



THE
ENVIRONMENT
PARTNERSHIP



LAND NORTH OF BRYN LANE WREXHAM, CLWYD HERITAGE IMPACT ASSESSMENT

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Executive Summary

1. TEP was commissioned by Net World Sports to undertake a Heritage Impact Assessment (HIA) to inform a hybrid planning application for a mixed-use development, which is predominantly employment use (B-use) on land known as the land north of Bryn Lane in Wrexham
2. Baseline conditions show that the 1km study area includes three designated historic assets, all Grade II Listed buildings. The application site is assessed as providing a minor positive contribution to the Grade II Listed New Holt Lodge Farm (**LB2**) which is located close to the north-west site boundary.
3. There are 102 non-designated historic assets within the study area of which seventeen are within the application site boundary; these include three areas of visible ridge and furrow (**NDHA12-14**), twelve surviving and infilled marl pits and ponds (**NDHA72-84**), a post-medieval homestead (**NDHA88**), and the recorded site of a Second World War aircraft crash (**NDHA94**). These historic assets are assessed as being of low heritage significance.
4. The application site includes twelve hedgerows which can be demonstrated from historic mapping to have been in place since at least 1843 and one serves as a township boundary within the parish. These hedgerows have been assessed as 'Important' under the criteria of the Hedgerow Regulations Act 1997.
5. A geophysical survey was undertaken of the application site which confirmed the presence of the superficial or sub-surface ridge and furrow remains of the medieval cultivation system, as well as confirming the locations of former post-medieval field boundaries and marl pits. No archaeological remains likely to pre-date the medieval period were identified.
6. It is assessed that the proposed development would result in minor adverse change to the setting of New Holt Lodge Farm (**LB2**). The proposed development would result in direct impact on known non-designated historic assets of ridge and furrow (**NDHA12-14**), marl pits (**NDHA72-84**), and the site of an aircraft crash (**NDHA94**), as well as a post-medieval homestead which would be demolished (**NDHA88**). These historic assets are of low heritage significance and the significance of effect would be low.
7. The non-designated historic assets of farmhouse and building at Spring Grove (**NDHA70-71**) are located close to the western application site boundary. The proposed development would have a negligible effect on these historic assets.
8. Mitigation and recommendations include sensitive massing and sufficient screening of buildings to reduce visual impact on the listed building (**LB2**) and Spring Grove (**NDHA70-71**). Hedgerows assessed as Important under the Hedgerow Regulations Act have been retained in the design where possible and mitigation is suggested where loss cannot be avoided. Mitigation in the form of preservation by record is recommended where the development will impact on medieval ridge and furrow. A programme of archaeological works in the form of trial trench survey is recommended to confirm the results of the geophysical survey and ensure that any archaeological remains affected by development are investigated and recorded.

1.0 Introduction

- 1.1 This report provides a description of the historic environment baseline conditions for land north of Bryn Lane, Wrexham. It has been commissioned by Net World Sports to inform a hybrid planning application for commercial development on land known as the land north of Bryn Lane in Wrexham, North Wales (hereafter referred to as 'the application site').
- 1.2 The HIA has been undertaken in accordance with the Chartered Institute for Archaeologists Standard and Guidance for historic environment desk-based assessment (CIfA 2020) and Cadw's Heritage Impact Assessment in Wales (Cadw 2017). A Written Scheme of Investigation for the proposed heritage impact assessment was submitted to and approved by the Development Control Archaeologist at Clwyd Powys Archaeological Trust prior to undertaking the work (TEP 2022a).

Site Location

- 1.3 The application site is located within the Borough of Wrexham, in north Wales and is on the boundary of the townships of Holt and Ridley. The application site is located immediately to the north of Bryn Lane and Wrexham Industrial Estate, centred on National Grid Reference (NGR) SJ 38557 51096. The application site is bound to the north by Francis Lane, to the east by existing field boundaries and a public right of way, to the south by Bryn Lane, and to the west by Hugmore Lane / Industrial Estate Road.
- 1.4 The application site is 37.21 ha in size and predominantly comprises arable land, separated into eight fields by intact and defunct hedgerows lined with intermittent trees. A cluster of buildings and associated hardstanding is located in the central southern part of the application site, adjacent to Bryn Lane. This includes a residential property and barn structures, which are currently in use. An access road linking these buildings with Bryn Lane is also present in the south of the application site. A residential property is located within the central northern part of the application site, located off Francis' Lane.
- 1.5 The application site also includes an area of publicly accessible highway around the Bryn Lane / Industrial Estate Road as well as small areas of the adjacent verge.
- 1.6 The local planning authority is Wrexham County Borough Council. The historic environment record relevant to this site is held by the Historic Environment Team at Clwyd Powys Archaeological Trust (CPAT).

Aims and Objectives

- 1.7 This heritage impact assessment is intended to review various sources of information to provide an understanding of the significance of historic assets that may be affected by future development and the potential impacts of development on the significance of these assets.
- 1.8 The general aim of this assessment is to provide:

- a description of the baseline historic environment conditions within the application site,
- a description of the archaeological potential of the application site, and
- an assessment of the significance of the known and potential historic assets, considering the contribution made by setting to that significance.

1.9 The specific aims of the assessment are to provide:

- A methodical walkover survey of the application site to record of features of historic or archaeological interest that may be impacted by development;
- An assessment of the significance of hedgerows within the application site;
- A review of aircraft crash sites to provide an understanding of the potential for buried remains.

1.10 This report includes conclusions and recommendations. The recommendations consider strategies to avoid, reduce or mitigate effects on historic assets that could arise from alteration or destruction of the historic assets, or development within their setting.

1.11 An EIA Scoping Report was submitted which included a review of the Historic Environment. The report highlighted the potential for indirect impacts of nearby designated historic assets, and the potential for direct impact on known and unknown non-designated historic assets within the application site. This was not considered to be a significant effect and it was proposed that the assessment of effects of built heritage and below-ground archaeology be scoped out of the Environmental Statement and included within a stand-alone heritage impact assessment.

2.0 Policy context and guidance

Statutory Legislation

2.1 The statutory legislation most relevant to this report comprises;

- **Historic Environment (Wales) Act 2016:** This Act provides amendments to the Ancient Monuments and Archaeological Areas Act 1979 and the Planning (Listed Buildings and Conservation Areas) Act 1990 for the protection and management of the Welsh historic environment. It also contains new stand-alone provisions relating to historic place names, historic environment records and the establishment of the Advisory Panel for the Historic Environment in Wales.
- **Ancient Monuments and Archaeological Areas Act, 1979:** It is a criminal offence to carry out any works on or adjacent to a Scheduled Monument without Scheduled Monument Consent. This Act makes no reference to the setting of Scheduled Monuments.
- **Planning (Listed Buildings and Conservation Areas) Act, 1990:** In considering whether to grant planning permission for development which affects a listed building or its setting, the decision maker shall have special regard to the desirability of preserving the building or its setting (section 66). Special attention shall be paid to the desirability of preserving or enhancing the character or appearance of a conservation area (section 72).
- **Hedgerow Regulations Act 1997:** A local authority can prohibit the removal of an 'important' hedgerow. Hedgerows can be considered important on grounds of historical or archaeological value or association.
- **Protection of Military Remains Act, 1986.** An Act to secure the protection from unauthorised interference of the remains of military aircraft and vessels that have crashed, sunk or been stranded and of associated human remains; and for connected purposes.

National Planning Policy

- 2.2 Planning Policy Wales (PPW) Edition 11 (2021) provides the national planning policy framework for the consideration of the historic environment and is supplemented by guidance in Technical Advice Note 24 and Cadw best practice guidance. The historic environment is discussed in Chapter 6: Distinctive and Natural Places, which recognises the importance of such areas and features to the Country.
- 2.3 Chapter 6 states that the "special and unique characteristics and intrinsic qualities of the natural and built environment must be protected in their own right".
- 2.4 Paragraph 6.1.9 states that "Any decisions made through the planning system must fully consider the impact on the historic environment and on the significance and heritage values of individual historic assets and their contribution to the character of place".

- 2.5 Paragraph 6.1.26 provides further details stating "Where archaeological remains are known to exist or there is a potential for them to survive, an application should be accompanied by sufficient information, through desk-based assessment and/or field evaluation, to allow a full understanding of the impact of the proposal on the significance of the remains. The needs of archaeology and development may be reconciled, and potential conflict very much reduced, through early discussion and assessment."
- 2.6 Paragraph 6.1.27 states " If the planning authority is minded to approve an application and where archaeological remains are affected by proposals that alter or destroy them, the planning authority must be satisfied that the developer has secured appropriate and satisfactory provision for their recording and investigation, followed by the analysis and publication of the results and the deposition of the resulting archive in an approved repository. On occasions, unforeseen archaeological remains may still be discovered during the course of a development. A written scheme of investigation should consider how to react to such circumstances or it can be covered through an appropriate condition for a watching brief..."
- 2.7 Technical Advice Note (TAN) 24: the historic environment (2017) provides guidance on how to consider the historic environment in development plans and planning decisions. It provides support for the policies in PPW.
- 2.8 Guidance on the Setting of Historic Assets (paragraphs 1.23 to 1.29) discusses what constitutes the setting, and what factors can be included to consider within an assessment.

Local Planning Policy

Wrexham Unitary Development Plan 1996-2011. Adopted Feb 2005

- 2.9 The Wrexham Unitary Development Plan 1996-2011 outlines the Council's broad intent for development in the area and provides a framework for the more specific policies and proposals.
- 2.10 The following policies relate to the historic environment and are relevant to this report:
- EC9 Listed Buildings
 - EC11 Archaeology

EC9 Listed Buildings

- 2.11 Alterations or additions to, and development or redevelopment within the curtilage of, buildings or structures listed as of special architectural or historic interest must respect the setting and character of the listed buildings or structures.

EC11 Archaeology

- 2.12 Development which would adversely affect the site or setting of a Scheduled Ancient Monument or archaeological site of national significance will not be permitted. Development that directly affects non-scheduled sites of archaeological importance will only be permitted if an archaeological investigation has been carried out to determine the nature, extent and significance of the remains, and this investigation indicates that in-situ preservation is not justified, and a programme of excavation and recording has been agreed. Development will also be carefully controlled to ensure that the setting of non-scheduled sites of archaeological importance is not harmed where appropriate.

Wrexham Local Development Plan 2 (LDP2) 2018-2028

- 2.13 Wrexham County Borough Council (WCBC) are preparing a Local Development Plan (LDP) which will replace the current adopted Unitary Development Plan. The LDP is a land use plan that sets out the planning requirements for achieving sustainable development in the Borough over the period 2013-2028. WCBC has decided not to adopt the plan at this stage, however it remains a material consideration with significant weight, as it has been found sound by a Planning Inspector.

- 2.14 The following policy relates to the historic environment and is relevant to this report:

Policy SP16: Historic and Cultural Environment

- 2.15 Development will only be supported where it conserves, protects, and enhances cultural and heritage assets of the Borough and, their settings including archaeological remains.

Guidance

- 2.16 Best practice guidance notes and standards relevant to the historic environment, and consulted in the production of this report comprise:

- Chartered Institute for Archaeologists, Code of Conduct (2022);
- Chartered Institute for Archaeologists, Standard and Guidance for Historic Environment Desk-based Assessment (2020);
- Cadw Planning Policy Wales Technical Advice Note 24: The Historic Environment (2017);
- Cadw Heritage Impact Assessment in Wales (2017);
- Cadw Conservation Principles for the sustainable management of the historic environment in Wales (2011); and
- Cadw Setting of Historic Assets in Wales (2017).

- 2.17 Conservation Principles (Cadw, 2011) sets out Cadw's approach for making decisions about all aspects of the historic environment, setting out six principles:

- Historic assets will be managed to sustain their values;
- Understanding the significance of historic assets is vital;
- The historic environment is a shared resource;
- Everyone will be able to participate in sustaining the historic environment;
- Decisions about change must be reasonable, transparent and consistent;

- Documenting and learning from decisions is essential.

2.18 The guidance also describes four groups of heritage 'values', which are referred to below:

- Evidential value: the potential of a place to yield evidence about past human activity.
- Historical value: the ways in which past people, events and aspects of life can be connected through a place to the present – it tends to be illustrative or associative.
- Aesthetic value: the ways in which people draw sensory and intellectual stimulation from a place.
- Communal value: the meanings of a place for the people who relate to it, or for whom it figures in their collective experience or memory.

2.19 Cadw's Setting of Historic Assets in Wales (2017) describes setting as "*The setting of a historic asset includes the surroundings in which it is understood, experienced and appreciated, embracing present and past relationships to the surrounding landscape. Its extent is not fixed and may change as the asset and its surroundings evolve. Elements of a setting may make a positive, negative or neutral contribution to the significance of an asset*".

2.20 It recommends a staged approach to assessing effects on setting comprising the following stages:

- Stage 1: Identify the historic assets that might be affected by a proposed change or development;
- Stage 2: Define and analyse the settings to understand how they contribute to the significance of the historic assets and, in particular, the ways in which the assets are understood, appreciated and experienced;
- Stage 3: Evaluate the potential impact of a proposed change or development on that significance;
- Stage 4: If necessary, consider options to mitigate or improve the potential impact of a proposed change or development on that significance, and;
- Stage 5: Document the assessment.

3.0 Method

Areas of Search

- 3.1 Data was gathered for all designated historic assets within 1km of the application site boundary. This allowed for the identification of the historic assets where the development could affect the contribution of the historic asset's setting to its significance. This study area is proportionate to the scale of the development and was informed by a preliminary appraisal of baseline data.
- 3.2 Data has also been gathered for all non-designated historic assets within the application site boundary and a 1km buffer from the application site boundary. The area of search has been designed to be fully inclusive of the application site boundary to ensure that assets adjacent to the application site but with the potential to extend into are captured in baseline data. The area of search also allows for assets with archaeological interest within or adjacent to the application site to be placed in context, and for the identification of trends that may help to predict archaeological potential within the application site.

Data Sources

- 3.3 The following sources were consulted:
- Cof Cymru - The National Historic Assets of Wales for current data on designated historic assets;
 - The HER maintained by Clwyd Powys Archaeological Trust (CPAT);
 - Archwilio, Welsh Historic Environment Records Online;
 - Coflein online catalogue of archaeology and heritage in Wales, Royal Commission on the Ancient and Historic Monuments of Wales;
 - Ordnance Survey historic mapping;
 - National Library of Wales, Welsh Tithe Maps;
 - Aerial photographs, satellite images, LiDAR; and
 - British Geological Survey mapping.
- 3.4 The Historic Environment Record was consulted on 17th January 2022; the Wrexham Archive was visited on 14th January 2022.

Site Visit

- 3.5 The application site was visited on 14th January 2022. A pro-forma record sheet was completed that recorded the following data:
- Date of survey
 - Surveyor(s)
 - Weather conditions
 - Site description
 - Known historic assets (noting presence or absence and condition)
 - Archaeological potential
 - Health and safety

3.6 A vantage point survey was also undertaken to determine those assets where the development could affect the contribution made by setting to the asset's heritage significance. The survey was undertaken in accordance with the guidance in Cadw's Setting of Historic Assets in Wales (2017). The survey considered:

- The nature of the physical surroundings in which the historic assets are experienced (including visual and functional relationships with other historic assets, formal design, openness, integrity and change over time);
- The way the assets are appreciated, experienced and understood (including views, visual prominence, associative attributes and intentional intervisibility with other assets); and
- The location, form and appearance of the development.

Assessing Heritage Significance

3.7 The significance of a historic asset is described in terms of the value of the historic asset because of its heritage interest (architectural, archaeological, artistic or historic) and is also described in relation to the asset's heritage values (evidential, historical, communal, and aesthetic).

3.8 For designated assets (Listed Buildings, Scheduled Monuments, Registered Parks and Gardens, Registered Battlefields, World Heritage Sites and Conservation Areas), the importance is 'high' or 'very high' as these assets meet the national criteria for designation under the relevant legislation. Listed Buildings and Registered Parks and Gardens are graded (I, II* and II) according to relative significance.

3.9 The relative significance of each non-designated historic asset within the historic environment baseline has also been determined to provide a framework for comparison. These categories do not reflect a definitive level of significance or value of a historic asset, but a provisional one based on the asset's heritage values to provide an analytical tool that can inform later stages of assessment and the development of appropriate mitigation, where needed. Some non-designated assets can be of equivalent importance to designated historic assets. In these cases, their relative importance means that they are treated as if they are designated assets.

Table 1 Criteria for determining heritage significance

Significance	Description
Very High	Internationally and nationally important resources: World Heritage Sites, Grade I and II* listed buildings and Registered Parks and Gardens. Some Scheduled Monuments, especially those associated with a World Heritage Site.
High	Nationally important resources: Grade II listed buildings, Conservation Areas, Scheduled Monuments, Grade II Registered Parks and Gardens, Registered Battlefield.
Moderate	Regionally important resources: Non-designated historic assets and landscape features with high or moderate evidential, historical, aesthetic and/or communal values

Significance	Description
Low	Locally important resources: Non-designated historic assets and landscape features with low evidential, historical, aesthetic and/or communal values.
Negligible	Assets with very low or no evidential, historical, aesthetic and/or communal values, or where remains are known to have been significantly altered or destroyed.
Unknown	Assets and structures of uncertain character, extent and/or date where the importance cannot be readily predicted.

Assessing the effects of the proposed development

- 3.10 The effects of the proposed development have been determined by comparing the significance of the known historic assets (or potential for historic assets with archaeological interest) against the magnitude of likely effect. The significance of a historic asset can be harmed or lost by alteration or destruction of the asset or development within its setting.
- 3.11 The Cadw guidance document Heritage Impact Assessment in Wales (2017) states that most proposals will have a range of impacts which may be:
- positive - such as the repair of damage, the removal of intrusive elements or bringing a building back into beneficial use so that it is no longer at risk;
 - neutral - such as where proposals are sympathetically designed, or change is accommodated in part of the building or site that is less sensitive;
 - negative - such as when important fabric or significant aspects of the original design are removed or altered. If the decision maker deems that the level of damage is unacceptable and there are few compensatory benefits, the application may be refused.
- 3.12 Assessing the effect of the development in relation to the historic environment baseline was considered in relation to the following criteria. This includes “Stage 3” of the assessment of effects on the setting of heritage assets to determine whether, and to what degree, the heritage significance of an asset may be harmed or lost where the development affects its setting. Setting is not a heritage designation - its importance lies in what it contributes to the significance of a heritage asset. Significance can therefore only be harmed or lost if the significance of the asset is in some way derived from that part of the setting affected by the development.

Magnitude of Change

- 3.13 Assessing the effect of the proposed development in relation to the historic environment baseline is considered by comparing the relative significance of the historic asset against the predicted magnitude of change. This includes the assessment of effects on the setting of historic assets to determine whether, and to what degree, the heritage significance of an asset may be harmed by development within its setting.

- 3.14 The descriptions of magnitude of change, provided in the following table, relate to harm to or loss of significance of the asset (and not, where development only affects its setting, the degree of change within that setting).

Table 2: Magnitude of Effect

Magnitude	Definition
High	Total loss or substantial harm to key elements or features or characteristics of the baseline (pre-development) conditions such that post development character or composition or attributes of baseline will be fundamentally lost or changed.
Moderate	Partial loss or harm to one or more important elements or features or characteristics of the baseline (pre-development) conditions such that post development character or composition, or attributes of baseline will be partially changed.
Low	Minor loss. Change arising from the loss or alteration will be discernible but underlying character or composition or attributes of the baseline condition will be similar to pre-development circumstances or patterns.
Negligible/ None	No loss or harm to heritage significance. Change barely distinguishable.

Significance of Effect

- 3.15 Determining the overall significance of effect is then a professional judgement that compares the magnitude of effect against the relative sensitivity of the historic assets affected.

Table 3: Significance of Effect

Magnitude	Importance of Receptor				
	Very High	High	Moderate	Low	Negligible
High	Major	Major or Moderate	Moderate	Low	Negligible
Moderate	Major or Moderate	Moderate	Low	Low or Negligible	Negligible or None
Low	Moderate or Low	Low	Low or Negligible	Negligible	None
Negligible/ None	Negligible or None	None	None	None	None

Limitations of this Assessment

- 3.16 Monument data from the HER consists of secondary information derived from varied sources. This data, as well as that derived from other secondary sources, is generally accurate. There are however several limitations to the data set, generic to any historic environment assessment. For example, where the known archaeological data relates to chance finds, or cropmark evidence, the full extent, date and nature of the asset is often uncertain. Also, a number of records, especially older records such as antiquarian finds, excavations or observations often fail to accurately locate assets.
- 3.17 The historic environment record includes several recorded Second World War aircraft crash sites of which one is recorded within the application site. Research undertaken as part of this survey highlighted the very limited available information for these historic assets.
- 3.18 Due to these limitations, it is possible that previously unrecorded historic assets with archaeological interest could survive within the proposed area of development. Additionally, due to the buried and invisible nature of archaeological assets, there is often an element of uncertainty regarding the survival, condition, nature, and extent of any such assets, which walkover survey, cannot always clarify.
- 3.19 The completion of a geophysical survey of the site has addressed some of these limitations including to provide a greater understanding of below ground conditions and to confirm a low potential for physical remains relating to the aircraft crash site to be present.

