m	0

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

This data is sourced from Natural England.

10.15 Nitrate Sensitive Areas

Records within 2000m	0

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

This data is sourced from Natural England.

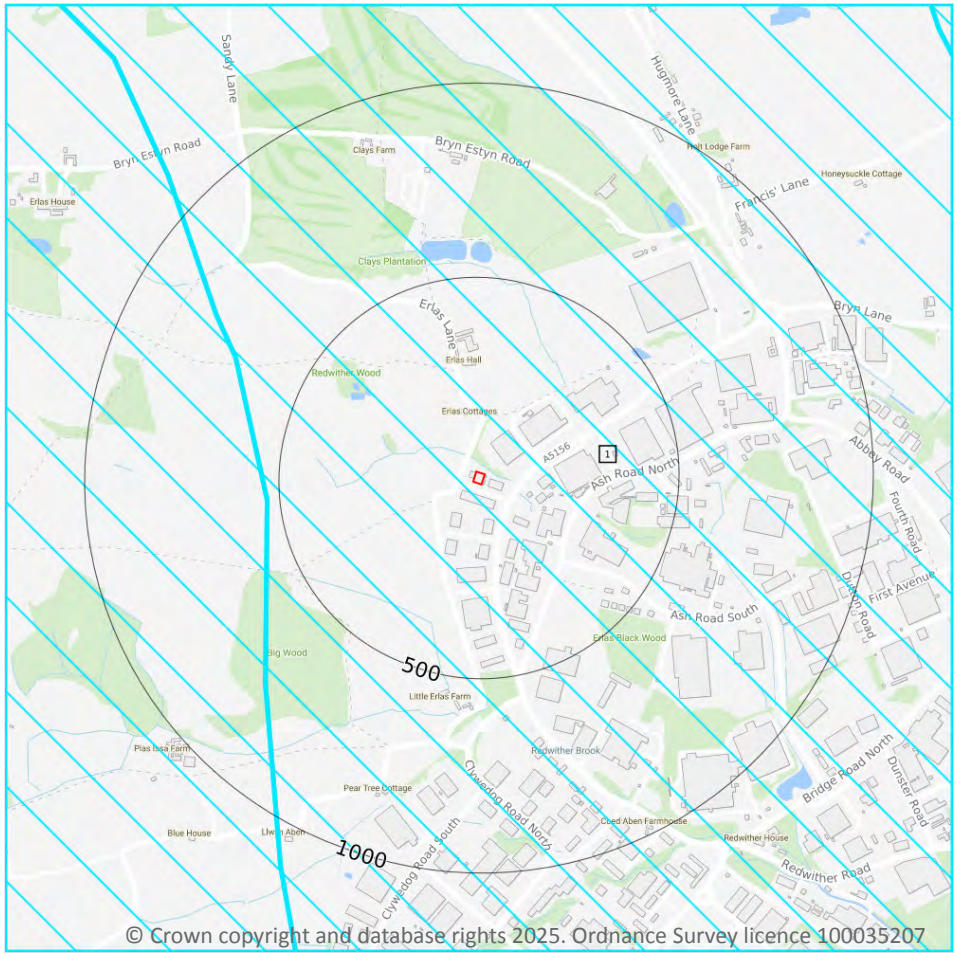
10.16 Nitrate Vulnerable Zones

Records within 2000m	0

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

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

SSSI Impact Zones and Units



Site Outline

Search buffers in metres (m)

SSSI Impact Risk Zones

SSSI Units

- Not recorded
- Favourable
- Unfavourable - Recovering
- Unfavourable - No change
- Unfavourable - Declining
- Partially destroyed
- Destroyed

10.17 SSSI Impact Risk Zones

Records on site	1

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

Features are displayed on the SSSI Impact Zones and Units map on **page 68 >**

ID	Location	Type of developments requiring consultation
1	**On site**	**https://irz.geodata.org.uk/IRZ/step2.html?irzcode=0300000430000&notes=&location=338166,349448%20(IRZ%20polygon%20centre)**

This data is sourced from Natural England.

10.18 SSSI Units

Records within 2000m	0

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

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

11 Visual and cultural designations

11.1 World Heritage Sites

Records within 250m	0

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

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

11.2 Area of Outstanding Natural Beauty

Records within 250m	0

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

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

11.3 National Parks

Records within 250m	0

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

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

11.4 Listed Buildings

Records within 250m	0

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

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

11.5 Conservation Areas

Records within 250m	0

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

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

11.6 Scheduled Ancient Monuments

Records within 250m	0

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

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

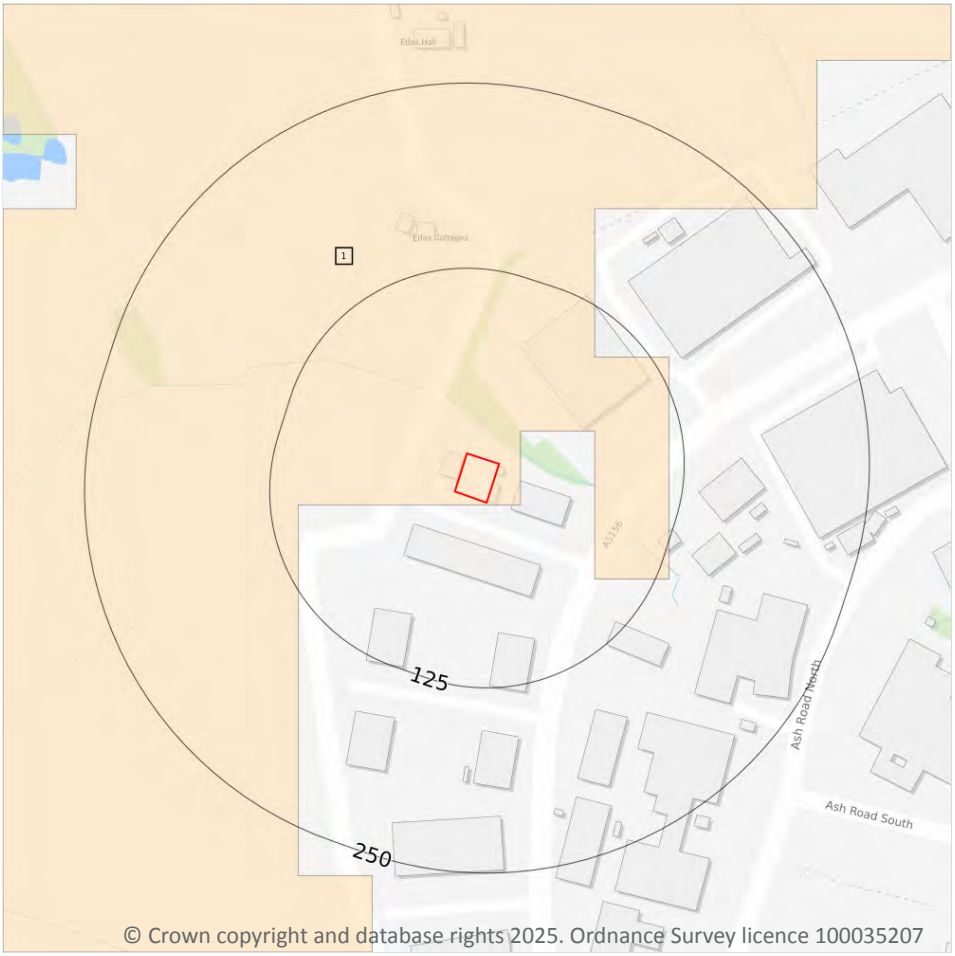
11.7 Registered Parks and Gardens

Records within 250m	0

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

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

12 Agricultural designations



Site Outline

Search buffers in metres (m)

- Grade 1 - excellent quality
- Grade 2 - very good quality
- Grade 3a - good quality
- Grade 3b - moderate quality
- Grade 4 - poor quality
- Grade 5 - very poor quality
- Timber felling licences
- Open Access land

12.1 Agricultural Land Classification

Records within 250m	1

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

Features are displayed on the Agricultural designations map on **page 72 >**

ID	Location	Classification	Description
1	**On site**	**Grade 3a**	**Good to moderate quality agricultural land**

This data is sourced from Natural Resources Wales.

12.2 Open Access Land

Records within 250m	0

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

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

12.3 Tree Felling Licences

Records within 250m	0

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

This data is sourced from the Forestry Commission.

12.4 Environmental Stewardship Schemes

Records within 250m	0

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

This data is sourced from Natural England.

12.5 Countryside Stewardship Schemes

Records within 250m	0

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

This data is sourced from Natural England.

13 Habitat designations

13.1 Priority Habitat Inventory

Records within 250m	0

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

This data is sourced from Natural England.

13.2 Habitat Networks

Records within 250m	0

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

This data is sourced from Natural England.

13.3 Open Mosaic Habitat

Records within 250m	0

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

This data is sourced from Natural England.

13.4 Limestone Pavement Orders

Records within 250m	0

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

This data is sourced from Natural England.

14 Geology 1:10,000 scale - Availability



Site Outline

Search buffers in metres (m)

- Full coverage
- Partial coverage
- No coverage

14.1 10k Availability

Records within 500m	2

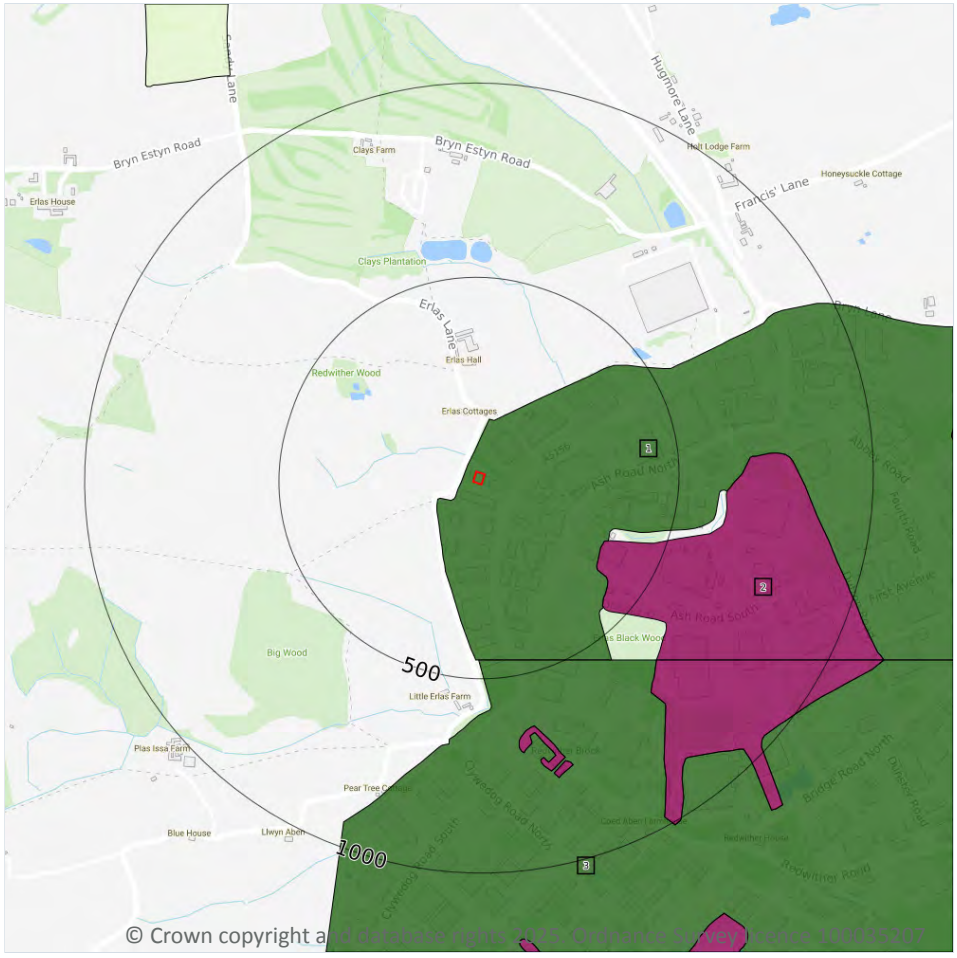
An indication on the coverage of 1:10,000 scale geology data for the site, the most detailed dataset provided by the British Geological Survey. Either 'Full', 'Partial' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:10,000 scale - Availability map on **page 75 >**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**No coverage**	**SJ35SE**
2	452m S	Full	Full	Full	No coverage	SJ34NE

This data is sourced from the British Geological Survey.

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



Site Outline

Search buffers in metres (m)

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

14.2 Artificial and made ground (10k)

Records within 500m	3

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

Features are displayed on the Geology 1:10,000 scale - Artificial and made ground map on **page 76 >**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**LSGR-UKNOWN**	**Landscaped Ground (Undivided)**	**Unknown/unclassified Entry**
2	347m SE	MGR-UKNOWN	Made Ground (Undivided)	Unknown/unclassified Entry
3	452m S	LSGR-UKNOWN	Landscaped Ground (Undivided)	Unknown/unclassified Entry

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (10k)

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

14.3 Superficial geology (10k)

Records within 500m **4**

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

Features are displayed on the Geology 1:10,000 scale - Superficial map on **page 77 >**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**TILL-DMTN**	**Till - Diamicton**	**Diamicton**
2	452m S	TILL-DMTN	Till - Diamicton	Diamicton
3	462m W	GLLD-C	Glaciolacustrine Deposits - Clay	Clay
4	496m W	GFDU-XSV	Glaciofluvial Deposits - Sand And Gravel	Sand And Gravel

This data is sourced from the British Geological Survey.

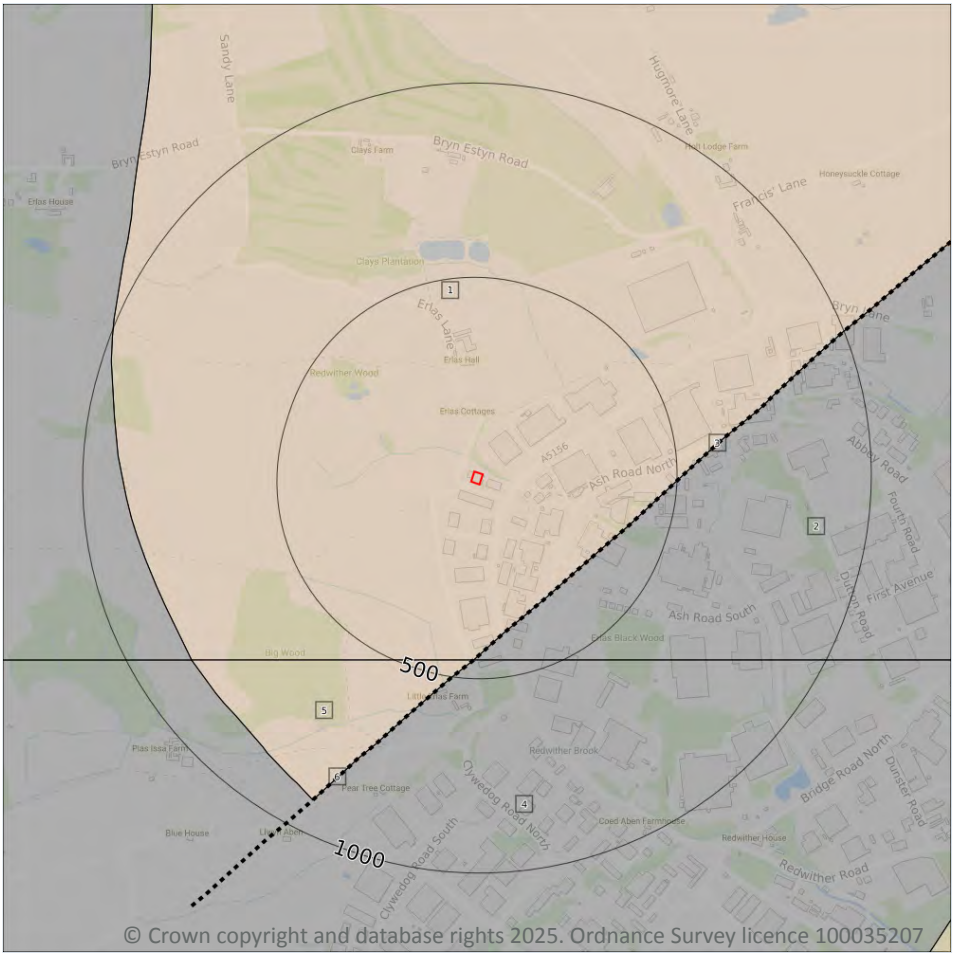
14.4 Landslip (10k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (10k)

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

14.5 Bedrock geology (10k)

Records within 500m	4

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

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 79 >**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**KNSF-SDST**	**Kinnerton Sandstone Formation - Sandstone**	**Early Triassic Epoch**
2	332m SE	SAL-MDST	Salop Formation - Mudstone	Cisuralian Epoch - Westphalian D Sub-age
4	452m S	SAL-CYCCM	Salop Formation - Sedimentary Rock Cycles, Coal Measure Type	Cisuralian Epoch - Westphalian D Sub-age

ID	Location	LEX Code	Description	Rock age
5	452m S	KNSF-SDST	Kinnerton Sandstone Formation - Sandstone	Early Triassic Epoch

This data is sourced from the British Geological Survey.

14.6 Bedrock faults and other linear features (10k)

Records within 500m	**2**

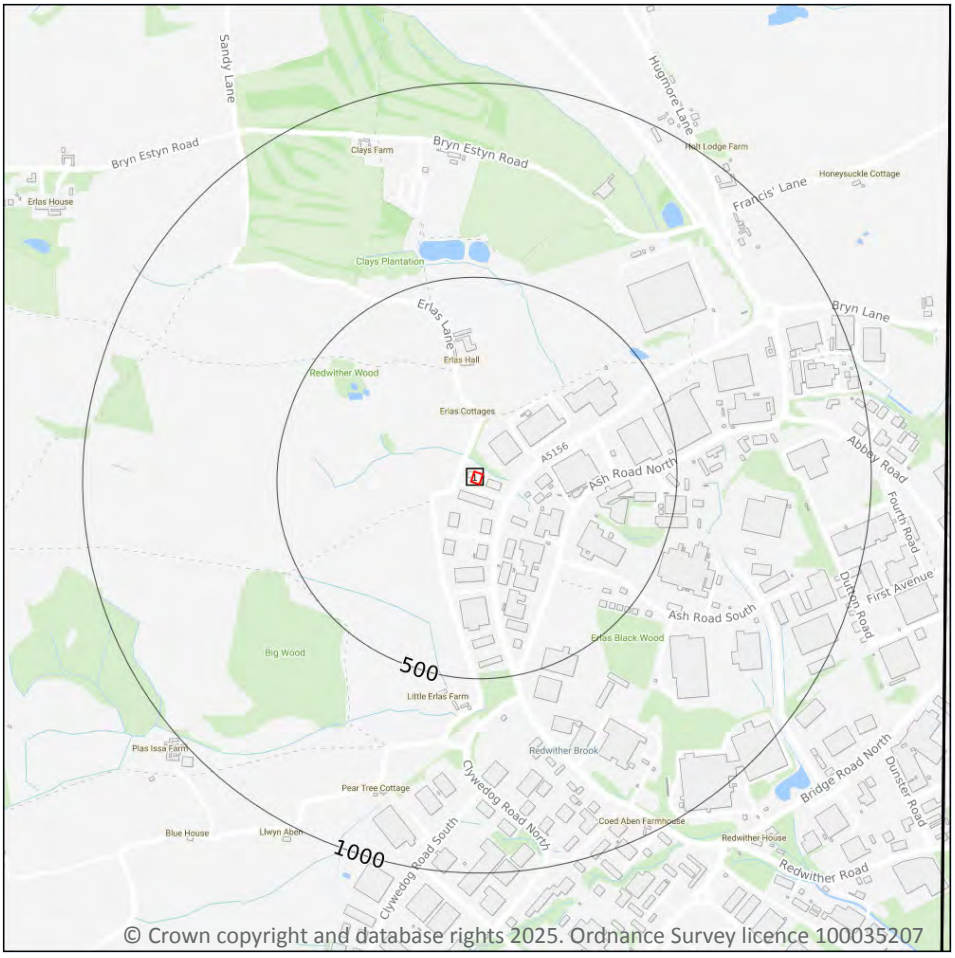
Linear features at the ground or bedrock surface at 1:10,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 79 >**

ID	Location	Category	Description
3	332m SE	FAULT	Normal fault, inferred
6	452m S	FAULT	Normal fault, inferred

This data is sourced from the British Geological Survey.

15 Geology 1:50,000 scale - Availability



Site Outline

Search buffers in metres (m)

Geological map tile

15.1 50k Availability

Records within 500m	1

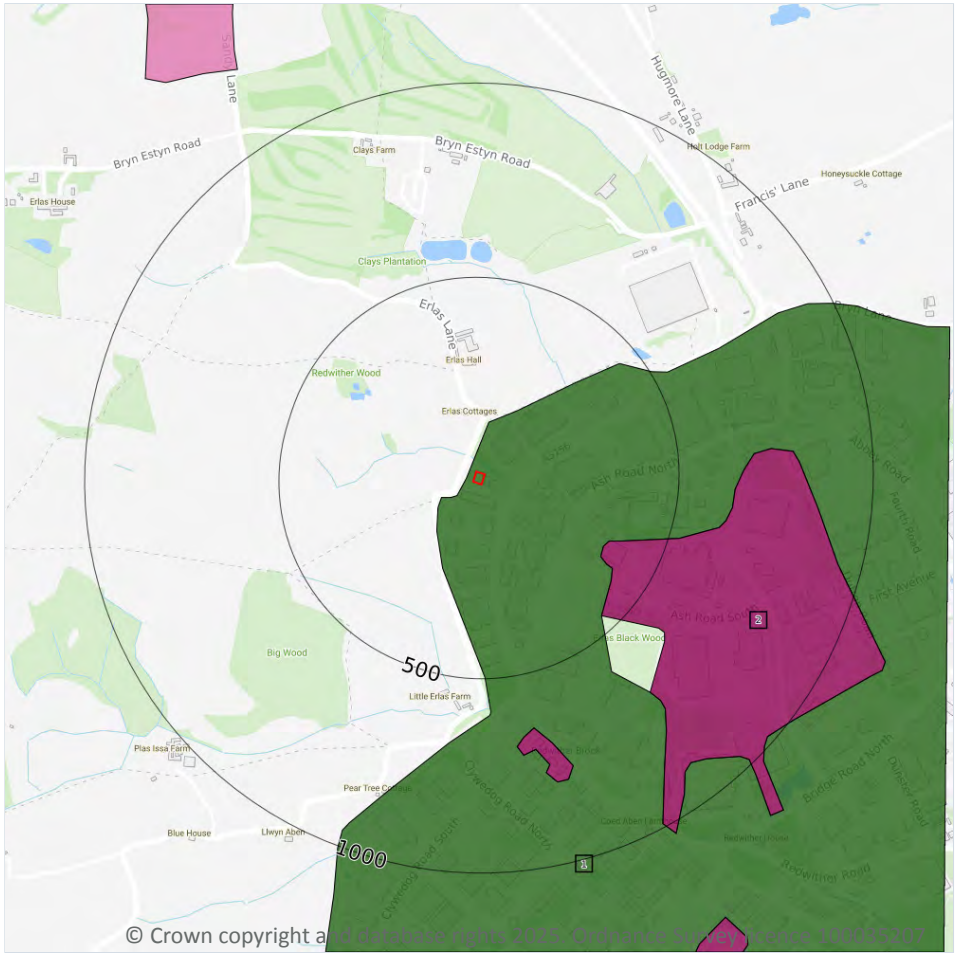
An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme. Where 50k data is not available, this area has been filled in with 625k scale data.

Features are displayed on the Geology 1:50,000 scale - Availability map on **page 81 >**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**Full**	**EW121_wrexham_v4**

This data is sourced from the British Geological Survey.

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



Site Outline

Search buffers in metres (m)

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

15.2 Artificial and made ground (50k)

Records within 500m	2

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

Features are displayed on the Geology 1:50,000 scale - Artificial and made ground map on **page 82 >**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**LSGR-ARTGR**	**LANDSCAPED GROUND (UNDIVIDED)**	**ARTIFICIALLY MODIFIED GROUND**
2	352m SE	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

This data is sourced from the British Geological Survey.

15.3 Artificial ground permeability (50k)

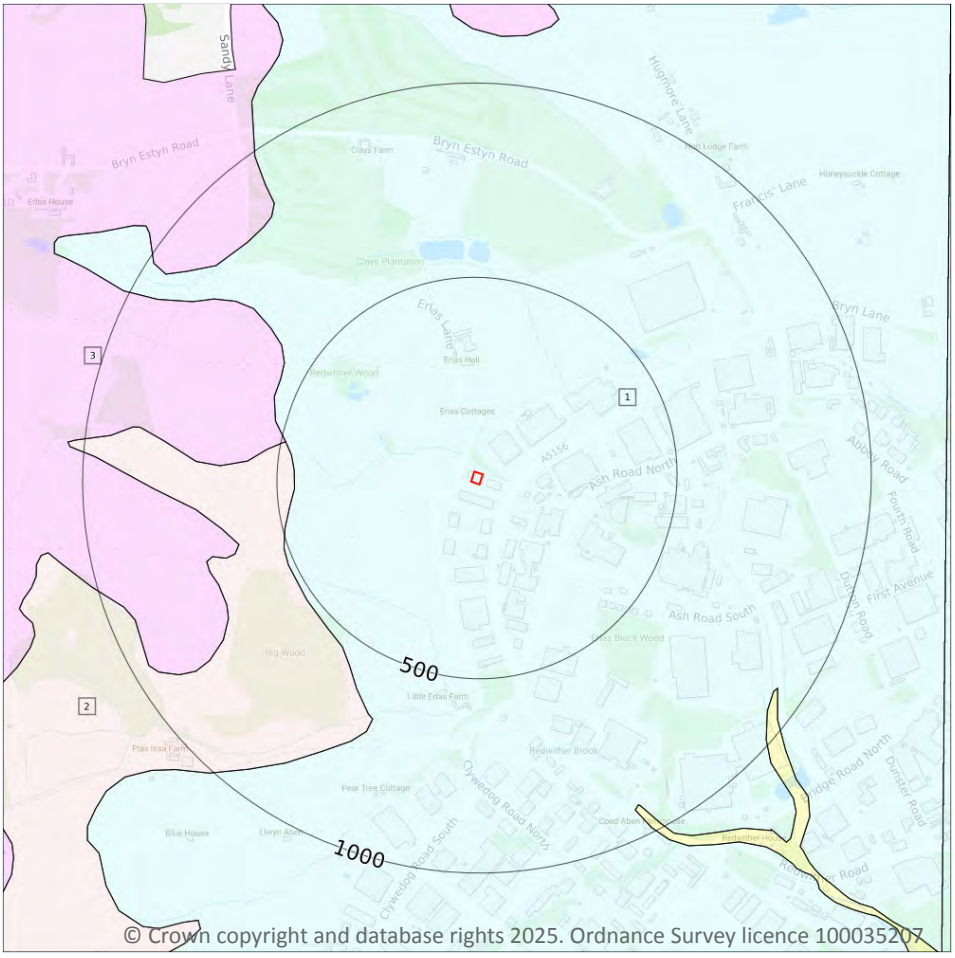
Records within 50m	1

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

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Mixed**	**Very High**	**Low**

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (50k)

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

15.4 Superficial geology (50k)

Records within 500m **3**

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

Features are displayed on the Geology 1:50,000 scale - Superficial map on **page 84 >**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**TILLD-DMTN**	**TILL, DEVENSIAN**	**DIAMICTON**
2	455m W	GLLDD-XCZ	GLACIOLACUSTRINE DEPOSITS, DEVENSIAN	CLAY AND SILT
3	489m W	GFSDD-XSV	GLACIOFLUVIAL SHEET DEPOSITS, DEVENSIAN	SAND AND GRAVEL

This data is sourced from the British Geological Survey.

15.5 Superficial permeability (50k)

Records within 50m	1

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

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Mixed**	**High**	**Low**

This data is sourced from the British Geological Survey.

15.6 Landslip (50k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

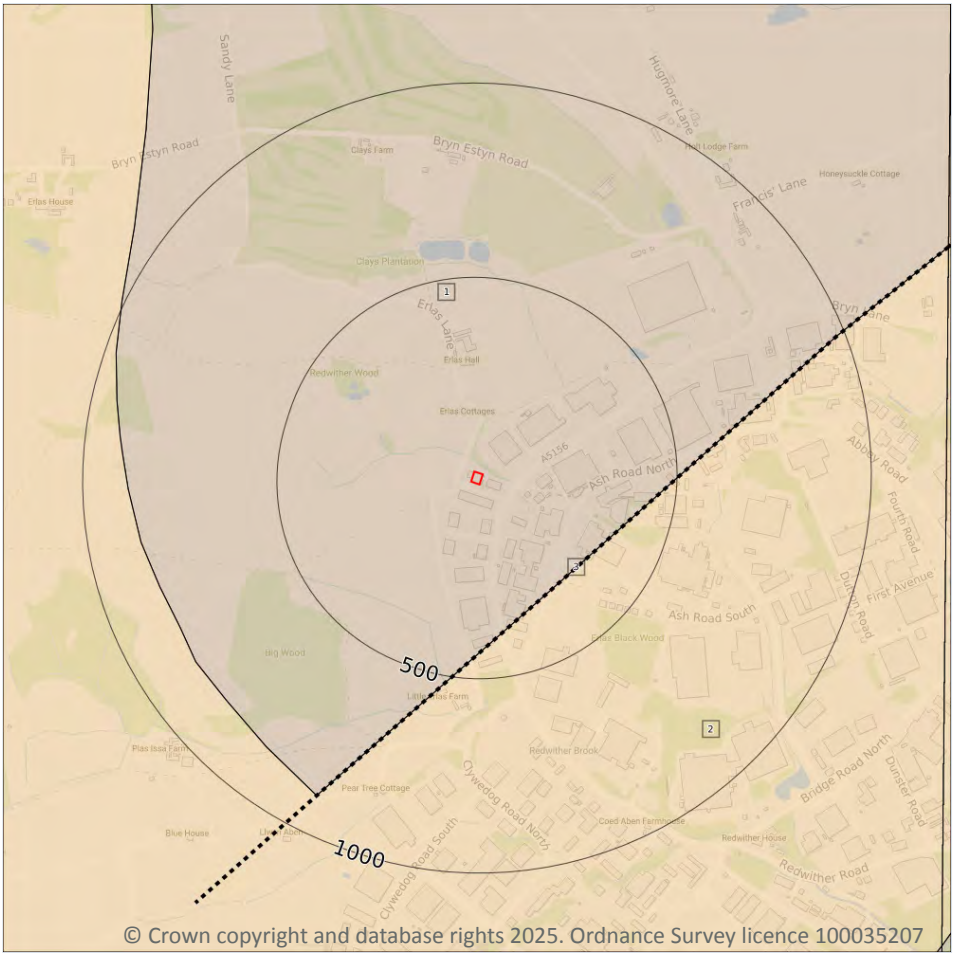
15.7 Landslip permeability (50k)

Records within 50m	0

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

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (50k)

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

15.8 Bedrock geology (50k)

Records within 500m	2

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

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 86 >**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**KNSF-SDST**	**KINNERTON SANDSTONE FORMATION - SANDSTONE**	**-**
2	325m SE	SAL-MDSC	SALOP FORMATION - MUDSTONE, SANDSTONE AND CONGLOMERATE	WESTPHALIAN

This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m	1

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

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Intergranular**	**High**	**High**

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

Records within 500m	1

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

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 86 >**

ID	Location	Category	Description
3	325m SE	FAULT	Fault, inferred, displacement unknown

This data is sourced from the British Geological Survey.