4.0 Baseline Conditions

Introduction

- 4.1 Figures provided in support of the description of baseline conditions comprise:
- G9134.02.001: Site Location
 - G9134.02.002: The location of known historic assets
 - G9134.02.003: Ordnance Survey map of 1873 1:2500
 - G9134.02.004: Ordnance Survey map of 1899 1:2500
 - G9134.02.005: Ordnance Survey map of 1964 1:2500
 - G9134.02.007: Important hedgerows
 - G9134.02.008: Lidar information
 - G9134.02.009: Impacts on Important Hedgerows
- 4.2 Time periods referenced in the text are as follows:
- Palaeolithic: 500,000 -10,000 BC
 - Mesolithic: 10,000 – 4,000 BC
 - Neolithic: 4,000 – 2,500 BC
 - Bronze Age: 2,500 - 800 BC
 - Iron Age: 800 BC – AD 43
 - Roman: 43 – 410
 - Early Medieval and Saxon: 410 - 1066
 - Medieval: 1066 – 1540
 - Post Medieval: 1540 - 1901
 - Modern: 1901 - present
- 4.3 Abbreviations used are as follows:
- LB – Listed Building
 - NDHA – Non-designated historic asset
- 4.4 Bracketed numbers (e.g., **NDHA1**) reference the unique identifying number allocated to historic assets in the Gazetteer (Appendix A) and on Figure 1.

Background and Context

Site Geology and Topography

- 4.5 The application site is located to the north of the Wrexham Industrial Estate in an area predominantly comprised of low-lying agricultural fields divided by regular hedgerows. The application site lies at an average topography of 35m Above Ordnance Datum (AOD) with a west to east decline of c40-32m and a gradual decline towards the north.
- 4.6 The solid geology is recorded by the British Geological Survey as Kinnerton Sandstone Formation and Salop Formation, the former Triassic fluvial and aeolian red-yellow coloured sandstone and the latter Permian fluvial red-brown mudstone. The application site and surrounding area are overlain by Devensian till (glacial deposits).

Archaeological and Historical Background

Palaeolithic and Mesolithic

- 4.7 These periods cover a broad time span from the appearance of Neanderthals and modern humans in Britain to the onset of the Holocene which began after the last glacial period. The early prehistoric period is characterised by climatic and environmental variation with glacial phases alternating with temperate periods and the development of woodland. Varying sea-levels meant that Britain was joined to the continent during the Palaeolithic and the north coast of Wales was dry land up to the location of the Isle of Man. Varying weather and environmental conditions affected the movement and availability of wildlife, and thus both factors are thought to have influenced the pattern of human settlement. Clwyd has few Palaeolithic sites; however, these include caves at Pontnewydd, Cefn, Cae Gwyn, and Ffynnon Beuno (CAS 1991). The sites represent very early human occupation and finds from the cave sites included stone tools and the bones of animals and humans.
- 4.8 During the Mesolithic period warming climate and resultant sea-level rise covered large areas of former coastal land and this period saw the expansion of forests and woods. Evidence for human activity during the Mesolithic largely comprises of stone tools associated with hunting such as scrapers, knives and microliths, as well as larger tools such as adzes and axes which are associated with tree felling and woodworking. Indirect evidence for human activity and impact on their environment includes environmental remains such as pollen, which is preserved in areas of peatland. Examples of important Mesolithic sites identified in Clwyd include those at Rhuddlan, Prestatyn, Tandderwen and Brenig and Llyn Aled Isaf.
- 4.9 No historic assets of these periods are recorded within the study area.

Neolithic

- 4.10 In Britain the Neolithic period is characterised by the development of animal husbandry and the further clearance of forests through felling and burning, and the development from hunter-gatherers towards of more sophisticated farming societies. A number of Neolithic settlement sites have been identified in Clwyd including at Rhuddlan and Delyn from which arrow heads, pottery, and manufacturing debris for axes have been recovered (CAS 1991). A possible Neolithic longhouse has been identified within the bounds of the Iron Age hillfort of Moel y Gaer, Rhosesmore. Associated finds from the hillfort included leaf-shaped arrowheads and pottery fragments. Other finds indicative of settlement patterns in the region have included distinctive artefact types such as polished stone axes, leaf-shaped and oblique arrow heads, and maceheads. Religious and funerary sites of the period include round cairns and chambered tombs of which two are located in Elwy Valley and at Tan y Coed in the Dee Valley.
- 4.11 Archaeological work at nearby Borrass Quarry (2km to north-west of the application site) during the 2000s has provided evidence for a Neolithic settlement including pits and post holes with evidence for cooking activities, as well as a single cremation pit. The associated interim report (Grant and Jones 2009) notes no structural evidence for buildings and that the majority of evidence for the Neolithic period in the region is derived from chance finds such as polished axes and scatters of worked flint.

4.12 No historic assets of this period are recorded within the study area.

Bronze Age

4.13 The transition from Neolithic to Bronze Age is characterised with an increase in woodland clearance and farming, and evidence for a shared culture in neighbouring regions including burial practices and trade networks. The Bronze Age is much better represented in the archaeological record in Wales than the preceding periods and key indicators include a greater use of upland areas and the appearance of circular monuments. The increased use of upland areas is attributed to improved temperatures and reduced fertility of valley soils due to previous agricultural use. Evidence for field systems is indicated by the survival of stone walls and cairns, as well as environmental evidence in the form of crop pollen. Stone foundations for circular huts have also been recognised, though it is possible that some Bronze Age sites may belong to the Iron Age. The clearance of stones from fields to improve agricultural use and allow ploughing has resulted in groups of stones referred to as cairnfields. Other settlement indicators include flint tools and pottery sherds including distinctive beakers.

4.14 Burial and religious monuments in the form of circular earth barrows survive in relatively large numbers in the Clwyd region and excavated examples have included human burials with grave goods. Unlike the collective burial traditions of the Neolithic period, round barrows represent a much more individualistic and monumental practice which reflects on the social structure and organisation of the period. A number of these barrows have been recorded in the area of Wrexham:

- Sutton Green Round barrow, (Cadw ref DE291). The round barrow is provisionally dated to the Bronze Age and is located at the confluence of the River Clwydog and River Dee.
- Hillbury Round Barrow (Cadw ref DE164) is located within the bounds of the modern extent of Wrexham and comprises the remains of a Bronze Age round barrow which was excavated in 1862 and was found to contain human burials.
- Fairy Oak Round Barrow (Cadw ref DE163) is also located within the modern bounds of Wrexham and comprises the remains of a Bronze Age round barrow.
- The Bryn Alyn Round Barrow (Cadw ref DE059) comprises the remains of a Bronze Age round barrow and is located approximately 5km to the north-west of the application site and a short distance to the north of the Iron Age Bryn Alyn hillfort.
- The extraction of metal ores and the production of metalwork was a significant industry during the Bronze Age period and finds such as weaponry and horse gear have provided evidence of trade routes throughout Britain as well as links to Ireland and northern France.

4.15 At Borrás Quarry the archaeological excavation at the Neolithic site revealed a later phase of activity dating to the Bronze Age period (Grant and Jones 2009).

4.16 No historic assets of this period are recorded within the study area.

Iron Age

- 4.17 The nucleation of settlements continued into the Iron Age. This period is characterised by prominent use of hillforts and fortified settlements with 30 hillforts being identified in the Clwyd region. A number of hillforts have been excavated thus allowing a much greater body of evidence for human activity and social structure during this period. Little evidence for Iron Age settlement outside of hillforts has been uncovered in Clwyd, however in other areas of Wales evidence has been found for undefended settlements with associated field systems, enclosed farmsteads, isolated round huts, concentric enclosures, and palisades and earthworks.
- 4.18 The closest known asset is Bryn Alyn Camp (Cadw ref DE057), an Iron Age hillfort located approximately 5km to the north-east of the application site. The hillfort site comprises a defended enclosure occupying a natural promontory with the River Alyn flowing to its immediate west at the base of the hill. It is defined by three banks and an outer ditch with double ramparts facing east.
- 4.19 No cemeteries of this period have been identified in Clwyd and this absence of human burials may imply a change in practice to the Bronze Age such as above-ground disposal or pyres.
- 4.20 Stone spindle whorls use for spinning have been found in the Clwyd region. Occasional exceptional finds have been uncovered such as a hoard of metal work found at Moel Hiraddug in 1872 which included an iron sword blade, sheath and shield.
- 4.21 No historic assets of this period are recorded in the study area.

Roman

- 4.22 The initial Roman invasion of Britain in 43AD was largely focussed on the southern areas of Britain and did not directly impact the western areas of the island including Wales and Anglesey. At the time of the Roman invasion the population of Britain was organised into individual tribes and the area of southern Clwyd was controlled by the Iron Age tribe of the Deceangli whose territory extended east to the River Dee.
- 4.23 In 47AD a campaign under Ostorius Scapula was begun against the Deceangli with further campaigns taking the Romans further west to Anglesey. This incursion was temporarily halted with the withdrawal of the army due to a Brigantian revolt. The conquest of Wales resumed in 69AD following the ascent of Vespasian and Roman control was established across the whole of Wales under the governorship of Julius Agricola. A rebellion by the Ordovices who occupied land including southern Clwyd was suppressed in 78AD (CAS 1991). From 80AD the role of the army changed from conquest to occupation, reinforced by a series of forts. While several forts are known in Wales, no Roman forts are known in Clwyd.

- 4.24 A Roman settlement (also referred to as the Legionary works depot) at Holt to the east is protected as a Scheduled Monument (Cadw ref DE013). It is described as an extensive industrial settlement on the slopes above the river Dee floodplain and to the north of the present town. Excavations of the site were carried out between 1907 to 1915 and revealed a series of buildings including tile and pottery kilns, a kiln and workshop, an enclosed linear 'barracks' and a house and bathhouse. The site is interpreted as serving as an industrial works serving the legionary fortress at Chester, accommodating a supervising centurion and soldiers. Pottery and coin evidence suggest a working period between 85AD and 135AD. There is also evidence for activity in the later 4th century but no evidence for manufacturing following the mid-2nd century.
- 4.25 Three Roman roads are known in Clwyd including one linking the Holt settlement with Watling Street. A Roman milestone was found at Gaenysgor in 1956. The legionary fortress of Deva Vitrix (Chester) was located 11km to the north of Holt.
- 4.26 Evidence for lead extraction and working during the Roman period has been demonstrated across North Wales and a number of mines have been identified in the area of Halkyn Mountain in north Clwyd. A bronze-smithing site has been excavated at Prestatyn and revealed three workshops which providing a range of finds including trumpet brooches, horse fittings, patterns and moulds and enamelled brooches.
- 4.27 Three possible cremation cemeteries provisionally dated to the Roman period are known, of which two were excavated during the 19th century at Ffirth (5km to north-west of Wrexham) and Bodfari (30km to north-west of Wrexham). These produced urns containing bones, and finds including coins, brooches and a lamp. Two beaker vessels with cremation remains were found near Ruthin in 1981 (20km to north-east of Wrexham).
- 4.28 No historic assets of the Roman period are recorded within the study area.

Early Medieval

- 4.29 The early medieval history of Wales and north-west Britain is poorly understood with relatively few finds or sites of this period being recorded in the Historic Environment Record of east and north-east Wales (RFAW 2016). The geographic position of the Clwyd area on the transition between the English lowlands and Welsh uplands; this border position would have influenced the historical uses and social development of the area particularly during the transition between Roman imperial governance to British regional kingdoms. To the west of the border developed the Kingdom of Gwynedd and parts of the Clwyd area were part of the Kingdom of Powys. To the east of the border rose the Kingdom of Mercia in the 7th century. The presence of Offa's Dyke and Wat's Dyke demonstrate the instability and tension of this border region.

- 4.30 A section of the defensive bank and ditch of Wat's Dyke (Cadw ref DE151), survives to the south of Bryn Alyn Camp, to the west of Wrexham. This forms part of a 64km length linear earthwork which runs roughly parallel to Offa's Dyke and is provisionally dated to the 8th century. Its origins are at present uncertain; recent scientific dating of soil samples provided a range of 792-852AD and it is suggested that construction could be attributed to the Mercian King Coenwulf and his successor Ceolwulf who campaigned against a Welsh threat under Cygen in Powys and Rhodri Mawr in Gwynnedd (British Archaeology 2007).
- 4.31 The application site and study area, being located on the eastern side of this line, would have historically been part of the Kingdom of Mercia. From the 9th century onwards English domination of a large part of north-east Wales is likely, with Clwyd likely to be subject to hostilities including by Vikings from the 10th century. Flintshire and much of Denbighshire were included with entries for Cheshire in the Domesday book. The modern borough of Holt includes parts of a number of Domesday manors including the southern portion of *Alentune* (Allington), *Gretford* (Gresford) and *Radenoure* (Radnor).
- 4.32 No historic assets of this period are recorded in the study area.
- Medieval*
- 4.33 Contemporary descriptions reveal two principal settlement forms in the Clwyd area with the Welsh generally inhabiting isolated and scattered dwellings and the English occupying towns, villages and castles (CAS 1991). This is also reflected in Welsh medieval lawbooks. The Villis of eastern Clwyd were recorded in the Domesday book but had been delimited prior to 1086. The majority had English names. English control was established to Rhuddlan where the Mercian burh of Cledemutha was established in 921. A Welsh resurgence led by Gruffudd ap Llywelen regained control of this area and established his court there. Gruffud expanded his territorial control eastwards to the River Dee but was expelled in 1063.
- 4.34 The early origins of Wrexham are uncertain; it is suggested from place name evidence that it was a Saxon foundation and that a Welsh lord had his court there in the 12th century, with the church originating as a private chapel on the lord's estate (CPAT 2016a). Written place name evidence for Wrexham as *Wristlesha* appears in 1161 and other variations appear into the 14th century. The prefix *Wryhtel* is interpreted as a personal name, while the suffix *hamm* is interpreted as either water or river meadows, referencing the low-lying riverside topography, or as enclosed land. A Norman church is believed to have been built in 1161, corresponding with an earthwork motte a short distance to the south of Wrexham, however the town is believed to have been founded shortly before 1220 at which time St Giles' church is known to have been constructed.
- 4.35 Place name evidence for Holt translates the name as meaning 'Wood' in Old English. *"The borough is mentioned in 1285 and the castle itself (built by John de Warenne) in 1311. The holt, beside the River Dee, was probably the area which provided timber or hunting... A further name, Lyons, seems to have been used regularly, emerging in the Middle Ages"* (Owen 2007).

- 4.36 Holt is described as a planned town due to the regular layout of the street plan and is likely contemporary with the castle of John de Warenn, Earl of Surrey, which was built in the late 13th century after he was granted the lordship of Bromfield and Yale in 1285 (CPAT 2016b). Holt was part of the parish of Gresford and its church was a chapel to the mother church at Gresford. A survey of Holt undertaken in 1315 revealed it consist of 152 burgesses and approximately 200 burgages, making it one of the largest communities in Wales with a predominantly English population.
- 4.37 A charter was granted to Holt in 1285 following the defeat of the Welsh Princes, at which time began the construction of Holt Castle. A further charter was granted in 1411 and reaffirmed in 1563 by Elizabeth I. The town included a weekly market and annual fair, with its economy relying principally on trade and farming, as well as mining. The town declined in the later medieval period at which time Wrexham became the more important regional settlement.
- 4.38 The name of Ridleywood, the minor township to the south / east of the application site, is considered to mean 'wood at the cleared glade'; *"The wooded areas south of the stronghold of Holt were extensively cleared for pasture, especially along the water-meadows close to the River Dee"* (Owen 2007).
- 4.39 A possible medieval moated site (PRN 106433) was discovered during field walking to the east of Ridleywood in 1986, approximately 1.5km to the east of the eastern site boundary. This comprised a raised platform c48m in length and surrounded by ridge and furrow with a possible pond.
- 4.40 The nearby settlement of Isycoed is located 3km to the south of Holt. Its name is interpreted as meaning 'below the wood' or 'lower wood'. The manor was not mentioned in the Domesday Book and the earliest documented reference to a settlement by this name appears in the 14th century referring to an area rather than specific place. The settlement was historically part of Holt parish but became a separate parish is 1827.
- 4.41 Within the study area a prevalence of ridge and furrow earthworks attests to the largely agricultural character of the area with small settlements and isolated farmsteads surrounded by large areas of open fields. Three areas of ridge and furrow (**NDHA12-14**) survive within the application site and demonstrate that the present field boundaries reflect the contemporary medieval landscape.

Post Medieval

- 4.42 The 1895 Topographical Dictionary of Wales described Holt as *"comprising the borough of Holt and the parochial chapelry of Is-y-Coed, in which latter are the townships of Cacca-Dutton, Dutton-y-Bran, Dutton Difirth, Ridley, and Sutton, each of which is separately assessed for the maintenance of its poor and containing 1634 inhabitants of whom 1058 are in the borough of Holt"* (Lewis 1894). It further notes that the parish is the only portion of the grant made to the see of Chester by Edward the Confessor of all the lands on the western side of the River Dee which remains to that see.

- 4.43 During the Civil War the castle at Holt was a focal point of conflict, changing hands on several occasions, being besieged and taken for the Parliament in 1643 and retaken by Royalists in 1646.
- 4.44 Holt was described in 1895 formerly of some note but by that date was an 'inconsiderable village' situated on the road from Wrexham to Nantwich in the only navigable part of the course of the Dee. It was further noted that the parish comprises 2,726 acres with clayey soil appropriated mainly for the growing of wheat. A scarcity of timber in the area is also noted in the post medieval period (Lewis 1849). Ridley is described as a township in the parochial chapelry of Is-y-Coed, containing 35 inhabitants.
- 4.45 The historic environment baseline data and the earliest available historic map of the study area, the Tithe Maps of 1843, confirm an agricultural landscape with extensive ridge and furrow cultivation and numerous scattered farmsteads frequently located adjacent to the roads. A further characteristic feature of the post medieval landscape of the study area are marl pits and ponds, frequently occurring as single or pairs of oval or rectangular excavated depressions often at the centre of each field. Marl pits are associated with the agricultural practice of 'marling' in which a mixture of clay and limestone was spread on soil as a form of fertiliser. It is noted that the effects of marling lasted approximately 30 years and was required to be carried out once a generation (Jeffrey E, 2008). The position of the pits in the centre of the fields reduced the effort required for spreading the marl. The pits being left open would generally fill with water and form ponds. It is suggested that although marling was practiced in Britain since ancient times, there was a considerable increase from the 17th century due to population growth and pressure for increased agricultural output. Twelve marl pits / ponds are recorded within the application site of which five remain as open features with the remainder having been infilled (**NDHA 72-84**).

Modern

- 4.46 The modern Wrexham Industrial Estate occupies the site of the former Marchwieli Royal Ordnance Factory (PRN72200, **NDHA100**) for which construction began in 1939. The site is recorded as having covered an area of 1,400 acres and employed 13,000 workers. It was served by an internal railway system which branched from the former Cambrian railways line between Ellesmere and Wrexham. The site was used to manufacture cordite, an explosive propellant for shells. A 1940s aerial photograph of the site demonstrates that the buildings and facilities were spread out across a large area as a safety measure and were designed to be resistant to bombs and explosives with thick walls, minimal openings and surrounded by earth banks to deflect blasts and direct any explosions away from surrounding buildings (Wrexham History 2022). It is noted that any farm buildings encompassed within the site were retained and the main buildings were camouflaged. The site was defended against air and ground attack with multiple pillboxes on the ground and the proximity of the nearby RAF Wrexham which housed a fighter squadron. Several of the former buildings, now derelict, are recorded as being still extant within the industrial site.

- 4.47 The Second World War airfield, RAF Wrexham (PRN 44422) (referred to locally as Borrass Airfield and deriving its name from an old township) was built by the Air Ministry as a response to problems with waterlogged ground at RAF Sealand and RAF Hawarden. The site had been used as landing fields for training squadrons since 1917 and was also in use by the Lancashire and the Liverpool and District Aero Clubs, as well as air displays (Spencer, Hankinson, 2012).
- 4.48 Construction began in December 1940 and was carried out by the local firm of Sir Alfred McAlpine Ltd. The site was opened in June 1941 and included three concrete runways and was intended to house a fighter squadron since Wrexham was on a direct route of enemy attacks on the industrial areas of north-west England. The station initially housed No.9 Group comprising Blenheims and Lysanders, and No.96 Squadron Defiant Is and Hurricane IIs. By May 1952 the station included Beaufighter IIs. In 1942 No.285 Squadron was stationed at the airfield and included 7 Lockheed Hudson's, 4 Blenheims, 6 Lysanders and 4 Defiants aircraft, and later Airspeed Oxfords. 577 Squadron was briefly based at the site with Oxford IIs and Spitfires, as well as 5355 Airfield Construction Unit.
- 4.49 In early 1943 the airfield was transferred to Flying Training Command as a satellite airfield to nearby Carnage and in May 1943 was taken over by No.7 AFU, becoming a satellite of RAF Calveley. The airfield saw little use from 1945 and the various installations began to be removed. The airfield was auctioned off by the Air Ministry in 1959 and the site was brought by Alfred McAlpine Ltd who had originally built the airfield. Following the removal of the runways much of the site was given over for gravel extraction and the former RAF accommodation area was redeveloped as a housing estate.
- 4.50 Several aircraft crash sites dated to the 1940s and associated with activity at RAF Wrexham are recorded within the study area (**NDHA95-98**), including one whose location is recorded within the application site bounds (**NDHA94**). A number of avenues of research were followed as part of this project in order to investigate the nature of these events and assess the potential impacts of development on the historic assets however no information relating to the date, reasons for the event, and subsequent actions such as recovery of wreckage was found. Comments by CPAT indicate that the wreckage of **NDHA94** was removed very soon after the crash event occurred.

Previous Archaeological Events

ASWYAS 2022, *Land North of Bryn Lane, Wrexham, Clwyd, Geophysical Survey*, WYAS Archaeological Services, Report No. 3800 (Appended to this report)

- 4.51 Preliminary consultation with the Development Control Archaeologist at Clwyd Powys Archaeological Trust (email correspondence 04/01/2022) undertaken as part of the current application and supporting heritage surveys highlighted that the sub-surface potential for archaeological remains pre-dating the post medieval period is largely unknown. It was therefore recommended that a geophysical survey be undertaken of the application site to provide information of the below-ground conditions and to better assess the proposed development's potential to impact on archaeological remains and the potential significance of any such remains:

- 4.52 A magnetometer survey was undertaken of approximately 36 hectares within the application site. The survey identified a range of anomalies of which the majority were interpreted as the remains of medieval ridge and furrow cultivation, former field boundaries, and ponds / marl pits. Several of the identified field boundaries correspond with those visible on 1840s tithe mapping. No definitive responses associated with the 1940s crash site were identified. No archaeological remains likely to pre-date the medieval period were identified. The survey assessed that the archaeological potential of the application site was low. It is possible however that the ridge and furrow may mask earlier and underlying features.

Other Events

- 4.53 The CPAT Historic Environment Record data records four events within the study area comprising in each instance a photographic survey of built heritage at a farm site:

- Marshley Farm, photographic survey in 1998 of the farm prior to demolition (PRN58994)
- Aledersley Farm, photographic survey in 2005 (PRN95129)
- Holt Lodge Farm, Barn 1, photographic survey in 2015 in relation to planning application to convert and extend (PRN124844)
- Holt Lodge Farm, Barn 2, photographic survey in 2015 prior to conversion to dwelling (PRN124803)

- 4.54 Other online sources provide records for several other archaeological events in the study area and wider vicinity:

Jones, I, 2014, *Land South of Francis Lane, Wrexham, Clwyd, Archaeological Desk-Based Assessment, Archaeology Wales*, Report No. 1230

- 4.55 This assessment was undertaken in response to a proposed development for a Solar Farm in order to examine the archaeological potential of the site and potential visual impact of development. The proposed site included the eastern half of the Land North of Bryn Lane site which is the subject of this heritage assessment. The survey noted the presence of remnant ridge and furrow and post-medieval marl pits and concluded that the development would not represent a significant impact to the heritage significance and setting of nearby listed buildings, with screening and sympathetic boundary setting as a proposed mitigation to reduce the impact of development on the listed buildings.

Silvester, R J, 2004, *Wrexham Industrial Estate Access Roads, Stage II Archaeological Study, Archaeological Assessment*, Clwyd Powys Archaeological Trust

- 4.56 This three-part study (PRN118085) comprised an assessment of route options for Wrexham Industrial Estate. Following an initial assessment, the Stage 2 assessment examined the known historic environment baseline to examine the potential impact of proposed route options for a new road to the Wrexham Industrial Estate. The 'Green and Blue' route which forms the present Industrial Estate Road that lies adjacent to Hugmore Lane was predicted to result in the loss of areas of ridge and furrow and a marl pit, and the loss or partial loss of the sites of two aircraft wrecks.

- 4.57 The report provided general and specific mitigation strategies including preservation in situ where a site was of sufficient importance to merit retention, and preservation by record where development would involve loss of a site. This included recommendations for staged investigation including geophysical survey, topographic survey or trial trench evaluation, and, if any archaeological remains were of sufficient significance, excavation in advance of construction works or watching brief and monitoring during groundworks such as topsoiling. To mitigate the loss of ridge and furrow a specific methodology was recommended comprising the detailed definition of furlongs through the use of aerial photography and ground survey, the measurement and profiling of ridges and earthwork forms, and trial trenching to clarify the makeup of the ridges.
- 4.58 An additional and standalone study of the aircraft wrecks was recommended including consultation with specialist study groups and / or the RAF in order to clarify the nature and extent of the wrecks and to allow determination of any specific management procedures.
- 4.59 The assessment was followed up with a supplementary assessment that recommended a specific mitigation strategy of monitoring in association with the site of an aircraft wreck.
- Mercer E, 2018, *Heritage Assessment, Land South of Holt Road, Wrexham*, CgMs Heritage
- 4.60 A heritage assessment was carried out for a 28.5 hectare site proposed for residential development and located off Holt Road, Wrexham. The study included an assessment of baseline historic environment conditions, the potential for archaeological remains to be affected by development.
- 4.61 The survey identified the presence of a marl pit and aircraft crash site and concluded the site had a low or negligible potential for significant remains of all periods. The assessment recommended an initial geophysical survey to confirm the presence or absence of a crash site and wreckage, as well as any other features of archaeological interest. This survey would inform the need for and scope of any subsequent archaeological work.
- Grant I, Jones N W, 2009, *Excavations at Borrás Quarry, Wrexham 2008, Interim Report*, Clwyd Powys Archaeological Trust, Report No. 1018
- 4.62 A series of assessments, archaeological surveys and excavations were carried out at Borrás Quarry c2km to the north-west of the site during the 1990s and 2000s. This work revealed a number of prehistoric features and associated pottery suggesting a settlement dating to the mid or late Neolithic as well as a later phase of activity during the Bronze Age. During a phase of topsoil stripping in 2009 a human cremation was discovered in the form of a circular cremation pit. Radiocarbon dating of a distinct pottery type, Peterborough Ware indicated activity during the period 3638 to 3118 BC. The report notes that a number of chance Neolithic finds including 7 polished stone axes have been discovered in the area of Wrexham with the majority of evidence for the Neolithic period being derived from scatters of worked flint.

McCullogh, A E, et al, 2017, *Polygonization of Traditional Farm Buildings in Wrexham*, Clwyd Powys Archaeological Trust, CPAT Report No. 1501

- 4.63 This project was carried out to investigate the feasibility of creating GIS polygons of traditional farm buildings for use as reference. Using historic maps and verified with site visits a total of 3,604 polygons were created on 851 farms in the area of Wrexham of which 303 were already in the HER and 229 were recorded as Listed Buildings. Many of the built heritage historic assets within the baseline of this report are derived from this survey. The project primarily relied on the 2nd edition OS map which is closest in date to 1918 which is considered the 'terminus ante quem' for the creation of traditional farm buildings.

Hankinson R, et al, 2012, *Medieval and Early Post-Medieval Industry in East and North-East Wales*, Clwyd Powys Archaeological Trust, CPAT Report no. 1144

- 4.64 A desk-based report on the medieval and early post-medieval industries of east and north-east Wales was undertaken providing details of industrial sites and features. The industries considered as part of the survey included charcoal burning, clay industries, coal and copper mining, glass making and several others. The report provides a historic overview of each industry, the extent of its occurrence and surviving remains in the study area, and an assessment of significance and further research strategies.

Historic Map Regression

- 4.65 A review of available historic mapping between the mid-19th and mid to late 20th century demonstrates that the area to the east of Wrexham historically comprised agricultural fields defined by regular fields which can be shown to correspond with the pattern of medieval ridge and furrow cultivation. Settlement outside of core towns and villages frequently comprised isolated farm complexes consisting of a farmhouse with barns and stables surrounding a yard.
- 4.66 Within the application site the layout of hedgerows experienced occasional minor changes between the mid-19th and early to mid-20th centuries, principally the opening and backfilling of marl pits which were used to periodically fertilise the fields.
- 4.67 The area remained essentially unchanged into the early and mid-20th century when the substantial Royal Ordnance factory was constructed to the east of Wrexham. During the post-war period the area of the factory complex served as a focus for the development of the Wrexham Industrial Estate. New residential development in the later 20th century focussed primarily around areas of existing farmsteads, often subdividing and infilling land parcels associated with post-medieval farms. Minor changes within the application site comprise the removal of a small number of field boundaries.

Table 2 Historic Map Regression

Map	Description
1843 Gresford Parish, Holt Township Tithe Map	The northern part of the application site comprising fields 1-5 lie within the Holt township. The map demonstrates a predominantly agricultural landscape with hedgerow-bound enclosed fields and isolated farmsteads adjacent to the roads. The present Field 1 includes land parcels 547, 548 and 549 with a pond / marl pit shown on the north border. The apportionment provides the following detail: • 547, Corner • Field, Pasture, occupier William Pearson, landowner Elizabeth Pool • 548, Pear Tree Field, Pasture, occupier William Pearson, landowner Elizabeth Pool • 549, Lower Field, Arable, occupier William Pearson, landowner Elizabeth Pool The division between fields 547 and 549 no longer survives as an above-ground feature and the boundary between 548 and 549 survives as a linear arrangement of established oak trees. The pond remains as a prominent landscape feature with overgrown trees. William Pearson is recorded on the Tithe Apportionment as occupying the Garden Croft later labelled as Redwillow Farm. Field 2 includes land parcels 546 and 550, as well as an isolated homestead 551: • 546, Big Field, Arable, occupier William Pearson, landowner Elizabeth Pool • 550, Johnson's Field, Arable, occupier William Pearson, landowner Elizabeth Pool • 551, Two cottages and gardens, occupier John Evans and James Johnson, landowner Elizabeth Pool Parcel 551 remains as a property boundary however the present building is a modern replacement of the earlier cottages. The boundary between the two fields survives as a line of established trees. A pond in the western part of field 2 is not shown on the Tithe Map but is present on the first edition Ordnance Survey map of 1873. Field 3 includes land parcels 553 and 554: • 553, Little Croft, Arable, occupier William Pearson, landowner Elizabeth Pool • 554, Long Field, Arable, occupier William Pearson, landowner Elizabeth Pool The boundary between the two fields no longer survives as an above-ground feature. Field 4 incorporates three land parcels, 555, 556, 557:

Map	Description
	• 555, (no field name), Pasture, occupier William Dutton, landowner the late George Boscawen's representatives • 556, Lordsham, Pasture, occupier William Dutton, landowner the late George Boscawen's representatives • 557, (no field name), Arable, occupier William Dutton, landowner the late George Boscawen's representatives The field boundaries between these fields no longer remains as a landscape feature. Field 5 is marked as land parcel 558: • 558, Timothys Ground, Arable, occupier John Sanderson, landowner the late George Boscawen's representatives. A pond / marl pit presently within this field is not shown on the tithe map. At the north-west corner of the application site is shown a single building and enclosed garden corresponding with the position of the present 'Spring Villa'. It is labelled as Cottage and Garden. Further to the north is shown a farm complex with building around a yard (New Holt Lodge Farm) which is labelled as House Building Garden Meadow. At the northern boundary of the application site is an enclosed garden and building corresponding with the present Honeysuckle Cottage. This is labelled as two cottages and garden in apportionment 551. The present building appears to be a modern replacement of this structure.
1843 Gresford Parish, Ridley Township Tithe Map	The southern part of the application site comprising fields 6, 7, and 8 lie within Ridley Township within the parish of Gresford and are covered under a separate tithe map to the northern extent of the application site. The map demonstrates a predominantly agricultural landscape with isolated farms bound by areas of enclosed fields. Field 6 is shown as a single land parcel. The field bounds correspond with the present hedges. Three small ponds are shown roughly central to the field and are no longer present as landscape features. • 16, Big Grow Little, occupier William Dutton, landowner the heirs of the late George Boscawen Esqre. Field 7 consists of a single land parcel corresponding with the present field layout. A pond presently within the application site is not shown. • 17, Rough Field, occupier William Dutton, landowner the heirs of the late George Boscawen Esqre. Field 8 consists of a single land parcel corresponding with the present boundaries. • 14, Field before the door, occupier William Dutton, landowner the heirs of the late George Boscawen Esqre.

Map	Description
	To the immediate south of field 8, on the south side of Bryn Lane is shown a small farmstead and garden which is labelled as Ridley Farm on later maps. This is labelled as house buildings and garden and was occupied by William Dutton.
1:2,500. First Edition Ordnance Survey map of 1873	The landscape shown on this map demonstrates little change since the 1840s with the greatest differences being visible on the various farmsteads which in several instances have been expanded with additional buildings. Continued use of the land is evident in the appearance of a number of ponds or marl pits which were not shown on the previous map. It has been considered whether the appearance of the ponds / marl pits is because they were not present during the production of the Tithe Map or were simply not shown on the map, however since the Ridley Township map does show ponds it is assumed that it is more likely that the maps were accurately rendered and the ponds were not yet dug at that time. The east to west hedgerow which divides the application site horizontally is labelled as 'Parliamentary Boundary (Contributory Borough)'. Field 1 remains subdivided as three distinct parcels however two new ponds are shown at the centre of two of the fields one of which survives as a pond. The pond at the north of the field which was previously depicted as a single pond is here shown as two rectangular ponds. Field 2 also remains subdivided and a new pond is shown in the western field which remains as a landscape feature. The western side of the field has been reduced to accommodate a new farmstead labelled as Spring Grove. The previously shown building remains extant. No change is evident at Honey Suckle farm. Field 3 remains subdivided as two land parcels; a small pond is shown in the northern field and a larger pond is shown in the southern field. The northern pond no longer remains as a landscape feature while the southern pond is still present. Field 4 remains subdivided as three land parcels and in each field a new pair of ponds are shown. These are no longer present as landscape features. In field 5 two new ponds are shown at the east and west sides of the field and a linear pond has been dug along the northern boundary to Francis Lane. The eastern pond remains as a landscape feature however the other two are no longer visible as earthworks. No change is evident in field 6 which includes a group of three ponds at the centre of the field. In field 7 a new pond / marl pit has been dug which remains as a landscape feature.

Map	Description
	No change is evident in field 8. To the south of the field Ridley Farm is shown in greater detail though no change to the layout of buildings and general land-use is shown. A footpath is marked on the map running along the west side of the eastern boundaries of fields five and six. This footpath remains in use at the present time.
1:2,500 Ordnance Survey map of 1899	Little change is evident between the 1899 and 1872 maps. In field 3 the pond previously shown in the southern land parcel, and which was extant at the time of the walkover survey is no longer shown suggesting that it was infilled by this date. Likewise in field 4 several of the previous ponds including two in the central of the three land parcels, are no longer shown on the map. In field 5 the eastern pond which comprises the presently visible one is no longer shown while the north and western ponds are shown. In field 6 one of the three ponds is no longer shown. At Ridley Farm some minor development is evident by the appearance of small extensions and outbuildings around the earlier buildings. At Spring Grove a previous boundary which fully spanned to the northern hedge of field 1 has been shortened. No other change is evident there. At Holt Lodge some minor change is evident in the appearance of new extensions and outbuildings around the earlier principal buildings. No change is seen in the area of Honey Suckle Cottage. Beyond the study area (c1.5km to the north of the application site) but of relevance to understanding the general landscape use is the former Common Wood which is shown as having been enclosed, whilst on the Tithe Map the Common Wood was shown as a broad area consisting of a single land parcel. Unlike the slightly irregular and general square land parcels in the surrounding landscape the Common Wood enclosures consist of very straight and narrow linear strips.
1912 Ordnance Survey Map, 1:2,500	Relatively little change can be seen in the general landscape surrounding the application site. All the previous land parcels remain in place. The township boundary which passes through the application site is here labelled as 'Parly. Boro. Bdy (Holt Contributory to Denbigh)'. Some minor changes to the ponds / marl pits are evident with ponds which have presumably been infilled depicted with dashed outlines. In field 5 the eastern pond which was previously not shown is shown again and in field 6 there are again 3 ponds rather than 2 as on the previous map. Of interest are dashed outlines shown adjacent to the ponds in field 5 which may depict waterlogged areas of the position of a previous pond which has been infilled and re-excavated in a new position.

Map	Description
1:10,000 Ordnance Survey map, Revision of 1909 with additions in 1949	To the south of the application site, in the area of the present Wrexham Industrial Estate has been built the Royal Ordnance Factory. Ridley Farm is shown but to the immediate south can be seen structures relating to the Ordnance Factory. RAF Wrexham, labelled as 'Airfield Bieston' is shown as a blank area of the map. Due to the need for secrecy regarding the Ordnance Factory relatively little contemporary mapping covering the site is available. Within the application site, all of the previous field boundaries remain in place as well as the majority of ponds shown on the 1912 map.
1:2,500 Ordnance Survey Map, 1964	This map shown the beginnings and growth of the Wrexham Industrial Estate on the site of the former Royal Ordnance Works. The estate appears to have begun construction of new buildings around the north and eastern sides of the former works, spreading out to occupy the remainder of the site during the subsequent decades. Adjacent to Ridley Farm there is a large building which has been identified on separate sources as a clothing factory. To each side of the clothing factory are other large multi-ranged buildings which also served as factories. Two of these buildings remain extant and consist of simple single-storied brick or concrete buildings consisting of multiple joined ranges. Ridley Farm remained extant. To the south-west of the application site, adjacent to the present Industrial Estate Road roundabout, a new office building and associated car park have been built. A nearby group of buildings labelled as Redwillow Farm on previous mapping was reduced in extent. No obvious change is evident at Spring Grove however the former building to the north of Spring Grove was demolished and a new building, Spring Villa, which remains extant, was constructed on the site. Continued development and construction can be seen to the north of the application site along Hugmore Lane and in the vicinity of Holt Lodge Farm. No change is evident at Honey Suckle Cottage. No field boundaries have been removed within the application site. Neither of the ponds in Field 3 are shown and a large pond not previously shown on earlier maps has been dug in the north-east corner of Field 4. No change can be seen in fields 6-8.
Aerial Photographs, 2006-2012	There is a gap in map and aerial photography coverage following the late 1960s. The application site is covered under aerial photography dated to 1969 however this is low resolution and does not demonstrate any significant change (APU 2022). By this date the majority of the former Royal Ordnance Works had been replaced with largescale development of the Wrexham Industrial Estate and Ridley Farm had been demolished. A new roundabout was constructed at the south-west corner of the

Map	Description
	application site, joining Bryn Lane, Hugmore Lane, and the recently built Abenbury Way. Within the application site several of the former field boundaries had been removed resulting in the present arrangement of fields. The linear outline of some of these former boundaries can be seen on the map either as linear marks or from remaining trees however several are not visible. Several of the former ponds had by this date been infilled leaving the presently extant ponds. Traces of east-west aligned ridge and furrow can be seen in fields 5 and 7. Between 2009 and 2012 the Industrial Estate Road dual carriageway had been built alongside Hugmore Lane which was disconnected from the adjacent roundabout and ceased to be used as a principal road, providing access to the houses at the west of the application site.

LiDAR

- 4.68 The entirety of the application site is covered under LiDAR composite dataset at DTM 2m spatial resolution and only the western half of the application site at 1m resolution (LLE 2022). Additional data supplied by Scalgo has been reviewed (G9134.02.008): former field boundaries identified from historic mapping and geophysics survey can be seen, and the presence of ridge and furrow within the application site and in many of the fields in the surrounding area is also evident. No features that can be interpreted as archaeological in origin and pre-dating the medieval period have been identified.

Historic Landscape Character

- 4.69 The application site and surrounding area comprise a predominantly agricultural landscape with hedgerow-bound enclosed fields interspersed with isolated post-medieval farmsteads. Modern development has focussed around existing small settlements and in the area of post-medieval farmsteads and at the intersections of the principal roads.
- 4.70 The application site and area to the east, north and south which includes the historic townships of Holt and Ridley Wood has been assessed by CPAT as comprising a Historic Landscape named Commonwood (WRXHML18); this is described as *"an area of mixed size but predominantly regular fields occupying part of the western river terrace of the Dee. The fields divide roughly equally into groups of smaller residual medieval strip fields adjoining medieval settlements such as Holt..."*
- 4.71 The area to the immediate west of the application site, beyond the Industrial Estate Road is described as Historic Landscape 'Llan-y-pwll' (WRXHML016) which is similarly described as *"an area of mixed irregular fields, some preserving relict areas of medieval strip fields, occupying the undulating land between the more orderly fieldscapes of the Dee valley and the eastern fringe of Wrexham".*

- 4.72 To the immediate south of the application site is the extensive Wrexham Industrial Estate which consists of a modern development occupying the site of the 1940s Royal Ordnance Factory.

Historic Hedgerows

- 4.73 An assessment of the impact of the proposed development on historic hedgerows is provided as a separate technical note included as an addendum to this report (TEP 2023).