16 Boreholes



Site Outline

Search buffers in metres (m)

Confidential

0 - 10m

10 - 30m

30m+

Unknown

16.1 BGS Boreholes

Records within 250m	2

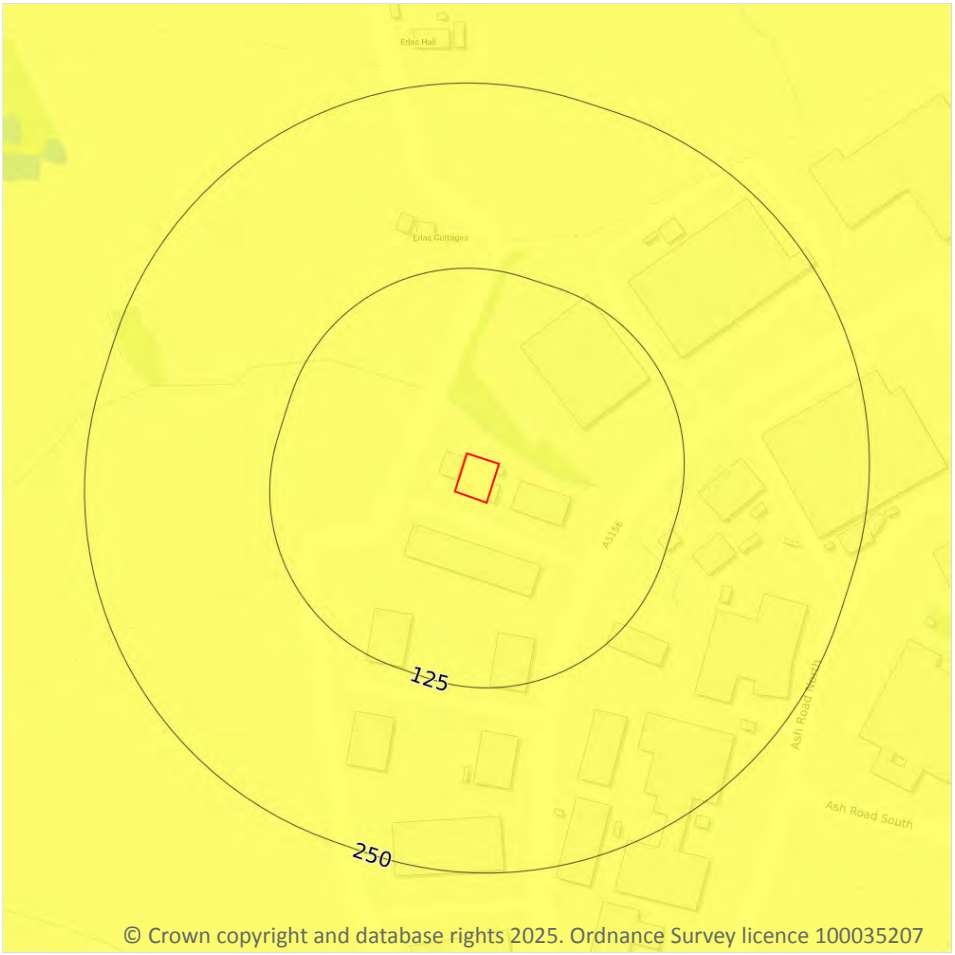
The Single Onshore Boreholes Index (SOBI); an index of over one million records of boreholes, shafts and wells from all forms of drilling and site investigation work held by the British Geological Survey. Covering onshore and nearshore boreholes dating back to at least 1790 and ranging from one to several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

Features are displayed on the Boreholes map on **page 88 >**

ID	Location	Grid reference	Name	Length	Confidential	Web link
1	83m N	337350 350560	BIESTON NO.15	41.7	N	154821 ↗
2	130m N	337350 350610	ABENBURY, ERLAS HALL	18.0	N	154646 ↗

This data is sourced from the British Geological Survey.

17 Natural ground subsidence - Shrink swell clays



Site Outline

Search buffers in metres (m)

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

17.1 Shrink swell clays

Records within 50m	1

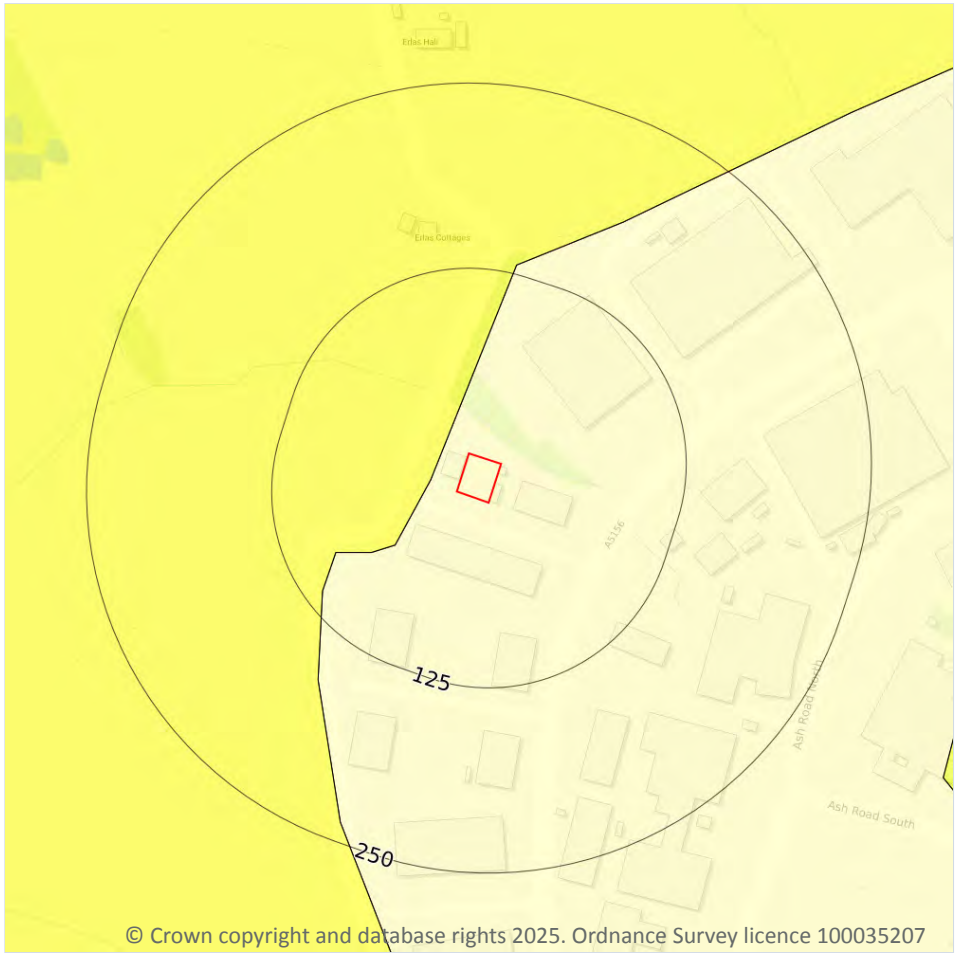
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and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

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 89 >**

Location	Hazard rating	Details
On site	**Very low**	**Ground conditions predominantly low plasticity.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Running sands



Site Outline

Search buffers in metres (m)

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

17.2 Running sands

Records within 50m	2

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

Features are displayed on the Natural ground subsidence - Running sands map on **page 90 >**

Location	Hazard rating	Details
On site	**Negligible**	**Running sand conditions are not thought to occur whatever the position of the water table. No identified constraints on lands use due to running conditions.**

Location	Hazard rating	Details
17m W	Very low	Running sand conditions are unlikely. No identified constraints on land use due to running conditions unless water table rises rapidly.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Compressible deposits



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Site Outline

Search buffers in metres (m)

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

17.3 Compressible deposits

Records within 50m	1

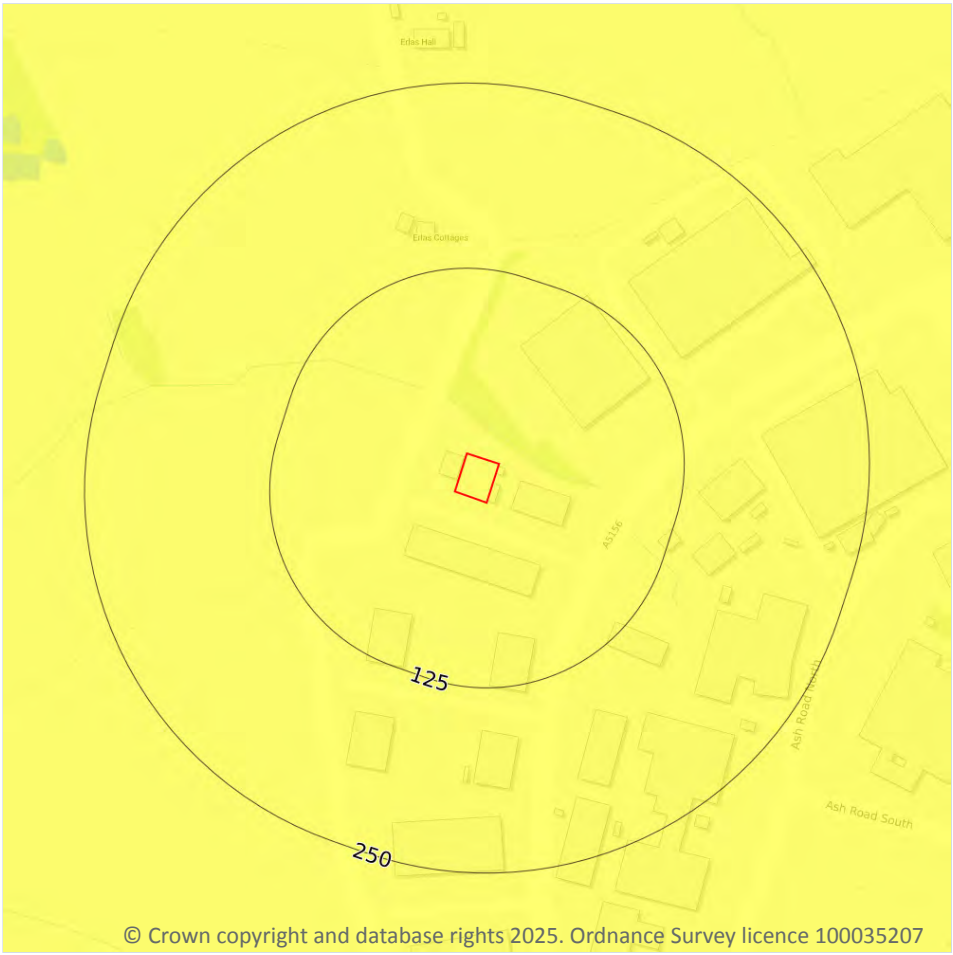
The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 92 >**

Location	Hazard rating	Details
On site	**Negligible**	**Compressible strata are not thought to occur.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Collapsible deposits



Site Outline

Search buffers in metres (m)

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

17.4 Collapsible deposits

Records within 50m	1

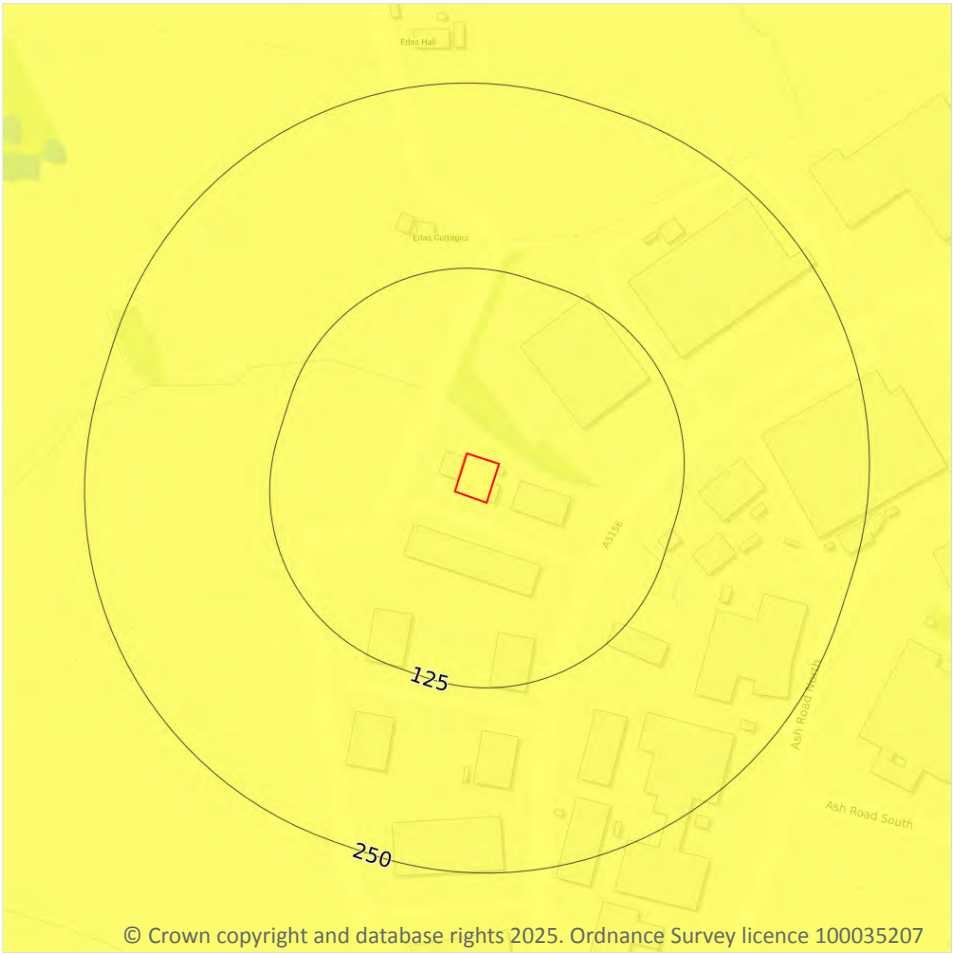
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 93 >**

Location	Hazard rating	Details
On site	**Very low**	**Deposits with potential to collapse when loaded and saturated are unlikely to be present.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Landslides



Site Outline

Search buffers in metres (m)

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

17.5 Landslides

Records within 50m	1

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

Features are displayed on the Natural ground subsidence - Landslides map on **page 94 >**

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

This data is sourced from the British Geological Survey.

Natural ground subsidence - Ground dissolution of soluble rocks



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Site Outline

Search buffers in metres (m)

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

17.6 Ground dissolution of soluble rocks

Records within 50m	1

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

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 95 >**

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

This data is sourced from the British Geological Survey.

18 Mining and ground workings



Site Outline

Search buffers in metres (m)

BritPits

Surface ground workings

Underground workings

Underground mining extents

Historical mineral planning areas

TCA non-coal mining

Non Coal Mining

Sporadic underground mining of restricted extent possible

Localised small scale underground mining possible

Small scale mining possible

Underground mining known or likely within or in close proximity

Underground mining known within or in very close proximity

18.1 BritPits

Records within 500m	0

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

This data is sourced from the British Geological Survey.

18.2 Surface ground workings

Records within 250m	8

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

Features are displayed on the Mining and ground workings map on **page 97 >**

ID	Location	Land Use	Year of mapping	Mapping scale
A	234m SW	Ponds	1938	1:10560
A	236m SW	Ponds	1982	1:10000
A	236m SW	Ponds	1960	1:10560
A	236m SW	Ponds	1968	1:10560
1	236m E	Ponds	1872	1:10560
B	240m N	Pond	1949	1:10560
B	243m N	Pond	1900	1:10560
B	243m N	Pond	1914	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

18.3 Underground workings

Records within 1000m	0

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

This is data is sourced from Ordnance Survey/Groundsure.

18.4 Underground mining extents

Records within 500m	0

This data identifies underground mine workings that could present a potential risk, including adits and seam workings. These features have been identified from BGS Geological mapping and mine plans sourced from the BGS and various collections and sources.

This data is sourced from Groundsure.

18.5 Historical Mineral Planning Areas

Records within 500m	0

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

This data is sourced from the British Geological Survey.

18.6 Non-coal mining

Records within 1000m	0

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

This data is sourced from the British Geological Survey.

18.7 JPB mining areas

Records on site	0

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

This data is sourced from Johnson Poole and Bloomer.

18.8 The Coal Authority non-coal mining

Records within 500m	0

This data provides an indication of the potential zone of influence of recorded underground non-coal mining workings. Any and all analysis and interpretation of Coal Authority Data in this report is made by Groundsure, and is in no way supported, endorsed or authorised by the Coal Authority. The use of the data is restricted to the terms and provisions contained in this report. Data reproduced in this report may be the copyright of the Coal Authority and permission should be sought from Groundsure prior to any re-use.

This data is sourced from The Coal Authority.

18.9 Researched mining

Records within 500m	0

This data indicates areas of potential mining identified from alternative or archival sources, including; BGS Geological paper maps, Lidar data, aerial photographs (from World War II onwards), archaeological data services, websites, Tithe maps, and various text/plans from collected books and reports. Some of this data is approximate and Groundsure have interpreted the resultant risk area and, where possible, specific areas of risk have been captured.

This data is sourced from Groundsure.

18.10 Mining record office plans

Records within 500m	0

This dataset is representative of Mining Record Office and/or plan extents held by Groundsure and should be considered approximate. Where possible, plans have been located and any specific areas of risk they depict have been captured.

This data is sourced from Groundsure.

18.11 BGS mine plans

Records within 500m	0

This dataset is representative of BGS mine plans held by Groundsure and should be considered approximate. Where possible, plans have been located and any specific areas of risk they depict have been captured.

This data is sourced from Groundsure.

18.12 Coal mining

Records on site	1

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

Location	Details
On site	**The site is located within a coal mining area as defined by the Coal Authority. A Consultants Coal Mining Report is recommended to further assess coal mining issues at the site. This can be ordered directly through Groundsure or your preferred search provider.**

This data is sourced from the Coal Authority.

18.13 Brine areas

Records on site	0

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

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

18.14 Gypsum areas

Records on site	0

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.15 Tin mining

Records on site	0

Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.

18.16 Clay mining

Records on site	0

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

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

19 Ground cavities and sinkholes

19.1 Natural cavities

Records within 500m	0

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

This data is sourced from Stantec UK Ltd.

19.2 Mining cavities

Records within 1000m	0

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

This data is sourced from Stantec UK Ltd.

19.3 Reported recent incidents

Records within 500m	0

This data identifies sinkhole information gathered from media reports and Groundsure's own records. This data goes back to 2014 and includes relative accuracy ratings for each event and links to the original data sources. The data is updated on a regular basis and should not be considered a comprehensive catalogue of all sinkhole events. The absence of data in this database does not mean a sinkhole definitely has not occurred during this time.

This data is sourced from Groundsure.

19.4 Historical incidents

Records within 500m	0

This dataset comprises an extract of 1:10,560, 1:10,000, 1:2,500 and 1:1,250 scale historical Ordnance Survey maps held by Groundsure, dating back to the 1840s. It shows shakeholes, deneholes and other 'holes' as noted on these maps. Dene holes are medieval chalk extraction pits, usually comprising a narrow shaft with a number of chambers at the base of the shaft. Shakeholes are an alternative name for suffusion sinkholes, most commonly found in the limestone landscapes of North Yorkshire but also extensively noted around the Brecon Beacons National Park.

Not all 'holes' noted on Ordnance Survey mapping will necessarily be present within this dataset.

This data is sourced from Groundsure.

20 Radon



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Site Outline

Search buffers in metres (m)

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

20.1 Radon

Records on site	1

The Radon Potential data classifies areas based on their likelihood of a property having a radon level at or above the Action Level in Great Britain. The dataset is intended for use at 1:50,000 scale and was derived from both geological assessments and indoor radon measurements (more than 560,000 records). A minimum 50m buffer should be considered when searching the maps, as the smallest detectable feature at this scale is 50m. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain (1:100,000 scale).

Features are displayed on the Radon map on **page 104 >**

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

This data is sourced from the British Geological Survey and UK Health Security Agency.

21 Soil chemistry

21.1 BGS Estimated Background Soil Chemistry

Records within 50m	2

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

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
15m N	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg

This data is sourced from the British Geological Survey.

21.2 BGS Estimated Urban Soil Chemistry

Records within 50m	0

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

This data is sourced from the British Geological Survey.

21.3 BGS Measured Urban Soil Chemistry

Records within 50m	0

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

This data is sourced from the British Geological Survey.

22 Railway infrastructure and projects



Site Outline

Search buffers in metres (m)

- Crossrail 2 Stations
- Crossrail 2 Route
- Crossrail 2 Worksites
- Crossrail 2 Safeguarding
- Crossrail 2 Headhouses
- Railway stations
- Active railways
- Active tunnels
- Abandoned railways
- Historic railways
- Historic tunnels
- Underground stations
- Underground Lines
- Royal Mail tunnels
- HS2 optimised route
- HS2 Stations
- HS2 Depots
- HS2 Surface Safeguarding
- HS2 Subsurface Safeguarding

22.1 Underground railways (London)

Records within 250m	0

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

This data is sourced from publicly available information by Groundsure.

22.2 Underground railways (Non-London)

Records within 250m	0

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

This data is sourced from publicly available information by Groundsure.

22.3 Railway tunnels

Records within 250m	0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

22.4 Historical railway and tunnel features

Records within 250m	3

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

Features are displayed on the Railway infrastructure and projects map on **page 107 >**

Location	Land Use	Year of mapping	Mapping scale
184m E	Railway Sidings	1960	10560
184m E	Railway Sidings	1968	10560
196m E	Mineral Railway Sidings	1961	2500

This data is sourced from Ordnance Survey/Groundsure.

22.5 Royal Mail tunnels

Records within 250m	0

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

This data is sourced from Groundsure/the Postal Museum.

22.6 Historical railways

Records within 250m	0

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

This data is sourced from OpenStreetMap.

22.7 Railways

Records within 250m	0

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

This data is sourced from Ordnance Survey and OpenStreetMap.

22.8 Crossrail 2

Records within 500m	0

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

This data is sourced from publicly available information by Groundsure.

22.9 HS2

Records within 500m	0

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

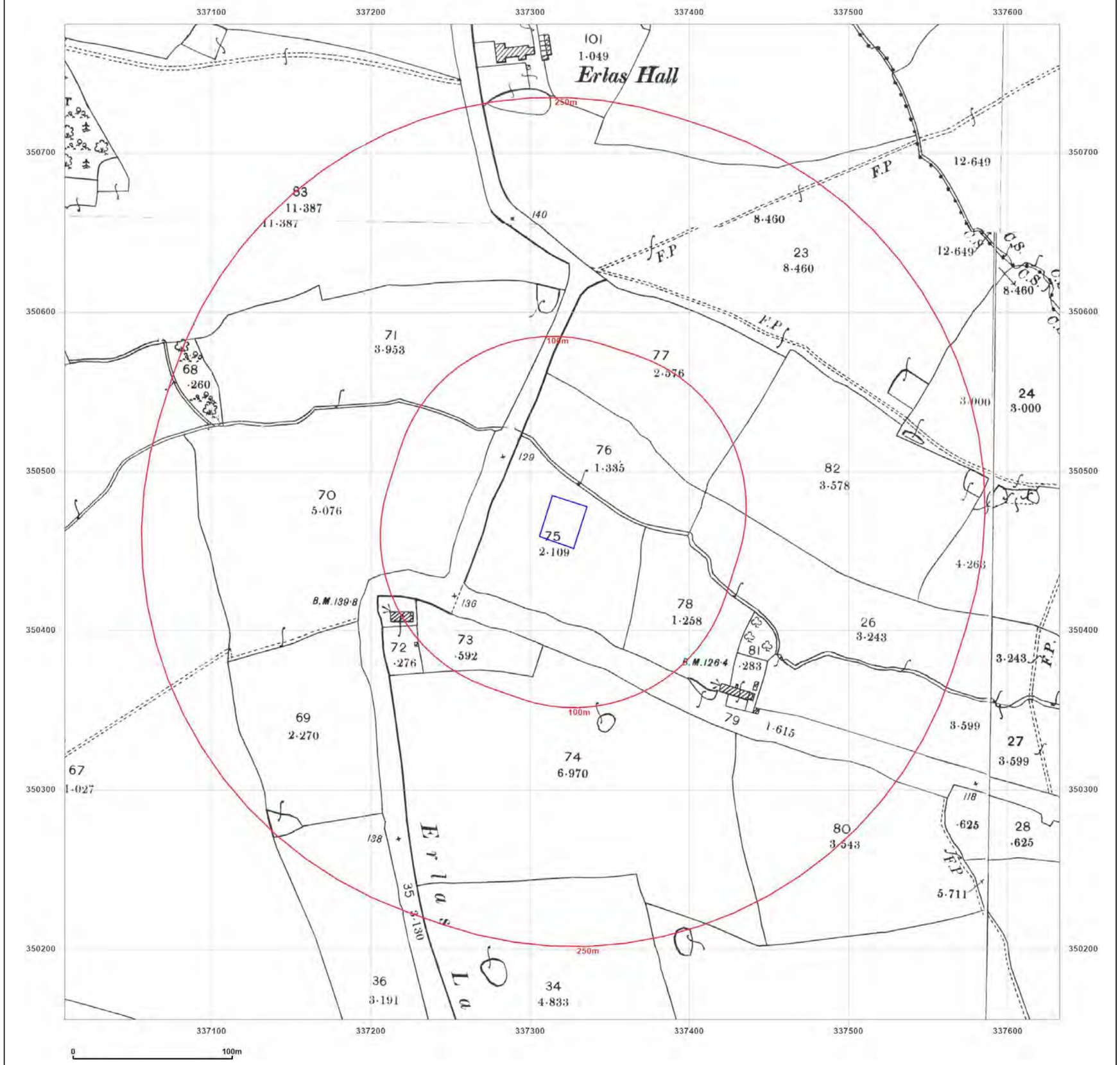
This data is sourced from HS2 ltd.

Data providers

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

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Map Name: County Series

Map date: **1899**

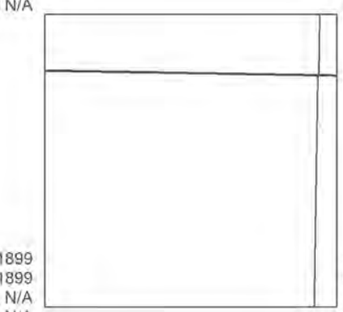
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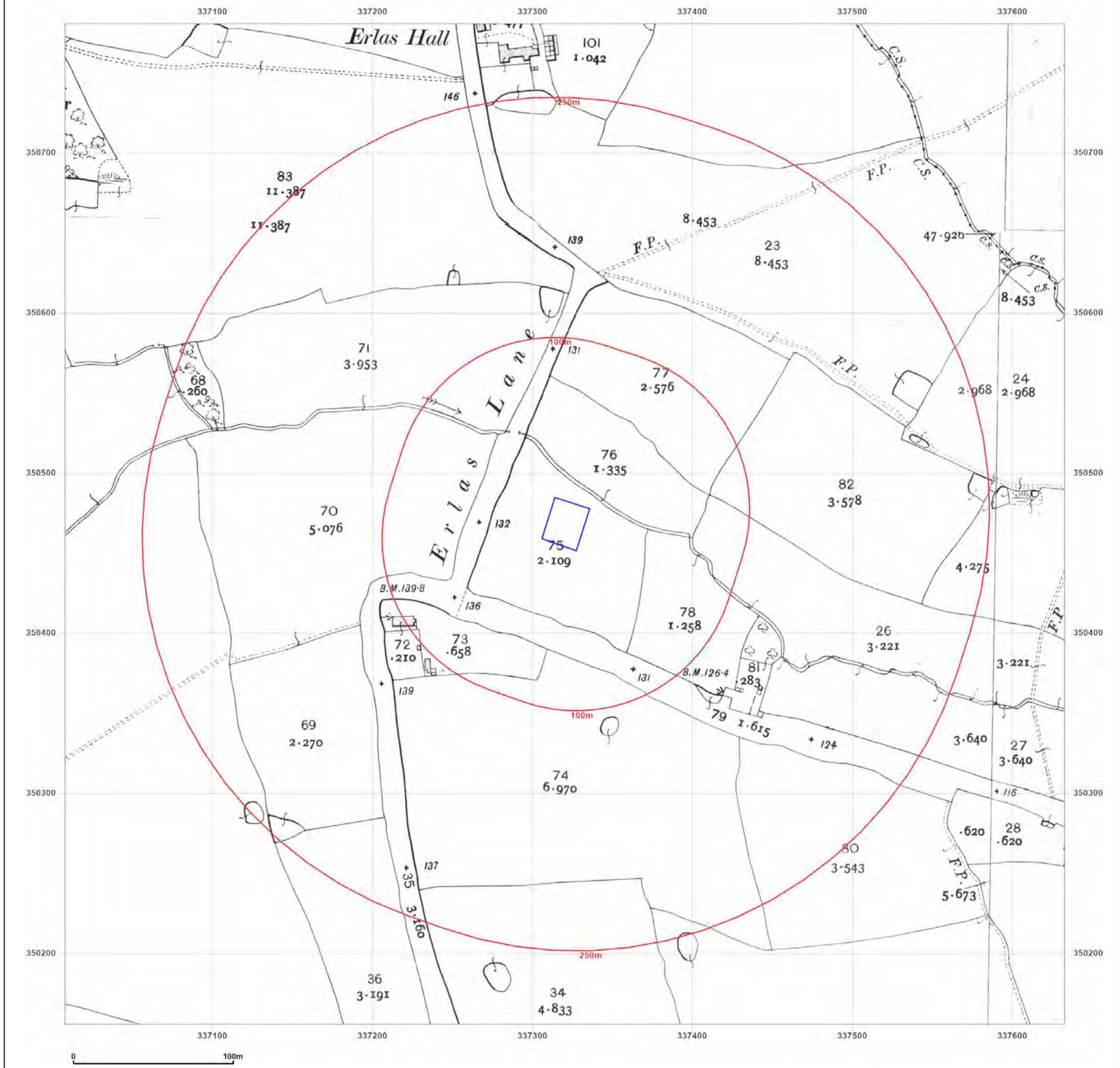
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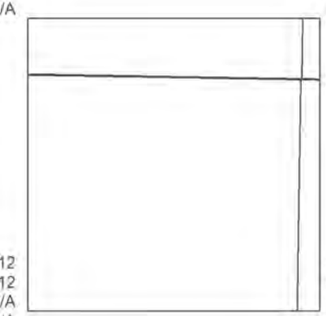
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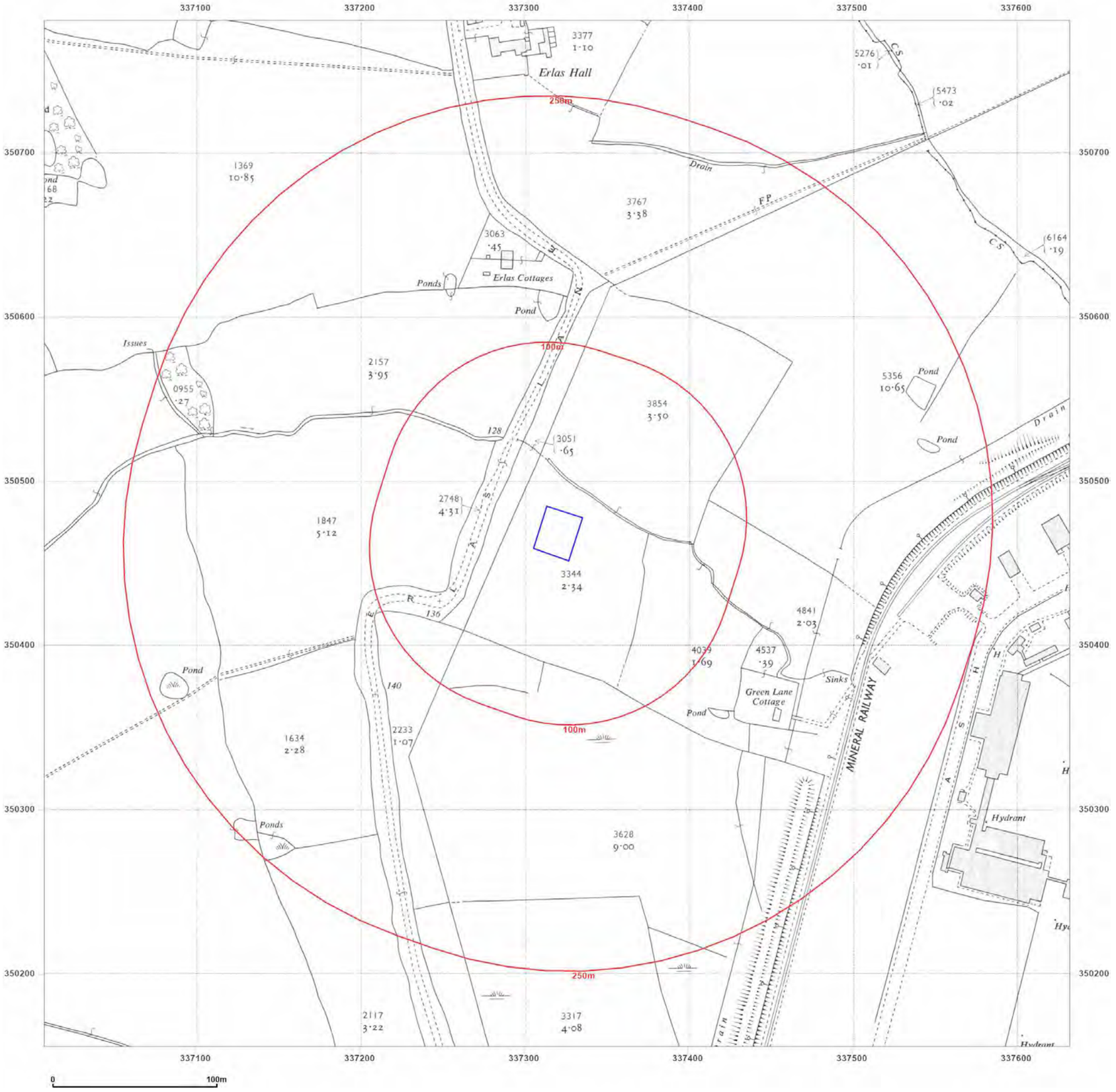
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Map Name: National Grid