Aircraft Crash Sites

- 4.74 Within the study area there are six recorded aircraft crash sites which are associated with the Second World War RAF Wrexham which was located to the north-west of the application site and was in active use between 1941 and 1945 (**NDHA94-98, 102**). One of these crash sites, Francis Lane air crash site (**NDHA94**) is located within the application site. The HER records are primarily derived from Grant and Pratt 2002, a published aviation history of North Wales between the period of the Second World War which provides an overarching historical account of airfield and aircraft as well as air accidents and provides some information regarding air crashes. The crash sites within the study area are provided as points on an aerial view however details of the events are not provided. Previous desk-based assessments carried out within the study area have not provided any details for these sites other than that recorded in the HER.
- 4.75 As part of investigation into the aircraft crash sites within the study area TEP contacted the RAF Museum at Hendon and the Air Historical Branch however these organisations were not able to provide any further information regarding the events. The RCAHMS were also contacted to check whether they held any additional information on the sites however all available information held by them is available on Coflein, an online database which does not include information on these specific sites.
- 4.76 A thematic study of military aircraft crash sites in east and north-east Wales was carried out by CPAT in 2014 with the aim of identifying important sites and raise awareness of their significance, as well as to assist Welsh heritage managers in providing advice. The project methodology notes that airfield crashes (including RAF Wrexham) were deliberately excluded from the study as any crashes would have been cleared and no physical remains would be left to assess. The crash sites listed within the study area, with one exception, were not assessed as part of this survey.
- 4.77 A survey of military airfields in east and north-east Wales (including RAF Wrexham) was undertaken by Clwyd Powys Archaeological Trust in 2012 with the aim of enabling greater understanding of the significance of the site, to identify elements which embody the significance, and to highlight priorities for future research and recording. The survey did not include any details relating to aircraft crashes relating to these sites.

- 4.78 Additional information on the Francis Lane air crash site (NDHA94) was received through a scoping opinion from the Senior Planning Archaeologist at CPAT who contacted a local researcher that had "completed extensive ground and documentary studies on aircraft crashes in the Wrexham area" (pers comm Mark Walters). This confirmed that the crash involved a US Curtis Tomahawk fighter plan AN892 and comprised a surface crash on the field with all of the remains being recovered at the time. This was confirmed by an eyewitness who saw the plane being dismantled and the fuselage being driven off-site.
- 4.79 Crash sites have significance for remembrance, commemoration and cultural value as historic artefacts and the information they contain about the circumstances of the loss and the crash itself. Crash sites can include human remains which give them additional value and status as sacred sites and war graves, therefore they are considered a material matter when they may be affected by development proposals. All military crash sites in the United Kingdom are controlled sites under the Protection of Military Remains Act 1986. It is an offence under this act to tamper with, damage, move or unearthen any items at such sites, unless the Ministry of Defence (MOD) has issued a licence authorising such activity. A licence is required from the Joint Casualty and Compassionate Centre (JCCC) to enable the disturbance of any such sites. Before a licence can be issued, applicants are required to research and supply to the JCCC all relevant information on the aircraft they wish to recover including: location of crash site and the fate of the crew.
- 4.80 As noted by the CPAT study of military crash sites it is unlikely that any remains associated with the crash sites would be present as they would be visited immediately by recovery teams to remove wreckage, human remains, ordnance and intelligence documents. Any material remains that may currently be present would likely consist of small fragments missed by a recovery team or scattered a greater distance away from the immediate crash site. It is noted that the amount of recoverable material is influenced by the size of the aircraft, its speed and angle of impact, as well as the substrate into which the aircraft crashed (EH 2002). It is further noted from archaeological excavations of Second World War crash sites that due to contemporary aircraft recovery procedures, even where archaeological traces remain, these yield on average only 1% in weight of the aircraft.

Site Visit

- 4.81 A walkover survey of the application site was carried out on 14th January 2022. Conditions at the time of survey were clear with a low sun which helped to highlight any ephemeral changes in terrain such as ridge and furrow earthworks. A methodical transect walkover was carried out of each field. No artefacts such as pottery fragments or flint were recovered during the survey.

Field 1

- 4.82 The field is bound at the south by Bryn Lane and a hedgerow, to the west by Hugmore Lane and to the north and east by hedgerows. It measures c412m from east to west and c140m from north to south and occupies a roughly rectangular shape expanded northwards at the west end. Historic mapping demonstrates that the field formerly consisted of three land parcels which were amalgamated in the mid to late 20th century; the position of one boundary can be seen on aerial views and the other is visible on aerial views and on the ground by the survival of a linear group of outgrown hedgerow trees. A large pond (**NDHA75**), c37m in length, is located along the north boundary and is overgrown with large trees; the irregular depression was filled with standing water. No structural remains were noted in its vicinity. Historic mapping shows two former marl pits / ponds in this field (**NDHA 73,74**); these have been infilled and were not visible.
- 4.83 At the north-west corner the field is screened by the adjacent houses by dense coniferous trees.
- 4.84 Regularly spaced linear striations were visible parallel with the field length and were likely associated with modern ploughing.
- 4.85 No obvious traces of ridge and furrow or any other features of potential archaeological origin were observed.



Figure 1 Looking east across Field 1 from the west boundary



Figure 2 Looking West across Field 1 from the east boundary



Figure 3 The pond on the boundary between Fields 1 and 2, looking north (NDHA74)



Figure 4 North-westerly view towards the residences on Hugmore Lane

Field 2

- 4.86 The field is bound to the north by Francis Lane and the south edge is separated from Field 1 by a hedgerow. To the immediate west are post-medieval and modern domestic residences and an isolated post-medieval to modern dwelling, Honeysuckle Cottage (**NDHA88**), is located in the north-east corner and lies within the application site boundary.
- 4.87 An ovoid pond (**NDHA72**) approximately 18m wide is located in the western half of the field. The pond had standing water and appeared relatively shallow with no steep embankments.
- 4.88 The field was historically subdivided into two land parcels with the intervening hedgerow being removed in modern times. The position of the former hedge is evident from a linear arrangement of outgrown hedgerow oaks. A small number of possible worked stone fragments and a range of post medieval and modern bricks were noted around the base of one of these trees. An aircraft crash site (**NDHA94**) is recorded within this field, however no remains associated with this event were noted.
- 4.89 The field has a very flat topography and no obvious evidence for ridge and furrow or other earthworks was visible during the survey; closely spaced linear striations spanning east to west were likely the result of modern ploughing.
- 4.90 There are clear views to the rear (east side) of the houses along Hugmore Lane with no intervening screening. Views towards the Grade II Listed New Holt Lodge Farm (**LB2**) are largely screened by established trees, hedgerows and a number of adjacent buildings.
- 4.91 Little screening is present between the wider site and Honeysuckle Cottage whose small, enclosed garden is separated from the main field by a low hedge and fences.



Figure 5 Looking east across Field 2, with pond (NDHA74) on the right of image



Figure 6 View towards the residences on Hugmore Lane, looking north-west



Figure 7 View towards the Grade II Listed New Holt Lodge Farm (LB2)



Figure 8 The pond in Field 2 (NDHA72)



Figure 9 The view towards Honeysuckle Cottage (NDHA88), looking north-east



Figure 10 View of the south side of Honeysuckle Cottage (NDHA88), looking north



Figure 11 Looking west across Field 2 from the eastern boundary

Field 3

- 4.92 This field comprises two combined former land parcels forming an upside-down 'L' plan. It is bound to the north by Francis Lane, and by fields 1, 2, and 4 at the east and west. HER data records the presence of ridge and furrow in the fields however any such features were not readily apparent during the walkover but were confirmed through geophysical survey.
- 4.93 A single pond (**NDHA76**) was located adjacent to the eastern field boundary to Field 4. It measured approximately 35m in length and was heavily overgrown and with standing water. The sides of the ponds had a short steep drop to the water edge. Late 19th and early 20th century OS maps show a small pond near the northern edge of the field for which no clear topographical evidence remained.
- 4.94 Minimal screening is present between the field and adjacent Honeysuckle Cottage (**NDHA88**).



Figure 12 Looking east along the northern part of Field 3



Figure 13 Looking north along the southern part of Field 3



Figure 14 View of pond on the eastern boundary of Field 3 (NDHA76)



Figure 15 Looking east along Francis Lane



Figure 16 Looking north over the hedgerow on the north side of Francis Lane

Field 4

- 4.95 This field consists of a large irregular land parcel c277m east to west and up to 290m north to south. It was historically subdivided into three fields which were amalgamated during the modern period. The field is bound to the north by Francis Lane and by fields 3 and 5 to the west and east.
- 4.96 The field was flat with occasional shallow undulations suggesting the location of former ponds which are visible on historic mapping (**NDHA77, 78, 79**). No clear evidence of ridge and furrow or the former field boundaries was observed.



Figure 17 Looking north along the western boundary of Field 4



Figure 18 View of outgrown trees in the hedgerow between Fields 3 and 4



Figure 19 Looking north-west from the south-east corner of Field 4 with former ponds visible in foreground (NDHA78, 79)



Figure 20 Cross-section of hedgerow H1d (township boundary) revealed in field access in the south side of Field 4

Field 5

- 4.97 This field comprises the north-east extent of the application site and is bound to the north by Francis Lane and fields 4 and 6 to the west and south. To the east is a continuation of the agricultural landscape. The field includes the best surviving example of ridge and furrow across the application site (**NDHA12**) and retains its historic layout as evident on the 1843 Tithe Map. As clearly shown on a 2021 aerial view of the application site (Google Earth) the ridge and furrow comprises parallel lines aligned diagonally across the application site on an east to west alignment. The centre of each ridge is spaced approximately 6m apart with an estimated maximum depth to the base of the furrow of <0.5m. As seen on aerial views the ridge and furrow displays a characteristic S curve with each ridge having a shallow curve to the left where it meets the hedges that bound the field on the east and west. This feature results from the method of turning oxen at the end of the plough to line up with the next.
- 4.98 It is uncertain whether the hedgerows or their ditches are contemporary with the ridge and furrow or were planted to reflect the pre-existing land use pattern. The adjoining field to the east is also seen from aerial views to include a similar pattern of ridge and furrow with broad S curves at the hedges.
- 4.99 A roughly circular pond c20m in width (**NDHA82**) is located within the field and is likely a later feature to the ridge and furrow. The pond includes standing water and the edges have a shallow slope to the field. Historic mapping shows two other ponds were also located in the field (**NDHA80, 81**) but have been infilled and are visible on aerial views and on the ground as an area of waterlogging.
- 4.100 The hedgerow which bounds the field at the eastern side has been partly cut back and includes a continuous linear ditch approximately 1.5m in width. The ditch is partly filled with water and infilled in other places with an approximate surviving depth of up to 0.5m. The ground to either side of the ditch is slightly built up likely due to the method of ridge and furrow which moves soil towards the end of each plough strip.
- 4.101 No other features of archaeological interest were noted.



Figure 21 Looking north-west from the south-east corner of Field 5



Figure 22 Looking south from the north side of Field 5



Figure 23 View parallel with ridge and furrow overlain by linear striations from modern ploughing, looking east



Figure 24 View of the remaining pond in Field 5 (NDHA82)



Figure 25 Water filled ditch forming the east edge of Field 5



Figure 26 Ditch forming the east edge of Field 5

Field 6

- 4.102 This is a roughly rectangular plan field measuring approximately 293m east to west and up to 150m from north to south. The field retains its layout as seen on the 1843 Tithe Map. The field is fairly level and includes visible but shallow ridge and furrow (**NDHA13**) which as evident from aerial views follow the curve of the southern site hedge line. The aerial view appears to show possible broad S curves at the distal ends of the ridge and furrow, suggesting that the field boundaries are contemporary with the creation of the ridge and furrow.
- 4.103 Historic map of 1873 shows that there were formerly a group of ponds in the centre of the field which have been infilled (**NDHA83**). These remained evident on the ground as areas of waterlogging. The ponds are likely of a later date to the ridge and furrow which they cut across.



Figure 27 Looking East across Field 6 with infilled ponds in the foreground (NDHA83)



Figure 28 Looking west across Field 6 from the eastern boundary



Figure 29 View of the northern hedgerow (hedgerow H1)



Figure 30 View of the base of the hedge

Field 7

- 4.104 Field 7 is a rectangular plan field measuring 264m from east to west and 170m north to south. The topography is flat and faint traces of ridge and furrow (**NDHA14**) on an east to west alignment can be seen. Aerial views of the application site (Google Earth 2021) appear to show a change in orientation of the ridge and furrow between the west and east sides of the field with those at the east being oriented north to south, suggesting a former field boundary which was removed prior to the 1843 Tithe Map.
- 4.105 A pond (**NDHA84**) is present in the western side of the field. It is roughly circular in plan measuring c22m in width with standing water and vegetation along the edges.
- 4.106 No features of archaeological interest were noted.



Figure 31 Looking west across Field 7 with the industrial estate on the left of image



Figure 32 Looking east across Field 7



Figure 33 View of pond in Field 7 (NDHA84)

Field 8

- 4.107 This is a triangular field at the south of the application site and is bound to the south by Bryn Lane and to the north by Field 1. The field measures up to 200m in length and c137 north to south. A modern equestrian centre with house and stables is located in the south-east corner and the eastern half of the field has been subdivided into paddocks.
- 4.108 No features of archaeological interest were noted.



Figure 34 The modern buildings at the east side of Field 8



Figure 35 Looking west across Field 8



Figure 36 View of hedgerow H1a forming the north boundary of Field 8

Summary of results of site visit

- 4.109 Since the medieval period and through the post-medieval and modern periods, the application site has served as agricultural land with any development taking place in the vicinity of existing farmsteads. Several of the hedgerows appear to be contemporary with the ridge and furrow and may therefore be medieval in origin. Available mapping from the mid-19th century onwards shows a number of marl pits / ponds have been excavated, infilled and re-opened during that period. Modern ploughing appears to have levelled ridge and furrow remains across a large part of the application site.

- 4.110 Due to the lack of deeply invasive development or agricultural activity it is likely that any archaeological remains that may be present within the application site would be in a good state of preservation. No evidence for buried archaeological remains was noted during the walkover survey.
- 4.111 Views to the south of the application site are dominated by the large-scale buildings of the Wrexham Industrial Estate. There is clear intervisibility between the application site and the domestic residences at Hugmore Lane, with very limited intervisibility with the Grade II Listed New Holt Lodge Farm (**LB2**) which is largely screened by adjacent buildings, hedgerows and trees. The substantial JCB Company building to the west of the application site screens views to the west. Views towards the north are screened by the hedgerows along Francis Lane which includes occasional outgrown trees. The topography to the north and east of the application site is relatively flat with a gradual northward decline and, with some screening by intervening hedgerows and larger trees, it is possible to see the buildings on the north edge of the Industrial Estate from Wrexham Road which is located c900m from the northern application site boundary and from the B5130. Any buildings within the application site would therefore likely be visible in long views but would be seen in the wider context of the adjoining industrial estate to the south and west.

5.0 Known Historic assets within the Area of Search

Designated historic assets within area of search

5.1 There are three designated historic assets within the area of search, comprising the Grade II Listed Cornish Hall, New Holt Lodge Farm and Erlas Hall which are all considered to be of high heritage significance.

- LB1 - Cornish Hall (Cadw ref 1536), an early 17th century house comprising a U shape plan with wings projecting from a central range. The building was remodelled extensively in the 1930s which provides its present character. Recorded to include an exceptional 17th century staircase. It is located 816m to the north-north-east of the application site.
- LB2 - New Holt Lodge Farm (Cadw ref 1541), an early 19th century house containing elements of an earlier structure for which hearth tax records of 1670 exist. The building was substantially remodelled in the early 19th century and recently restored. The 1843 Tithe map records that the farm was occupied by Elizabeth Parry who also tenant of two fields to the immediate east of the farm. The landowner is listed as Lord Kenyon. Its setting includes the immediate farm complex and associated garden / orchard enclosures and the adjacent fields which have been subdivided in recent times. The wider setting comprises the surviving medieval and post-medieval agricultural landscape including remnant ridge and furrow cultivation. It is located 107m to the north-west of the application site. The application site is considered to provide a positive contribution to its setting due to the survival of historic field system and ridge and furrow remains.
- LB3 - Erlas Hall (Cadw ref 84802), a mid-19th century house containing a remnant cruck-framed core associated with an earlier structure provisionally dated to the 16th or 17th century. The house was formerly the centre of the Erlas estate belonging to the Davies family. It is located 770m to the west of the application site.

Non-designated Historic assets within area of search

5.2 There are 102 non-designated historic assets within the study area, predominantly comprising areas of medieval ridge and furrow, built heritage in the form of post medieval farmsteads, marl pits and ponds located within the medieval / post medieval field system, and several aircraft crash sites associated with the former Raf Wrexham as well as the site of the former Royal Ordnance Factory.

5.3 There are no recorded non-designated historic assets dated to the prehistoric to early medieval periods.

Medieval

5.4 There are sixteen historic assets dating to the medieval period of which fourteen are of low and two are of negligible heritage significance.

- NDHA1 - Cornish Hall, area of ridge and furrow identified on LiDAR
- NDHA2 - Erlas Black Wood, Remnant area of ridge and furrow

- NDHA3 - ErLas Hall ridge and furrow I. Area of ridge and furrow described as in excellent condition. Associated with ErLas Hall
- NDHA4 - ErLas Hall ridge and furrow II. Area of ridge and furrow described as just visible on the ground. Associated with ErLas Hall
- NDHA5 - Hugmore House, ridge and furrow II, an area of ridge and furrow recorded from LiDAR. Located within the present golf course
- NDHA6 - Hugmore House, ridge and furrow III, an area of ridge and furrow identified by LiDAR
- NDHA7 - Larkfield, ridge and furrow. An area of ridge and furrow identified by LiDAR
- NDHA8 - Hugmore Lane Farm, ridge and furrow, an area of ridge and furrow identified by LiDAR
- NDHA9 - ErLas Hall ridge and furrow III. Area of ridge and furrow recorded from aerial photographs. Associated with ErLas Hall
- NDHA10 - Hugmore House ridge and furrow I, an area of ridge and furrow. Largely levelled by modern ploughing
- NDHA11 - Bryn Villa holloway, possible medieval trackway emerging from a shallow valley and identified via aerial photographs
- NDHA12 - Land north of Bryn Lane, Ridge and Furrow 1, an area of east-west aligned S curved ridge and furrow occupying the majority of the field and visible on aerial views of on the ground. Located within the application site.
- NDHA13 - Land north of Bryn Lane, Ridge and Furrow 2, an area of east to west aligned ridge and furrow occupying the majority of the field and visible on aerial views of on the ground. Located within the application site.
- NDHA14 - Land north of Bryn Lane, Ridge and Furrow 3, an area of ridge and furrow occupying the majority of the field and visible on aerial views of on the ground. The western side of the field includes E-W ridge and furrow and in the east side they are aligned N-S. Located within the application site.
- NDHA15 - A heavily clipped half Groat of Edward III or IV, found with the use of a metal detector at a depth of about 5cm. Clipping has removed the name so it could also be of Henry VI. It is of negligible heritage significance.
- NDHA16 - Bryn Villa ridge and furrow, likely removed by the construction of the Industrial Estate Road. It is of negligible heritage significance.

Post medieval

- 5.5 There are 77 historic assets dating to the post medieval period, of which 72 are of low heritage significance and 5 are of negligible heritage significance.

Low heritage significance

- NDHA17 - Aldersey Farm, extant post-medieval farm building
- NDHA18 - Aldersey Farm, extant post-medieval farm building
- NDHA19 - Aldersey Farm, extant post-medieval farm building
- NDHA20 - Clays Farm, post medieval farm buildings
- NDHA21 - Clays Farm, post medieval farm buildings
- NDHA22 - Cornish Farm, post medieval farm building.

- NDHA 23 - Cornish Hall, post medieval farm building. Has group value with the Grade II Listed Cornish Hall
- NDHA24 - Cornish Hall, post medieval farm building. Has group value with the Grade II Listed Cornish Hall
- NDHA25 - Cornish Hall, post medieval farm building. Has group value with the Grade II Listed Cornish Hall
- NDHA26 - Cornish Hall, post medieval farm building. Has group value with the Grade II Listed Cornish Hall
- NDHA27 - Cornish Hall, post medieval farm building. Has group value with the Grade II Listed Cornish Hall
- NDHA28 - Cornish Hall, post medieval farm building. Has group value with the Grade II Listed Cornish Hall
- NDHA29 - Erlas Hall, farm building part of a farm complex. Has group value with the Grade II Listed Erlas Hall
- NDHA30 - Erlas Hall, farm building part of a farm complex. Has group value with the Grade II Listed Erlas Hall
- NDHA31 - Erlas Hall, farm building part of a farm complex. Has group value with the Grade II Listed Erlas Hall
- NDHA32 - Erlas Hall, farm building part of a farm complex. Has group value with the Grade II Listed Erlas Hall
- NDHA33 - Erlas Hall, farm building part of a farm complex. Has group value with the Grade II Listed Erlas Hall
- NDHA34 - Erlas Hall marl pit II, a marl pit located in fields associated with Erlas Hall, possibly infilled
- NDHA35 - Erlas Hall pond I, a pond / marl pit located in fields associated with Erlas Hall. Visible on 1881 OS mapping
- NDHA36 - Erlas Hall pond II, a pond / marl pit located in fields associated with Erlas Hall. Visible on 1968 OS mapping
- NDHA37 - Erlas Hall pond III, a pond / marl pit located in fields associated with Erlas Hall, Visible on 1881 OS mapping
- NDHA38 - Erlas Hall pond IV, a pond / marl pit located in fields associated with Erlas Hall, Visible on 1881 OS mapping
- NDHA39 - Erlas Hall pond V, a pond / marl pit located in fields associated with Erlas Hall, Visible on 1881 OS mapping
- NDHA40 - Erlas Hall pond VI, a pond / marl pit located in fields associated with Erlas Hall, Visible on 1881 OS mapping
- NDHA41 - Erlas Hall pond VII, a pond / marl pit located in fields associated with Erlas Hall, Visible on 1881 OS mapping
- NDHA42 - Erlas Hall pond XI, a pond / marl pit located in fields associated with Erlas Hall, Visible on 1881 OS mapping
- NDHA43 - Hazel Brook Milestone. A milestone located on Wrexham Road and denoted 3 miles to Wrexham and 2 miles to Holt. Visible on 19th century OS maps. Unclear if still extant
- NDHA44 - Holt Lodge Farm, a brick-built farm building part of a complex associated with the Grade II Listed New Holt Lodge Farm
- NDHA45 - Holt Lodge Farm, a brick-built farm building part of a complex associated with the Grade II Listed New Holt Lodge Farm

- NDHA46 - Holt Lodge Well. A well shown on 19th century OS mapping at the end of a footpath leading from Bryn Cottage. Unknown if still extant
- NDHA47 - Aldersey Farm, Francis Lane. A group of post-medieval barns part of a farm complex
- NDHA48 - Cornish Hall, Wrexham Road. A group of brick-built agricultural buildings adjacent to the Grade II Listed Cornish Hall. Recently converted to domestic use
- NDHA49 - Hugmore Farm, a brick building visible on 1880s OS mapping. Expanded with new extensions in modern period
- NDHA50 - Hugmore House, a brick building part of a larger farm complex which is visible on 1880s OS mapping.
- NDHA51 - Hugmore House, a brick building part of a larger farm complex which is visible on 1880s OS mapping.
- NDHA52 - Hugmore House, a brick building part of a larger farm complex which is visible on 1880s OS mapping.
- NDHA53 - Hugmore House, a brick building part of a larger farm complex which is visible on 1880s OS mapping.
- NDHA54 - Hugmore House, a brick building part of a larger farm complex which is visible on 1880s OS mapping.
- NDHA55 - Hugmore House, a brick building part of a larger farm complex which is visible on 1880s OS mapping.
- NDHA56 - Hugmore House, a brick building part of a larger farm complex which is visible on 1880s OS mapping.
- NDHA57 - Isycoed Farm, a linear brick-built agricultural structure with hour-glass ventilators, visible on 1880s OS mapping. Part of a larger farm complex
- NDHA58 - Isycoed Farm, a linear brick-built agricultural structure with hour-glass ventilators, visible on 1880s OS mapping. Part of a larger farm complex
- NDHA59 - Laurel Grove, a brick-built building part of a farm complex. Visible on 1880s OS mapping
- NDHA60 - Laurel Grove, a brick-built building part of a farm complex. Visible on 1880s OS mapping
- NDHA61 - Laurel Grove, a brick-built building part of a farm complex. Visible on 1880s OS mapping
- NDHA62 - Laurel Grove, a brick-built building part of a farm complex. Visible on 1880s OS mapping
- NDHA63 - Laurel Grove, a brick-built building part of a farm complex. Visible on 1880s OS mapping
- NDHA64 - Laurel Grove, a brick-built building part of a farm complex. Visible on 1880s OS mapping
- NDHA65 - Llan y Pwll Orchard. An orchard, now private garden with orchard plantings removed
- NDHA66 - Llan y Pwll, Hugmore Lane, Holt Lodge Farm, barn 1. A brick-built part of a larger complex. Converted to domestic use and extended in modern period

- NDHA67 - Llan y Pwll, Hugmore Lane, Holt Lodge Farm, barn 1. A brick-built part of a larger complex. Converted to domestic use and extended in modern period
- NDHA68 - Maelor Saesneg pond 497. Pond / former marl pit shown on 1880s OS mapping
- NDHA69 - Maelor Saesneg pond 498. Pond / former marl pit shown on 1880s OS mapping
- NDHA70 - Spring Grove, An L-plan farm building visible on first edition 1872 OS mapping.
- NDHA71 - Spring Grove. Double-pile brick-built farmhouse visible on first edition 1872 OS mapping
- NDHA72 - Land north of Bryn Lane, Pond / Marl Pit 1, visible on first edition OS map of 1873. Remains extant. Located within the application site.
- NDHA73 - Land north of Bryn Lane, Pond / Marl Pit 2, visible on first edition OS map of 1873. Infilled. Located within the application site.
- NDHA74 - Land north of Bryn Lane, Pond / Marl Pit 3, visible on first edition OS map of 1873. Infilled. Located within the application site.
- NDHA75 - Land north of Bryn Lane, Pond / Marl Pit 4, visible on tithe map of 1843. Remains extant. Located within the application site.
- NDHA76 - Land north of Bryn Lane, Pond / Marl Pit 5, visible on first edition OS map of 1873. Remains extant. Located within the application site.
- NDHA77 - Land north of Bryn Lane, Pond / Marl Pit 5, pair of ponds visible on first edition OS map of 1873. Infilled. Located within the application site.
- NDHA78 - Land north of Bryn Lane, Pond / Marl Pit 6, pair of ponds visible on first edition OS map of 1873. Infilled. Located within the application site.
- NDHA79 - Land north of Bryn Lane, Pond / Marl Pit 7, pair of ponds visible on first edition OS map of 1873. Infilled. Located within the application site.
- NDHA80 - Land north of Bryn Lane, Pond / Marl Pit 8, visible on first edition OS map of 1873. Infilled. Located within the application site.
- NDHA81 - Land north of Bryn Lane, Pond / Marl Pit 9, visible on first edition OS map of 1873. Infilled. Located within the application site.
- NDHA82 - Land north of Bryn Lane, Pond / Marl Pit 10, visible on first edition OS map of 1873. Remains extant. Located within the application site.
- NDHA83 - Land north of Bryn Lane, Pond / Marl Pit 11, a cluster of three ponds visible on first edition OS map of 1873. Infilled. Located within the application site.
- NDHA84 - Land north of Bryn Lane, Pond / Marl Pit 12, visible on first edition OS map of 1873. Remains extant. Located within the application site.
- NDHA85 - Cornish Farm, pond I. Site of former pond and marl pit now infilled. Visible on first edition OS map
- NDHA86 - Cornish Farm pond II. Site of former pond and marl pit now infilled. Visible on first edition OS map
- NDHA87 - Bryn Villa marl pit, site of a former marl pit now infilled
- NDHA88 - Honeysuckle Cottage, A small homestead visible on the 1845 Tithe Map where it is described as 'two cottages and gardens'. The original land parcel remains intact however the present building appears to be a

modern replacement of the original dwelling. It is located within the application site and its setting is assessed as including the immediately adjacent garden and land plot, with the surrounding agricultural landscape providing a positive contribution to understanding its post-medieval setting.

Negligible heritage significance

- NDHA89 - Llan y Pwll Chapel. The site of a former chapel visible on 19th century OS mapping. Destroyed by modern road widening.
- NDHA90 - Marshley Farm, site of a former farm visible on 1880s OS mapping. Fully demolished and rebuilt in modern period.
- NDHA91 - Cornish Farm sheep fold, visible on first edition OS mapping
- NDHA92 - Bryn Estyn Road Brickworks, site of a former brickworks visible on early OS mapping.
- NDHA93 - Clays buildings, site of former buildings adjacent to the former Bryn Estyn Brickworks.

Modern

- 5.6 There are nine historic assets dating to the modern period, of which all but one are associated with Second World War activity. These include the site of the former Royal Ordnance Factory, a pillbox, and the sites of recorded aircraft crashes. The aircraft crash sites are assessed in this report as being of moderate heritage significance with the other historic assets assessed as being of low and negligible heritage significance. The Francis Lane air crash site (**NDHA94**) was initially assessed (TEP 2021b) as being of potentially moderate significance however in this updated report its significance has been reduced to low due to the low potential that any physical remains of the crash are present within the application site.

Moderate heritage significance

- NDHA95 - Cornish Hall air crash site. Details of crash event are unknown. The record is derived from Grant and Pratt 2002.
- NDHA96 - De Havilland Mosquito II DZ684. The Mosquito was one of 80 delivered to the RAF between January and March 1943 by De Havilland of Hatfield. Its service history included assignments to 605/151/307 squadrons and 60 OTU. It ran out of fuel and was abandoned 1 mile southwest of Holt.
- NDHA97 - Holt Lodge Farm air crash site. Holt Lodge Farm air crash site, Details of crash event are unknown. The record is derived from Grant and Pratt 2002.
- NDHA98 - Gourton Hall air crash site. Details of crash event are unknown. The record is derived from Grant and Pratt 2002.

Low heritage significance

- NDHA94 - Francis Lane air crash site. Details of crash event including date, aircraft designation or associated personnel are not recorded in the HER. The record is derived from Grant and Pratt 2002. The location of the crash site is recorded within the application site boundary. Information received from the CPAT Senior Planning Archaeologist notes that the aircraft was a

US Curtis Tomahawk fighter plane AN892 and that following a surface crash all remains were recovered. The walkover survey did not identify any potential remains associated with the crash site. Geophysical survey within the application site did not identify any remains associated with this event.

- NDHA99 - Erlas Cottage, a modern building not visible on 19th century OS mapping.
- NDHA100 - Wrexham Royal Ordnance Factory, operational from 1940-5. Produced solventless cordite, an explosive propellant for cannon and rockets. The site is recorded as having covered an area of 1400 acres and employed 13,000 workers. The majority of the site is occupied by the Wrexham Industrial Estate but remnant structures and miscellaneous features of the original site remain extant.
- NDHA101 - Wrexham, ROF Marchwiel, Abenbury, Pillbox. A Second World War pillbox; it is uncertain if the feature is still extant

Negligible heritage significance

- NDHA102 - Spring Grove air crash site. Details of crash event are unknown. The record is derived from Grant and Pratt 2002. The crash site was likely impacted by the construction of the Industrial Estate Road however no records of findings during the works are available.

Archaeological Potential

- 5.7 This assessment of archaeological potential is based on the known historic background and record of historic assets, as well as the walkover survey undertaken as part of this report and a magnetometry survey of the application site (ASWYAS 2022).
- 5.8 There is a sparsity of archaeological investigations within the study area and the recorded data may be an underrepresentation of the archaeological resource.
- 5.9 The baseline conditions suggest that the application site has a low potential for archaeological remains dating to the prehistoric period and any such remains are likely to comprise findspots of low (local) heritage significance. There is also a low potential for archaeological remains of the Roman period and any such remains are likely to consist of individual findspots of low (local) heritage significance.
- 5.10 There is a low potential for archaeological remains of the early medieval period and any such remains are likely to be of low (local) heritage significance. These may consist of individual finds of features relating to agricultural or settlement activity. Hedgerow H1 which forms a township boundary may have its origins in the early medieval period and may therefore include finds such as pottery fragments of the early medieval period as well as finds of earlier and later periods.

- 5.11 Geophysical survey of the application site has not revealed any archaeological remains likely to predate the medieval period. The application site can be demonstrated to include extant and subsurface remains of ridge and furrow cultivation which is assigned to the medieval or post medieval periods. The upstanding areas of ridge and furrow have been considered as non-designated historic assets for the purpose of this assessment report (**NDHA12-14**). Many of the existing hedgerow boundaries correspond with the arrangement of ridge and furrow blocks, which could be indicative of their date.
- 5.12 The application site is located at the boundary of the townships of Holt and Ridley and is at the periphery of principal settlement activity of the two areas. It is considered that there is a moderate to high potential for archaeological remains associated with the medieval and post medieval periods and any such remains are likely to include individual findspots, and features associated with agricultural activity including former hedgerow boundaries and are likely to be of low (local) heritage significance.
- 5.13 There is a low potential for archaeological remains of the modern period. It is considered that there is a low potential for remains associated with the recorded aircraft crash site (**NDHA94**) to remain within the application site and any such remains would likely consist of small debris not recovered during initial aircraft recovery works. The aircraft is believed to have been a Curtis Tomahawk fighter plane (pers comm Mark Walters) and there is a low potential for ordnance to be present. It is unlikely that human remains associated with this event will be present within the application site as any casualties would have been recovered at the time of the crash.
- 5.14 The application site has been utilised as agricultural land since at least the medieval period and the present field layout appears to be contemporary with medieval ridge and furrow patterns. Modern ploughing has taken place across much of the application site which has eroded and levelled the ridge and furrow in several areas. No significant development has taken place within the application site, therefore it is likely that any as yet unknown archaeological remains would be in a moderate to good state of preservation.

6.0 Discussion and Conclusions

Summary of baseline conditions

Designated Historic Assets

- 6.1 No World Heritage Sites, Scheduled Monuments, Registered Historic Landscapes, Conservation Areas, Registered Battlefields, or Registered Parks and Gardens are recorded within the study area.
- 6.2 Within a 1km study area there are three designated historic assets comprising Grade II Listed buildings, Cornish Hall (**LB1**), New Holt Lodge Farm (**LB2**), and Erilas Hall (**LB3**).
- 6.3 There are no designated historic assets recorded within the application site itself.

Non-Designated Historic Assets

- 6.4 Within the study area there are no known non-designated historic assets pre-dating the medieval period.
- 6.5 There are sixteen historic assets dated to the medieval period of which all but two (**NDHA11, 15**) consist of the remains of ridge and furrow cultivation. Three areas of visible extant ridge and furrow are recorded within the application site bounds (**NDHA12-14**). They are considered to be of low historic and evidential significance relating to the medieval and post medieval history, land-use and development of the area.
- 6.6 The majority of the 77 post-medieval non-designated historic assets within the study area consist of built heritage in the form of houses, or farms and associated buildings which form distinct farm complexes. Two non-designated historic assets comprising Spring Grove, a mid to late 19th century farmhouse and farm building (**NDHA70, 71**) are located close to the western boundary of the application site.
- 6.7 Within the application site bounds there are twelve individual or groups of ponds / marl pits (**NDHA72-84**) which can be demonstrated from historic mapping to post-date 1843. These features are assessed as having low heritage significance relating to post-medieval agricultural practices.
- 6.8 A single post-medieval homestead, Honeysuckle cottage (**NDHA 88**) is located within the application site boundary; the site is visible on the 1843 Tithe map and retains its historic bounds however the building presently on site is a modern replacement of the earlier structure.
- 6.9 A single historic asset dated to the modern period is recorded within the application site bounds and consists of an aircraft crash site (**NDHA94**). The details of the event are unknown. It is assessed as being of low heritage significance and it is considered that there is a low potential for physical remains associated with the aircraft to be present within the application site.
- 6.10 The application site includes twelve hedgerows which have been assessed as Important in accordance with the Hedgerow Regulations. These are discussed in a Hedgerow Impact Assessment as an addendum to this report.

Assessment of Effects

The Proposed Development

6.11 The proposed development is commercial development and will encompass:

Detailed component:

- 1. Demolition of existing buildings, site clearance and preparation works, including removal of vegetation and reprofiling of topsoil, where necessary;
- 2. Construction of a new warehouse unit, providing 33,595 sqm Gross External Area (GEA) for B1c (light industry appropriate in a residential area), B2 (general industrial) and B8 (storage & distribution) uses (Unit 2);
- 3. Construction of 8 new smaller units (Units 3-7; 14-16), providing a total of 29,659 sqm GEA for B1c (light industry appropriate in a residential area), B2 (general industrial) and B8 (storage & distribution) uses;

Outline component:

- 1. Construction of up to 72,635 sqm GEA for employment uses (B1c (light industry appropriate in a residential area), B2 (general industrial) and B8 (storage & distribution) uses), ancillary retail/drive thru facilities and potential for a hotel and petrol filling station (A1, A3, C1 or sui generis). The overall quantum of A1, A3, C1 or sui generis use would not exceed 16,150 sqm GEA;
- 2. The proposed buildings will be up to 28.5m in height above ground level;

Site wide:

- 1. Access and parking provision, including new access junctions, internal roads, service yards and car and HGV parking. Two new junctions are proposed (in detail) providing vehicular access, as well as cycle and pedestrian access, from Bryn Lane/Industrial Estate Road with an additional access road for a substation. Car parking spaces, HGV trailer spaces and HGV lorry spaces are proposed across the application site;
- 2. Retention and enhancement of some existing on-site green spaces and provision of landscaping around the application site; and
- 3. Implementation of drainage/attenuation measures.

6.12 Information on the proposed development is provided on the drawings 'Parameters Plan' and 'Illustrative Master Plan'.

6.13 Available Cut and Fill drawings suggest that the proposed development would require raising the ground levels across wide areas of the application site including at the eastern extent where Units 1 and 2 would be located. Ground reduction would be localised to smaller areas, in particular at the western half of the application site. It is anticipated however that the areas to be filled would require a preliminary strip of the topsoil / subsoil overburden therefore there would be an intrusive impact on potential archaeological remains and direct impact on known historic assets.

Designated Historic Assets

- 6.14 The proposed development is not capable impacting on the Grade II Listed buildings of Cornish Hall (**LB1**) and Erilas Hall (**LB3**) due to the distance between the application site and these historic assets. The application site is not within their setting and there is no intervisibility.

New Holt Lodge Farm

Heritage significance

- 6.15 The Grade II Listed New Holt Lodge Farm (**LB2**) is located 100m to the north of the application site. The building is of high heritage significance and has historic, architectural and evidential value as a post-medieval farmstead with the survival of remains of an earlier structure which was remodelled during the 19th century. Tithe map evidence demonstrates that the occupier of the house was also associated with two adjoining land parcels which are not among those within the application site.
- 6.16 Its setting includes the immediate farm complex and garden / orchard subdivisions, and the wider setting includes the surrounding post-medieval agricultural landscape. The application site is assessed as providing a minor positive contribution to the heritage significance of the building as representing a surviving area of the medieval and post-medieval agricultural landscape which is part of the building's wider setting. The fields within the application site are not noted as being historically associated with the farm on the tithe apportionment and are physically separated from the area of the farm by Francis Lane. The principal elevation of the Listed building is towards Hugmore Lane at the west, rather than towards the site, and there are agricultural structures between the Listed farm and the application site which restrict southward views from the Listed building.

Effects to heritage significance

- 6.17 Walkover survey of the application site demonstrates that there is very limited visibility between the application site and the listed building with screening provided by a linear range of buildings to the immediate south of the listed building and by an intervening line of trees and hedgerows along Francis Lane.
- 6.18 The proposed development (Illustrative Masterplan) intends to site the largest warehouse structures (Unit 1 - Zone B, and Unit 2) in the southern and eastern areas of the application site. The proposed maximum finished building height will be 28.5m to ridge. The western side of the application site includes smaller units (Units 3-7) and Zone 2; the maximum height in Zone 2 is 20m to ridge. A residential and landscape buffer including both retained and newly planted trees and vegetation will be created at the north and west of this zone.
- 6.19 The distribution and massing of the proposed development, as well as residential landscape screening, are anticipated to reduce visual intrusion and intervisibility between the application site and the listed building.

- 6.20 Development within the application site is likely to represent a minor adverse change to the setting of the listed building by removing part of the contemporary agricultural landscape and field system that provides an understanding of the asset and its rural setting.
- 6.21 It is considered that the magnitude of change by the development to the historic asset in terms of the way it is experienced and understood will be low, with minor loss arising from changes within its setting. The significance of effect is assessed as low.

Non-Designated Historic Assets

- 6.22 Development within the application site has the potential for direct impacts on historic ridge and furrow, several surviving and former ponds / marl pits, and a single aircraft crash site. The mid to late 19th century farmhouse and farm building at Spring Grove may experience indirect impacts.

Important Hedgerows

- 6.23 An assessment of the impacts of the proposed development on important hedgerows is provided as an addendum to this report.

Francis Lane aircraft crash site (NDHA94)

- 6.24 Desk-based research indicates that there is a low potential that any physical wreckage remains within the application site as the aircraft remains were recovered at the time of the crash. Geophysical survey of the application site did not identify any remains associated with this event. Therefore, this asset has been assessed as having low heritage significance.
- 6.25 As any remains are likely to be dispersed across the application site the magnitude of effect of development is considered to be low and will arise through groundworks associated with construction encountering unexpected remains. The significance of effect would therefore be low or negligible.