Map date: **1961**

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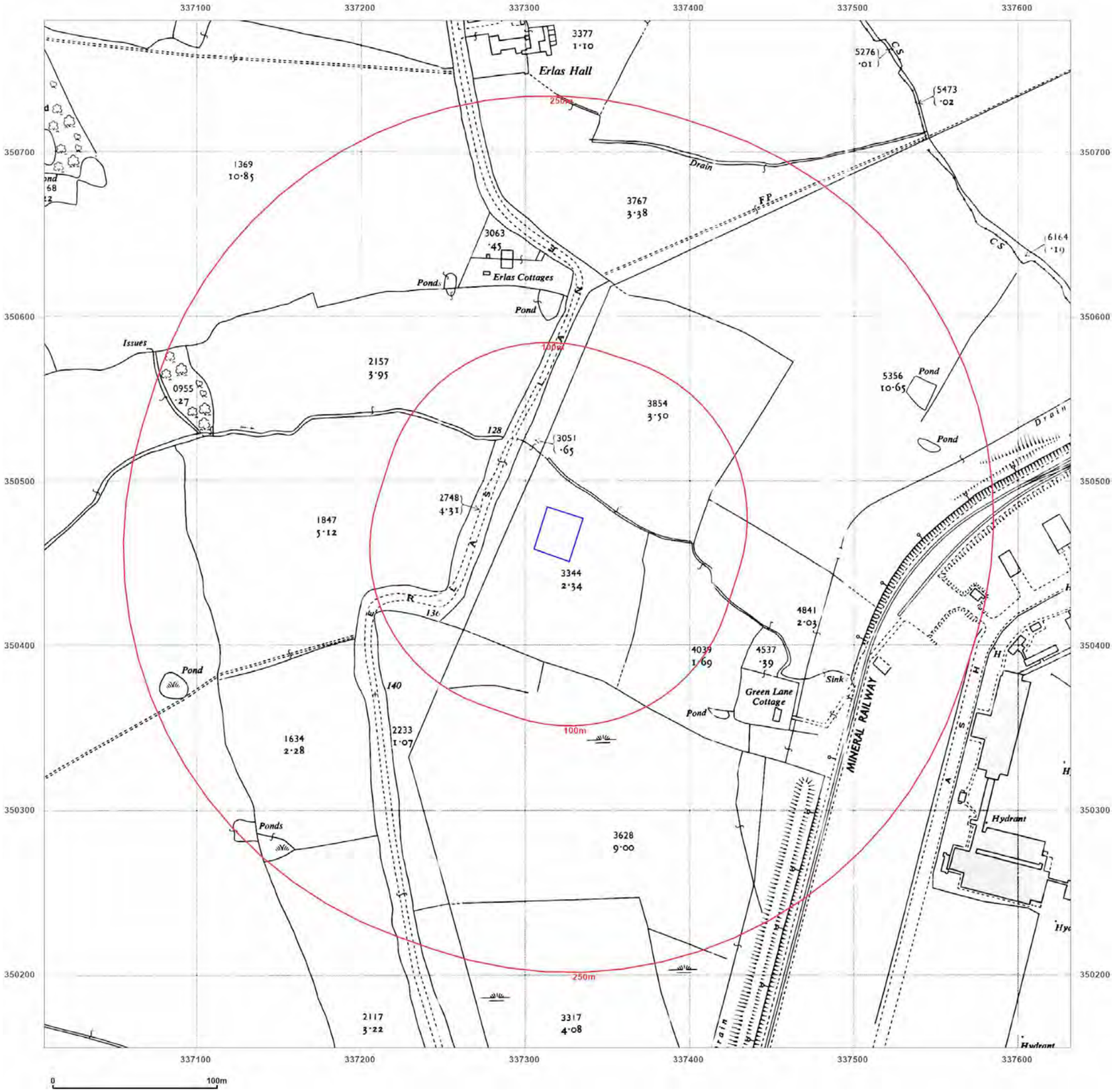
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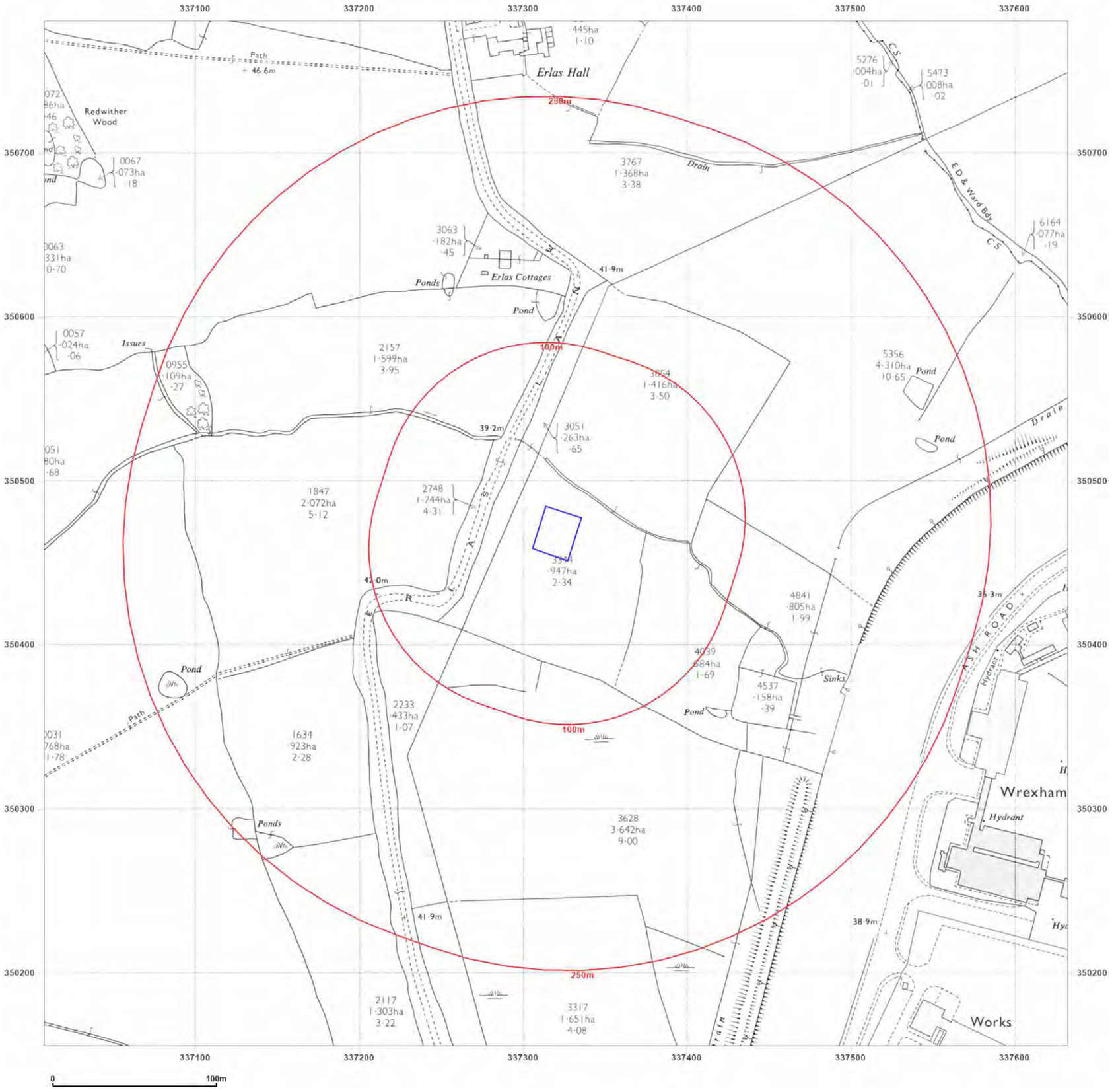
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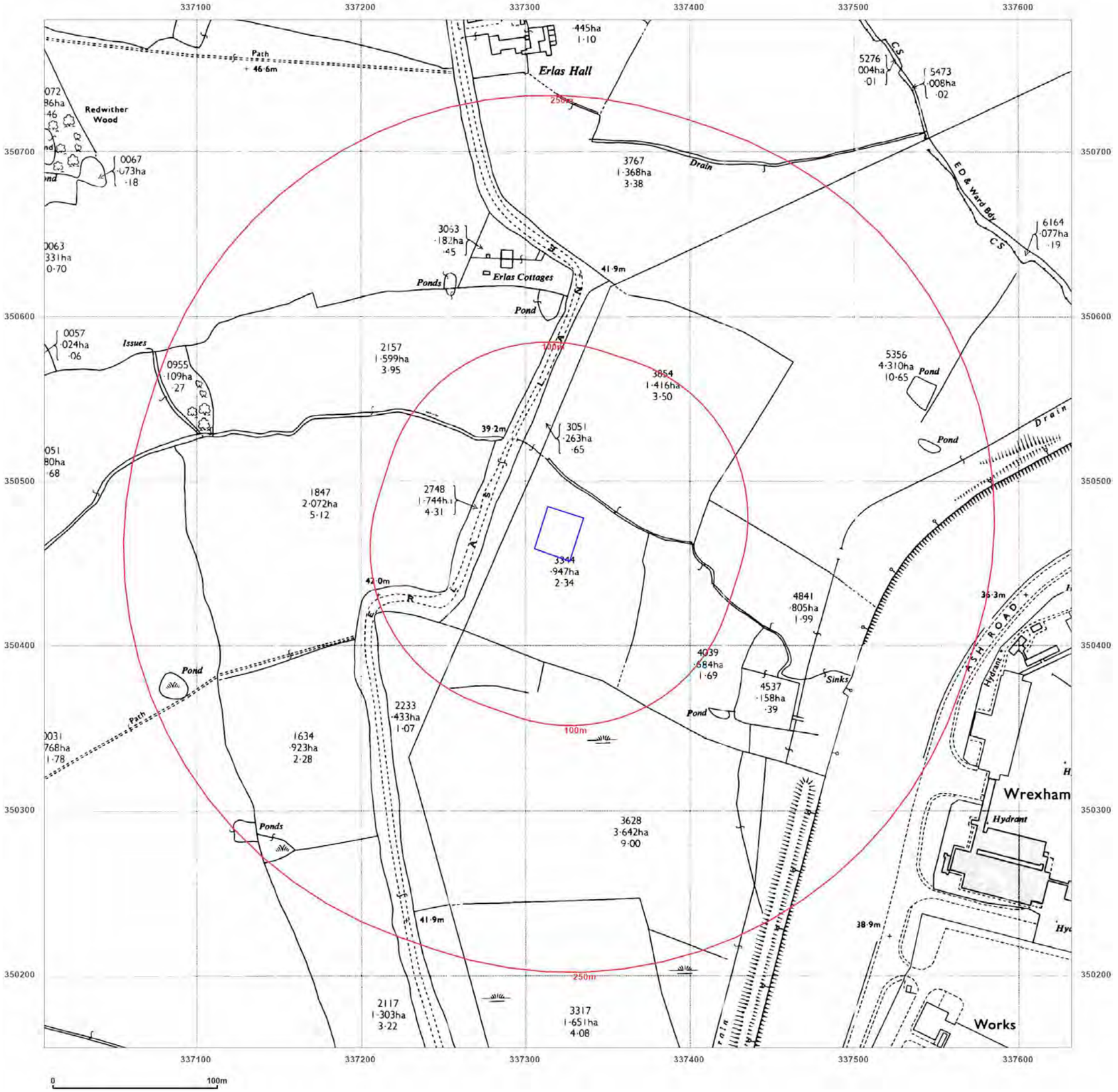
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Map Name: National Grid

Map date: **1976**

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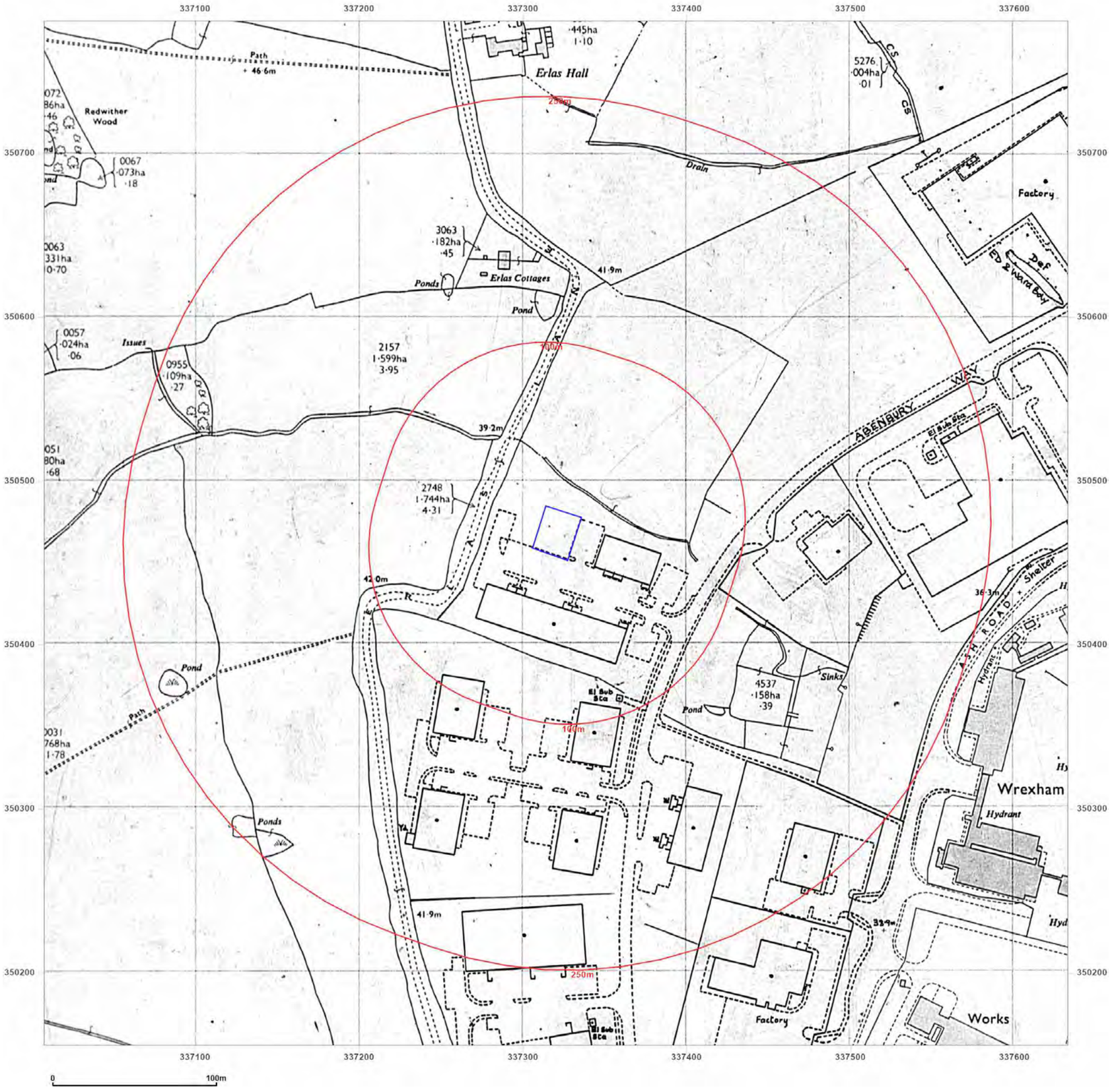
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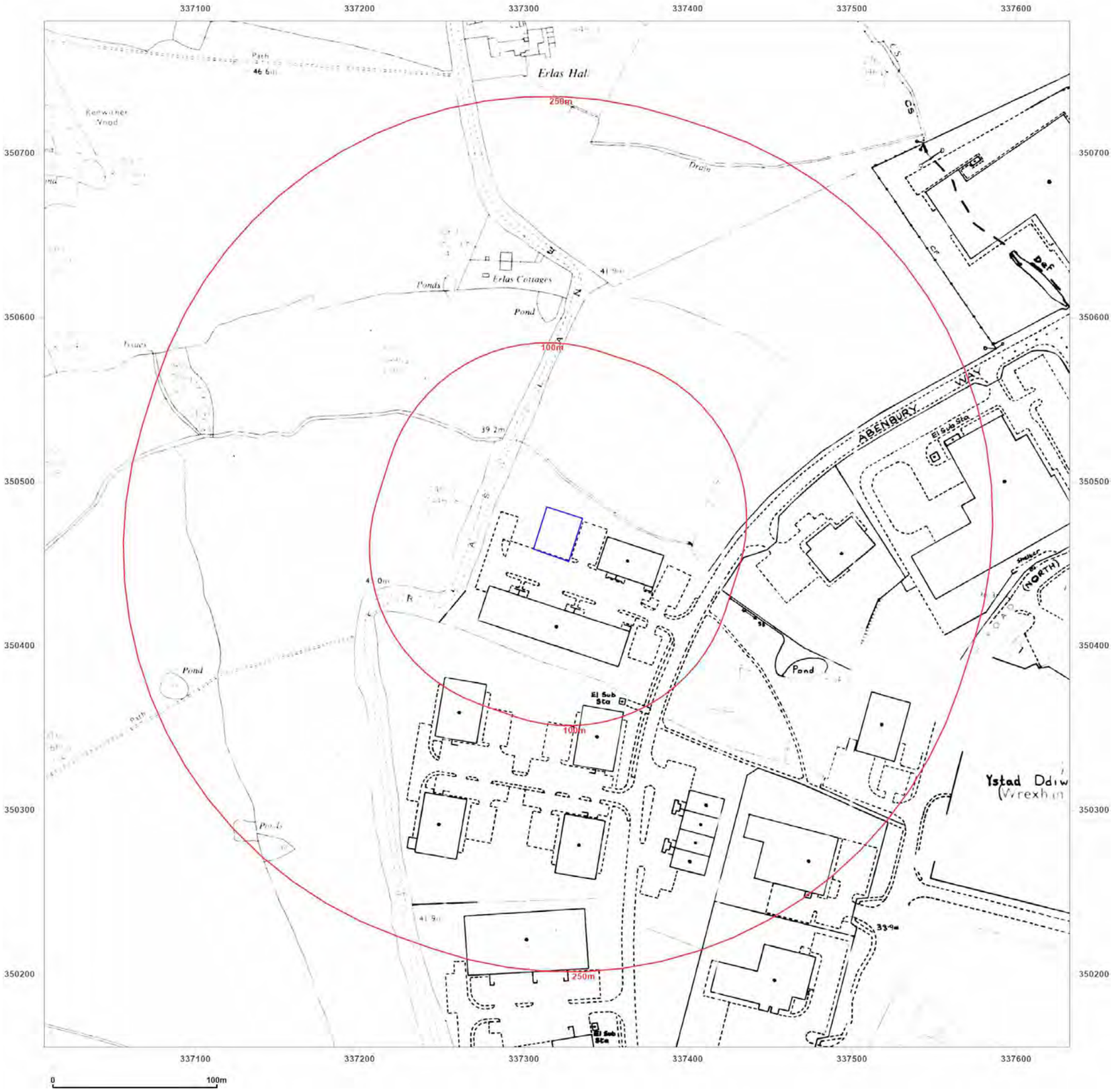
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Report Ref: GS-S38-KF3-CKV-7IY
Grid Ref: 337320, 350468

Map Name: National Grid

Map date: **1988**

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Report Ref: GS-S38-KF3-CKV-7IY
Grid Ref: 337320, 350468

Map Name: National Grid

Map date: **1988**

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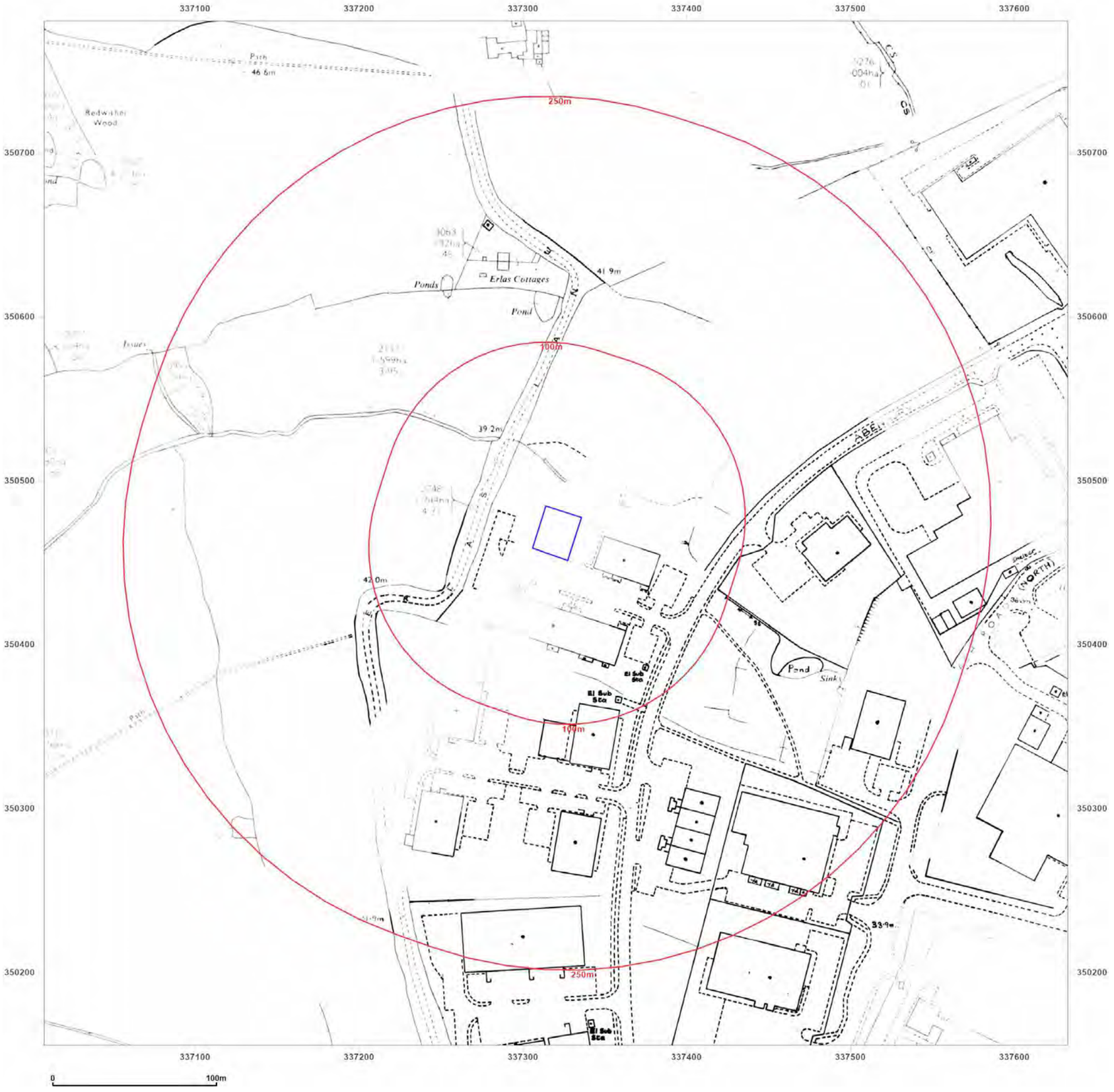
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Groundsure INSIGHTS

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Wrexham Industrial Estate

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Report Ref: GS-S38-KF3-CKV-7IY
Grid Ref: 337320, 350468

Map Name: National Grid

Map date: **1990**

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Report Ref: GS-S38-KF3-CKV-7IY
Grid Ref: 337320, 350468

Map Name: National Grid

Map date: **1990**

Scale: 1:2,500

Printed at: 1:2,500

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

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Site Details:

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Client Ref: R3458
Report Ref: GS-S38-KF3-CKV-7IY
Grid Ref: 337320, 350468

Map Name: National Grid

Map date: **1992**

Scale: 1:2,500

Printed at: 1:2,500

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Revised N/A
Edition N/A
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Site Details:

Wrexham Industrial Estate

Client Ref: R3458
Report Ref: GS-S38-KF3-CKV-7IY
Grid Ref: 337320, 350468

Map Name: National Grid

Map date: **1994**

Scale: 1:2,500

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Surveyed N/A
Revised N/A
Edition N/A
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Site Details:

Wrexham Industrial Estate

Client Ref: R3458
Report Ref: GS-S38-KF3-CKV-7IY
Grid Ref: 337320, 350468

Map Name: National Grid

Map date: **1994**

Scale: 1:2,500

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Surveyed 1994
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Levelled N/A

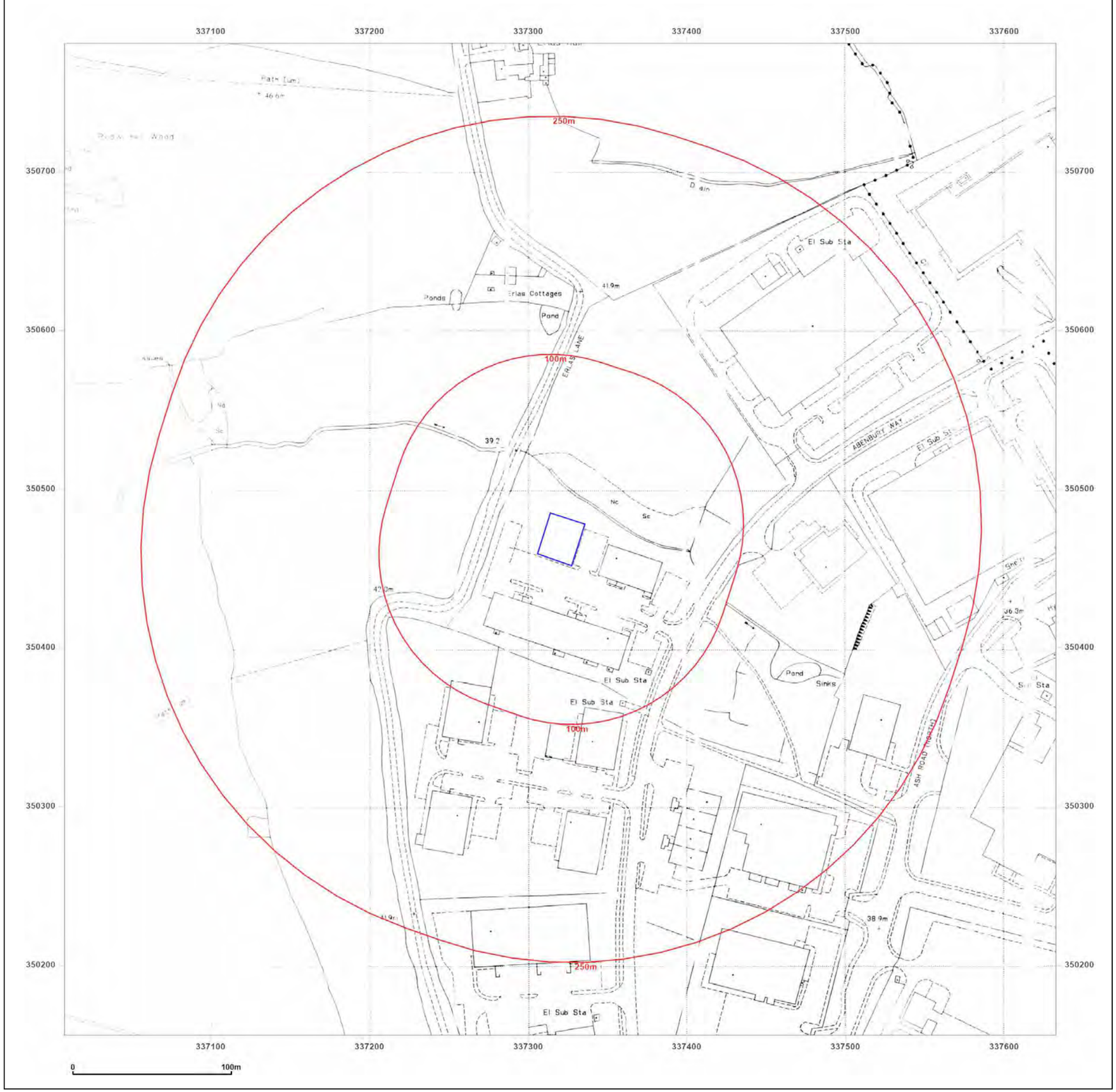
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Site Details:

Wrexham Industrial Estate

Client Ref: R3458
Report Ref: GS-S38-KF3-CKV-7IY
Grid Ref: 337320, 350468

Map Name: National Grid

Map date: **1995**

Scale: 1:2,500

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Surveyed N/A
Revised N/A
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Site Details:

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Client Ref: R3458
Report Ref: GS-S38-KF3-CKV-7IY
Grid Ref: 337320, 350468

Map Name: National Grid

Map date: **1995**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed N/A
Revised N/A
Edition N/A
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Site Details:

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Client Ref: R3458
Report Ref: GS-S38-KF3-CKV-7IY
Grid Ref: 337320, 350468

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Map date: **2003**
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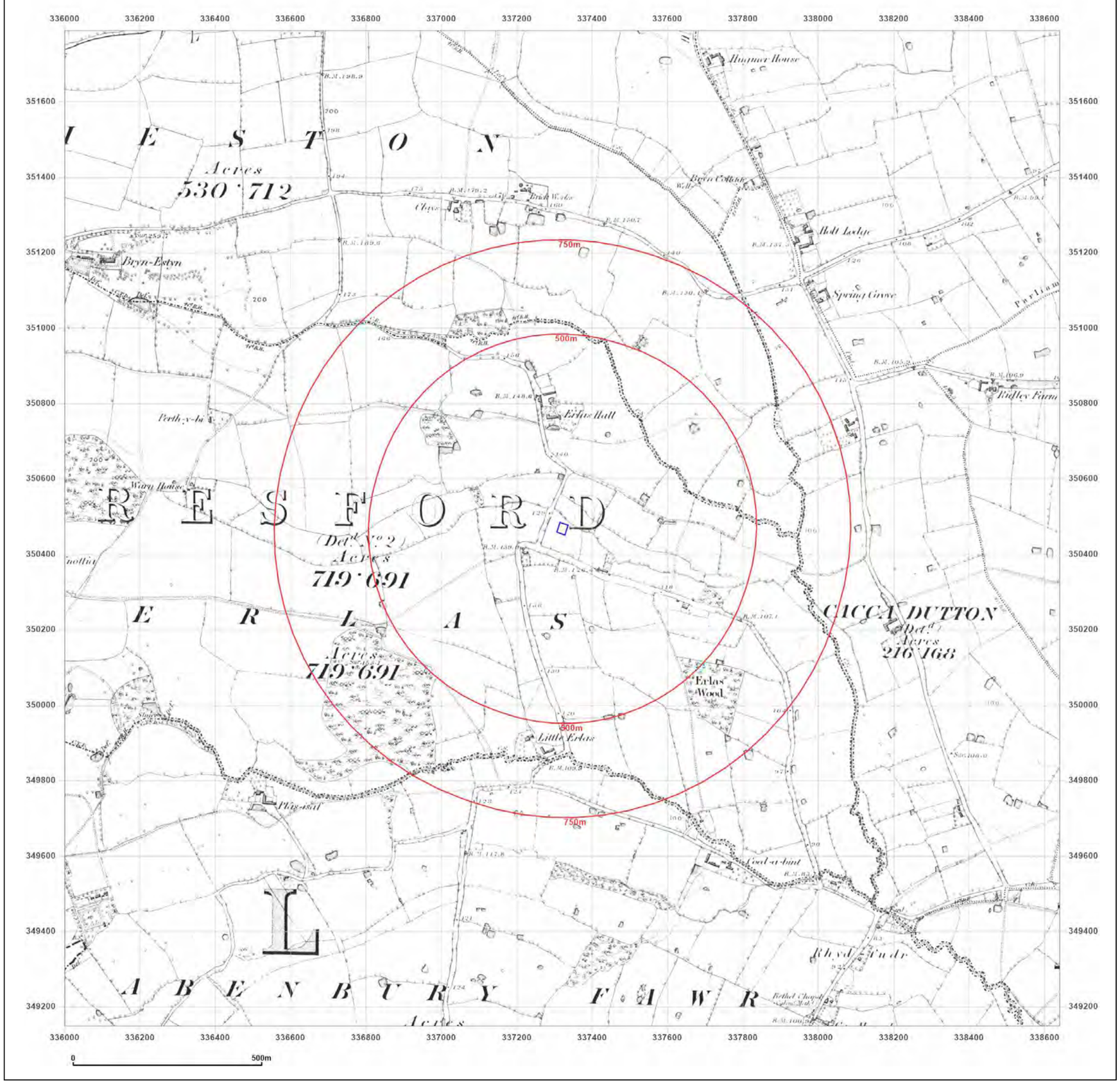
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Site Details:

Wrexham Industrial Estate

Client Ref: R3458
Report Ref: GS-S38-KF3-CKV-7IY
Grid Ref: 337320, 350468

Map Name: County Series

Map date: **1872**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed 1872
Revised 1872
Edition N/A
Copyright N/A
Levelled N/A

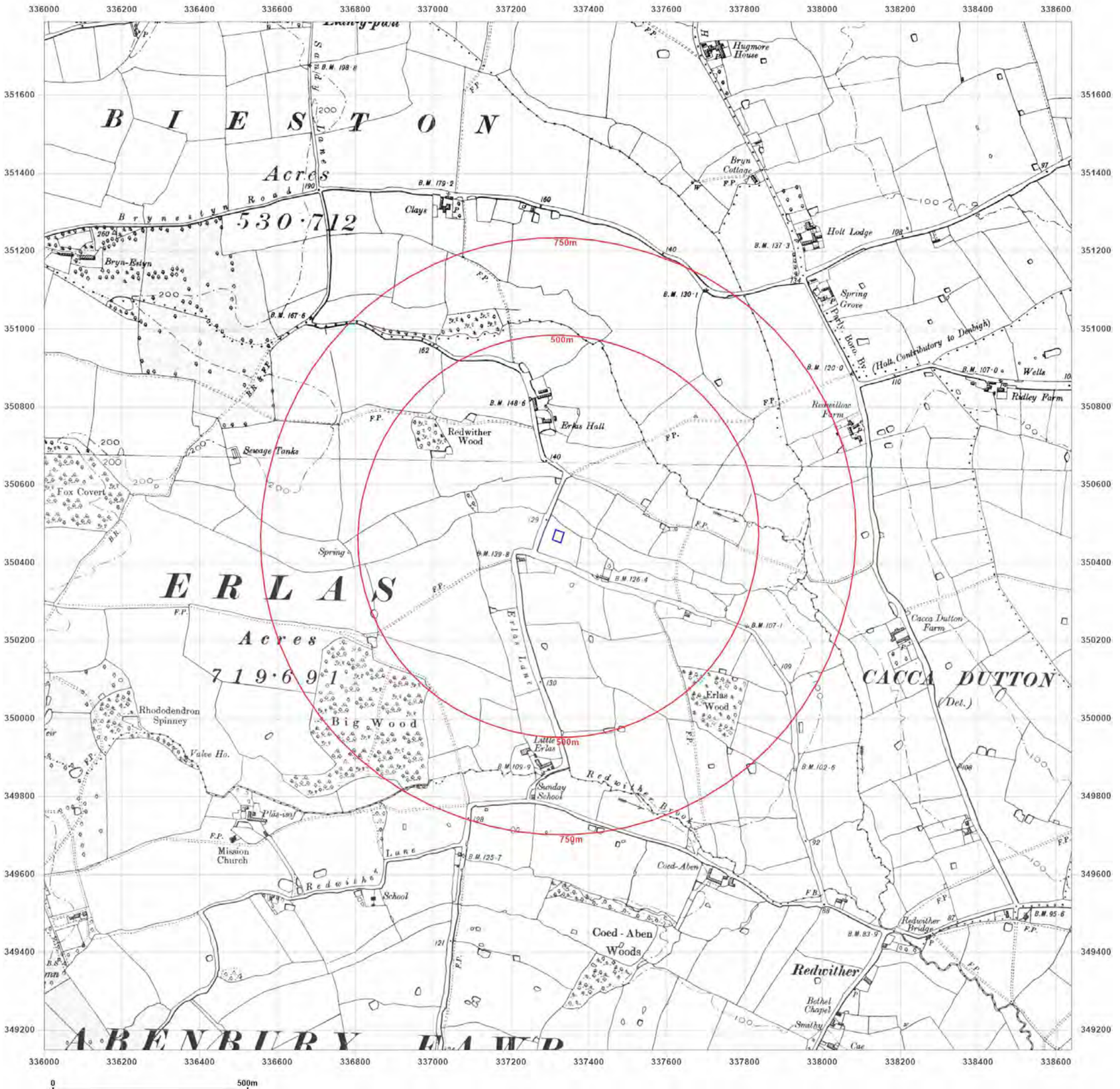
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Groundsure INSIGHTS

Site Details:

Wrexham Industrial Estate

Client Ref: R3458
Report Ref: GS-S38-KF3-CKV-7IY
Grid Ref: 337320, 350468

Map Name: County Series

Map date: **1898-1900**

Scale: 1:10,560

Printed at: 1:10,560

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

Surveyed 1872
Revised 1898
Edition N/A
Copyright N/A
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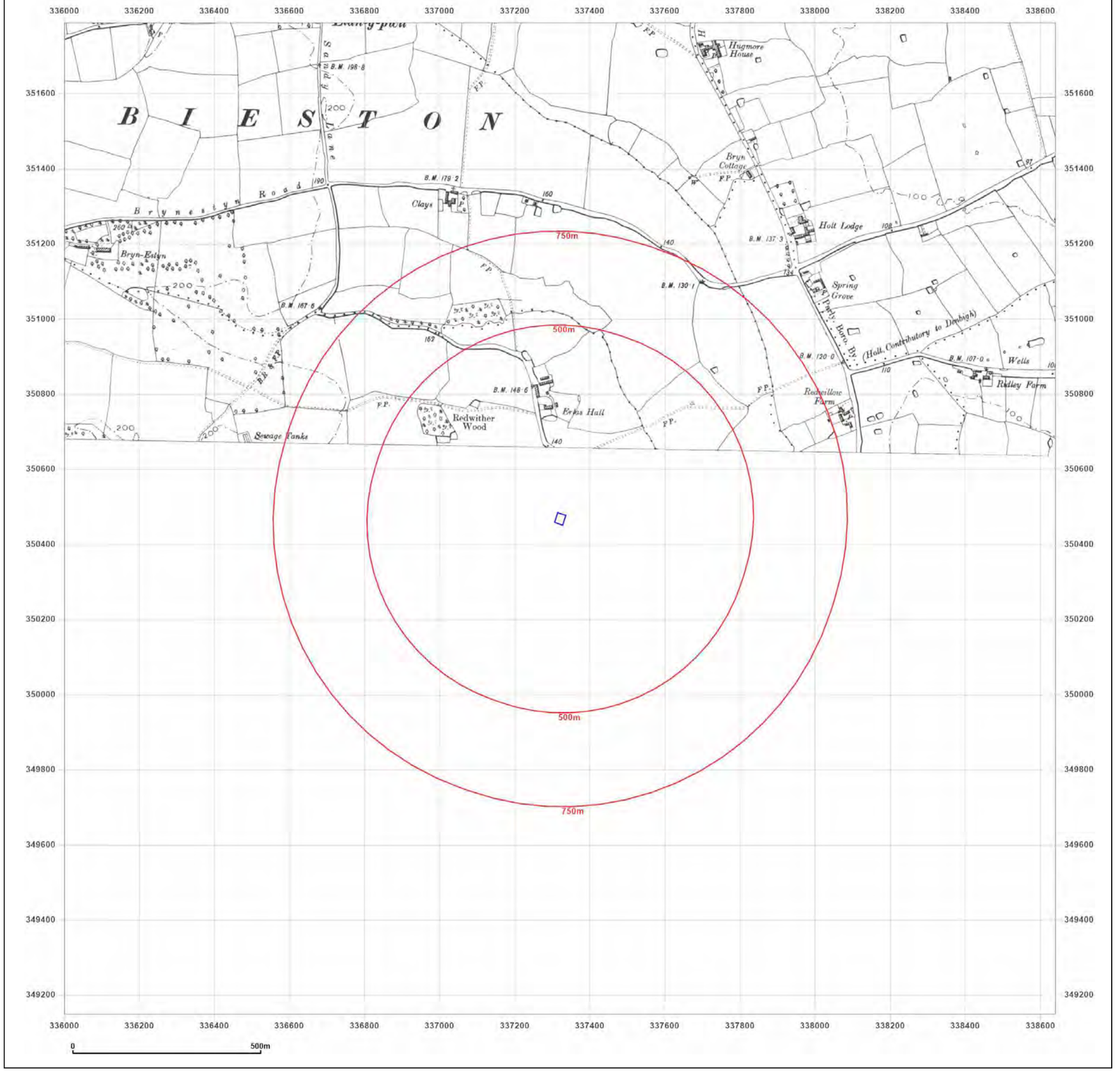
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Groundsure INSIGHTS

Site Details:

Wrexham Industrial Estate

Client Ref: R3458
Report Ref: GS-S38-KF3-CKV-7IY
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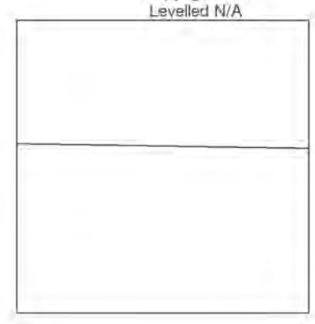
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Surveyed 1872
Revised 1900
Edition N/A
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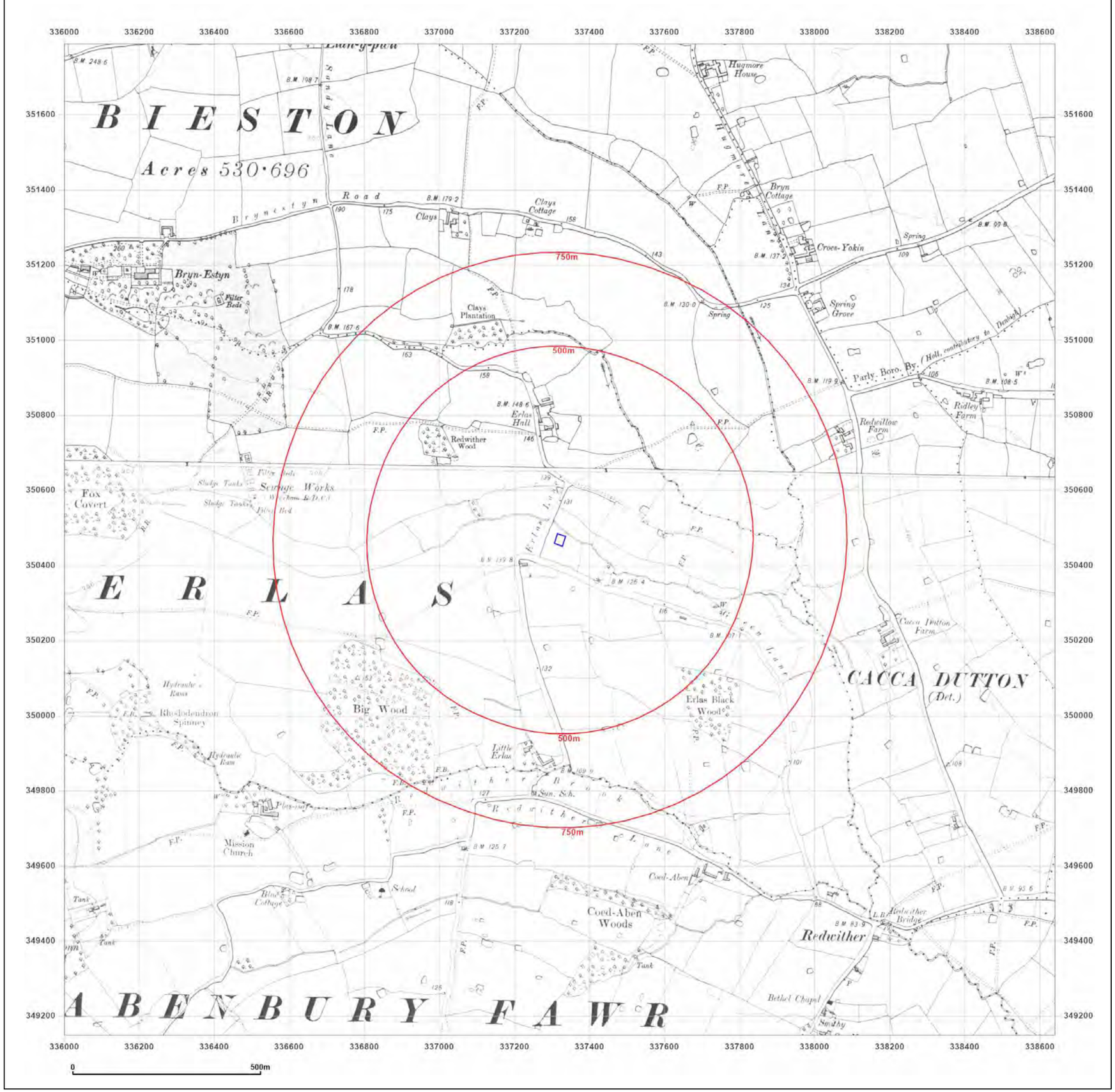
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Site Details:

Wrexham Industrial Estate

Client Ref: R3458
Report Ref: GS-S38-KF3-CKV-7IY
Grid Ref: 337320, 350468

Map Name: County Series

Map date: **1909-1914**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed 1871
Revised 1914
Edition 1914
Copyright N/A
Levelled N/A

Surveyed 1872
Revised 1909
Edition N/A
Copyright N/A
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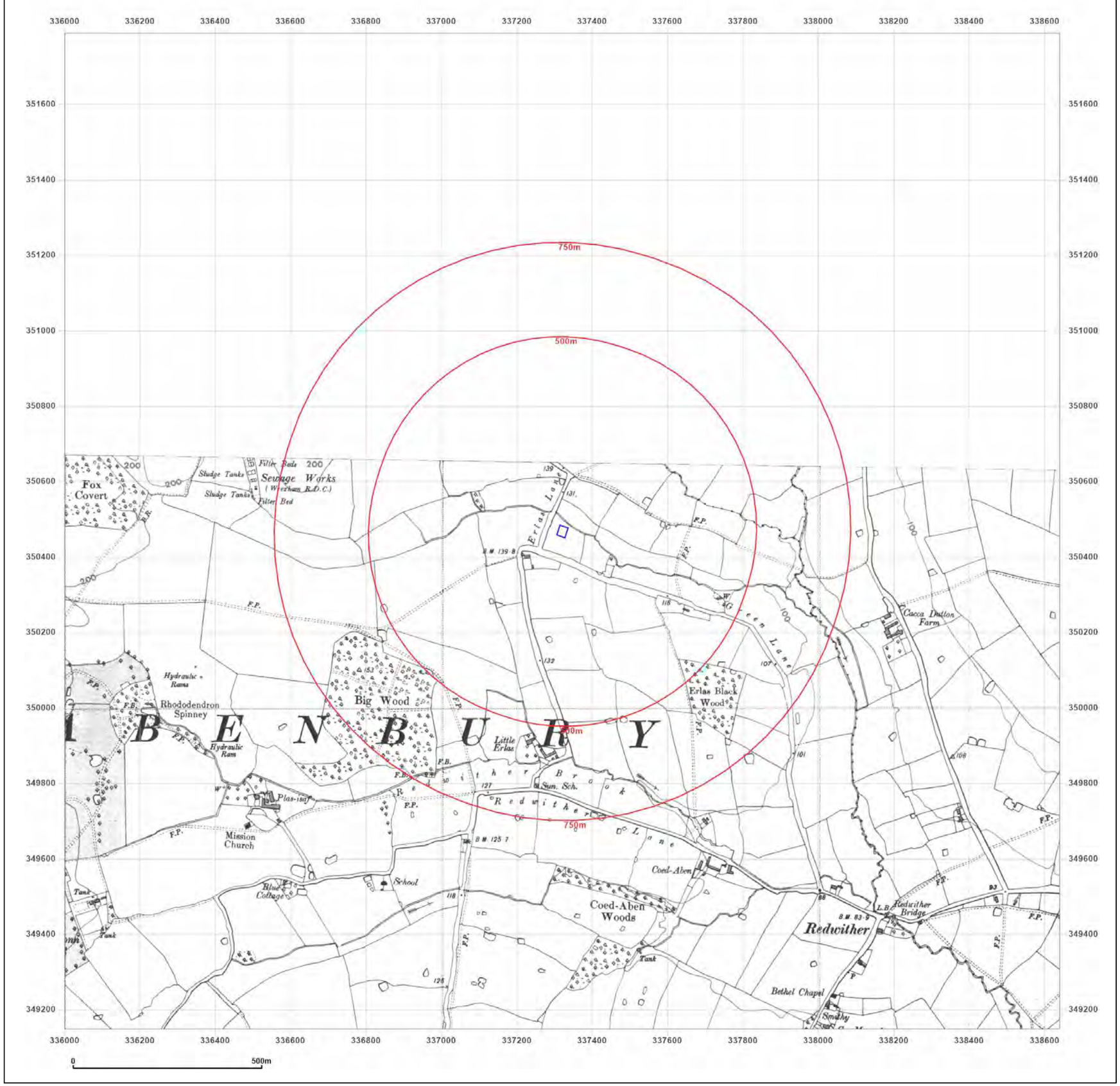
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Site Details:

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Client Ref: R3458
Report Ref: GS-S38-KF3-CKV-7IY
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Map Name: County Series
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Printed at: 1:10,560

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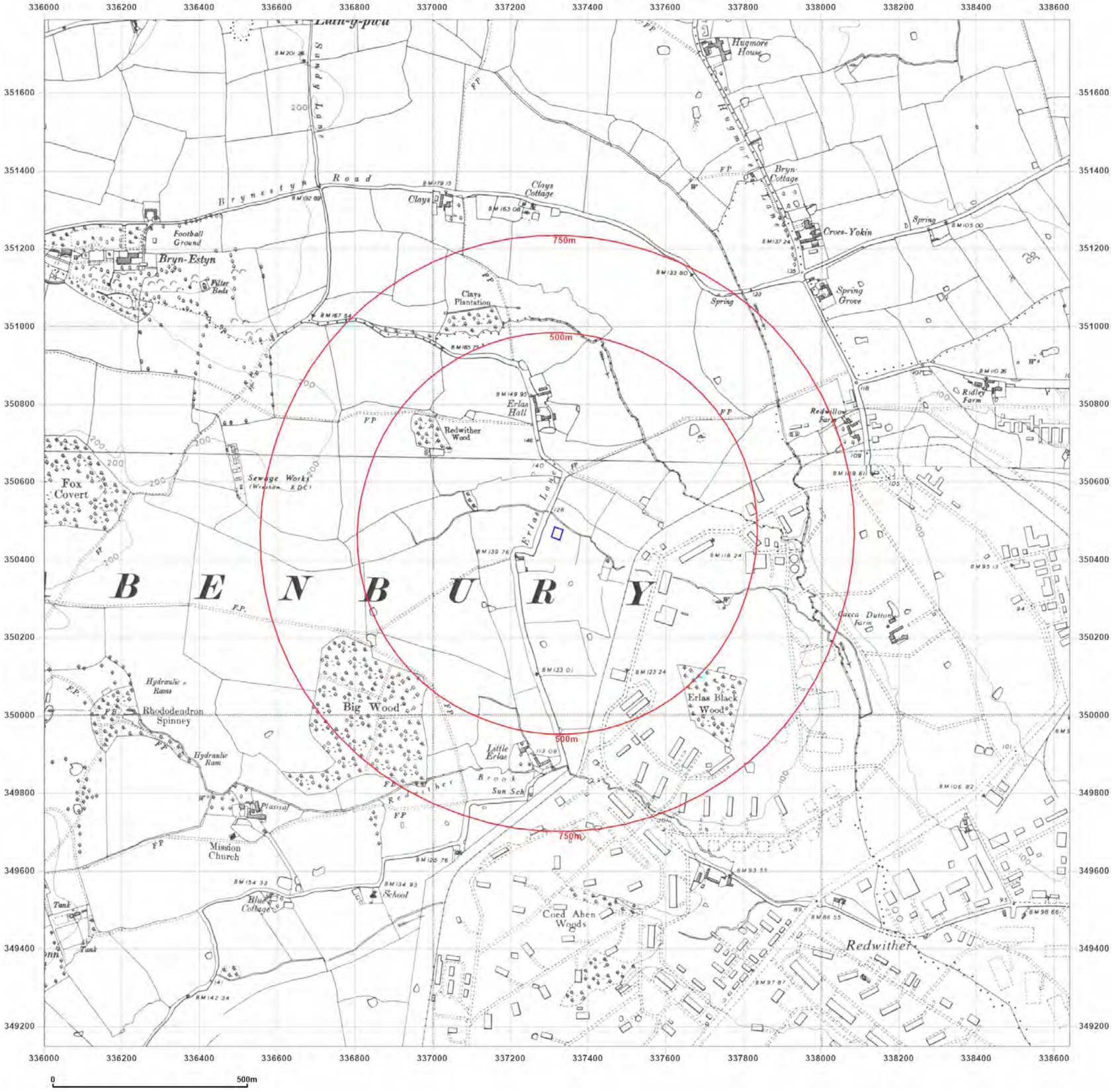
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Wrexham Industrial Estate

Client Ref: R3458
Report Ref: GS-S38-KF3-CKV-7IY
Grid Ref: 337320, 350468

Map Name: County Series

Map date: **1949**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed 1871
Revised 1949
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1872
Revised 1949
Edition N/A
Copyright N/A
Levelled N/A

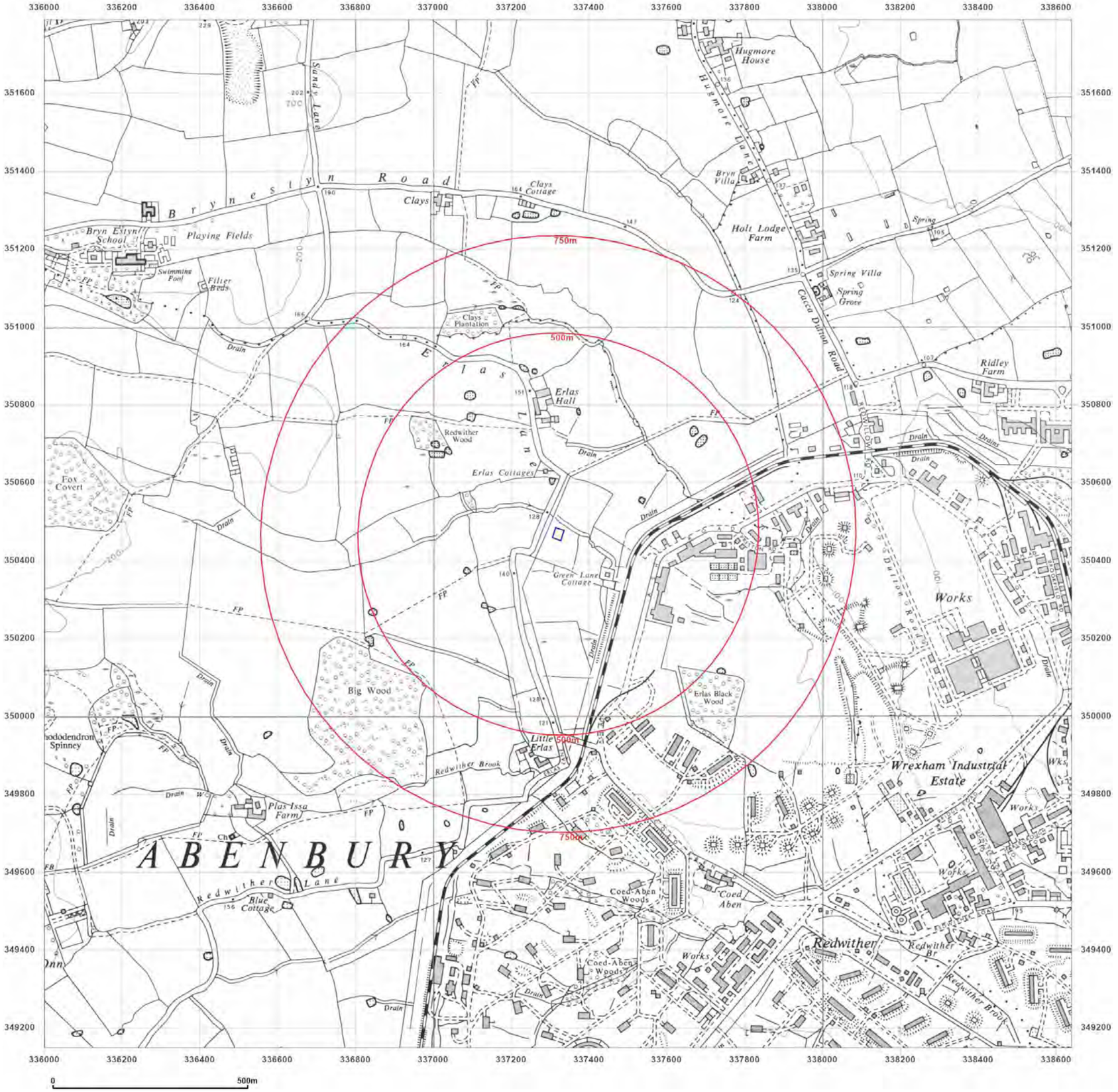
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Groundsure INSIGHTS

Site Details:

Wrexham Industrial Estate

Client Ref: R3458
Report Ref: GS-S38-KF3-CKV-7IY
Grid Ref: 337320, 350468

Map Name: Provisional

Map date: **1960-1964**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed 1874
Revised 1960
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1964
Revised 1964
Edition N/A
Copyright N/A
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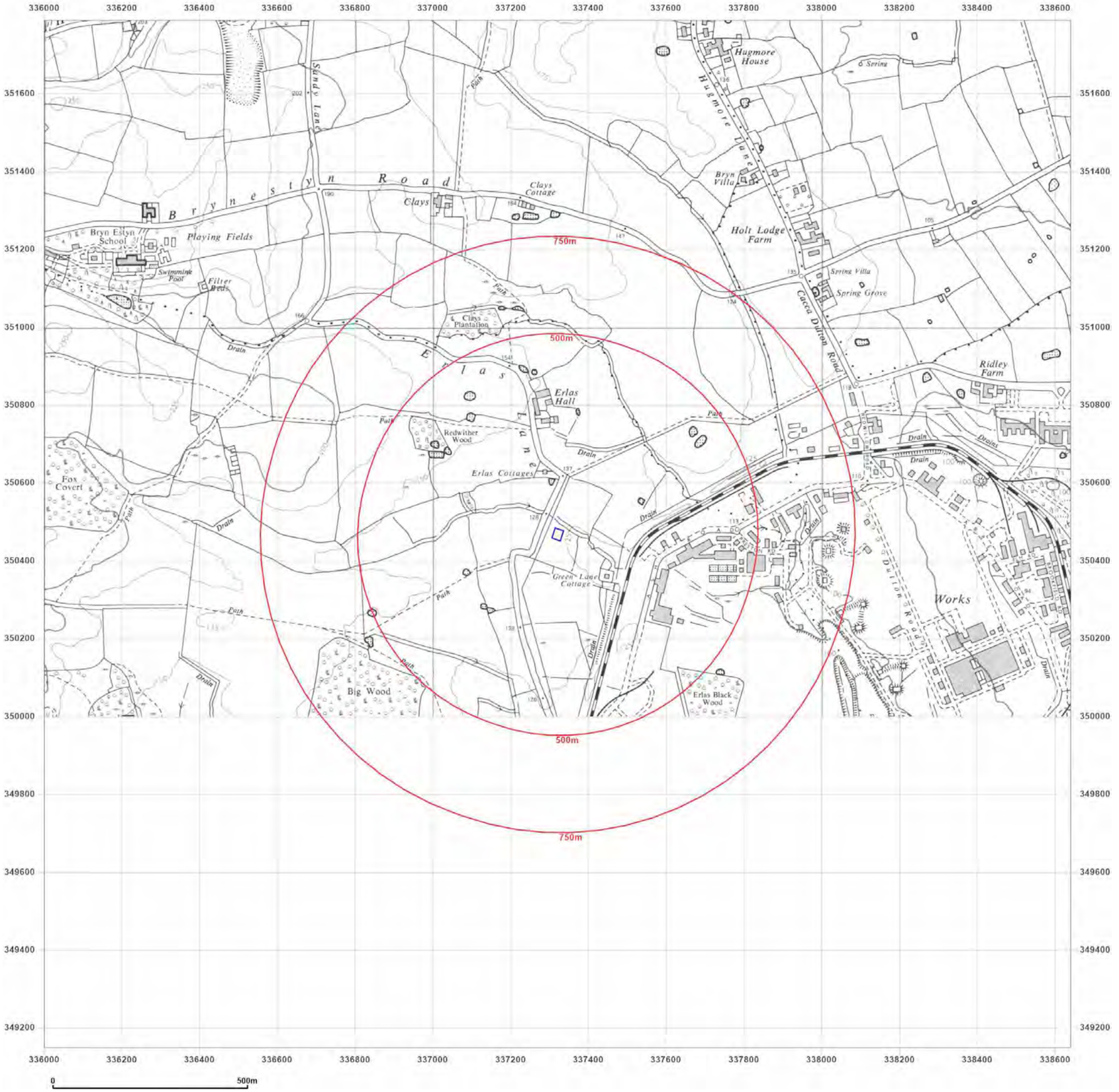
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Groundsure INSIGHTS

Site Details:

Wrexham Industrial Estate

Client Ref: R3458
Report Ref: GS-S38-KF3-CKV-7IY
Grid Ref: 337320, 350468

Map Name: Provisional

Map date: **1968**

Scale: 1:10,560

Printed at: 1:10,560

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

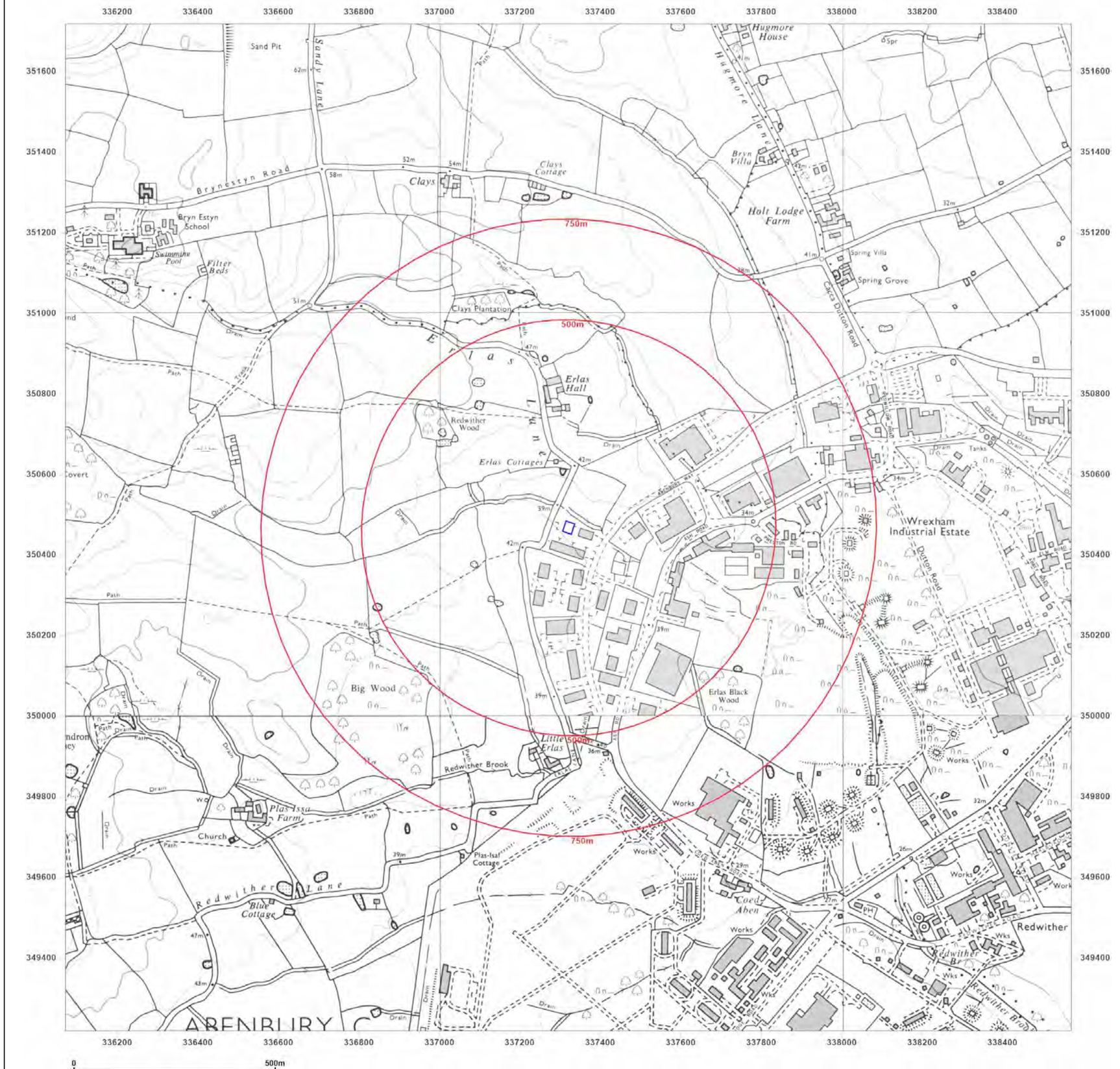
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Site Details:

Wrexham Industrial Estate

Client Ref: R3458
Report Ref: GS-S38-KF3-CKV-7IY
Grid Ref: 337320, 350468

Map Name: National Grid

Map date: **1979-1982**

Scale: 1:10,000

Printed at: 1:10,000

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Surveyed 1970
Revised 1982
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1975
Revised 1978
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Copyright 1979
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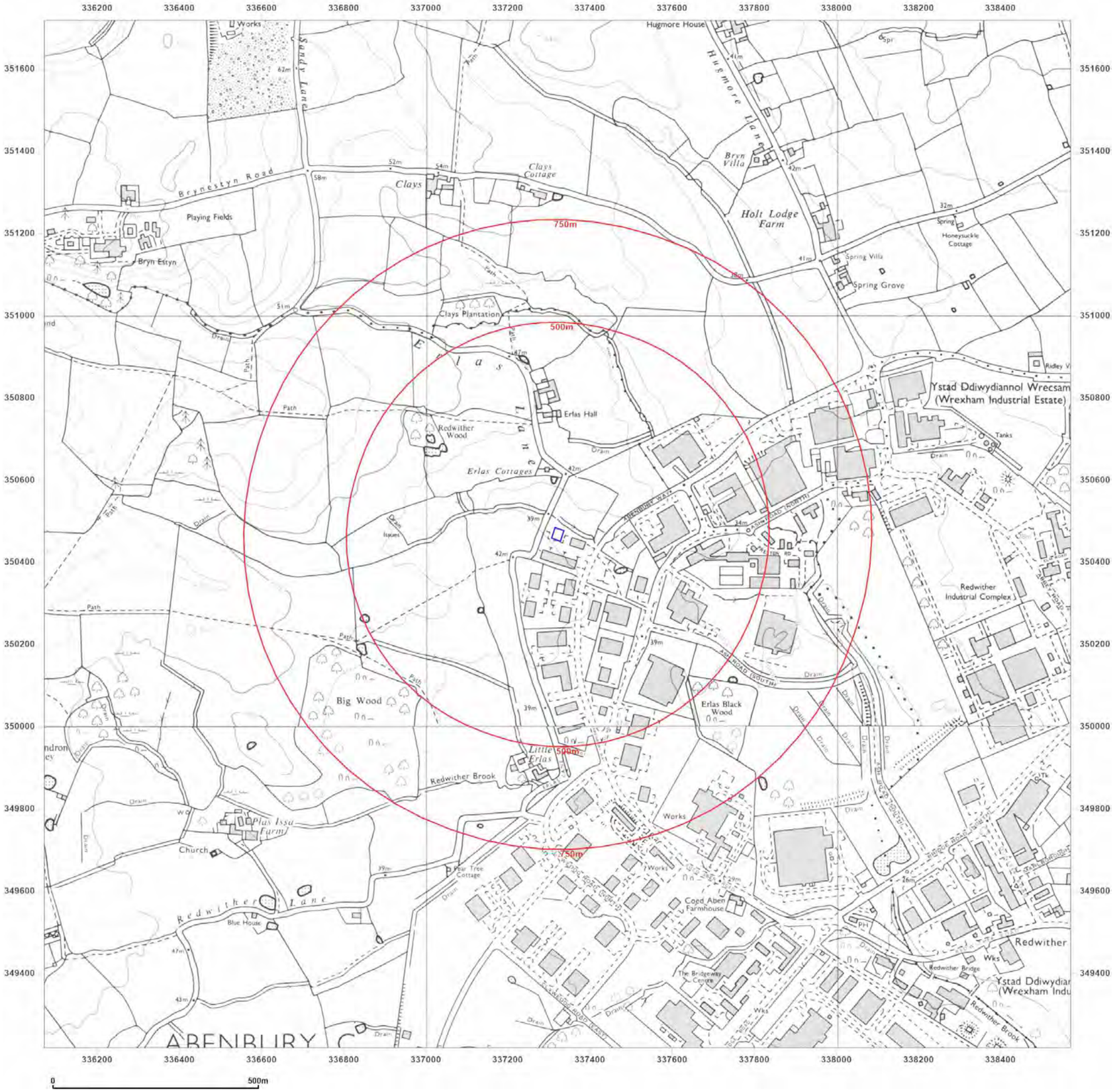
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Site Details:

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Client Ref: R3458
Report Ref: GS-S38-KF3-CKV-7IY
Grid Ref: 337320, 350468

Map Name: National Grid

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Scale: 1:10,000

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

Surveyed 1983
Revised 1992
Edition N/A
Copyright N/A
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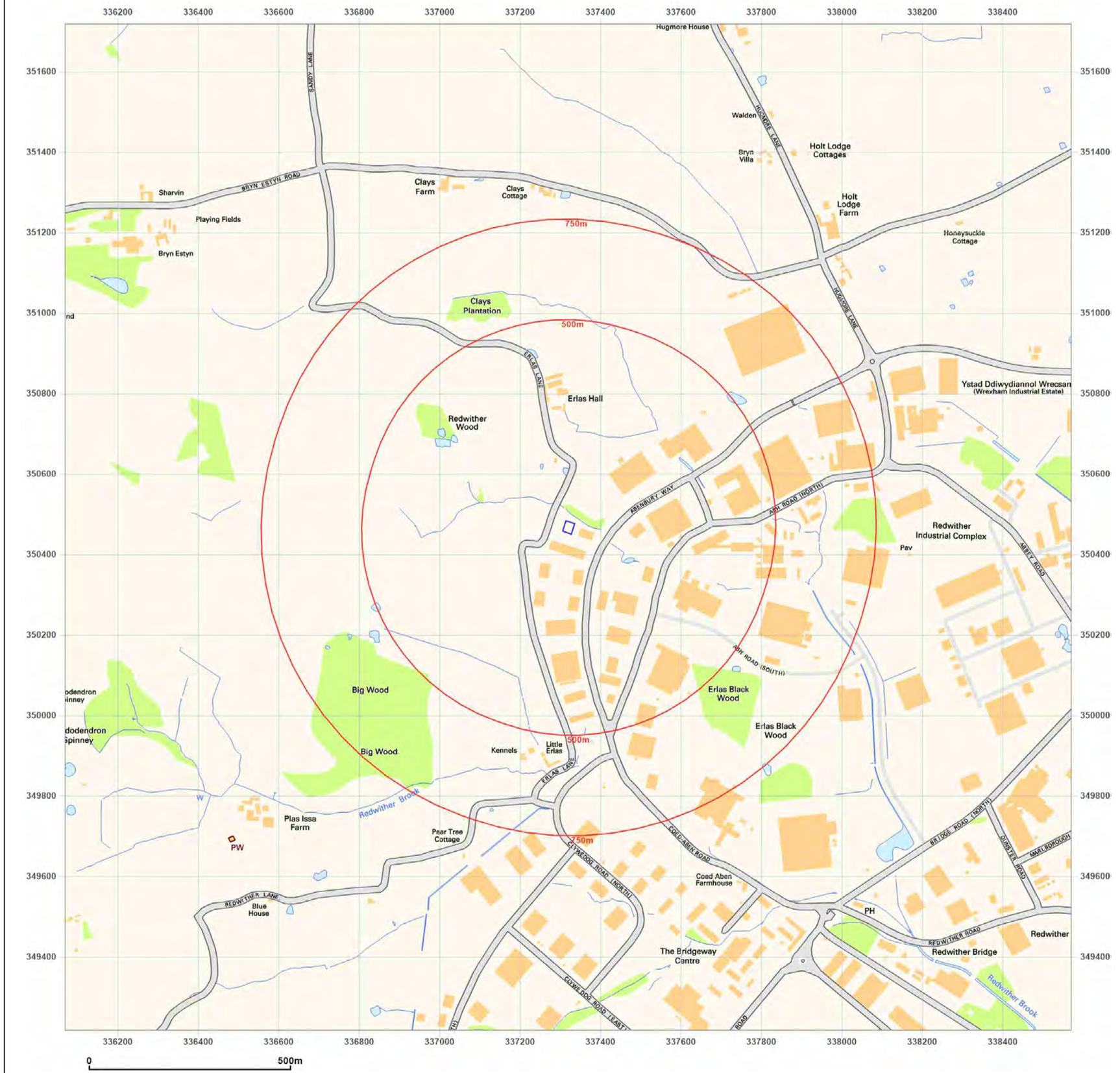
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Groundsure INSIGHTS

Site Details:

Wrexham Industrial Estate

Client Ref: R3458
Report Ref: GS-S38-KF3-CKV-7IY
Grid Ref: 337320, 350468

Map Name: National Grid

Map date: 2001

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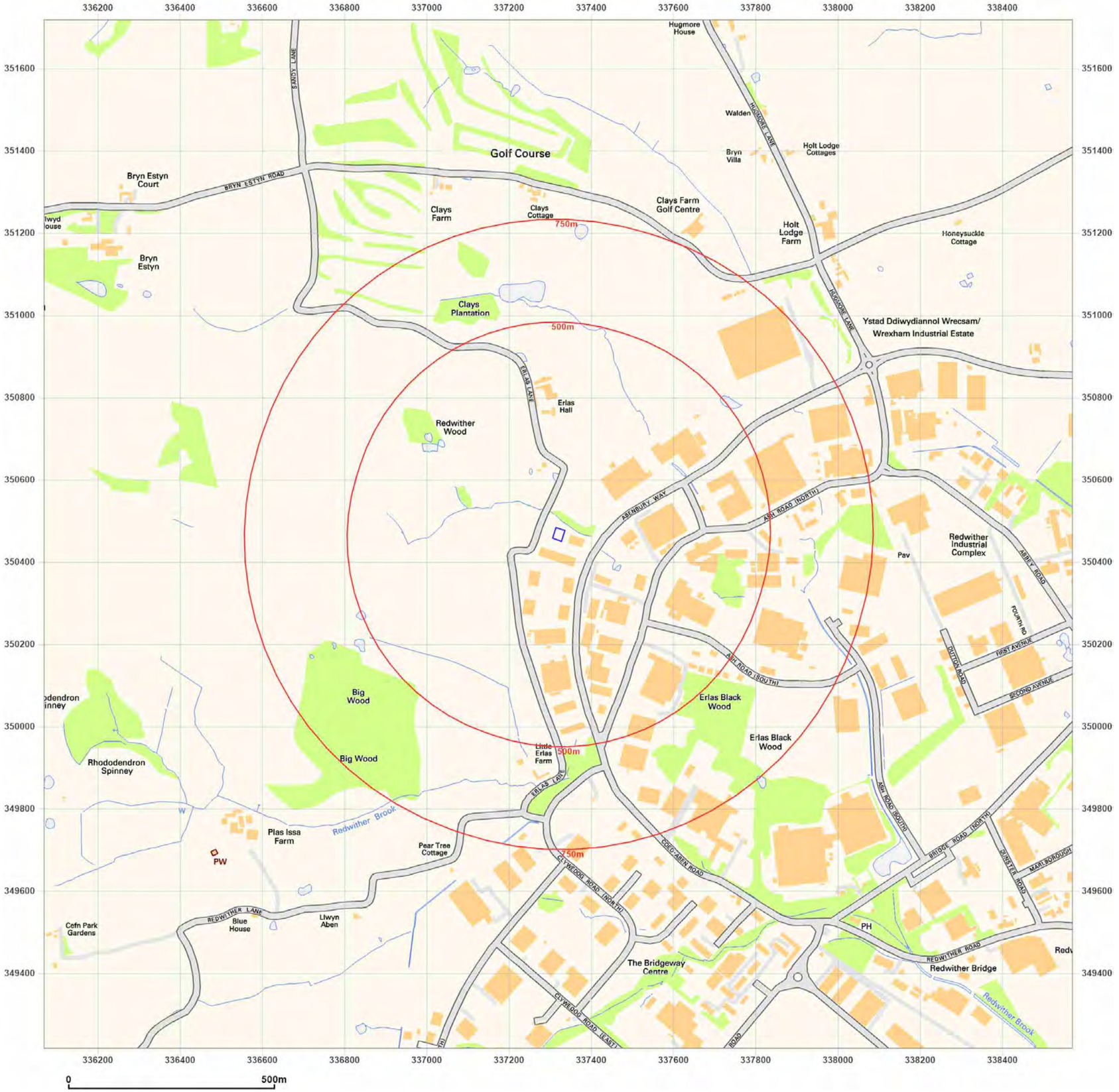
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Groundsure INSIGHTS

Site Details:

Wrexham Industrial Estate

Client Ref: R3458
Report Ref: GS-S38-KF3-CKV-7IY
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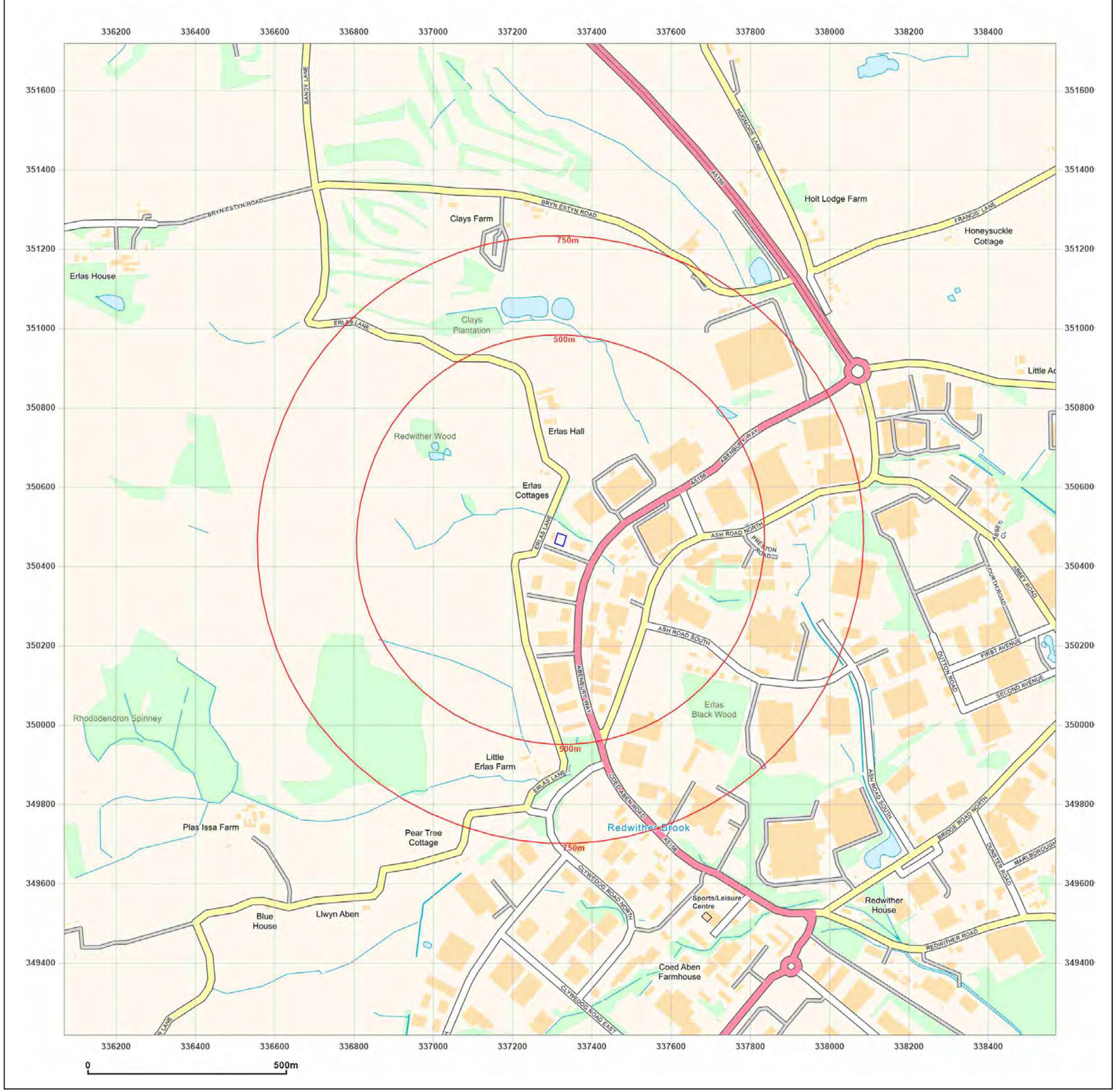
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Site Details:

Wrexham Industrial Estate

Client Ref: R3458
Report Ref: GS-S38-KF3-CKV-7IY
Grid Ref: 337320, 350468

Map Name: National Grid
Map date: **2025**
Scale: 1:10,000
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APPENDIX C

UXO Screening Report

PA024170 — NORTH OF ALPHA WINDOWS LTD

DOCUMENT DETAILS

Site name:	North of Alpha Windows Ltd		
Reference:	PA024170	**Client:**	Smith Grant LLP
Date:	6th August 2025	**Contact:**	Adam Forman

RECOMMENDATION

A detailed desk study is recommended to assess, and potentially zone, the Unexploded Ordnance (UXO) hazard level on the Site.

SUMMARY OF FINDINGS

Military Activity	During WWII, Royal Ordnance Factory (ROF) Wrexham was established on land encompassing the Site. The factory produced explosive propellants, particularly cordite. After WWII, ROF Wrexham closed.
WWI Bombing	Potential targets within approximately 5km of the Site: ▪ Transport infrastructure and public utilities. ▪ Engineering and metal works. ▪ Royal Flying Corps (RFC) Wrexham. ▪ Military establishments. No readily available records have been found indicating that the Site was bombed.
WWII Bombing	The Site was located in Wrexham Rural District (RD), which officially recorded 278No. High Explosive (HE) bombs, with a density of 3.8 bombs per 405 hectares (ha). These statistics typically exclude bombs that fell on military establishments, such as ROF Wrexham. Potential targets within approximately 5km of the Site: ▪ ROF Wrexham. ▪ Transport infrastructure and public utilities. ▪ Munitions factories and engineering and metal works. ▪ Royal Air Force (RAF) Wrexham. ▪ Military establishments. ▪ Anti-invasion defences. No readily available records have been found indicating that the Site was bombed.
Bombing Decoys	None identified within 5km of the Site.

FURTHER INFORMATION

These findings are based on a cursory review of readily available records; caution is advised if you plan to action work based on this PDSA.

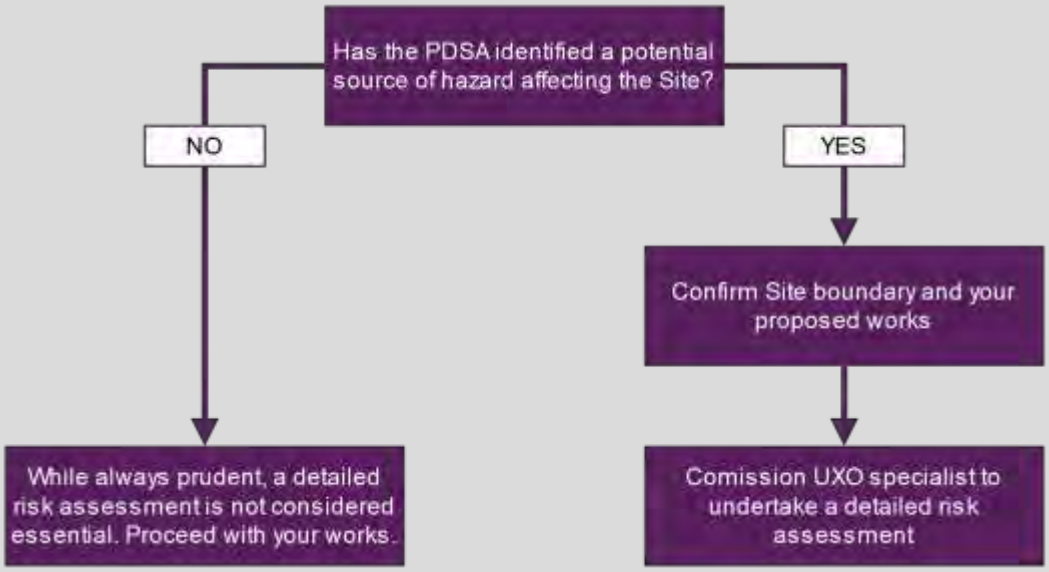
Where a potentially significant UXO hazard source has been identified on the Site, no further research has been undertaken. A detailed UXO desk study and risk assessment may identify other potential UXO hazard sources on the Site.

Visit www.zeticauxo.com to learn more about Zetica's detailed UXO desk studies and other UXO services. Click here for more information about the most common UXO hazard sources in the UK.

If you have any further queries, please don't hesitate to contact us at uxo@zetica.com or 01993 886 682.

NEXT STEPS

Follow the steps below to determine the appropriate course of action:



Potential UXO hazard identified? If the PDSA has identified a potential source of UXO hazard affecting your site, then a detailed UXO risk assessment is recommended.

No obvious source of UXO hazard? If the PDSA has not identified any obvious source of potential UXO, works can proceed.

It is good practice to raise awareness of the background UXO risk in the UK as part of a standard site induction. This will ensure that appropriate action is taken in the unlikely event that UXO is discovered.

Don't skip a stage: If you skip the detailed risk assessment stage, you could end up undertaking unnecessary work (e.g. trying to detect a UXO hazard that has already been removed).

Similarly, a detailed risk assessment might find that the UXO hazard is worse than expected and has a greater potential to cause harm, requiring a different mitigation approach than would otherwise be undertaken.

UNEXPLODED BOMB RISK MAP

SITE LOCATION

Map Centre: 337301,350457



This map principally indicates a hazard from Unexploded Bombs (UXB) due to WWII bombardment. Other sources of Unexploded Ordnance (UXO) may be present. It should be noted that this map does not represent UXO risk and should not be reported as such when reproduced.

LEGEND

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

Miltary | **Industry** | **UXO find** | **Other**

Transport | **Docks** | **Luftwaffe targets**

Utilities | **Bombing decoy** | **Airfields**

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

This map indicates the potential for UXBs to be present because of World War Two (WWII) bombing. It can be incorporated into a technical report, such as a Phase 1 Desk Study, or similar document as an indication of the potential for UXO encounter on a Site. Other sources of UXO may also be indicated, although note that these are not comprehensive and more detailed research is required to confirm their presence.

What if my Site is in a moderate or high density area?

We typically recommend that a detailed UXO desk study and risk assessment is undertaken for sites in an area with a moderate or high bombing density.
Additionally, if your site is in close proximity to a strategic target, military establishment, airfield or bombing decoy, then additional detailed research is recommended.

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

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

If you are unsure whether other sources of UXO may be present, you can request one of our pre-desk study assessments (PDSA) by emailing a site boundary and location to pdsa@zetica.com.

You should never plan site work or undertake a risk assessment using these maps alone. More detail is required, to include an assessment of the likelihood of a source of UXO hazard from other military activity not reflected on these maps.

If I have any questions, who do I contact?

tel: +44 (0) 1993 886682 **email:** uxo@zetica.com **web:** www.zeticauxo.com

The information in this UXB risk map is derived from a range of sources and should be used with the accompanying notes on our website.