Medieval ridge and furrow (NDHA12-14)

- 6.26 Within the application site there are three areas of ridge and furrow surviving as visible earthwork remains (**NDHA12-14**). Modern ploughing has resulted in the erosion of these features which are fairly shallow with NDHA12 providing the best-preserved example. The ridge and furrow have historic and evidential value relating to the history and development of the area and medieval agricultural practices. Geophysical survey of the application site demonstrates that superficial or sub-surface ridge and furrow remains are present across much of the application site.
- 6.27 Development associated with the construction of Units 1 and 2 (Illustrative Masterplan) is likely to result in the complete removal of upstanding ridge and furrow remains noted in those areas of the application site (**NDHA12-14**). The proposed development will result in significant removal of subsurface remains of ridge and furrow within the wider application site. These historic assets are assessed as having low heritage significance and the magnitude of effect of development will be high. The significance of effect would be low.

Marl Pits / Ponds (NDHA72-84)

- 6.28 Within the application site bounds there are twelve individual or groups of ponds / marl pits (**NDHA72-84**) of which five remain as water-filled features (**NDHA72, 75, 76, 82, 84**) while the others are infilled. They have historic and evidential value related to historic agricultural practice as well as the history and development of the area. The proposed development will result in the loss of the majority of these features which are of low heritage significance. The magnitude of effect of development will be high which would result in a low significance of effect.

Honeysuckle Cottage (NDHA88)

- 6.29 The proposed development would result in the total loss of the post-medieval-modern homestead. The present building appears to be a modern replacement of an earlier farmhouse. The historic asset is of low heritage significance with historic value related to the historic development of the area. The building will be demolished and associated boundaries removed as part of the proposed development; the magnitude of effect of development will be high and the significance of effect would be low.

Farm buildings at Spring Grove (NDHA 70, NDHA71)

- 6.30 The non-designated historic assets of a farm building and farmhouse at Spring Grove were noted as part of a Traditional Farm Buildings project as being present on 1873 Ordnance Survey mapping. Comparison of historic mapping suggests that they were not present on the 1840s tithe map and were built between c1840-1873. The application site provides a minor contribution to the heritage significance of the farm buildings as representing agricultural landscape. They are currently in use as residential dwellings and are assessed as being of low heritage significance with historic and evidential value relating to local agricultural history and historic development of the area. The impact of the proposed development will be negligible and the significance of effect will be negligible.

Archaeology

- 6.31 A review of known baseline conditions, supported by geophysical survey indicates that there is a low potential for archaeological remains pre-dating the medieval period to be present within the application site. Any such remains are likely to consist of individual findspots of low heritage significance.
- 6.32 There is a high potential for archaeological remains of the medieval and post-medieval periods to be present within the application site, comprising ridge and furrow, historic marl pits and former field boundaries which are of low heritage significance.
- 6.33 Development within the application site has the potential to impact on as yet unknown buried archaeological remains within the application site boundary; any such remains are likely to be of low heritage significance. The magnitude of effect of development may be moderate to high and the significance of effect would be low.

Mitigation or Recommendation

Consultation Responses

- 6.34 Preliminary consultation with the Development Control Archaeologist at Clywd Powys Archaeological Trust (email correspondence 04/01/2022) highlighted that the sub-surface potential for archaeological remains pre-dating the post medieval period is largely unknown. It was therefore recommended that a geophysical survey be undertaken of the application site at the pre-determination stage to help identify any potential archaeological remains. A geophysical survey of the application site was carried out (ASWYAS 2022, appended to this report) and determined that there was a low potential for archaeological remains to be present within the application site.
- 6.35 A scoping opinion was received from the Senior Planning Archaeologist at CPAT (pers comm 07/12/2022) which agreed that the geophysical survey indicates that the archaeological potential of the application site was low, though noting that the ridge and furrow remains may mask underlying earlier features.
- 6.36 It was requested that an assessment of the effects of development on historic hedgerows be provided and that the development should as far as possible retain hedgerows classed as 'Important' under the Hedgerow Regulations Act 1997. Mitigation must be stated where historic hedgerows may be impacted.
- 6.37 The scoping opinion agreed that the potential for remains associated with Francis Lane Aircraft Crash Site (**NDHA94**) is low however contingency should be put in place in the event that unexpected remains are encountered during development.
- 6.38 A scoping opinion was provided by Cadw (pers comm 20/01/2023) which agreed with the scoping report that the proposed development would not result in significant effect on identified designated historic assets and the effect of the proposed development on the settings of designated historic assets can be scoped out of the EIA.

Designated Historic assets

New Holt Lodge Farm (LB2)

- 6.39 There is very limited intervisibility between the application site and the Grade II Listed New Holt Lodge. The proposed development includes embedded mitigation to reduce visual intrusion including low massing and placing the larger structures at a distance from the listed building. Residential and landscape buffers and screening are proposed at the north and western sides of the application site.

Non-designated Historic assets

Aircraft Crash Site (NDHA94)

- 6.40 There is a low potential for below-ground remains associated with a recorded military aircraft crash site (**NDHA94**). Any such remains are likely to consist of scattered fragments of wreckage. In the event of the discovery of such remains a licence for the disturbance and removal would need to be obtained from the Joint Casualty and Compassionate Centre (JCCC) under the Protection of Military Remains Act 1986. Any such remains would need to be excavated under archaeological conditions. In the event that human remains associated with the crash are identified, the site would be classed as a war grave and an exclusion zone to development would likely be required.

Ridge and Furrow

- 6.41 Development within the application site will result in direct impact on medieval ridge and furrow, both visible and sub-surface remains. Mitigation through preservation by record by means of archaeological recording could be carried out as a condition of planning consent. This would comprise a topographical earthwork survey of areas of visible ridge and furrow to record the profile.

Marl Pits / Ponds (NDHA72-84)

- 6.42 No mitigation is considered necessary in relation to these historic assets.

Honey Suckle Cottage (NDHA88)

- 6.43 No mitigation is considered necessary in relation to this historic asset.

Farm buildings at Spring Grove, NDHA 70, NDHA71

- 6.44 The proposed development includes designed mitigation in the form of low massing at the western extent of the application site and residential screening at the western bounds to reduce intervisibility between the application site and existing residential dwellings on Hugmore Lane. No additional mitigation is considered necessary in relation to these historic assets.

Archaeology

- 6.45 The application site is assessed as having a low potential to include as yet unknown archaeological remains and any such remains are likely to be of low heritage significance.
- 6.46 As noted by the Senior Planning Archaeologist at CPAT the ridge and furrow which is present across most of the site may mask underlying archaeological features in the geophysical survey results. There is also a potential that archaeological features with a similar fill material to the surrounding natural background might not appear in the survey results.

- 6.47 Due to this potential it is recommended that archaeological works in the form of trial trench survey be undertaken as a pre-construction condition. This work would help to confirm 'negative' areas of the geophysical survey. The scope of the survey should be commensurate with the low archaeological potential and the scale of impact of development, and the methodology for the survey should be set out in a Written Scheme of Investigation to be reviewed and approved by CPAT.
- 6.48 In the event of archaeological remains being identified during this survey, targeted excavations could be carried out during the same or a separate programme of works to ensure sufficient investigation and recording. Should this survey confirm an absence of archaeological remains, or remains of low significance, it may be considered sufficient mitigation to discharge the condition.

Archive

- 6.49 This report will be archived with the Clwyd Powys Historic Environment Record within 6 months of completion, unless otherwise instructed by the client.

References

Data Sources

APU 2022, APU Online, APU Online <https://www.wales.gov.uk> [accessed 31/01/2022]

Archaeological Data Services: <http://archaeologydataservice.ac.uk/archsearch>

Archwilio Historic Environment Records of Wales
<https://www.archwilio.org.uk/arch/index.html>

Cadw, <https://cadw.gov.wales/advice-support/cof-cymru/search-cadw-records>

Clwyd Powys Historic Environment Record

LLE 2022, LiDAR Composite Dataset, Lle - LiDAR Composite Dataset (gov.wales)
[accessed 31/01/2022]

National Heritage List: <http://list.english-heritage.org.uk> and
<http://magic.defra.gov.uk/>

Coflein, <https://coflein.gov.uk/en/>

The National Library of Wales, Tithe Maps, <https://places.library.wales>

Legislation and Policy

Ancient Monuments and Archaeological Areas Act, 1979

Hedgerow Regulations Act 1997

Historic Environment (Wales) Act, 2016

Planning (Listed Buildings and Conservation Areas) Act, 1990

Planning Policy Wales, Edition 11, February 2021

Planning Policy Wales, Technical Advice Note 24: The Historic Environment, 2017

Protection of Military Remains Act, 1986

The Wrexham Unitary Development Plan 1996-2011

Wrexham Local Development Plan 2 (LDP2) 2018-2028

Best Practice and Guidance

Cadw 2011, Conservation Principles for the Sustainable Management of the Historic Environment in Wales

Cadw 2017, Setting of Historic Assets in Wales

Chartered Institute for Archaeologists 2022, Code of Conduct: Professional Ethics in Archaeology

Chartered Institute for Archaeologists 2020, Standard and Guidance for Historic Environment Desk-Based Assessment

Other sources

ASWYAS 2022, *Land North of Bryn Lane, Wrexham, Clwyd, Geophysical Survey*, WYAS Archaeological Services, Report No. 3800

British Archaeology, 2007, *Wat's Dyke dated: was it Coenwulf's dyke?* British Archaeology, 97

CPAT 2016a, *Historic Settlement Survey – Wrexham County Borough*, Wrexham, Clwyd Powys Archaeological Trust

CPAT2016b, *Historic Settlement Survey – Wrexham County Borough, Holt, Clwyd* Powys Archaeological Trust

Clwyd Archaeology Service, 1991, *The Archaeology of Clwyd*, Clwyd County Council

English Heritage 2002, *Military Aircraft Crash Sites: Archaeological Guidance on their Significance and Future Management*, English Heritage

Grant I, Jones N W, 2009, *Excavations at Borrass Quarry, Wrexham, 2009*, Interim Report, Clwyd Powys Archaeological Trust, Report No. 1018

Grant, M, Pratt, D, 2002, *Wings Across the Border: A History of Aviation in North-East Wales and the Northern Marches*, Bridge Books

Hankinson R, et al, 2012, *Medieval and Early Post-Medieval Industry in East and North-East Wales*, Clwyd Powys Archaeological Trust, CPAT Report no. 1144

Hankinson R, Spencer J, 2012, *Twentieth Century Military Airfields, Scheduling Enhancement Programme*, Clwyd Powys Archaeological Trust, CPAT Report No. 112

Hankinson, R, Spencer J, 2014, *Military Aircraft Crash Sites, Scheduling Enhancement Programme*, Clwyd Powys Archaeological Trust, CPAT Report No. 1249

Jeffrey E, 2008, *The Marl Pits of West Sussex*, West Sussex Record Office

Jones, I, 2014, *Land South of Francis Lane, Wrexham, Clwyd, Archaeological Desk-Based Assessment*, Archaeology Wales, Report No. 1230

Lewis S, 1849, *A Topographical Dictionary of Wales*, <https://www.british-history.ac.uk/topographical-dict/wales>

Mercer E, 2018, *Heritage Assessment, Land South of Holt Road, Wrexham*, CgMs Heritage

McCulloch, A E, et al, 2017, *Polygonization of Traditional Farm Buildings in Wrexham*, Clwyd Powys Archaeological Trust, CPAT Report No. 1501

Owen, H, W, Morgan, R, 2007, *Dictionary of the Place-Names of Wales*, Gwasg Gomer

Phillips, A, 2006 *The Military Airfields of Wales*, Bridge Books

RFAW 2016, *A Research Framework for the archaeology of Wales*, <https://www.archaeoleg.org.uk/index.html>

Spencer J, Hankinson R, 2012, *Twentieth Century Military Airfields, Scheduling Enhancement Programme*, Clwyd-Powys Archaeological Trust

Silvester, R J, 2004, *Wrexham Industrial Estate Access Roads, Stage II Archaeological Study, Archaeological Assessment*, Clwyd Powys Archaeological Trust

TEP 2022a, *Land North of Bryn Lane, Wrexham, Clwyd, Heritage Impact Assessment, Written Scheme of Investigation*, The Environment Partnership (TEP) Ltd, 9134.02.001

TEP 2022b *Land North of Bryn Lane, Wrexham, Clwyd, Heritage Impact Assessment*, The Environment Partnership (TEP) Ltd, 9134.02.003, v1.0

TEP 2023, *Land North of Bryn Lane, Wrexham, Historic Hedgerow Impact Assessment*, The Environment Partnership (TEP) Ltd, 9134.02.005

Wrexham History, 2022, <https://www.wrexham-history.com/royal-ordnance-factory-wrexham/> [accessed 25/01/2022]

APPENDIX A: Gazetteer of known historic assets

TEP ID	HER ref	List Entry No.	Name / Description	Type	Grade	Period	Heritage Significance
LB1	1436	1536	Cornish Hall, an early 17th century house comprising a U shape plan with wings projecting from a central range. The building was remodelled extensively in the 1930s which provides it present character. Recorded to include an exceptional 17th century staircase.	House	II	Post Medieval	High
LB2	1441	1541	New Holt Lodge Farm, an early 19th century house containing elements of an earlier structure for which hearth tax records of 1670 exist. The building was substantially remodelled in the early 19th century and recently restored. The 1843 Tithe map records that the farm was occupied by Elizabeth Parry who also occupied two fields to the immediate east of the farm. The landowner is listed as Lord Kenyon.	House	II	Post Medieval	High
LB3	28318	84802	Erlas Hall, a mid 19th century house containing a remnant cruck-framed core associated with an earlier structure provisionally dated to the 16th or 17th century. The house was formerly the centre of the Erlas estate belonging to the Davies family.	House	II	Post Medieval	High
NDHA1	128238		Cornish Hall, area of ridge and furrow identified on LiDAR	Ridge and Furrow		Medieval	Low

TEP ID	HER ref	List Entry No.	Name / Description	Type	Grade	Period	Heritage Significance
NDHA2	142641		Erlas Black Wood, Remnant area of ridge and furrow	Ridge and Furrow		Medieval	Low
NDHA3	82617		Erlas Hall ridge and furrow I. Area of ridge and furrow described as in excellent condition. Associated with Erlas Hall	Ridge and Furrow		Medieval	Low
NDHA4	82618		Erlas Hall ridge and furrow II. Area of ridge and furrow described as just visible on the ground. Associated with Erlas Hall	Ridge and Furrow		Medieval	Low
NDHA5	128243		Hugmore House, ridge and furrow II, an area of ridge and furrow recorded from LiDAR. Located within the present golf course	Ridge and Furrow		Medieval	Low
NDHA6	128245		Hugmore House, ridge and furrow III, an area of ridge and furrow identified by LiDAR	Ridge and Furrow		Medieval	Low
NDHA7	128246		Larkfield, ridge and furrow. An area of ridge and furrow identified by LiDAR	Ridge and Furrow		Medieval	Low
NDHA8	128242		Hugmore Lane Farm, ridge and furrow, an area of ridge and furrow identified by LiDAR	Ridge and Furrow		Medieval	Low
NDHA9	82629		Erlas Hall ridge and furrow III. Area of ridge and furrow recorded from aerial photographs. Associated with Erlas Hall	Ridge and Furrow		Medieval - Post Medieval	Low

TEP ID	HER ref	List Entry No.	Name / Description	Type	Grade	Period	Heritage Significance
NDHA10	82631		Hugmore House ridge and furrow I, an area of ridge and furrow. Largely levelled by modern ploughing	Ridge and Furrow		Medieval - Post Medieval	Low
NDHA11	82630		Bryn Villa holloway, possible medieval trackway emerging from a shallow valley and identified via aerial photographs	Hollow Way		Medieval - Post Medieval	Low
NDHA12			Land north of Bryn Lane, Ridge and Furrow 1, an area of east-west aligned S curved ridge and furrow occupying the majority of the field and visible on aerial views of on the ground.	Ridge and Furrow		Medieval - Post medieval	Low
NDHA13			Land north of Bryn Lane, Ridge and Furrow 2, an area of east to west aligned ridge and furrow occupying the majority of the field and visible on aerial views of on the ground.	Ridge and Furrow		Medieval - Post medieval	Low
NDHA14			Land north of Bryn Lane, Ridge and Furrow 3, an area of ridge and furrow occupying the majority of the field and visible on aerial views of on the ground. The western side of the field includes E-W ridge and furrow and in the east side they are aligned N-S	Ridge and Furrow		Medieval - Post medieval	Low
NDHA15	118964		A heavily clipped halfgroat of Edward III or IV, found with the use of a metal detector at a depth of about 5cm. Clipping has removed the name so it could also be of Henry VI	Small find		Medieval	Negligible

TEP ID	HER ref	List Entry No.	Name / Description	Type	Grade	Period	Heritage Significance
NDHA16	82619		Bryn Villa ridge and furrow, likely removed by the construction of the Industrial Estate Road	Ridge and Furrow		Medieval	Negligible
NDHA17	145632		Aldersey Farm, extant post-medieval farm building	Farm building		Post Medieval	Low
NDHA18	145633		Aldersey Farm, extant post-medieval farm building	Farm building		Post Medieval	Low
NDHA19	145634		Aldersey Farm, extant post-medieval farm building	Farm building		Post Medieval	Low
NDHA20	146233		Clays Farm, post medieval farm buildings	Farm building		Post Medieval	Low
NDHA21	146234		Clays Farm, post medieval farm buildings	Farm building		Post Medieval	Low
NDHA22	146315		Cornish Farm, post medieval farm building.	Farm building		Post Medieval	Low
NDHA23	146316		Cornish Hall, post medieval farm building. Has group value with the Grade II Listed Cornish Hall	Farm building		Post Medieval	Low
NDHA24	146317		Cornish Hall, post medieval farm building. Has group value with the Grade II Listed Cornish Hall	Farm building		Post Medieval	Low

TEP ID	HER ref	List Entry No.	Name / Description	Type	Grade	Period	Heritage Significance
NDHA25	146318		Cornish Hall, post medieval farm building. Has group value with the Grade II Listed Cornish Hall	Farm building		Post Medieval	Low
NDHA26	146319		Cornish Hall, post medieval farm building. Has group value with the Grade II Listed Cornish Hall	Farm building		Post Medieval	Low
NDHA27	146320		Cornish Hall, post medieval farm building. Has group value with the Grade II Listed Cornish Hall	Farm building		Post Medieval	Low
NDHA28	192365		Cornish Hall farm. A farm complex associated with the Grade II listed Cornish Hall	Farm		Post Medieval	Low
NDHA29	146508		Erlas Hall, farm building part of a farm complex. Has group value with the Grade II Listed Erlas Hall	Farm building		Post Medieval	Low
NDHA30	146509		Erlas Hall, farm building part of a farm complex. Has group value with the Grade II Listed Erlas Hall	Farm building		Post Medieval	Low
NDHA31	146510		Erlas Hall, farm building part of a farm complex. Has group value with the Grade II Listed Erlas Hall	Farm building		Post Medieval	Low
NDHA32	146511		Erlas Hall, farm building part of a farm complex. Has group value with the Grade II Listed Erlas Hall	Farm building		Post Medieval	Low

TEP ID	HER ref	List Entry No.	Name / Description	Type	Grade	Period	Heritage Significance
NDHA33	146512		Erlas Hall, farm building part of a farm complex. Has group value with the Grade II Listed Erlas Hall	Farm building		Post Medieval	Low
NDHA34	82624		Erlas Hall marl pit II, a marl pit located in fields associated with Erlas Hall, possibly infilled	Marl pit		Post Medieval	Low
NDHA35	66313		Erlas Hall pond I, a pond / marl pit located in fields associated with Erlas Hall. Visible on 1881 OS mapping	Pond / Marl pit		Post Medieval	Low
NDHA36	66314		Erlas Hall pond II, a pond / marl pit located in fields associated with Erlas Hall. Visible on 1968 OS mapping	Pond / Marl pit		Post Medieval	Low
NDHA37	66315		Erlas Hall pond III, a pond / marl pit located in fields associated with Erlas Hall, Visible on 1881 OS mapping	Pond / Marl pit		Post Medieval	Low
NDHA38	66316		Erlas Hall pond IV, a pond / marl pit located in fields associated with Erlas Hall, Visible on 1881 OS mapping	Pond / Marl pit		Post Medieval	Low
NDHA39	66317		Erlas Hall pond V, a pond / marl pit located in fields associated with Erlas Hall, Visible on 1881 OS mapping	Pond / Marl pit		Post Medieval	Low
NDHA40	66318		Erlas Hall pond VI, a pond / marl pit located in fields associated with Erlas Hall, Visible on 1881 OS mapping	Pond / Marl pit		Post Medieval	Low