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APPENDIX D

Local Authority Consultation

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Dyddiad/Date	05 August 2025
Gofynner am/Ask for	Angela Roberts
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E-bost/E-mail	contaminatedland@wrexham.gov.uk

BY EMAIL ONLY

Dear Adam

ENVIRONMENTAL SEARCH – LAND NEAR TO ALPHA (WREXHAM) WINDOWS LTD, ABENBURY WAY, WREXHAM INDUSTRIAL ESTATE, LL13 9UZ

Further to your email dated 30 July 2025 and receipt of payment for the search received on the same day, I can provide the following comments:

1. Have you any records of historical contamination on or in close proximity to the Site?

The Contaminated Land Team does not yet have a comprehensive database regarding historic land use or contamination, however the limited information available to the Team indicates that the above property is on land that was formerly used by the Ministry of Defence (MoD) for the manufacture of explosives. The limited records held in regard to this former use, are summarised as follows:

i.The Royal Ordnance Factory (ROF) Wrexham was the largest explosives factory in the area;

ii.The site covered an area of over 1400 acres and was served by its own railway;

iii.It became operation in 1941, about a year after the facility was constructed. It consisted of a number if production buildings, widely spaced to minimise and damage should an accidental explosion occur;

iv.Two units were built for the manufacture of solventless cordite also known as Cordite W;

v.Operation of the ROF ceased on 11 August 1945. Shortly after the war the site was sold for development as an Industrial Estate;

vi.Cordite is produced by the incorporation of Nitrocellulose (guncotton) with Nitroglycerine in the presence of a solvent to assist gelatinisation, although at Wrexham Carbamite was introduced as a suitable stabiliser instead of solvents. The cordite produced at Wrexham was 'flashless', produced by the inclusion of a large proportion of finely divided Nitroguanidine (Pircrite);

vii.Further information of contamination issues associated with the manufacture of explosives is contained in the Environment Agency document 'Land Contamination: Technical Guidance on Special Sites: Explosive Manufacturing & Processing Sites' Research & Development Technical Report P5-042/TR/03, dated June 2001.

The former Department of Industry Profiles and Contaminated Land Research (CLR) Report 8: Potential Contaminants for the Assessment of Land identify historical munitions sites as sites that may have ground contamination, therefore the Council will be required to consider the former MoD land under its duties of implementing Part 2A of the Environmental Protection Act 1990.

Due to the historic use of the land it is likely that the above property will need to be considered further under Part 2A. It should be noted that the fact that the area is likely to be considered under Part 2A does not necessarily mean that it will be determined as 'Contaminated Land' as any future assessment undertaken may find that there is no significant risk. Unfortunately it is not possible to advise you of a likely time when such an assessment may take place since it will be subject to financial resources and prioritisation against other potential contaminated sites in the Borough that also require assessment.

In the context of other potential contaminated land sites that have been identified to date, the site in question is currently considered to be of a lower priority. However should new information come to light, or if there is a change in guidance or any of the other factors that we consider when prioritising and planning Part 2A works the priority may change.

You may be interested to know that some sites on the Industrial Estate have had ground contamination issues assessed. These have mainly been the result of a planning condition requiring a contamination assessment for the development of the site. Some assessments have shown no contamination to have been present, whilst others have shown some contamination that has required remediation measures for the site's safe development. In many of these cases the contamination was not necessarily due to the sites former use by Royal Ordnance but by subsequent operations on the site or made ground.

In response to a planning application consultation made in 2022 (P/2022/0411), due to the former use of the site as military land and it forming part of the industrial estate, the Contaminated Land Team recommended standard conditions be applied to the permission if granted requiring the assessment and remediation (if required) of the land to render it suitable for the proposed development. The application was granted

permission and conditions 8 and 9 were applied, to date no reports in regard to those conditions for this development have been submitted.

2. Do you have any records of historical landfills on or in close proximity to the Site?

There are no records of any landfills within 250m of the site.

3. Do you have any records of mining within the red-line boundary or within close proximity?

The Contaminated Land Team do not hold mining records and if records on coal mining are required then it is recommended that a Coal Authority search (now Mining Remediation Authority) is undertaken. In considering the historical use of the site, the Team has not noted any former quarries within the site boundary.

4. Have there been any previous reports carried out on the Site or adjacent?

We do not have any records of any former site investigations that have taken place at the site. However enclosed is a copy of an old desk study that provides details on the historical use as a ROF for the Wrexham Industrial Estate as a whole.

5. Have there been any historic or recent water extractions on or adjacent to the Site?

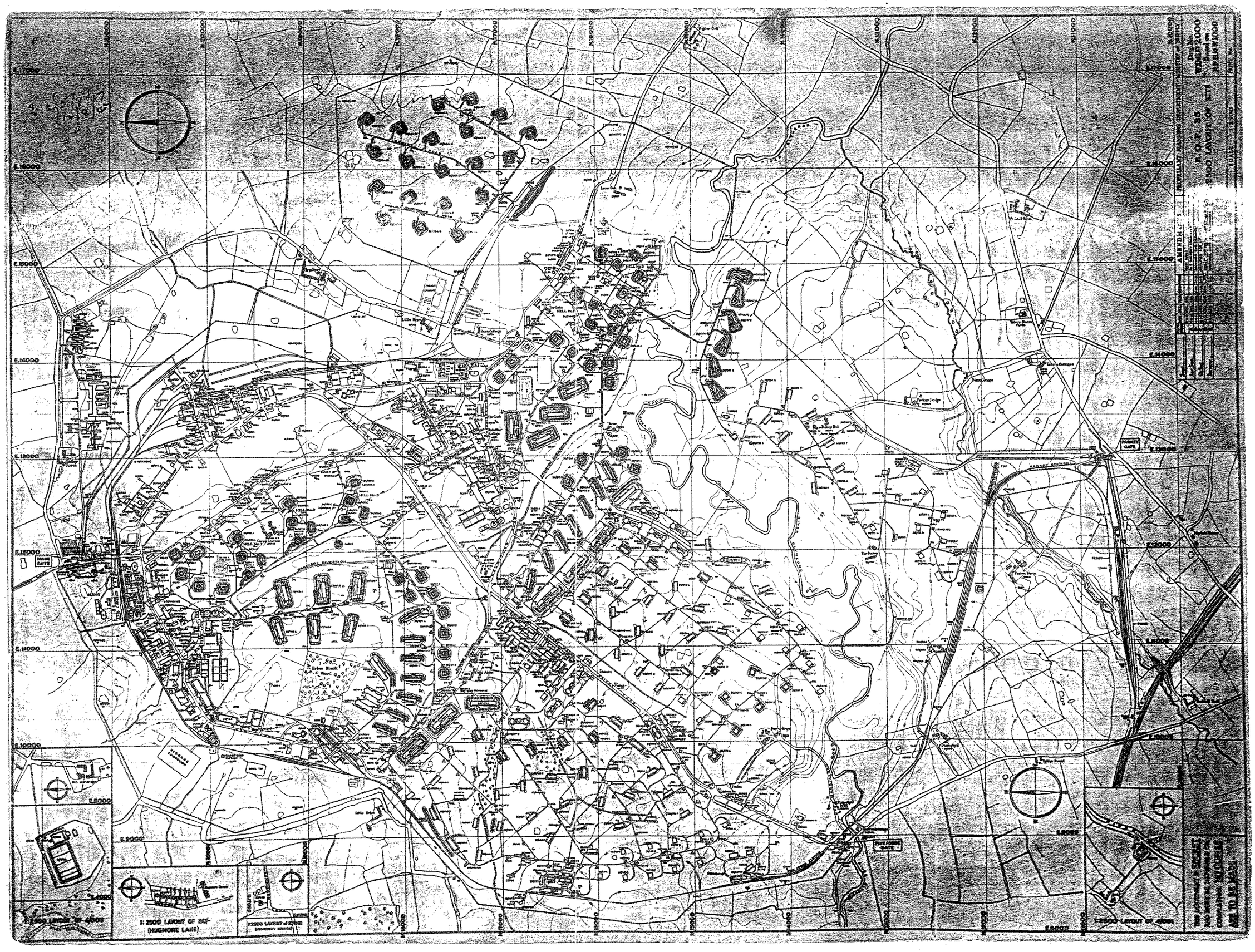
I have passed on this enquiry to the Environmental Protection Team at the Council (HealthandHousing@wrexham.gov.uk) and requested they contact you directly. You may also wish to contact Natural Resources Wales.

Should you have any queries then please do not hesitate to contact me on the above number.

Yours sincerely



Mrs Angela Roberts
Contaminated Land Officer


1:2500 LAYOUT OF EQUIPMENT (HUGHMORE LANE)
1:2500 LAYOUT OF ROADS
1:2500 LAYOUT OF AREAS



DESK STUDY

FOR

POTENTIAL EXPLOSIVE CONTAMINATION AT WREXHAM INDUSTRIAL ESTATE

Project No: A120-00

Report No: A120-00-R1-A-DRAFT

February 2001

BAE SYSTEMS

BAE SYSTEMS
PROPERTY & ENVIRONMENTAL SERVICES

Desk Study
For
Potential Explosive Contamination at Wrexham Industrial Estate

PREPARED FOR :

Wrexham County Borough Council

ORIGINATOR :	CHECKED BY :	AUTHORISED BY :
Stephen Ridgway	Mike Sainsbury	Kerry Green

REFERENCE : A120-00-R1-A-DRAFT

DATE : February 2001

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UKAS TESTING
No. 1764

INVESTORS IN PEOPLE

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1. INTRODUCTION

BAE SYSTEMS Environmental Services at the request of Wrexham County Borough Council, has conducted a Desk Study for potential contamination relating to former military use for a site adjacent to Bridge Road North, Redwither Industrial Complex, Wrexham Industrial Estate, Wrexham (herein after referred to as the Property).

1.1. SCOPE OF WORK

The purpose of the desk study was to investigate the potential for military use and associated contamination on the Property, to establish the likely geology and hydrogeology, to evaluate the implications of these factors on the current and future uses of the Property and to determine whether further investigatory works are required.

It is our experience that contamination from such processes has a site wide impact. Therefore, the Wrexham site as a whole will be discussed with the assessment generally targeted on the actual area of interest (i.e. the Property).

The potential for conventional contamination to be present is not addressed by this study except where the contaminants are directly related to military usage and are unlikely to be identified or addressed by conventional studies.

This study has been conducted in general accordance with the latest Department of Environment, Transport and the Regions (DETR) Contaminated Land Research (CLR) and other current guidance as referenced at the end of this report.

1.2. DEFINITIONS

The term 'Property' refers to the infilled pond located immediately to the south east of Bridge Road North. The boundary of the Property is clearly delineated on the Property Plan presented as Appendix 2.

1.3. REPORTING CONDITIONS

This report has been specifically prepared without the benefit of knowledge of the intentions of third parties and therefore should not be used by such organisations without prior consultation with BAE SYSTEMS Properties Ltd.

It must be emphasised that a desk study can only indicate the potential for contamination to be present on the Property. An intrusive investigation is normally necessary to provide proof and may be required to support any future planning applications.

The report refers to the conditions present at the Property at the time of the study and no liability can be accepted by BAE SYSTEMS Properties Ltd for any future changes of Property conditions. It should be noted that BAE SYSTEMS Properties Ltd has relied on the accuracy of the information contained in the documents consulted and is in no circumstances responsible for the accuracy of such information or data supplied.

2. SOURCES OF INFORMATION

Research of the Property's history has been undertaken to establish the following:

- History of military use of the Property and surrounding area.
- Processes employed on the Property and surrounding area, including raw materials, products, waste residues and methods of disposal.
- A number of other sources of information are also utilised such as regulatory authorities, public libraries and local knowledge, employees and other anecdotal evidence.

The following sources of information have been utilised in the compiling of this report:

- BAE SYSTEMS Properties Ltd records.
- BAE SYSTEMS defence related site records.
- Royal Ordnance records.
- Ministry of Defence records.
- Geological and Hydrogeological records.
- Historical review of maps, site plans, aerial photographs and previous land uses.
- Local information sources.
- Regulatory Authority data.
- Aerial Photographs.
- Client supplied information.

3. THE PROPERTY

3.1. PROPERTY LOCATION

The Property is located within Wrexham Industrial Estate approximately 4.5 km to the east of Wrexham town centre and is centred on National Grid Reference (NGR) SJ 381 496. A Property Location Plan is presented as Appendix 1.

3.1. PROPERTY DESCRIPTION

The Property is understood to be an in-filled firepond approximately measuring 31m x 25m x 2.6m. The Property is bounded to the north west by Bridge Road North and to the east and south west by Drainage Diversion Channels leading to Redwither Brook and the Clywedog River.

The Property is situated on a slight slope dipping to the east with an overflow point for water on the north east corner of the fire pond.

3.2. PROPERTY SURROUNDINGS

To the south west, between the Property and the drainage channel is a small building currently used as a garage/lock-up. Its former use is unknown but was probably used for the storage of fire fighting equipment. A Public House is located to the south-west beyond the drainage diversion channel. The other buildings within the vicinity (500 m) of the Property are used for industrial purposes.

A Property Plan is presented as Appendix 2.

4. GROUND CONDITIONS

4.1. GEOLOGY

Reference has been made to the 1:50,000 scale geological map for the area published by the British Geological Survey (BGS), Sheet 121 Solid and Drift Edition and the BGS Regional Geochemistry of North West England and North Wales. A borehole, installed to a depth of 830 m is located 2.5km to the west and information from this location has also been used.

4.1.1. Made Ground

The geological map indicates that the whole of the Wrexham Industrial Estate is overlain by Made Ground of varying thickness as a result of the past activities on the site. This Made Ground will probably consist mainly of reworked Glacial Till with concrete, brick and clinker inclusions.

The Property itself is believed to have been infilled by brick and concrete debris from its base at 2.6m below the surrounding ground level. A clay cap 300mm thick covers the building arisings to ground level.

4.1.2. Drift Geology

Geological records show that there is approximately a 3m thick layer of Glacial Till below the Made Ground. It consists of "stiff, over-consolidated, purple grey clay containing erratics of Cumbrian and Scottish provenance and abundant comminuted shell debris". This lodgement till is a product of subglacial melting of the overriding ice sheet during the last Ice Age.

4.1.3. Solid Geology

The BGS information shows the Property to be underlain by the Erbistock Formation approximately 60m in thickness. The Erbistock Formation is made up of "red and purple Mudstones and feldspathic Sandstones with some grey beds and thin Coals." They represent a time of deposition on well-drained alluvial floodplains.

Below this is the Coed-yr-Allt Formation which consists of "grey clay measures with a few thin Limestone and Coal measures laid down in a lacustrine and lake delta environment." This has a thickness of approximately 150m.

The Ruabon Marl Formation is about 200m thick and consists of "red/brown, maroon and purple Mudstones and Seatearths, thin Siltstones, Sandstones, Limestones and Coals."

All three formations were laid down during the Westphalian in the Upper Carboniferous period.

Extracts of the Geological Maps are presented as Appendix 3.

4.2. HYDROGEOLOGY

The groundwater vulnerability map 1:100,000 series, sheet 61 for West Cheshire, indicates the property to be underlain by a minor aquifer (Erbistock Fm) which "may be fractured or have the potential of being fractured but which does not have a high primary permeability."

The EA studies for the area classify the soils as 'HU' indicating that due to the presence of significant urbanisation in the area, the studies are based upon a limited number of observations and hence a worst case vulnerability has been assumed. The EA have described the soils as "Soils with little ability to attenuate diffuse source pollutants and in which non-absorbed diffuse source pollutants and liquid discharges have the potential to move rapidly to underlying strata or to shallow groundwater".

An extract of the groundwater vulnerability map and hydrogeological map is presented in Appendix 4.

4.3. HYDROLOGY

4.3.1. Surface Water and Drainage

Ground levels in the vicinity of the Property are approximately 30 m Above Ordnance Datum (m.AOD) as indicated by site plans and the OS map.

The Property slopes gently from south west to north east. The nearest surface water features to the Property are the Drainage Diversion Channels located approximately 15 m to the east of the Property and 40 m to the south of the Property. These flow south and east respectively towards the River Clywedog 750 m to the south east which in turn flows into the River Dee approximately 2.5 km further downstream. Client supplied information indicates that the River Dee is used for the abstraction of potable water supplies.

An overflow channel is present on the north eastern edge of the Property and drains into the drainage diversion to the east.

5. EXPLOSIVE DEFINITIONS AND TERMINOLOGY

5.1. GENERAL

The following sections give key definitions and explanations of the terminology used in this report.

5.2. EXPLOSIVE

"Explosive" refers to chemicals or mixtures of chemicals that can react rapidly with the liberation of energy capable of causing damage to the surroundings. For the purposes of this report, explosives may be divided into a number of sub groups, as follows:-

Primary Explosives: Initiatory explosives such as Lead Azide, Lead Styphnate, Mercury Fulminate.

Secondary Explosives: Main charge or high explosive compositions containing for example, NC, NG, TNT, Picrite, Picric Acid, Amatol (Ammonium Nitrate / TNT), Gunpowder, HMX, RDX, PETN, EGDN, HNS.

Propellants: Solid propellants including cordite, a mixture of NC and NG combined with a stabilising medium.

Pyrotechnics: Used in such items as smoke flares and rockets. Usually contain gunpowder and various additives for different colour effects.

5.3. DEVICE

This term is used as a general reference term for any component, sub-assembly or completed ordnance that may or may not have an explosive risk associated with it. The term can be applied to individual detonators, primers, gaines, fuzes and complete shells and bombs.

5.4. EXPLOSIVE REACTION

An explosive reaction is defined for the purposes of this report as a chemical reaction which produces one or more of the following: heat, light, sound or gas. The explosion can occur with varying speeds and in varying ways, dependent on conditions and explosive type.

Explosives can react in varying ways, for instance:-

- Smouldering,
- Reaction with presence of flame,
- Deflagration- very fast violent burn,
- Detonation - spontaneous rapid reaction producing a shock wave.

5.5. EXPLOSIVE INCIDENT OR EVENT

An explosive event occurs when an explosive has been initiated to the extent that an explosive reaction, often deflagration or detonation occurs. Initiation stimuli can occur in many forms, especially during trial pitting or borehole investigatory work unless preventative measures and safe working practices are adopted.

Initiation stimuli can include:-

- Percussion
- Friction
- Nipping
- Sparking
- Heat
- Corrosion products
- Electro-static
- Current / voltage
- Chemical Incompatibility

Once initiated an unpremeditated explosive event is usually extremely fast, often catastrophic and invariable traumatic to the personnel involved.

6. HISTORICAL DEVELOPMENT

6.1. GENERAL

The following section refers to the historical development of the Property and surrounding area. This information has been compiled from various document sources including Ordnance Survey (OS) historical plans, Ministry of Defence Records, former Royal Ordnance records and aerial photographs.

Extracts of historical plans are included within Appendix 5. Extracts of aerial photographs are included as Appendix 6.

6.2. PROPERTY HISTORY

The Royal Ordnance Factory (ROF) Wrexham was the largest explosives factory in the area. The site covered an area of over 1400 acres and was served by its own railway. It became operational in February 1941, just over a year from the start of construction. The factory consisted of a number of production units, widely separated to minimise the damage done should there be an accidental explosion.

6.2.1. Pre War

The land was almost entirely grassland, divided up into some 15 small farms.

6.2.2. World War II

In 1939, it was intended that the extended capacity required for the Army's expansion programmes be provided by a third unit at R.O.F. Bishopton. The Bishopton unit was "held over" till the outbreak of war and instead the Wrexham unit was chosen.

In March 1939, approval was given for a detailed survey to be conducted. When the war actually started some six months later, the third Bishopton unit started ahead of Wrexham.

Clear approval to proceed with the construction of the factory did not come until the end of August 1939, by which time supply was far behind the requirements of the military.

The delay was due to disputes over the actual site location. The Wrexham area had been suggested by the Hacking Committee of 1934 as a possible location for the new Filling Factory, or alternatively for the Cordite Factory that was to replace Waltham Abbey. The Wrexham site was considered to be well situated for transport, explosive and component supplies and for a suitable labour force.

A special report was compiled and the proposal was rejected due to the proximity of the proposed site to Wrexham itself and the explosive risk. The public roads that encircled the site were viewed as a further disadvantage. This latter fact was to become an advantage when the area was again put up for development in June 1939.

Engineers from Waltham Abbey were then sent to establish the best site from a number of suggested locations by the Ministry of Works. Four months of "intensive

preliminary work" was conducted until the Ministry of Agriculture complained and the work was stopped.

After many proposed layouts, the Ministry of Agriculture protested to the "sterilisation of 2000 acres of good grazing land". Their reluctant consent was secured only three days before the outbreak of WWII.

6.2.1.1 Planning

Planning of the site commenced in May 1939. Initially the factory had been intended to be a duplicate of the three cordite production units located at the Royal Ordnance Factory (ROF) at Bishopton. However construction of the third unit at Wrexham was delayed and later cancelled due to the "want of labour". The two units there were built were specifically designed for the production of solventless cordite also known as Cordite W.

6.2.1.2 Construction

The construction of the factory was expected to take approximately eighteen months from the date of approval. The second unit took longer than the first to build due to the transfer of labour from the construction programme to the production facilities in the newly built first unit.

Wartime measures meant that blast mounds were not always constructed for such units and the steel from railway tracks was required for other uses, resulting in concrete roadways being constructed rather than railways.

6.2.1.3 Production

By December 1940 there were approximately 500 workers engaged in the production of Cordite at Wrexham. By this time, the prospect of a third unit had been given up and part of the plant intended for the third unit was transferred to Irvine, Scotland. The number of workers employed at Wrexham increased to a total of 6095 by January 1942.

By 1940 the capacity of ROF Wrexham had reached some 480 tons a week. The two units had been planned to produce some 130 tons a week.

In 1942 increased production was gained by installing an extra acid plant from Huddersfield. The maximum recorded production of Cordite was rated at 520 tons per week and this was maintained for a short while until production was halved shortly afterwards.

Anecdotal information indicates that filling of 1000lb shells has occurred at ROF Wrexham despite the fact that the factory was never designed for such purposes. It has been indicated that this operation was conducted in an unofficial capacity.

ROF Wrexham site plans indicate that throughout the operational period of the site the Property was occupied by the firepond structure which is still present.

6.2.3. Site Closure

Operation of ROF Wrexham ceased on 11th August 1945. Royal Ordnance Propellant Division conducted an inventory of capital assets for all propellant factories between 1945 and 1946. This inventory included an assessment of the condition and value of buildings, plant and machinery at all sites including Wrexham. Some of the historical files and records of the inventory of capital assets are held by BAE SYSTEMS and have been consulted. Unfortunately the records relating to the ROF Wrexham site are incomplete and only a limited list of building usage has been obtained from these records and is presented as Appendix 7.

Ministry of Defence (MoD) sources indicate that following the decommissioning of the site, certain areas of ROF Wrexham, specifically the guncotton plants, were potentially contaminated by small quantities of explosives in the drainage systems and the floors of buildings. It is reported that remediation work was conducted in these areas but no further details were found regarding the nature of such work.

Shortly after the war the site was sold for development as an Industrial Estate. The current Wrexham Industrial Estate was established during 1946. Client supplied information indicates that by the early 1950's the firepond had been backfilled to the surrounding ground level.

6.2.4. Recent history

A preliminary investigation conducted by the Client has identified the nature of the fill material as primarily consisting of concrete and brick demolition rubble capped by a thin layer of clay. This investigation also uncovered grossly discoloured water containing oily deposits and a number of glass phials. Following tests conducted by the Ministry of Defence at Porton Down it has been verbally reported to the Client that the glass phials contain food colouring. The water was encountered just below groundlevel indicating that the firepond lining appears intact.

Currently the Property is heavily overgrown and disused. The Property is surrounded by a wooden fence to prevent access.

7. HISTORICAL PROPERTY OPERATIONS

7.1. GENERAL

The following section will briefly summarise the processes known to have historically occurred on or in the vicinity of the Property. The processes are segregated into defence related and conventional processes. Subsequent sections of this report will only address the defence related processes and associated contaminants.

7.2. DEFENCE RELATED PROCESSES

The following section will detail any identified defence related processes which are considered to represent a potential source of contamination to the Property.

7.2.1. Cordite Manufacture

The Property is known to have been in operation as part of a Cordite manufacturing factory during the period of the Second World War. This factory was known as Royal Ordnance Factory Wrexham.

Cordite was produced by the incorporation of Nitrocellulose (NC also historically called 'guncotton') with Nitroglycerine (NG) in the presence of a solvent to assist gelatinisation. The resultant dough mixture is extruded into cords of a controllable diameter. The extruded cords were gently heated so as to drive off the solvent, after which they became fairly hard. The constant diameter of the cords gave a constant burning area, a very important attribute for a propellant.

Cordite retains almost all of its original chemical nature and properties even over prolonged periods of burial in a range of soil types. When unconfined cordite will deflagrate rather than detonate. In confined spaces, such as in drainage systems, cordite may produce effects associated with detonation and in all instances, confined or otherwise, it may add to the detonation force of other explosives. Cordite is commonly formed into hardened granules or elongated sticks.

Nitrocellulose was prepared at ROF Wrexham by the nitration of cellulose (usually in the form of cotton or wood pulp) in the presence of nitric acid. The crude product was washed with hard water to neutralise the acid before being pulped and blended. The nitric acid was also manufactured on site and spent acid was recovered for re-use. NC would have been handled in a damp state in large volumes on the Wrexham site. NC is an extremely stable product in environmental terms and is virtually insoluble and non-volatile. Over considerable periods of time it may degrade to very similar nitro-compounds which have similar form but which may be more likely to spontaneously detonate.

Nitroglycerine was formed in a similar manner by nitrating glycerine in the presence of nitric acid. NG would have been used in large quantities on the Wrexham site. Generally a colourless liquid, it may also be found with a slight yellow coloration. NG in the liquid state is shock and friction sensitive. It can explosively decompose in contact with strong alkalis or acids. Crystalline or "frozen" NG (below 4°C) is highly shock and friction sensitive as crystals rubbing together can detonate. NG in drainage

systems is known to become readily absorbed by the sediments and fragments rather than becoming mobile and being transported within the system. NG is almost insoluble in water, however it is much more soluble in oils and other organic liquids.

The Wrexham factory was known to have produced 'Flashless' Cordite. This was produced by the inclusion of a large proportion of finely divided Nitroguanidine (Picrite) which cooled the propellant during initiation to reduce the flash.

Picrite is a fine powder that is not shock or friction sensitive and is even difficult to combust. It is practically insoluble in cold water. Picrite would have been used in relatively large volumes (although not the same quantities as NG and NC) at the Wrexham site in the form of a whitish powder.

During and after WWII solventless Cordite was used, although initially, primarily for Naval use. For solventless Cordite, the use of Carbamite was introduced as a suitable stabiliser instead of solvents. This type of Cordite was produced at the Wrexham site with a percentage composition of NG 29%, NC 65% and Carbamite 6%, giving a propellant combustion temperature of some 3305°K. This type of Cordite was commonly known as Cordite-W.

Cordite factories typically contained a range of ancillary services and infrastructure to support the manufacturing process. This would usually include dedicated on-site boiler houses, power houses and associated fuel storage or supply network, railway sidings, acid plant and acid recovery plant, electrical substations, steam generation and supply, mechanical and electrical workshops, laboratories and administration facilities.

7.2.2. Shell Filling

It has been reported that shell filling has occurred on the ROF Wrexham site. Due to the unofficial nature of this operation it is plausible that any surplus or waste items would have been disposed of in a less than desirable manner. This may have included dumping of items in remote areas of the site or in fireponds and waste water lagoons.

7.3. CONVENTIONAL PROCESSES

The following section of the report will summarise the identified conventional processes which are considered to represent a potential source of contamination to the Property.

7.3.1. Steam Pipes

Steam was widely used for heating and process work on the ROF site and was delivered by a network of metal steam pipes. As with all establishments of this nature the pipes were usually insulated with asbestos based lagging. Asbestos may be present across the site as a result of poor remediation activities which may have occurred in the late 1940's when the ROF site was decommissioned.

7.3.2. Fire Pond

The shape, size and position of the Property in relation to the surrounding area and

old ROF buildings seem to suggest that it was probably a firepond constructed for use in the event of a fire. This process is not considered to be potentially contaminative however our experience on other ordnance and explosive sites has been that fireponds are often used for the unauthorised disposal of hazardous materials most notably the discarding of waste or surplus explosives and devices.

7.3.3. Infilling of Firepond

The firepond is known to be filled with demolition arisings predominantly comprising concrete and brick building wastes. This material is likely to have been deposited in the firepond as a result of the demolition of some of the ROF buildings during the decommissioning of the site. It is possible that the demolition wastes may be contaminated with a range of explosive and conventional compounds. In addition materials from other sources may have been deposited into the firepond during and after the infilling process.

8. RISK ASSESSMENT TERMINOLOGY

8.1. INTRODUCTION

The UK regulatory and legal framework covering contaminated land is currently undergoing significant change through the introduction of the Environment Act 1995 and planned introduction of the associated statutory guidance on Contaminated Land in 1999. In addition, specific "good practice" guidance in the form of the Contaminated Land Research Report series have been and continue to be issued.

8.2. KEY CONCEPTS AND DEFINITIONS

The DETR describes contaminated land as:-

"land which represents an actual or potential hazard to health or the environment as a result of current or previous use"

Under English law, the Environment Act (1995) defines contaminated land as:-

"Contaminated land is any land which appears ..... to be in such a condition, by reason of substances in, on or under the land, that:

(a) Significant harm is being caused or there is a significant possibility of such harm being caused; or,

(b) Pollution of controlled waters is being, or is likely to be, caused."

UK policy on contaminated land requires the adoption of a risk-based approach in which remedial action is required only when there is a potential for:-

- significant harm to the health of users and occupiers of land,
- significant harm to the environment that may have implications for ecosystems,
- harm to water quality (surface and groundwater),
- direct physical significant harm to humans, i.e. explosion of gases, or consumption of contaminated foodstuffs (e.g. grazing cattle),
- significant harm to structures.

Harm is defined as "harm to the living organism or other interference with the ecological systems of which they form part, and in the case of man, includes harm to his property". Significant harm is further defined within the Environment Protection act 1990: Part IIA, Contaminated Land.

Risk assessment is aimed at determining whether or not the site is contaminated and can potentially cause significant harm. The UK risk based approach to assessing whether land may be contaminated requires the assessment of three components.

- The **pollutant**, (i.e. the contaminant source).
- The **pathways** (the routes by which the contaminants at source can come into contact with the receptors).
- The **receptor** (or target - i.e. the entity that could be harmed).

It is important to note that for a contaminant risk to exist at least one pollutant-pathway-receptor relationship (pollutant linkage) must be shown to exist on the site in question which can result in significant harm to the receptor.

The UK policy on contaminated land is based on a "suitable for use" approach. Thus although a pollutant linkage may be present if the site is residential, a change of use to industrial under certain conditions could remove that pollutant linkage. In addition this "suitable for use" approach means that the Environment Act 1995 is only enforced where it is necessary to deal with unacceptable harm in relation to the current use of the site.

8.3. RISK ASSESSMENT METHODOLOGY

The main purpose of assessing the risk of contaminated land is to establish, using appropriate levels of information, whether a site poses potential risks to human health or the environment. Such risks must be evaluated in the context of which end use the site is being assessed for. In this instance the site will be assessed in the context of industrial usage.

The key stages of an overall 'Risk Assessment' are:-

1) Phase 1a - Hazard Identification - desk study and site reconnaissance.
2) Phase 1b - Hazard Assessment - additional desk study and intrusive site investigation.
3) Phase 2 - Risk Estimation & Risk Evaluation - supplementary site investigation, data collation, analysis and review.

This report is concerned with Phase 1a of the Risk Assessment procedure 'Hazard Identification' where risks are based on potential contamination sources.

The aim of the previous sections has been to identify all the processes or operations which may have occurred or are occurring on the Property.

The following Phase 1a 'Risk Assessment' will assess those operations which are considered to be potentially contaminative. Each potentially contaminative process will then be assessed by:-

- Identifying potential contaminant sources, pathways and receptors (collectively referred to as pollutant linkages).
- Assessing the pollutant linkage to identify any potentially significant risks.

9. HAZARD IDENTIFICATION

9.1. GENERAL

The previous sections of this report have highlighted a number of defence related operations and processes which are known or believed to have occurred on the Property. The following section will identify whether they present a significant potential source of contamination.

9.2. POTENTIAL SOURCES

A number of processes which are or have been operated on the Property or in the immediate surroundings (within 500 m) may have resulted in potential explosive contamination of the Property. The term 'off-site' refers to those processes which operated outside of the Property (firepond) boundary.

The identified processes include:-

ON-SITE PROCESSES	OFF-SITE PROCESSES
• Firepond	• Cordite Manufacture
• Infilling of Firepond	

9.2.1. Potential Contamination Sources On The Property

This study has identified the following potential sources of explosive contamination on the Property:-

9.2.1.1. Firepond

Unauthorised dumping of materials into the firepond may have led to contamination of the firepond by a range of explosive compounds potentially including Cordite, NG, NC and Picrite. These compounds are denser than water and could be expected to sink to the bottom of the firepond under normal conditions. It is important to note that the explosive compounds would be significantly more soluble into organic liquids such as hydrocarbon oils and therefore may in fact be found on the surface of the water in solution with other organic liquids.

There is also the possibility that explosive devices may have been disposed of by tipping into the firepond.

9.2.1.2. Demolition Arisings

It is likely that the demolition arisings used to fill the firepond have come from the demolition of former ROF buildings. These materials may have been contaminated with explosives prior to being placed into the firepond. NG and Picrite are particularly prone to contaminating porous surfaces such as building fabrics, NG can even be absorbed through painted surfaces into the underlying brickwork.

Asbestos may also be present within the demolition material due to the extensive use

of asbestos across explosive sites. Asbestos lagging was commonly used for insulation upon both buildings and steam pipes used in the manufacturing process. Asbestos tiles may also have been used in building fabrics.

9.2.2. Potential Contamination Sources Off The Property

This study has identified the following potential source of explosive contamination located beyond the Property boundary:-

9.2.2.1. Cordite Manufacturing

The prospect of contamination of the wider Wrexham site as a result of Cordite manufacturing and associated processes is likely to be high. The firepond Property is surrounded by roads and drainage diversions which would reduce the potential for contamination due to Cordite manufacturing in this specific area. In addition the majority of the explosive process and storage areas are at a lower elevation than the firepond and therefore spillages or leakages in these areas are unlikely to effect the Property. There is a potential for surplus and waste materials from the Cordite process to be dumped into the firepond as a convenient form of disposal.

Buildings associated with the Cordite manufacturing process may have been contaminated with explosive compounds. It is possible that materials from these buildings may have been used to infill the firepond Property.

9.3. SUMMARY OF POTENTIAL HAZARDS

It is considered that there is the potential for a range of environmentally persistent defence related contaminants to be present within the firepond and the fill material. The following defence related contaminants may be present within the firepond:-

- Cordite
- Nitroglycerine
- Nitrocellulose
- Nitroguanidine (Picrite)
- Explosive devices

10. RISK ASSESSMENT FOR POTENTIAL CONTAMINATION

10.1. GENERAL

The presence of contaminated land only raises cause for concern if the potential contamination is capable of causing significant harm or represents an unacceptable risk to potential receptors, such as humans, the water environment, ecosystems or the built environment. In order to determine whether any identified contamination presents an unacceptable risk, an assessment is conducted based on the source-pathway-receptor model.

A contamination source is defined by identifying potential sources and their potential contaminants and determining whether a particular contaminant could pose an unacceptable risk in terms of the proposed end use of a particular site. Should the potential to cause harm be identified, then a hazard assessment is conducted to examine the presence or otherwise of a pathway between the contamination source and receptor. If present it is considered that a plausible pollutant linkage exists. Without a pollutant linkage there is no risk and no further assessment is needed.

By confirming the plausible pollutant linkages between the source, pathway and receptor an estimate of the risk that any contamination may present to any end receptors is made dependant upon the end use of a particular site. Should site conditions change in the future then the risk would need to be reassessed. The risk assessment for the Property is based on the land remaining in use as an open space area.

10.2. RISKS TO HUMAN HEALTH

10.2.1. General

NG and therefore Cordite which contains NG, may be toxicological at concentrations below those for which an explosive hazard is present. Toxic effects of NG can occur by ingestion, inhalation of dust or by absorption through the skin. The acute symptoms of NG poisoning are headaches, nausea, vomiting, abdominal cramps, convulsions, respiratory difficulties, circulation difficulties and reduced blood pressure. Even mild skin contact can cause headaches. Chronic effects can be carcinogenic.

Picrite is toxic to humans only when significantly elevated above the explosive risk concentration. Therefore the toxic hazards from picrite would not exceed the explosive hazard. NC is not considered to represent a significant toxicological risk to human health.

Cordite, NG, NC, Picrite and explosive devices represent a potential hazard to humans due to their explosive and highly flammable properties.

10.2.2. Property Users and Property Visitors

The Property is not currently in use and access is restricted therefore it is considered that there are no Property users who may be exposed to potential hazards.

Property visitors are considered to be at risk from soils and waters potentially contaminated by explosives. The clay capping layer should mitigate but not entirely eliminate the potential for exposure to the fill materials in the firepond. Property visitors should be made aware of the risk and take appropriate precautions such as the adoption of a no smoking policy. Under these conditions it is considered that the risk to site visitors is low.

10.2.3. Construction and Maintenance Workers

Any workers who enter the Property to conduct construction and maintenance activities may be exposed to potentially contaminated soils and waters during disturbance of the ground conditions. It is therefore considered that a pollutant linkage exists between maintenance and construction workers and potentially contaminated soils and waters.

The risk from this potential contamination source is considered to be moderate and requires the adoption of appropriate work procedures to manage the risk from explosive contaminants. Assuming that suitable procedures are implemented and personal protective equipment (PPE) is used then the risk could be reduced to low.

10.2.4. Property Neighbours

Neighbouring property users are unlikely to be affected by contaminants which may be on the Property due to the clay capping over the firepond and the saturated nature of the fill material which would prevent the exposure to dusts. It is considered that there is no risk from volatile explosive components. There is therefore currently no risk to Property neighbours.

If the clay capping is removed or degraded and the fill materials permitted to dry out the risk to neighbouring site users will increase due to the potential for the release of wind blown soil dusts potentially containing explosives. These conditions may occur during redevelopment of the Property and therefore would require appropriate work procedures.

10.2.5. Future Property Users

Future Property users are considered to be exposed to a low risk assuming that the land use remains the same. This risk is likely to vary greatly should the land use change or redevelopment work occurs in which the ground conditions are significantly disturbed. In such instances the risk should be reassessed with the benefit of full knowledge of the redevelopment work or land use change that is proposed.

10.3. RISKS TO THE WATER ENVIRONMENT

10.3.1. General

NG and the NG component of Cordite are relatively insoluble in water and are likely to have accumulated in sediments in preference to travelling through any drainage systems. NC is insoluble in water though it typically occurs in a fibrous nature which easily accumulates and forms blockages of drainage systems and accordingly is

relatively immobile within drainage systems. Picrite is almost insoluble in cold water and even in warm water its solubility limit is still significantly lower than the explosive concentration limit and is even further below the toxic limit. Water contamination is most likely to occur in the form of suspended sediments or gross contamination by non-dissolved explosive contaminants.

The presence of other compounds in the waters, especially other organics, would greatly effect and usually increase the solubility of explosive contaminants.

10.3.2. Groundwater

The Property is known to be underlain by deposits of Glacial Till comprising stiff clay below which are low permeability mudstones up to 60 m thick. The integrity of the firepond appears to be intact as evidenced by the large quantity of water that it still retains.

Based upon the current information it is considered that there is no direct pollutant linkage between the firepond and the groundwater beneath the Property due to the lack of a plausible pathway for the migration of contaminants.

10.3.3. Surface Water

Surface water run-off is assumed to be controlled by the man-made drainage infrastructure which comprises the two drainage diversions on the Property boundary and the overflow from the firepond into the eastern diversion. These drainage diversions in turn flow into the River Clywedog and then the River Dee which is used as a source of potable water.

It is therefore considered that there is a potential pollutant linkage to the surface water environment. It is considered that there is a low risk to the local surface water environment, comprising the drainage diversions and Redwither Brook, due to the potential for overflow of water from the firepond which may contain explosively contaminated sediments. It is not considered that this risk would be present further downstream as the dilution effect and the deposition of sediments is likely to greatly reduce the level of potential contamination.

10.4. RISKS TO ECOLOGY

10.4.1. General

Toxicity of the identified explosive contaminants to vegetation is low and toxicity to fauna is generally considered to be identical as the human toxic risks.

10.4.2. Flora

NG, NC, Picrite and Cordite are relatively non-toxic to vegetation and therefore it is considered that there is no risk to flora due to the lack of a potentially harmful source.

10.4.3. Fauna

The risks to fauna are considered to be the same as those for humans.

10.5. BUILDING MATERIALS AND SERVICES

10.5.1. General

None of the identified contaminants are known to have any deleterious chemical effects upon building materials such as concrete and brick, though they may be absorbed into porous surfaces and present a potential risk to the handling of such materials in the future.

Of the identified contaminants only NG, the NG component of Cordite and possibly Picrite are a potential chemical hazard to services as they have the ability to permeate through plastic pipes.

The explosive risk from the identified contaminants and explosive devices could potentially effect both building materials and services.

10.5.2. Building Materials

It is considered that there is no risk to building materials from chemical effects due to the lack of a potentially harmful source. However building materials may absorb explosive contamination and therefore become a source of potential harm to another receptor.

The explosive hazard is considered to represent a low risk to the structure of the firepond and nearby buildings. Should the ground conditions within the firepond be disturbed then appropriate work procedures should be in place to manage this risk.

10.5.3. Services

It is considered that there is currently no risk to services as there are no recorded services present upon the Property.

11. CONCLUSIONS AND RECOMMENDATIONS

This desk study has identified the potential for contamination to be present on the Property and has assessed the potential risks that may have a bearing on current and future use of the Property.

11.1. IMPLICATIONS TO CURRENT PROPERTY USE

The Property is currently unused but is potentially contaminated by explosives and explosive devices. Assuming that conditions do not change then current risks are considered to be low to moderate and a number of receptors are not considered to be at risk. A change in use of the Property may increase the risk and therefore a reassessment of the risks would be advisable.

Risks to humans are considered to increase if any ground excavation occurs and therefore it is essential that appropriate work procedures are in place to mitigate the risk. All works should be conducted with caution and direct contact with potentially contaminated material should be avoided.

Prior to any potential redevelopment it is considered prudent to conduct an intrusive site investigation to establish ground conditions and to quantify any potential explosive contamination issues. Future redevelopment may also require a geotechnical investigation to assess the nature of the underlying geology.

Future site investigation should be conducted in an appropriate manner, reflecting the potential for contaminated land to be present. Appropriate PPE should be utilised to mitigate the risk from all identified potential sources. Any samples taken during investigation work which are identified to contain hazardous materials will require special disposal in accordance with the EPA Duty of Care.

11.2. IMPLICATIONS TO FUTURE PROPERTY USE

The former use of the Property and wider Wrexham site as part of a Cordite factory requires special procedures to be conducted during any future site investigations or development work. It should be noted that following a ROF site closure, explosive contamination can be spread further around the site as a consequence of demolition and earthworks. Explosive devices, raw explosives and explosively contaminated materials are often discarded across the site, especially into features such as fireponds.

The potential risk of finding explosive materials or explosive devices on the Property during any redevelopment or investigation work is generally considered to be moderate and requires particular attention. Procedures should be documented in detail before any works are undertaken and a Method Statement and Risk Assessment prepared in advance of any works.

Any excavations conducted as part of a ground investigation should expose a suitable volume of soil. Boreholes of any type do not fit this requirement. Trial pitting with a large mechanical excavator would be the most suitable method of investigation for explosive contamination. It is considered prudent that any excavations within areas of potential explosives contamination are supervised by appropriately qualified

personnel and under strict working protocols as detailed within Method Statements.

11.2.1. Safety Awareness Briefing

All personnel involved in any redevelopment or investigation works should be informed of previous usage of the site and the associated explosive risks. It would be prudent to conduct a Safety Awareness Briefing of personnel to explain the potential risks, appropriate working procedures and the correct action to take in the event of an emergency or explosive incident.

11.2.2. Explosive Device and Recognition

Where a potential risk of explosives and explosive devices exists it is extremely important that any investigation works are supervised by persons trained and experienced in Explosives Safety Management and in the recognition of explosives and explosive devices.

If any such devices or materials are encountered, work should cease immediately and the appropriate action be taken.

11.2.3. Sample Handling and Transportation

It should be noted that HMI Explosives have stated that samples taken from a site with a known potential for explosive contamination should be considered potentially explosive until proven otherwise. Appropriate handling and transportation of such samples is therefore required and should be in compliance with the Road Traffic (Carriage of Explosives) Regulations 1989. These regulations are further supported by an Approved Code of Practice and Guidance.

11.2.4. Explosives Laboratory Analysis

All samples suspected of containing potential explosive contamination and if proposed for further analysis should first undergo some analysis for explosive content. The prime consideration for all of the testing of any samples from this site should be the potential presence of explosives or munitions.

Samples of material potentially containing explosives should not be released for further conventional contaminant testing without first being analysed by an explosives laboratory.

11.2.5. Sample Disposal

Samples containing explosives or other hazardous materials will require special disposal in accordance with the EPA Duty of Care.

11.2.6. Insurances

Dealing with explosives is a specialist service and it is not generally appreciated that most insurance policies specifically exclude work with explosives

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APPENDIX 1

PROPERTY LOCATION PLAN

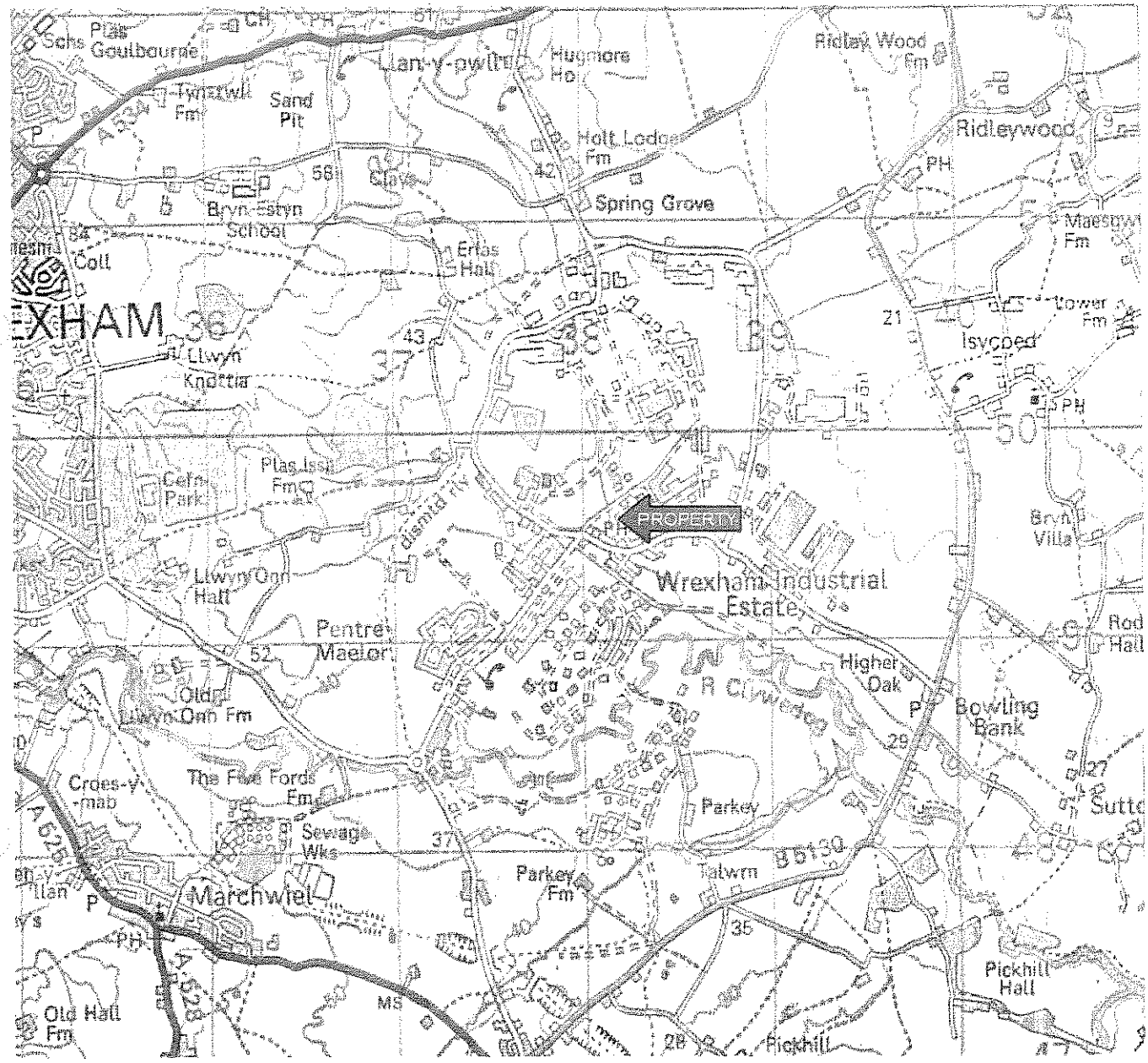


FIGURE TITLE :

PROPERTY LOCATION PLAN

BAE SYSTEMS

PROJECT :

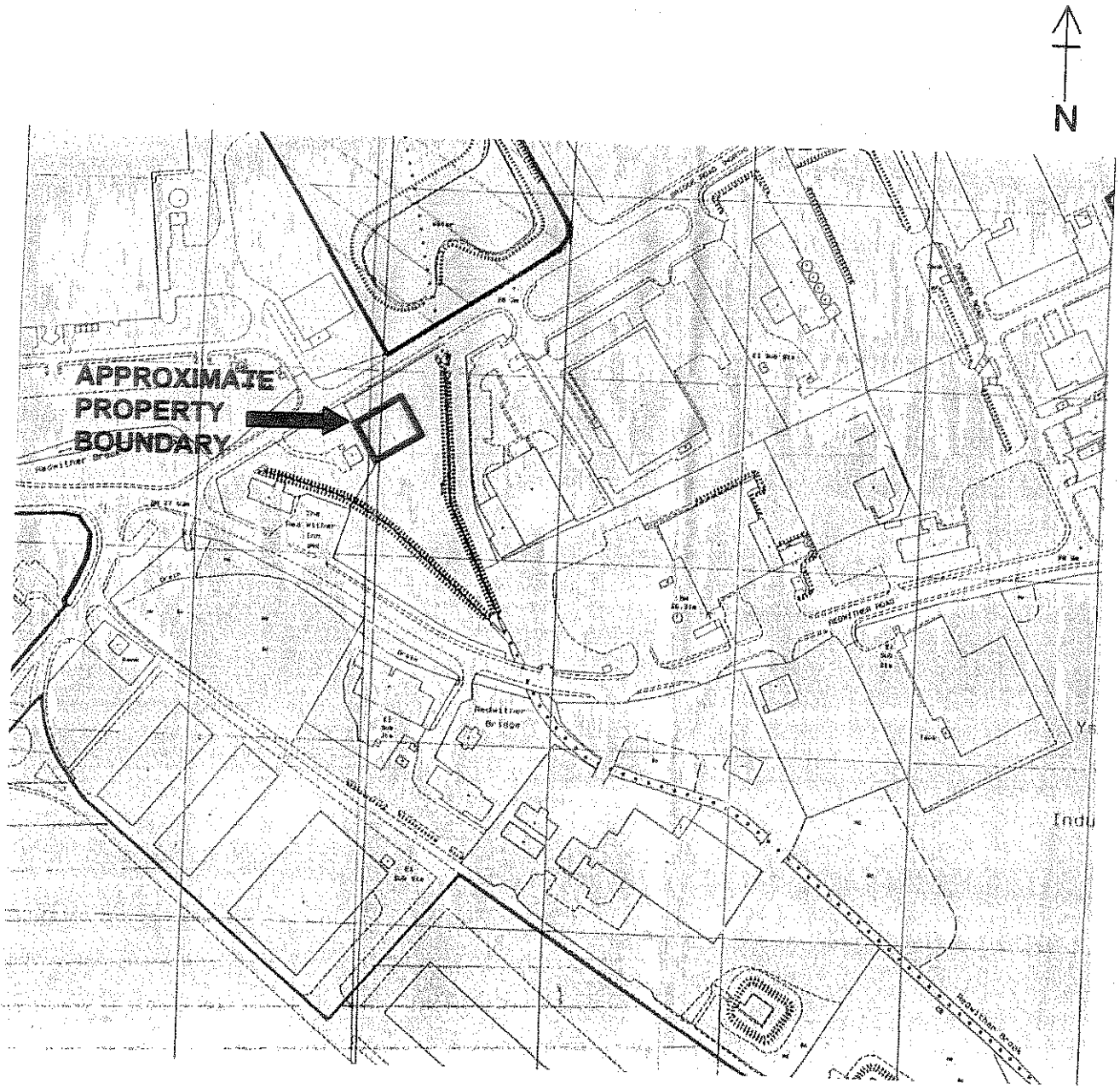
BRIDGE ROAD NORTH,
WREXHAM INDUSTRIAL ESTATE

REPORT NUMBER :

A120-00-R2

APPENDIX 2

PROPERTY PLAN



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FIGURE TITLE :

PROPERTY PLAN

PROJECT :

BRIDGE ROAD NORTH,
WREXHAM INDUSTRIAL ESTATE

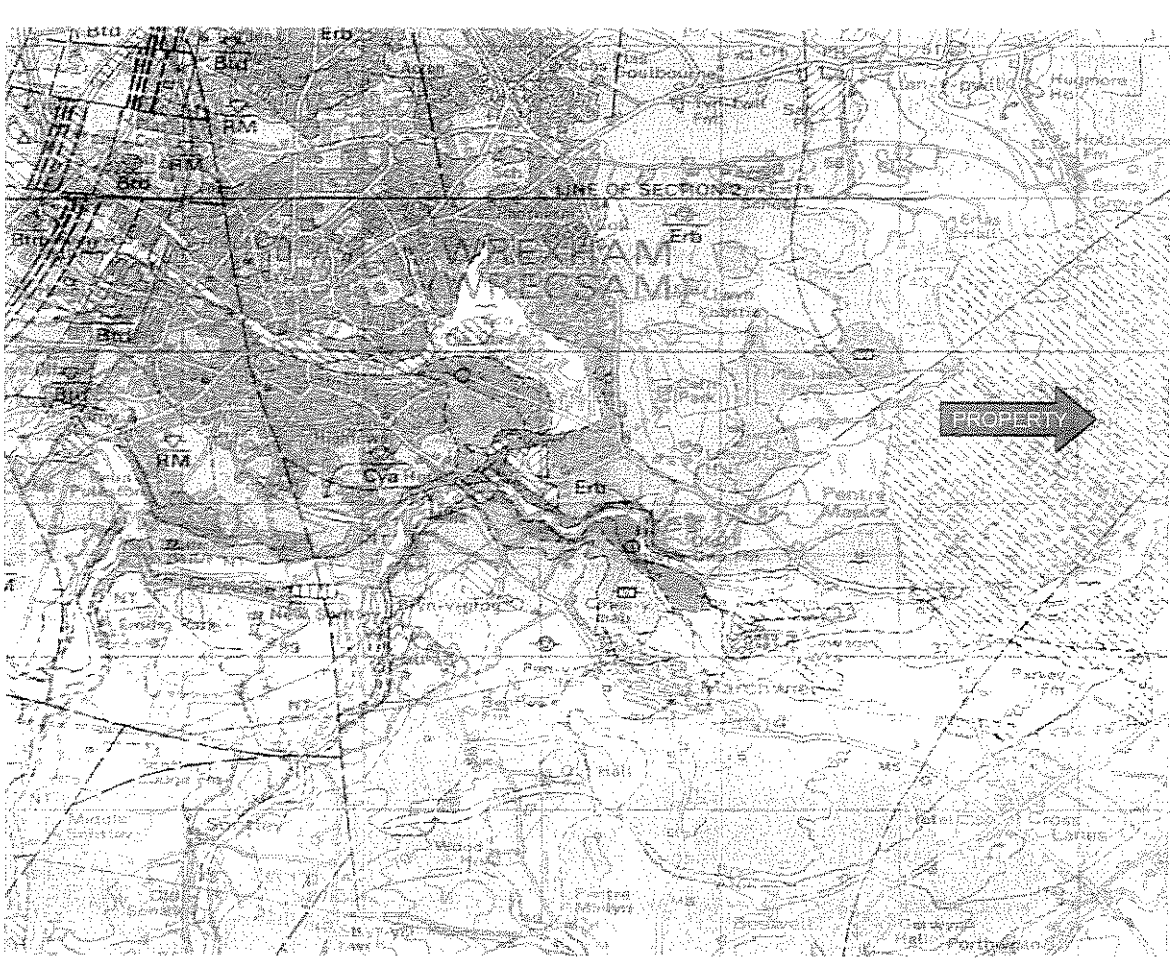
REPORT NUMBER :

A120-00-R1

BAE SYSTEMS

APPENDIX 3

EXTRACT OF GEOLOGICAL MAP



KEY TO GEOLOGICAL SYMBOLS AND COLOURS

DRIFT

- Peat
- Alluvium
- River terrace deposits, undifferentiated
- Glaciofluvial gravel
- Glaciolacustrine deposits
- Glacial sand and gravel
- Till
- Landscaped ground (Wrexham industrial estate)

SOLID

PERMO-TRIASSIC

- CPB — CHESTER PEBBLE BEDS FORMATION (100) (beneath drift)
- KnS — KINNERTON SANDSTONE FORMATION (400)

unconformity

- Erb — ≤500 not represented — ERBISTOCK FORMATION (7900)
- Cya — COED-YR-ALLT FORMATION (150) Mc
- RM — RUABON MARL FORMATION (240-330)
- CF

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FIGURE TITLE :

EXTRACT OF GEOLOGICAL MAP

PROJECT :

BRIDGE ROAD NORTH,
WREXHAM INDUSTRIAL ESTATE

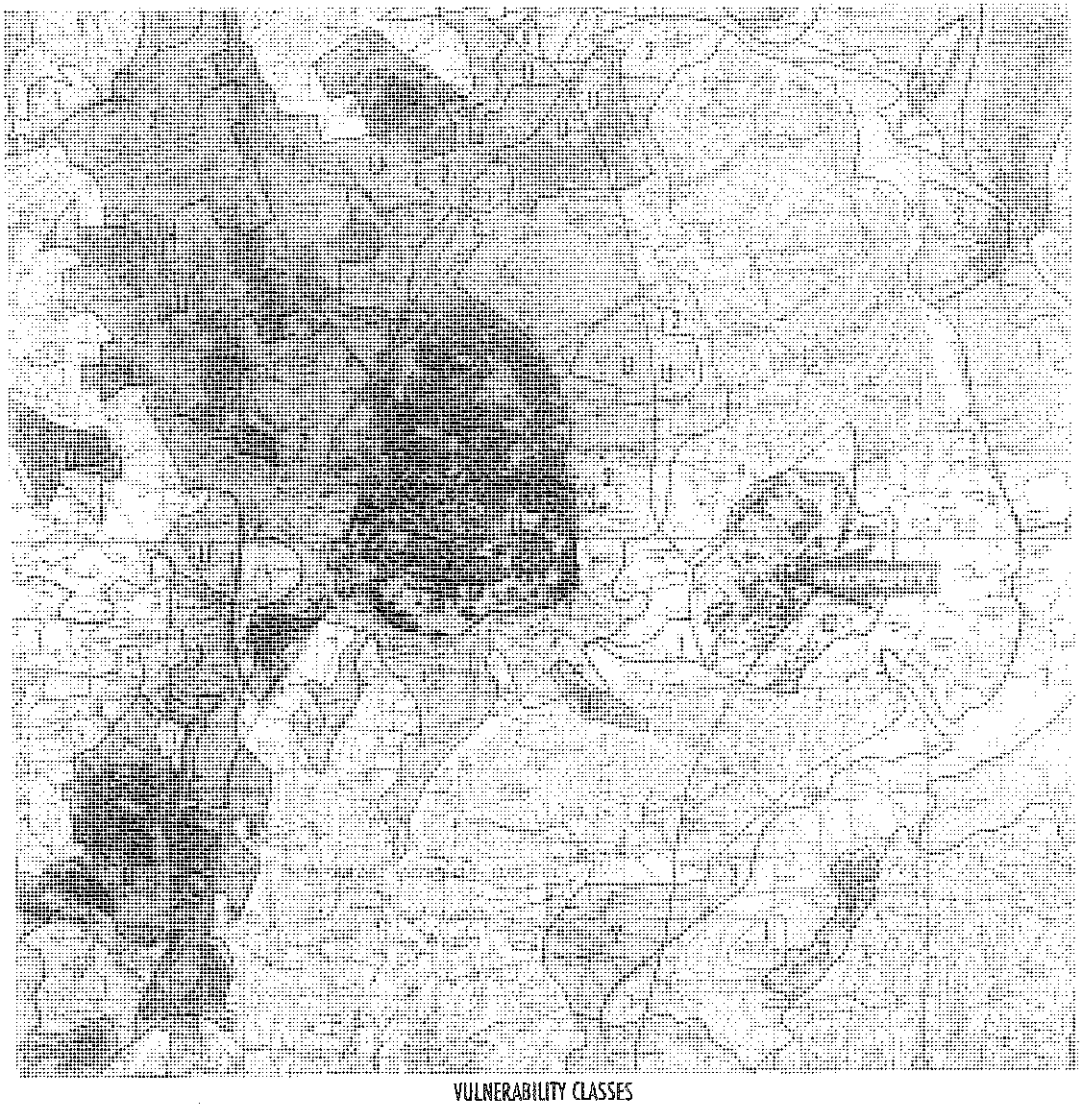
REPORT NUMBER :

A120-00-R1

BAE SYSTEMS

APPENDIX 4

EXTRACT OF GROUNDWATER VULNERABILITY MAP



VULNERABILITY CLASSES

Geological Classes	Soil Classes
Major Aquifer (Highly Permeable)	High (H) 1, 2, 3, U*
	Intermediate (I) 1, 2
	Low
Minor Aquifer (Variably Permeable)	High (H) 1, 2, 3, U*
	Intermediate (I) 1, 2
	Low
Non-Aquifer (Negligibly Permeable)	

Low permeability, non-water bearing drift deposits occurring at the surface and overlying major and minor aquifers are head, brickearth, peat, lacustrine and glaciolacustrine silts and clays and till.