TEP ID	HER ref	List Entry No.	Name / Description	Type	Grade	Period	Heritage Significance
NDHA41	66319		Erlas Hall pond VII, a pond / marl pit located in fields associated with Erlas Hall, Visible on 1881 OS mapping	Pond / Marl pit		Post Medieval	Low
NDHA42	66324		Erlas Hall pond XI, a pond / marl pit located in fields associated with Erlas Hall. Visible on 1968 OS mapping	Pond / Marl pit		Post Medieval	Low
NDHA43	104498		Hazel Brook Milestone. A milestone located on Wrexham Road and denoted 3 miles to Wrexham and 2 miles to Holt. Visible on 19th century OS maps. Unclear if still extant	Milestone		Post Medieval	Low
NDHA44	146966		Holt Lodge Farm, a brick-built farm building part of a complex associated with the Grade II Listed New Holt Lodge Farm	Farm building		Post Medieval	Low
NDHA45	146967		Holt Lodge Farm, a brick-built farm building part of a complex associated with the Grade II Listed New Holt Lodge Farm	Farm building		Post Medieval	Low
NDHA46	86001		Holt Lodge Well. A well shown on 19th century OS mapping at the end of a footpath leading from Bryn Cottage. Unknown if still extant	Well		Post Medieval	Low
NDHA47	96109		Aldersey Farm, Francis Lane. A group of post-medieval barns part of a farm complex	Farm		Post Medieval	Low

TEP ID	HER ref	List Entry No.	Name / Description	Type	Grade	Period	Heritage Significance
NDHA48	124899		Cornish Hall, Wrexham Road. A group of brick-built agricultural buildings adjacent to the Grade II Listed Cornish Hall. Recently converted to domestic use	Farm buildings		Post Medieval	Low
NDHA49	147004		Hugmore Farm, a brick building visible on 1880s OS mapping. Expanded with new extensions in modern period	Farm		Post Medieval	Low
NDHA50	147005		Hugmore House, a brick building part of a larger farm complex which is visible on 1880s OS mapping.	Farm building		Post Medieval	Low
NDHA51	147006		Hugmore House, a brick building part of a larger farm complex which is visible on 1880s OS mapping.	Farm building		Post Medieval	Low
NDHA52	147007		Hugmore House, a brick building part of a larger farm complex which is visible on 1880s OS mapping.	Farm building		Post Medieval	Low
NDHA53	147008		Hugmore House, a brick building part of a larger farm complex which is visible on 1880s OS mapping.	Farm building		Post Medieval	Low
NDHA54	147009		Hugmore Lane Farm, a brick building part of a farm complex. Visible on 1888 OS mapping	Farm building		Post Medieval	Low
NDHA55	147010		Hugmore Lane Farm, a brick building part of a farm complex. Visible on 1888 OS mapping	Farm building		Post Medieval	Low

TEP ID	HER ref	List Entry No.	Name / Description	Type	Grade	Period	Heritage Significance
NDHA56	147011		Hugmore Lane Farm, a brick building part of a farm complex. Visible on 1888 OS mapping	Farm building		Post Medieval	Low
NDHA57	147039		Isycoed Farm, a linear brick-built agricultural structure with hour-glass ventilators, visible on 1880s OS mapping. Part of a larger farm complex	Farm building		Post Medieval	Low
NDHA58	147040		Isycoed Farm, a linear brick-built agricultural structure with hour-glass ventilators, visible on 1880s OS mapping. Part of a larger farm complex	Farm building		Post Medieval	Low
NDHA59	147095		Laurel Grove, a brick-built building part of a farm complex. Visible on 1880s OS mapping	Farm building		Post Medieval	Low
NDHA60	147096		Laurel Grove, a brick-built building part of a farm complex. Visible on 1880s OS mapping	Farm building		Post Medieval	Low
NDHA61	147097		Laurel Grove, a brick-built building part of a farm complex. Visible on 1880s OS mapping	Farm building		Post Medieval	Low
NDHA62	147098		Laurel Grove, a brick-built building part of a farm complex. Visible on 1880s OS mapping	Farm building		Post Medieval	Low
NDHA63	147099		Laurel Grove, a brick-built building part of a farm complex. Visible on 1880s OS mapping	Farm building		Post Medieval	Low
NDHA64	147100		Laurel Grove, a brick-built building part of a farm complex. Visible on 1880s OS mapping	Farm building		Post Medieval	Low

TEP ID	HER ref	List Entry No.	Name / Description	Type	Grade	Period	Heritage Significance
NDHA65	86000		Llan y Pwll Orchard. An orchard, now private garden with orchard plantings removed	Orchard		Post Medieval	Low
NDHA66	124845		Llan y Pwll, Hugmore Lane, Holt Lodge Farm, barn 1. A brick-built part of a larger complex. Converted to domestic use and extended in modern period	Farm building		Post Medieval	Low
NDHA67	124804		Llan y Pwll, Hugmore Lane, Holt Lodge Farm, barn 2. A brick-built part of a larger complex. Converted to domestic use and extended in modern period	Farm building		Post Medieval	Low
NDHA68	61514		Maelor Saesneg pond 497. Pond / former marl pit shown on 1880s OS mapping	Pond / Marl Pit		Post Medieval	Low
NDHA69	61515		Maelor Saesneg pond 498. Pond / former marl pit shown on 1880s OS mapping	Pond / Marl Pit		Post Medieval	Low
NDHA70	148252		Spring Grove, An L-plan farm building visible on first edition 1872 OS mapping.	Farm building		Post Medieval	Low
NDHA71	148253		Spring Grove. Double-pile brick-built farmhouse visible on first edition 1872 OS mapping	Farm building		Post Medieval	Low
NDHA72			Land north of Bryn Lane, Pond / Marl Pit 1, visible on first edition OS map of 1873. Remains extant	Pond / Marl Pit		Post Medieval	Low

TEP ID	HER ref	List Entry No.	Name / Description	Type	Grade	Period	Heritage Significance
NDHA73			Land north of Bryn Lane, Pond / Marl Pit 2, visible on first edition OS map of 1873. Infilled	Pond / Marl Pit		Post Medieval	Low
NDHA74			Land north of Bryn Lane, Pond / Marl Pit 3, visible on first edition OS map of 1873. Infilled	Pond / Marl Pit		Post Medieval	Low
NDHA75			Land north of Bryn Lane, Pond / Marl Pit 4, visible on tithe map of 1843. Remains extant	Pond / Marl Pit		Post Medieval	Low
NDHA76			Land north of Bryn Lane, Pond / Marl Pit 5, visible on first edition OS map of 1873. Remains extant	Pond / Marl Pit		Post Medieval	Low
NDHA77			Land north of Bryn Lane, Pond / Marl Pit 5, pair of ponds visible on first edition OS map of 1873. Infilled	Pond / Marl Pit		Post Medieval	Low
NDHA78			Land north of Bryn Lane, Pond / Marl Pit 6, pair of ponds visible on first edition OS map of 1873. Infilled	Pond / Marl Pit		Post Medieval	Low
NDHA79			Land north of Bryn Lane, Pond / Marl Pit 7, pair of ponds visible on first edition OS map of 1873. Infilled	Pond / Marl Pit		Post Medieval	Low
NDHA80			Land north of Bryn Lane, Pond / Marl Pit 8, visible on first edition OS map of 1873. Infilled	Pond / Marl Pit		Post Medieval	Low
NDHA81			Land north of Bryn Lane, Pond / Marl Pit 9, visible on first edition OS map of 1873. Infilled	Pond / Marl Pit		Post Medieval	Low

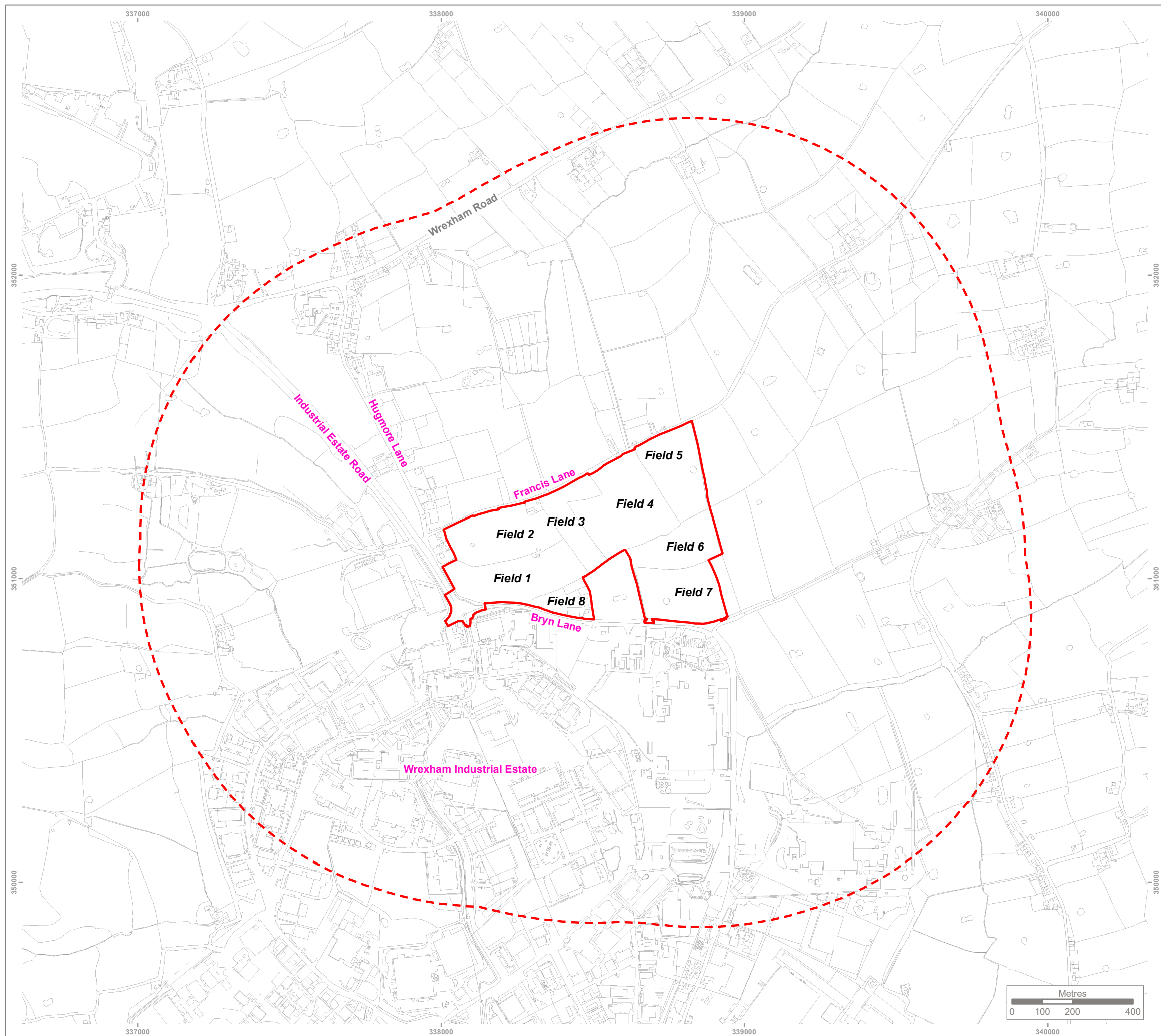
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NDHA82			Land north of Bryn Lane, Pond / Marl Pit 10, visible on first edition OS map of 1873. Remains extant	Pond / Marl Pit		Post Medieval	Low
NDHA83			Land north of Bryn Lane, Pond / Marl Pit 11, a cluster of three ponds visible on first edition OS map of 1873. Infilled.	Pond / Marl Pit		Post Medieval	Low
NDHA84			Land north of Bryn Lane, Pond / Marl Pit 12, visible on first edition OS map of 1873. Remains extant	Pond / Marl Pit		Post Medieval	Low
NDHA85	55249		Cornish Farm Pond I. Site of former pond and marl pit now infilled. Visible on first edition OS map	Pond		Post Medieval	Low
NDHA86	55250		Cornish Farm pond II. Site of former pond and marl pit now infilled. Visible on first edition OS map	Pond		Post Medieval	Low
NDHA87	82632		Bryn Villa marl pit, site of a former marl pit now infilled	Marl Pit		Post Medieval	Low
NDHA88			Honeysuckle Cottage, A small homestead visible on the 1845 Tithe Map where it is described as 'two cottages and gardens'. The original land parcel remains intact however the present building appears to be a modern replacement of the original dwelling.	House		Post-medieval	Low

TEP ID	HER ref	List Entry No.	Name / Description	Type	Grade	Period	Heritage Significance
NDHA89	86002		Llan y Pwll Chapel. The site of a former chapel visible on 19th century OS mapping. Destroyed by modern road widening	Chapel		Post Medieval	Negligible
NDHA90	70343		Marshley Farm, site of a former farm visible on 1880s OS mapping. Fully demolished and rebuilt in modern period	Farm building		Post Medieval	Negligible
NDHA91	55251		Cornish Farm sheep fold, visible on first edition OS mapping	Sheep Fold		Post Medieval	Negligible
NDHA92	104463		Bryn Estyn Road Brickworks, site of a former brickworks visible on early OS mapping	Brickworks		Post Medieval	Negligible
NDHA93	86034		Clays buildings, site of former buildings adjacent to the former Bryn Estyn Brickworks	Building		Post Medieval	Negligible
NDHA94	86027		Francis Lane air crash site, Details of crash event including date, aircraft designation or associated personnel are unknown. The record is derived from Grant and Pratt 2002. The crash site is recorded within the application site. The walkover survey did not identify any potential remains associated with the crash site.	Air crash site		Modern	Low
NDHA95	86028		Cornish Hall air crash site. Details of crash event are unknown. The record is derived from Grant and Pratt 2002.	Air crash site		Modern	Moderate

TEP ID	HER ref	List Entry No.	Name / Description	Type	Grade	Period	Heritage Significance
NDHA96	130233		De Havilland Mosquito II DZ684, The Mosquito was one of 80 delivered to the RAF between January and March 1943 by De Havilland of Hatfield. Its service history included assignments to 605/151/307 squadrons and 60 OTU. It ran out of fuel and was abandoned 1 mile southwest of Holt	Air crash site		Modern	Moderate
NDHA97	86025		Holt Lodge Farm air crash site, Details of crash event are unknown. The record is derived from Grant and Pratt 2002.	Air crash site		Modern	Moderate
NDHA98	86024		Gourton Hall air crash site, Details of crash event are unknown. The record is derived from Grant and Pratt 2002.	Air crash site		Modern	Moderate
NDHA99	66323		Erlas Cottage, a modern building not visible on 19th century OS mapping	House		Modern	Low
NDHA100	72200		Wrexham Royal Ordnance Factory, operational from 1940-5. Produced solventless cordite, an explosive propellant for cannon and rockets. The site is recorded as having covered an area of 1400 acres and employed 13,000 workers. The majority of the site is occupied by the Wrexham Industrial Estate but remnant structures and miscellaneous features of the original site remain extant.	Royal Ordnance Factory		Modern	Low

TEP ID	HER ref	List Entry No.	Name / Description	Type	Grade	Period	Heritage Significance
NDHA101	120543		Wrexham, ROF Marchwiell, Abenbury, Pillbox. A Second World War pillbox; it is uncertain if the feature is still extant	Pillbox		Modern	Low
NDHA102	86026		Spring Grove air crash site, Details of crash event are unknown. The record is derived from Grant and Pratt 2002. The crash site was likely impacted by the construction of the Industrial Estate Road however no records of findings during the works are available.	Air crash site		Modern	Negligible

APPENDIX B: Drawings



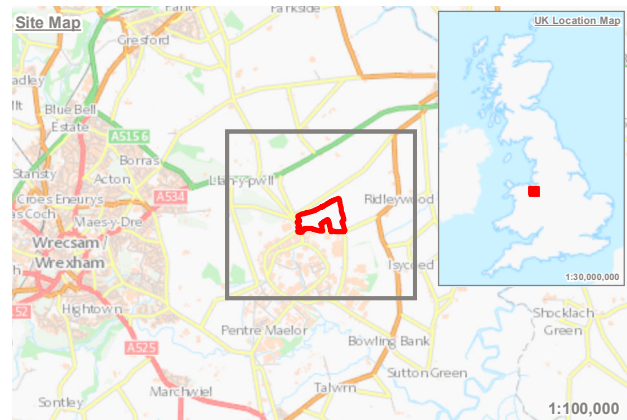
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-  Site boundary
-  Site boundary - 1km buffer



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Rev	Description	Drawn	Approved	Date



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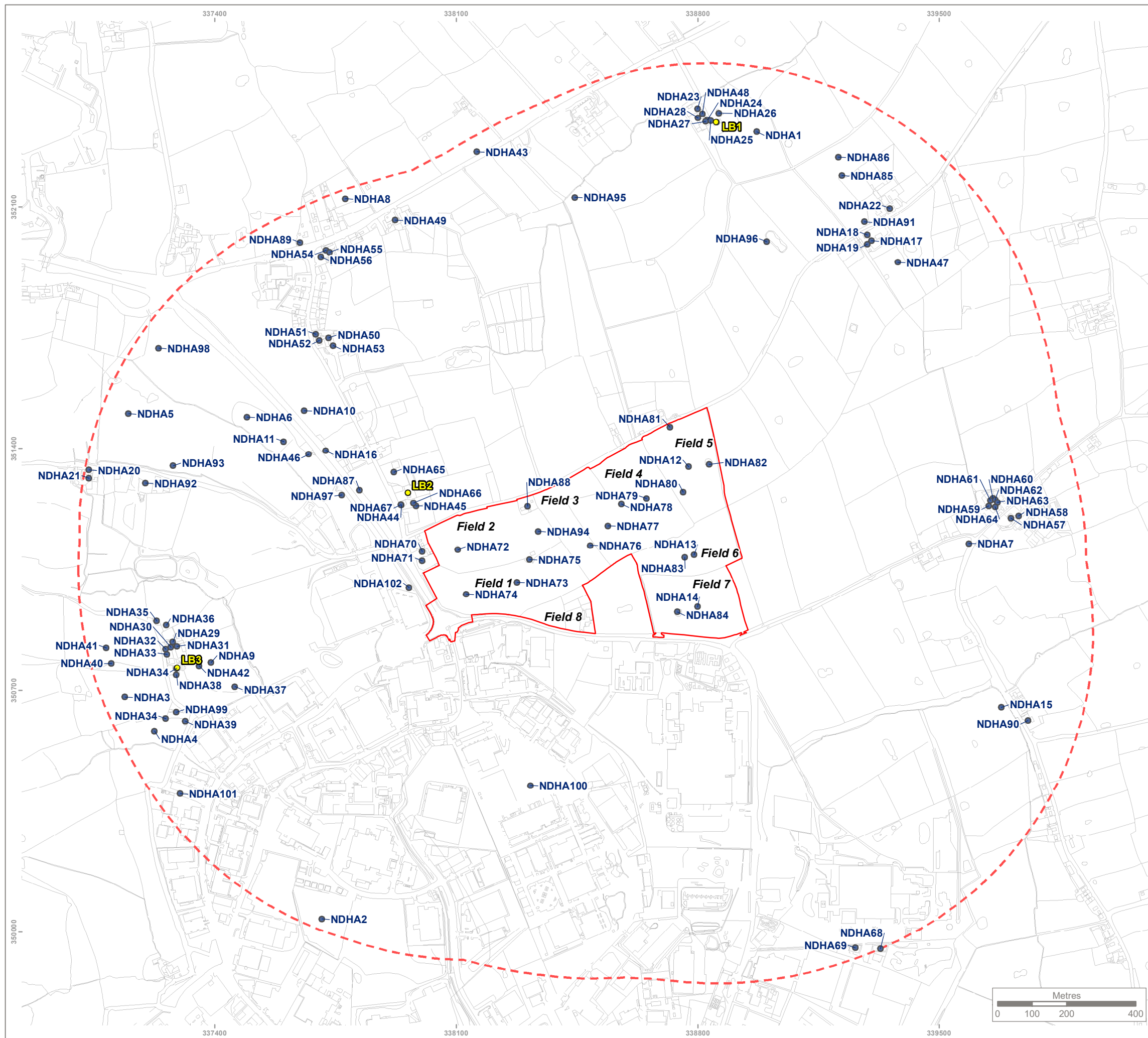
The Reynard Suite - First Floor Offices,
Bowden Inn Farm, Market Harborough, LE16 7SA
Tel 01858 353120 e-mail tep@tep.uk.com www.tep.uk.com

Project
Land North of Bryn Lane

Title
G9134.02.001

Drawing Number
Site Location Plan

Drawn	Checked	Approved	Scale	Date
AB	SA	JC	1:12,500 @ A3	27/04/2023



KEY

- Site boundary
- Site boundary 1km buffer

Designated Heritage Assets

- Grade II Listed Building

Non-designated Heritage Assets

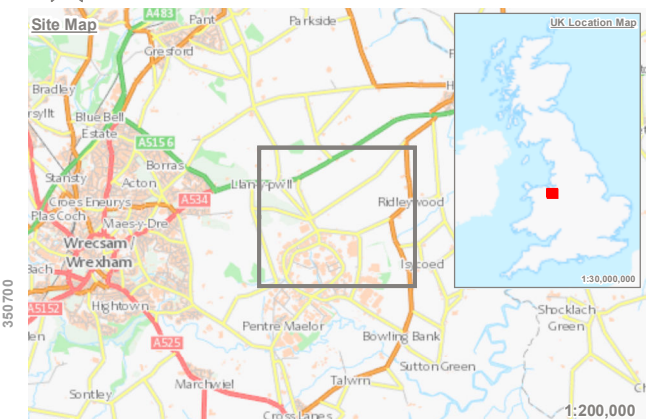
- NDHA Points

Note

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Rev	Description	Drawn	Approved	Date