FIGURE TITLE :

EXTRACT OF GROUNDWATER VULNERABILITY MAP

PROJECT :

BRIDGE ROAD NORTH, WREXHAM INDUSTRIAL ESTATE

REPORT NUMBER :

A120-00-R1

BAE SYSTEMS

APPENDIX 5

HISTORICAL PLAN

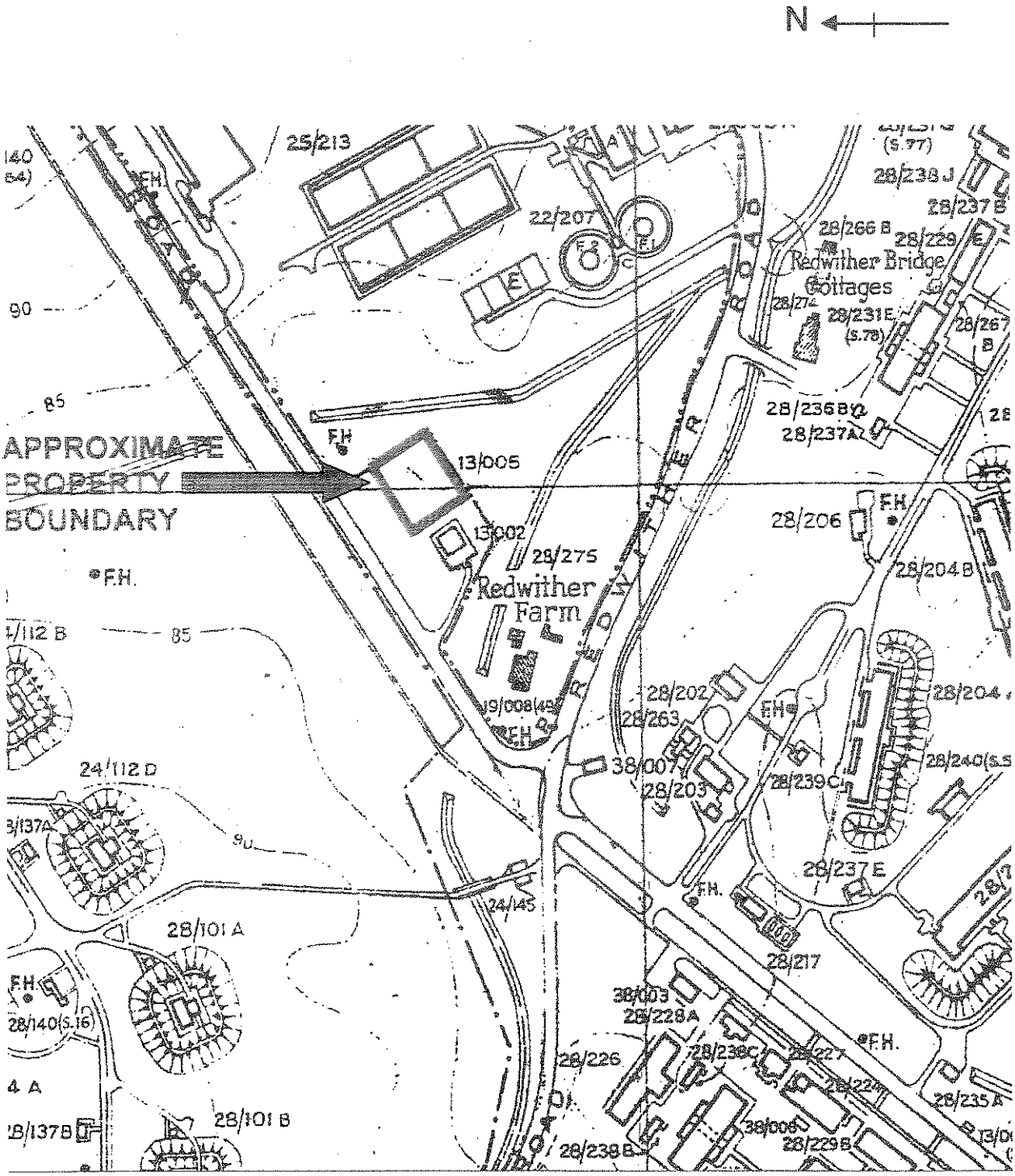


FIGURE TITLE :

HISTORICAL BUILDING PLAN

PROJECT :

BRIDGE ROAD NORTH, WREXHAM INDUSTRIAL ESTATE

REPORT NUMBER :

A120-00-R1

BAE SYSTEMS

APPENDIX 6

AERIAL PHOTOGRAPH

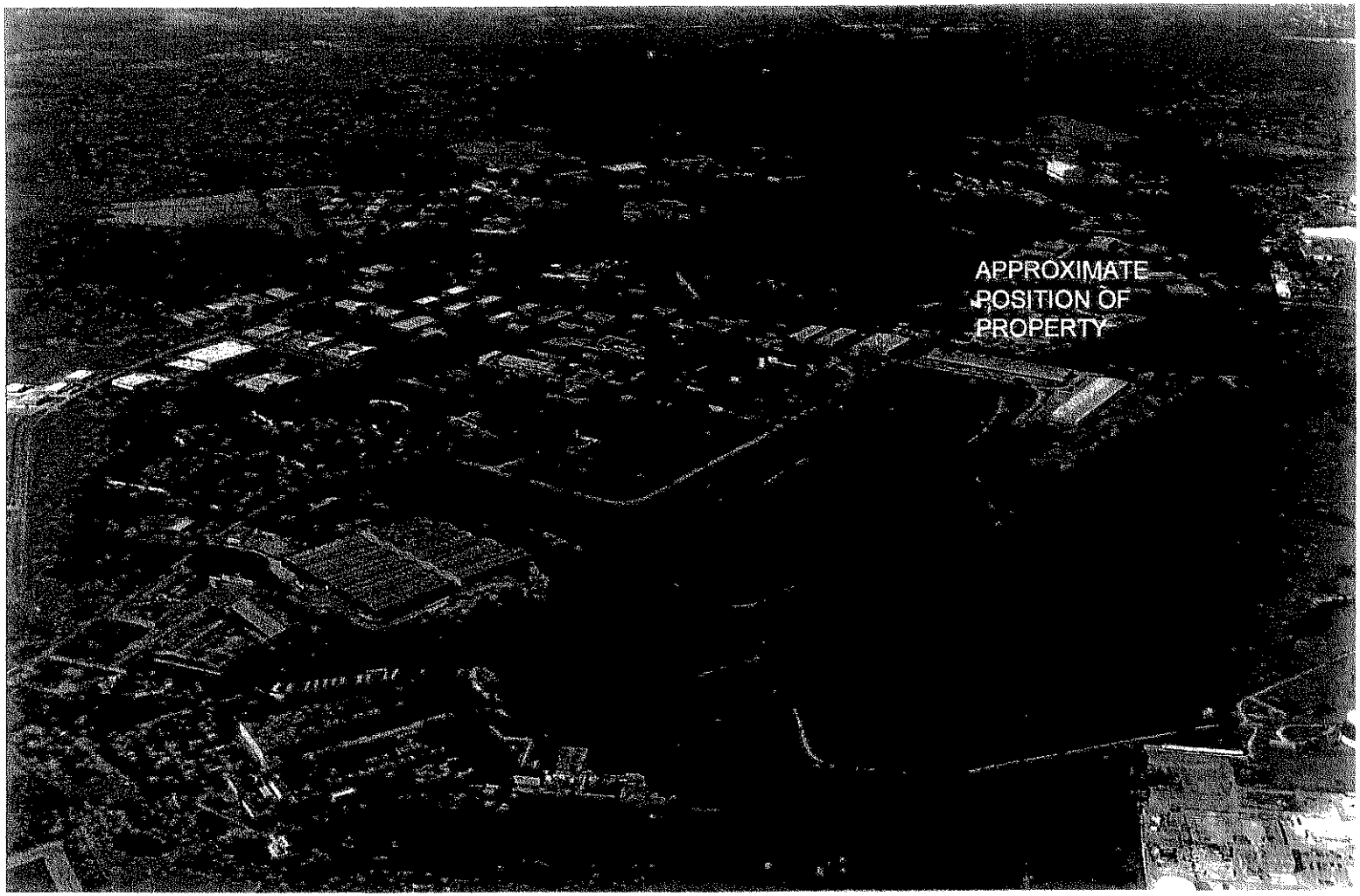


FIGURE TITLE :

AERIAL PHOTOGRAPH - UNDATED

PROJECT :

BRIDGE ROAD NORTH, WREXHAM INDUSTRIAL ESTATE

REPORT NUMBER :

A120-00-R1

BAE SYSTEMS

APPENDIX 7

BUILDING INVENTORY

Building Inventory ROF Wrexham	
Building No	**Building Use**
0/001	Staff Housing
0/002	Staff Housing
0/003	Staff Housing
0/004	Staff Housing
0/005	Staff Housing
0/006	Staff Housing
0/009	Staff Housing
0/010	Staff Housing
0/011	Staff Housing
0/012	Staff Housing
0/013	Staff Housing
0/014	Staff Housing
0/015	Staff Housing
0/017	Staff Housing
37/042	School
28/268	Housing
28/269	Housing
28/270	Housing
28/271	Housing
28/272	Housing
28/273	Out Buildings
28/274	Cottages
28/275	Red Wither Farm
24/148	Housing
25/148	Housing
28/213B	Blending House
22/102	Nitric Acid Plant
22/202	Nitric Acid Plant
9/001	Sub Station
38/002	Locomotive Shed + battery charging
38/001	Locomotive Shed + battery charging
22/101	Clean Plants
22/102	Clean Plants
22/103	Mist Precipitation plants
22/203	Drum Concentration plants
24/215	Preliminary Mixing Houses
24/216	Preliminary Mixing Houses
9/004	Sub Station
22/002H	4 M.S Tanks
22/202	No1 Acid Plant
22/102	No 2 Acid Plant

37/001	Loading Bay
28/207	Prepressing Machine
28/213	Blending House
25/243	Sector Command Posts
25/143	Sector Command Posts
37/010	Shifting House
37/014	Shifting House
28/119A	Cordite Extrusion
28/119B	Cordite Extrusion
18/040	Contractors Offices
19/006	Police Block
36/018	Electric Fitting Shop
37/001	Transport & Engineering Stores
37/012	B W D Stores
8/201	No 1 Boiler House
8/202	No 2 Power House
28/122	Stores
28/123	Blending Base
22/104	No 1 Acid Compressor House
22/110	De- Nitatron
22/111	De- Nitatron
24/103 A-C	Compressor House
25/101	Cotton Stores
8/101	No 1 Boiler House
8/102	No 1 Boiler House
36/105	Main Canteen
36/002	Machine Shop
36/004	Water, Steam, Gas & Seamstress room
36/010	B.W.D
36/016	Laundry
36/017	Sheet Metal
19/012	Police Sargents quarters
19/013	Housing
18/001 A - C & Z	Air Raid Shelter
22/140	Air Raid Shelter
25/140 A-B	Air Raid Shelter
24/140 A-F	Air Raid Shelter
27/140 A-B	Air Raid Shelter
28/140 A-T	Air Raid Shelter
32/140 A-B	Air Raid Shelter
22/240	Air Raid Shelter
25/240 A-B	Air Raid Shelter
27/240	Air Raid Shelter
28/240 D-F & T	Air Raid Shelter
35/040 A-B	Air Raid Shelter

APPENDIX E

Risk Assessment Methodology

Contaminated Land Risk Assessment Methodology

Conceptual Site Model

Within the contaminated land risk assessment framework, a conceptual Site model (CSM) is developed which identifies the following three components:

- ***Source of Contamination*:** contaminant: hazardous substance that has the potential to cause adverse impacts;
- ***Receptor***: target that may be affected by contamination: e.g. human health of existing or future site users whether they be residents, construction workers etc., occupants/users of site, water resources (rivers or groundwater), or structures;
- ***Migratory Pathway***: a viable route whereby a hazardous substance may come into contact with the receptor.

Contaminant Linkage

A contaminant linkage is identified when there is a potential contaminant source, receptor, and pathway linkage between the two. The absence of one or more of each component (contaminant, pathway, receptor) would prevent a contaminant linkage being established.

During the contaminated land assessment, the potential 'significance' of this contaminant linkage is established within a risk assessment framework.

The identification of potential contaminant linkages is based on a Conceptual Model of the site, which is subject to continual refinement as additional data becomes available. The Environment Agency's Land Contamination Risk Management (LCRM) guidance (published October 2020, updated July 2023) uses a three staged risk-based approach including: Stage 1 risk assessment, Stage 2: Options Appraisal and Stage 3: Remediation and Verification.

Risk Assessment Framework

A "risk" is defined as:

The probability, or frequency, or occurrence of a defined hazard; and

The severity or magnitude (including the seriousness) of the consequences.

The UK's approach to the assessment of environmental risk is set out in by Ciria C552 'Contaminated land risk assessment. A guide to good practice' (Rudland D.J, Lancefield R.M & Mayell P.N, 2001). This has been adapted and is presented within Tables 1 to 3, below.

Table 1: Severity/Consequence of Risk

Severity	Description
Large	Acute risks to human health. Catastrophic damage to buildings/property (e.g. by explosion). Direct pollution of sensitive water receptors (or serious pollution of other controlled waters (Designated Main Rivers or Principal /Secondary A groundwater aquifers bodies). Acute effects on sensitive ecosystems or species
Medium	Harm to human health from chronic (long-term) exposure. Pollution of sensitive watercourses (controlled watercourses other than Main Rivers) (Secondary B aquifers) or pollution of other water bodies. Chronic effects on sensitive ecosystems or species. Significant damage to buildings or infrastructure.
Small	No significant harm to human health in either short or long term. No pollution of sensitive controlled waters, no more than slight pollution of non-sensitive waters. Damage to non-sensitive ecosystems or species. Requirement for protective equipment during site works to mitigate health effects. Minor damage to buildings or infrastructure.
Negligible	No harm to human health, ecosystems, buildings and infrastructure or pollution of water.

The probability of the risk occurring is classified according to criteria given in Table 2 below:

Table 2: Probability of Risk Occurring

Probability	Description
High likelihood	Contaminant linkage may be present, and risk is almost certain to occur in the long term, or there is evidence of harm to the receptor.
Likely	Contaminant linkage may be present, and it is probable that the risk will occur over the long term.
Low Likelihood	Contaminant linkage may be present and there is a possibility of the risk occurring, although there is no certainty that it will do so.
Unlikely	Contaminant linkage may be present but the circumstances under which harm would occur are improbable.

An overall evaluation of the level of risk is gained from a comparison of the severity and probability, as shown in Table 3 below:

Table 3: Comparison of Severity and Probability

Probability	Severity			
	Large	**Medium**	**Small**	**Negligible**
High Likelihood	Very High Risk	High Risk	Medium/Low Risk	Low Risk
Likely	High Risk	Medium Risk	Low Risk	Negligible Risk
Low Likelihood	High/Medium Risk	Medium/Low Risk	Low Risk	Negligible Risk
Unlikely	Medium/Low Risk	Low Risk	Low Risk	Negligible Risk

The various risk rankings provide guidance for recommended actions, whether this is:

Table 4: Description of the Classified Risks and Likely Action Required

Evaluated Risk	Recommended Actions
Very High Risk	Severe harm to a receptor may already be occurring, or there is a high likelihood that severe harm could occur from an identified hazard. Urgent investigation and remedial works / mitigation in the short term is likely to be required.
High Risk	Harm is likely to arise to a receptor from an identified hazard. Urgent investigation is required, and remedial works may be necessary in the short term and are likely over the long term.
Medium Risk	It is possible that harm could arise to a receptor from a hazard. However, it is relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild. Limited investigation (if not already undertaken) is normally required to clarify the risk and to determine the potential liability. Some remedial works may be required in the longer term.
Low Risk	It is possible that harm could arise to a receptor from a hazard, but there is a low likelihood of this hazard occurring and if realised, harm would at worst normally be mild.
Negligible Risk	There is a negligible possibility that harm could arise to a receptor. In the event of such harm being realised, it is likely to be mild or negligible.

APPENDIX F

Historical Mapping Table

1. Historical mapping summary table: On site

Feature	Area	Date first appeared on historical mapping (mapping scale)	Date last appeared on historical mapping. (mapping scale)	Comments
Open field / vacant land	Whole site	1899 (1:2,500)	2003 (1:1,250)	According to Groundsure mapping the Site has been vacant through history since earliest mapping in 1899. Upon review of aerial imagery, the Site has been a grassed parcel of land since 2006.

2. Historical Mapping Summary Table: Off site

Feature	Area	Date first appeared on historical mapping *(mapping scale)*	Date last appeared on historical mapping. *(mapping scale)*	Comments
Surface water stream	North approx.20m	1899 *(1:2,500)*	2003 *(1:1,250)*	Minor surface water stream/river mapped, not visible during site walkover.
Erlas Lane	West approx. 25m	1899 *(1:2,500)*	Present 2025	Travels north to south to the west od the Site leading to Erlas Cottage to the north.
Ponds	Surroundings all directions	1899 *(1:2,500)*	2003 *(1:1,250)*	There are several ponds within the surroundings of the Site, in 1899 mapping there were eight ponds within 250m of the Site. By 1995-2003 following the development of Wrexham Industrial Estate there are just 3 all located approximately 150-200m from the Site.
Mineral Railway Sidings	East approx. 200m.	1961 *(1:2,500)*	1976 *(1:2,500)*	Railway sidings once located next to Ash Road to the west of the Wrexham Industrial Estate.
Works / industrial buildings	South / east approx. 10m	1982 (1:2,500)	Present 2025	Warehouse unit lies to the immediate south of the Site with a smaller unit to the immediate east. The surroundings to the further south and east have been developed with several factory / industrial units and associated roads present on 1982 mapping onwards.

R3458 Alpha Windows
Historical Mapping Table

Open fields	North / West approx. 10m	1899 *(1:2,500)*	Present 2025	The remaining surrounds to the north/west of the Site is largely open fields.

APPENDIX G

Consultants Coal Mining Report

The Coal Authority

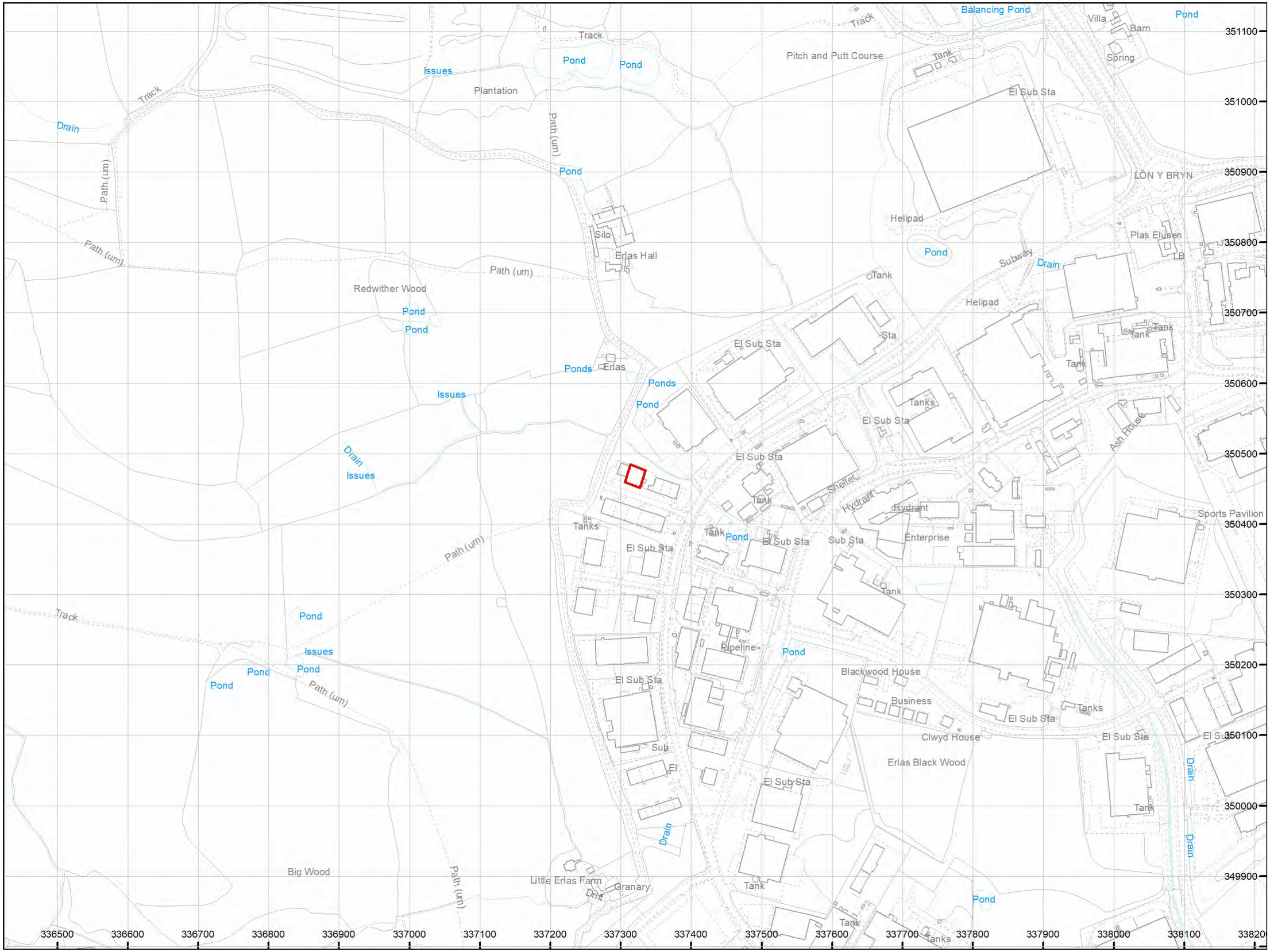
Summary of findings

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The map highlights any specific surface or subsurface features within or near to the boundary of the site.

Key

Approximate position of the enquiry boundary shown



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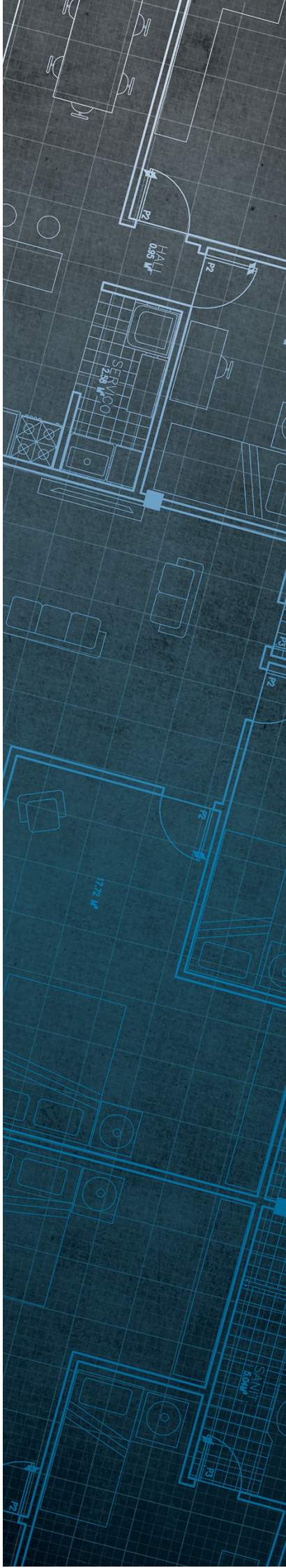
The Coal Authority

Consultants

Coal Mining Report

Alpha Windows, Abenbury Road,
Wrexham Industrial Estate
Wrexham

Date of enquiry:	**15 August 2025**
Date enquiry received:	**15 August 2025**
Issue date:	**15 August 2025**
Our reference:	**51003518663001**
Your reference:	**GS-ZBJ-MNT-XPJ-EG7**



Consultants

Coal Mining Report

This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

Client name

GROUNDSURE LIMITED

Enquiry address

Alpha Windows, Abenbury Road, Wrexham Industrial Estate
Wrexham



Approximate position of property

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Section 1 – Mining activity and geology

Past underground mining
No past mining recorded.

Probable unrecorded shallow workings
None.

Spine roadways at shallow depth
No spine roadway recorded at shallow depth.

Mine entries
None recorded within 100 metres of the enquiry boundary.

Abandoned mine plan catalogue numbers
None available.

Outcrops
No outcrops recorded.

Geological faults, fissures and breaklines
No faults, fissures or breaklines recorded.

Opencast mines
None recorded within 500 metres of the enquiry boundary.

Coal Authority managed tips
None recorded within 500 metres of the enquiry boundary.

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Section 2 – Investigative or remedial activity

Please refer to the 'Summary of findings' map (on separate sheet) for details of any activity within the area of the site boundary.

Site investigations
None recorded within 50 metres of the enquiry boundary.

Remediated sites
None recorded within 50 metres of the enquiry boundary.

Coal mining subsidence
The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres of the enquiry boundary, since 31 October 1994.

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.

Mine gas
None recorded within 500 metres of the enquiry boundary.

Mine water treatment schemes
None recorded within 500 metres of the enquiry boundary.

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Section 3 – Licensing and future mining activity

Future underground mining
None recorded.

Coal mining licensing
None recorded within 200 metres of the enquiry boundary.

Court orders
None recorded.

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

Withdrawal of support notices
The property is in an area where a notice to withdraw support was given in 1972.

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.

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.

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Section 4 – Further information

Based on the responses in this report, no further information has been highlighted.

Future development

If development proposals are being considered, technical advice relating to both the investigation of coal and former coal mines and their treatment should be obtained before beginning work on site. All proposals should apply specialist engineering practice required for former mining areas. No development should be undertaken that intersects, disturbs or interferes with any coal or coal mines without first obtaining the permission of the Coal Authority.

MINE GAS: Please note, if there are no recorded instances of mine gas within 500m of the enquiry boundary, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded. Developers should be aware that the investigation of coal seams, mine workings or mine entries may have the potential to generate and/or displace underground gases. Associated risks both to the development site and any neighbouring land or properties should be fully considered when undertaking any ground works. The need for effective measures to prevent gases migrating onto any land or into any properties, either during investigation or remediation work, or after development must also be assessed and properly addressed. In these instances, the Coal Authority recommends that a more detailed Gas Risk Assessment is undertaken by a competent assessor.

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Section 5 – Data definitions

The datasets used in this report have limitations and assumptions within their results. For more guidance on the data and the results specific to the enquiry boundary, please **call us on 0345 762 6848** or **email us at groundstability@coal.gov.uk.**

Past underground coal mining

Details of all recorded underground mining relative to the enquiry boundary. Only past underground workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination, will be included.

Probable unrecorded shallow workings

Areas where the Coal Authority believes there to be unrecorded coal workings that exist at or close to the surface (less than 30 metres deep).

Spine roadways at shallow depth

Connecting roadways either, working to working, or, surface to working, both in-seam and cross measures that exist at or close to the surface (less than 30 metres deep), either within or within 10 metres of the enquiry boundary.

Mine entries

Details of any shaft or adit either within, or within 100 metres of the enquiry boundary including approximate location, brief treatment details where known, the mineral worked from the mine entry and conveyance details where the mine entry has previously been sold by the Authority or its predecessors British Coal or the National Coal Board.

Abandoned mine plan catalogue numbers

Plan numbers extracted from the abandoned mines catalogue containing details of coal and other mineral abandonment plans deposited via the Mines Inspectorate in accordance with the Coal Mines Regulation Act and Metalliferous Mines Regulation Act 1872. A maximum of 9 plan extents that intersect with the enquiry boundary will be included. This does not infer that the workings and/or mine entries shown on the abandonment plan will be relevant to the site/property boundary.

Outcrops

Details of seam outcrops will be included where the enquiry boundary intersects with a conjectured or actual seam outcrop location (derived by either the British Geological Survey or the Coal Authority) or intersects with a defined 50 metres buffer on the coal (dip) side of the outcrop. An indication of whether the Coal Authority believes the seam to be of sufficient thickness and/or quality to have been worked will also be included.

Geological faults, fissures and breaklines

Geological disturbances or fractures in the bedrock. Surface fault lines (British Geological Survey derived data) and fissures and breaklines (Coal Authority derived data) intersecting with the enquiry boundary will be included. In some circumstances faults, fissures or breaklines have been known to contribute to surface subsidence damage as a consequence of underground coal mining.

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Opencast mines
Opencast coal sites from which coal has been removed in the past by opencast (surface) methods and where the enquiry boundary is within 500 metres of either the licence area, site boundary, excavation area (high wall) or coaling area.

Coal Authority managed tips
Locations of disused colliery tip sites owned and managed by the Coal Authority, located within 500 metres of the enquiry boundary.

Site investigations
Details of site investigations within 50 metres of the enquiry boundary where the Coal Authority has received information relating to coal mining risk investigation and/or remediation by third parties.

Remediated sites
Sites where the Coal Authority has undertaken remedial works either within or within 50 metres of the enquiry boundary following report of a hazard relating to coal mining under the Coal Authority's Emergency Surface Hazard Call Out procedures.

Coal mining subsidence
Details of alleged coal mining subsidence claims made since 31 October 1994 either within or within 50 metres of the enquiry boundary. Where the claim relates to the enquiry boundary confirmation of whether the claim was accepted, rejected or whether liability is still being determined will be given. Where the claim has been discharged, whether this was by repair, payment of compensation or a combination of both, the value of the claim, where known, will also be given.

Details of any current 'Stop Notice' deferring remedial works or repairs affecting the property/site, and if so the date of the notice.

Details of any request made to execute preventative works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991. If yes, whether any person withheld consent or failed to comply with any request to execute preventative works.

Mine gas
Reports of alleged mine gas emissions received by the Coal Authority, either within or within 500 metres of the enquiry boundary that subsequently required investigation and action by the Coal Authority to mitigate the effects of the mine gas emission. Please note, if there are no recorded instances of mine gas reported, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded.

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Mine water treatment schemes
Locations where the Coal Authority has constructed or operates assets that remove pollutants from mine water prior to the treated mine water being discharged into the receiving water body.

These schemes are part of the UK's strategy to meet the requirements of the Water Framework Directive. Schemes fall into 2 basic categories: Remedial – mitigating the impact of existing pollution or Preventative – preventing a future pollution incident.

Mine water treatment schemes generally consist of one or more primary settlement lagoons and one or more reed beds for secondary treatment. A small number are more specialised process treatment plants.

Future underground mining
Details of all planned underground mining relative to the enquiry boundary. Only those future workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination will be included.

Coal mining licensing
Details of all licenses issued by the Coal Authority either within or within 200 metres of the enquiry boundary in relation to the under taking of surface coal mining, underground coal mining or underground coal gasification.

Court orders
Orders in respect of the working of coal under the Mines (Working Facilities and Support) Acts of 1923 and 1966 or any statutory modification or amendment thereof.

Section 46 notices
Notice of proposals relating to underground coal mining operations that have been given under section 46 of the Coal Mining Subsidence Act 1991.

Withdrawal of support notices
Published notices of entitlement to withdraw support and the date of the notice. Details of any revocation notice withdrawing the entitlement to withdraw support given under Section 41 of the Coal Industry Act 1994.

Payment to owners of former copyhold land
Relevant notices which may affect the property and any subsequent notice of retained interests in coal and coal mines, acceptance or rejection notices and whether any compensation has been paid to a claimant.

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