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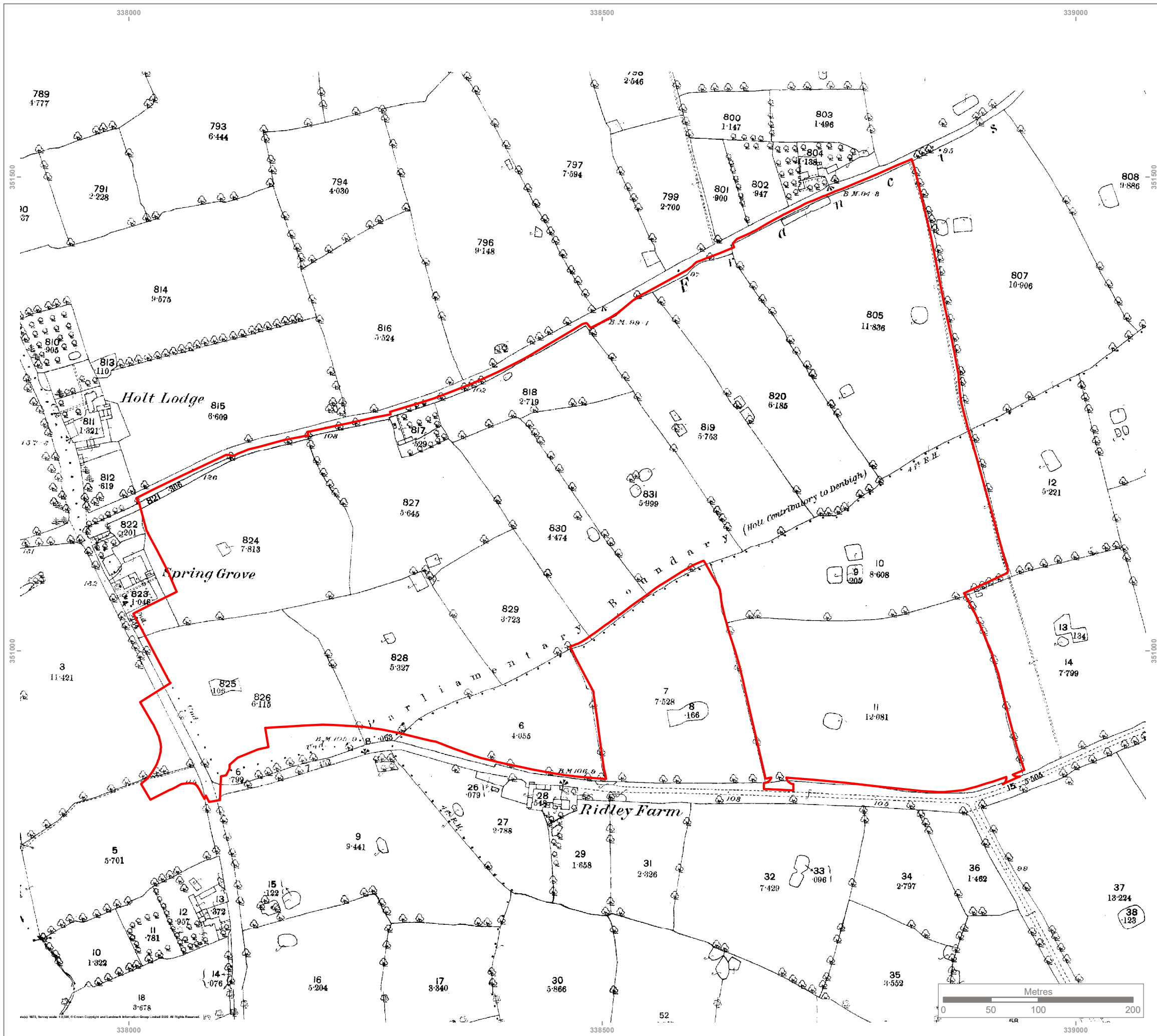
The Reynard Suite - First Floor Offices,
Bowden Inn Farm, Market Harborough, LE16 7SA
Tel 01858 353120 e-mail tep@tep.uk.com www.tep.uk.com

Project
Land North of Bryn Lane

Title
Location of Known Heritage Assets

Drawing Number
G9134.01.002

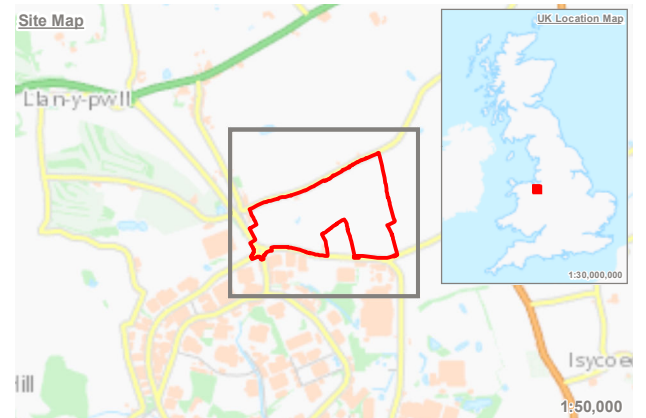
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KEY
Site boundary



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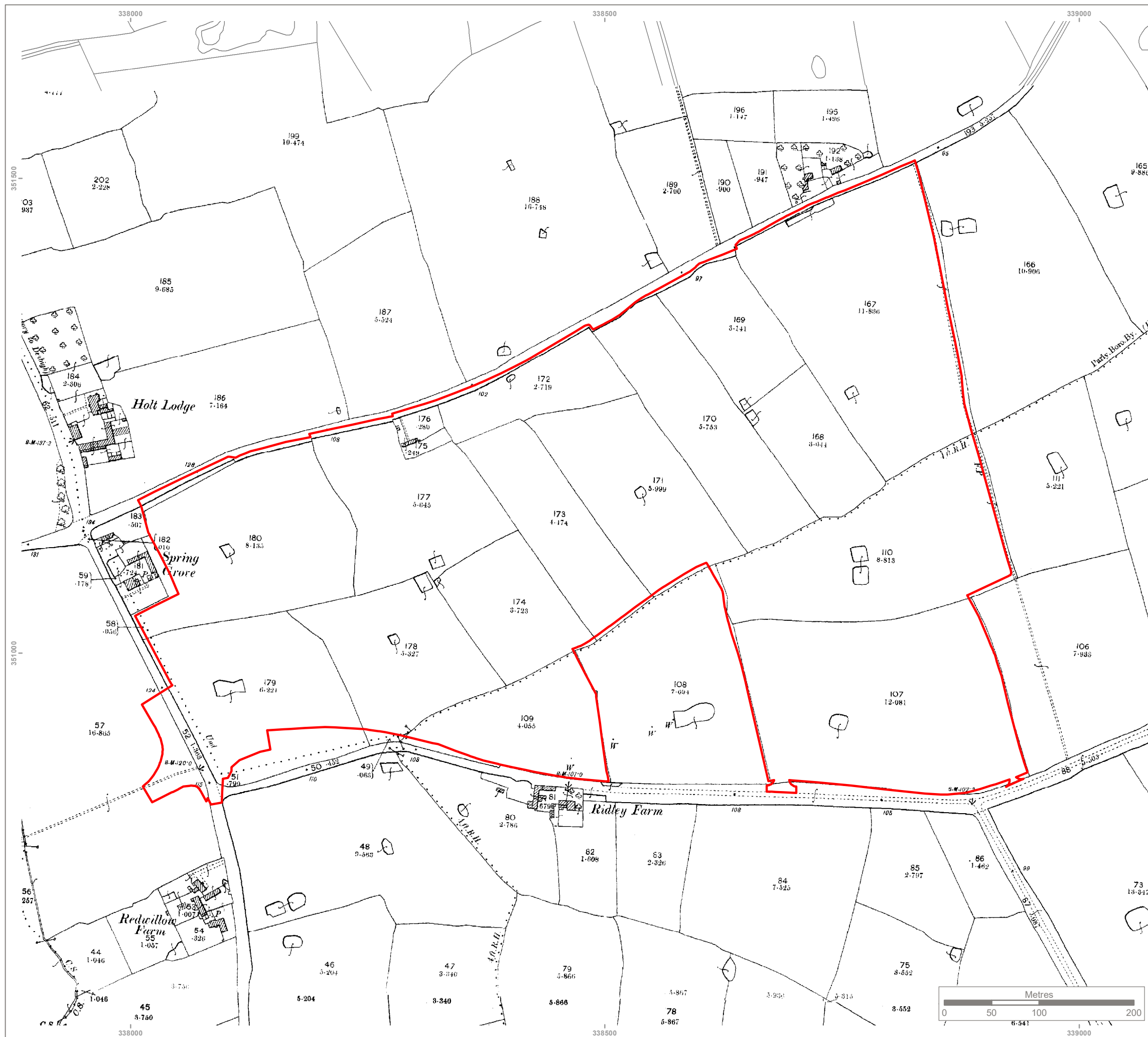
THE ENVIRONMENT PARTNERSHIP
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Tel 01858 353120 e-mail tep@tep.uk.com www.tep.uk.com

Project
Land North of Bryn Lane

Title
G9134.02.003

Drawing Number
Ordnance Survey Map of 1873

Drawn	Checked	Approved	Scale	Date
AB	SA	JC	1:4,000 @ A3	27/04/2023

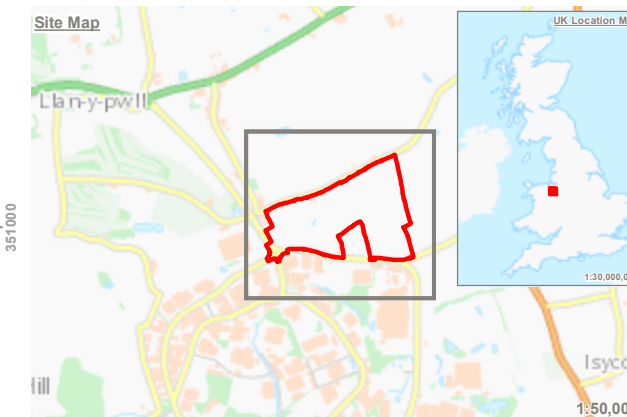


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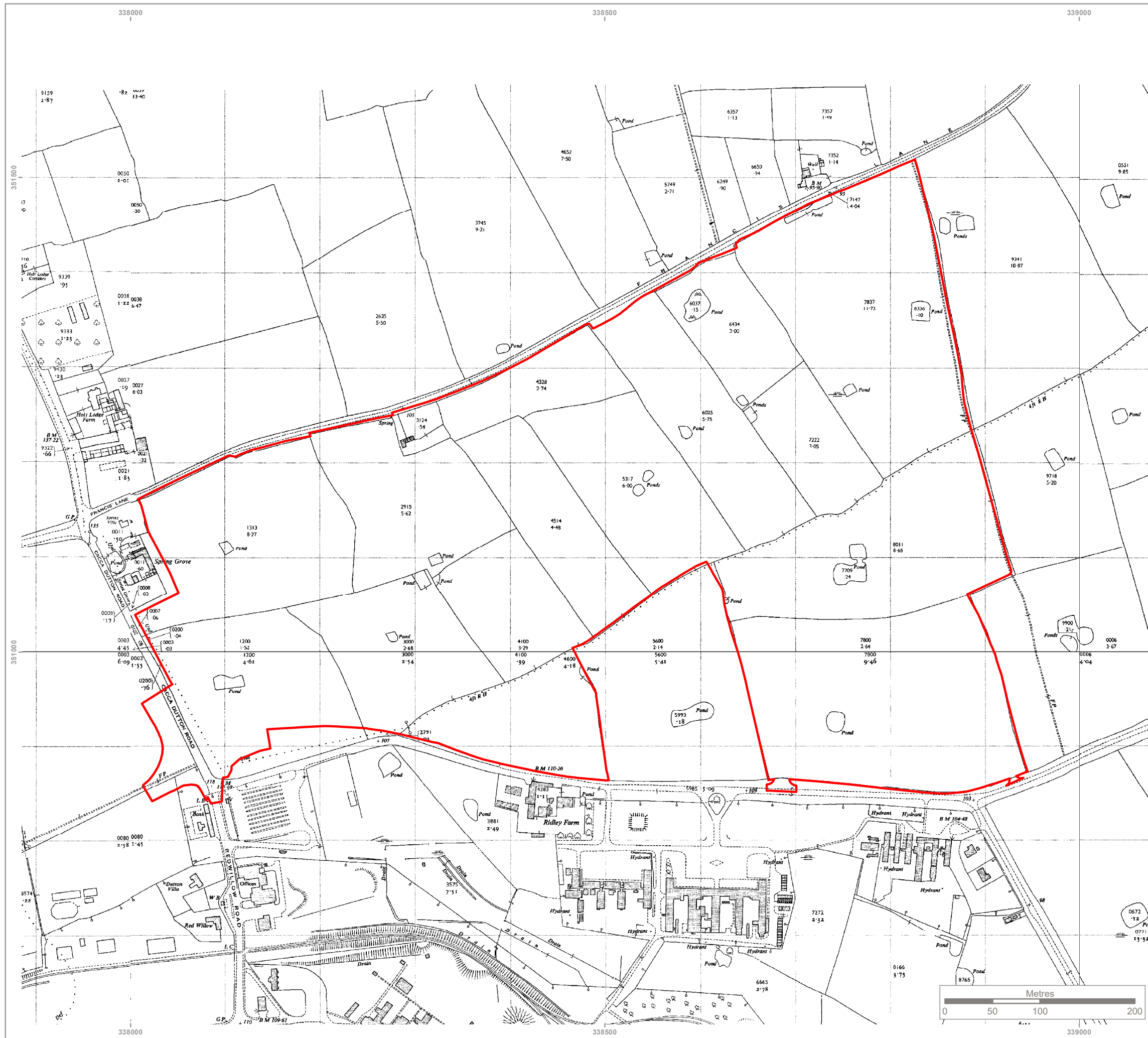
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Project
Land North of Bryn Lane

Title
G9134.02.004

Drawing Number
Ordnance Survey Map of 1899

Drawn AB	Checked SA	Approved JC	Scale 1:4,000 @ A3	Date 27/04/2023
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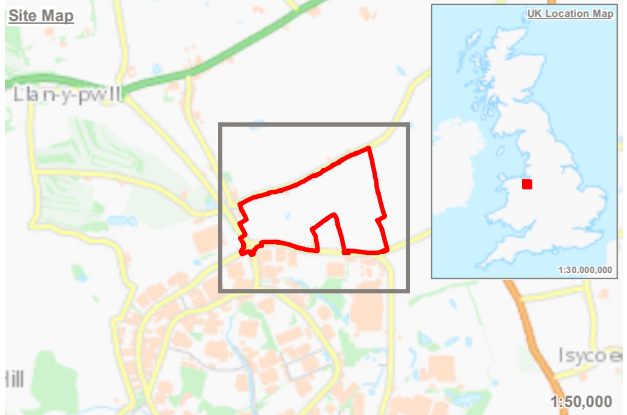


KEY

 Site boundary

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Site Map



UK Location Map

1:50,000

Rev	Description	Drawn	Approved	Date

TEP | **THE ENVIRONMENT PARTNERSHIP**

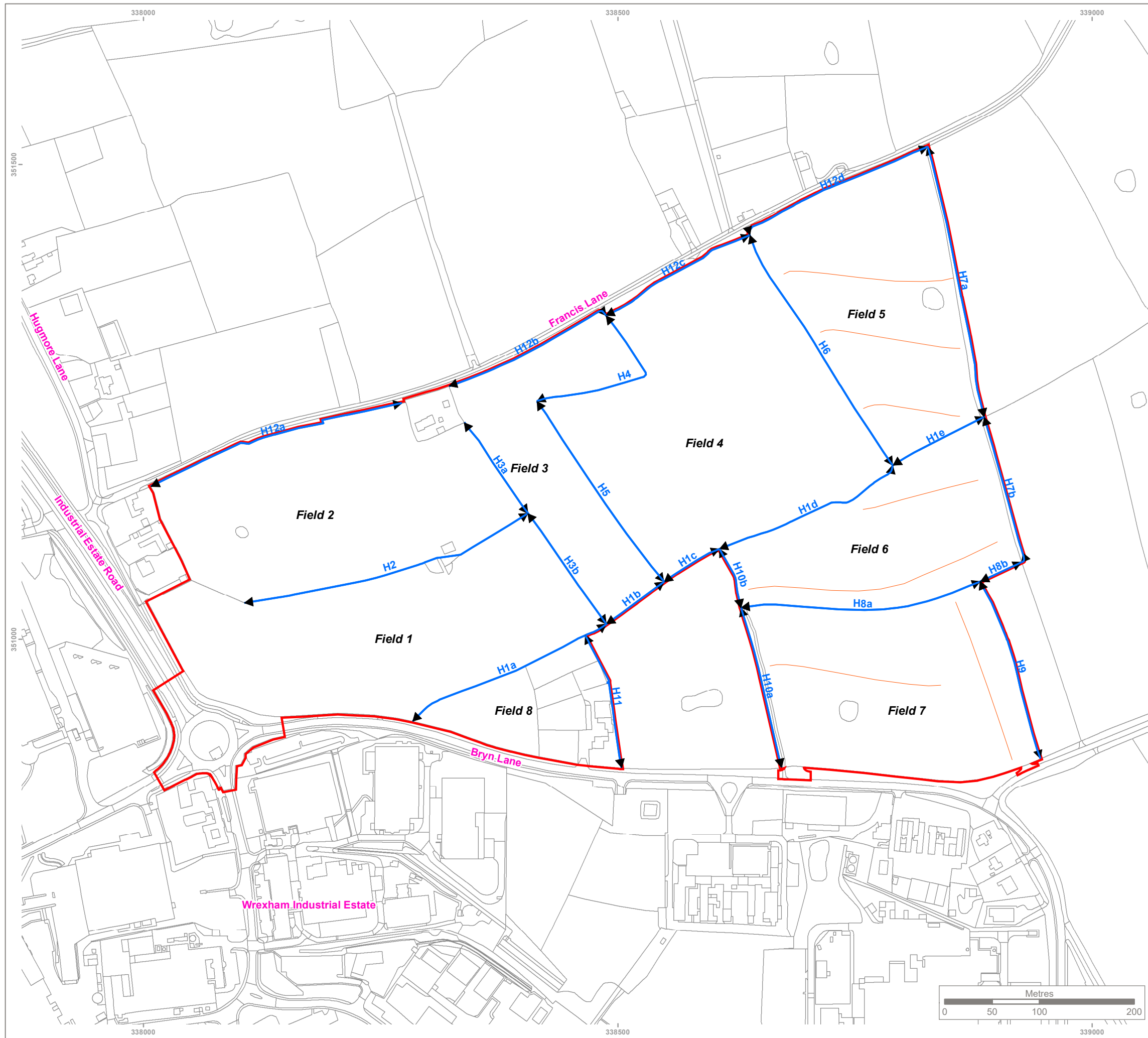
The Reynard Suite - First Floor Offices,
Bowden Inn Farm, Market Harborough, LE16 7SA
Tel 01858 353120 e-mail tep@tep.uk.com www.tep.uk.com

Project
Land North of Bryn Lane

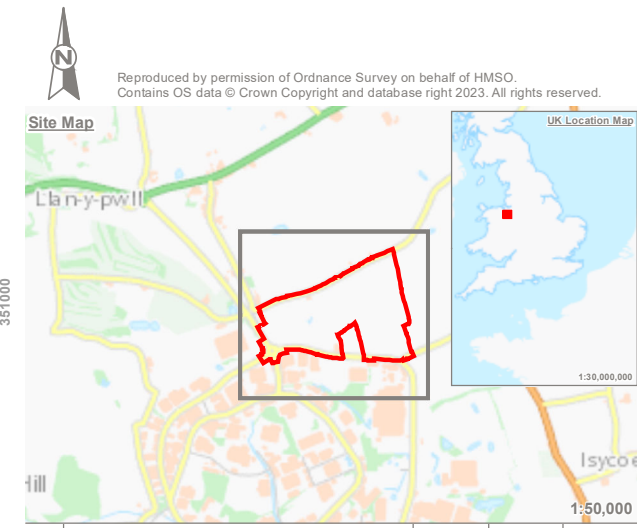
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G9134.02.005

Drawing Number
Ordnance Survey Map of 1964

Drawn	Checked	Approved	Scale	Date
AB	SA	JC	1:4,000 @ A3	26/04/2023



- KEY**
- Site boundary
 - Historic hedgerows
 - Location of former hedgerows
 - Ridge and furrow direction



Rev	Description	Drawn	Approved	Date

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Project
Land North of Bryn Lane

Title
G9134.02.007

Drawing Number
Important Hedgerows

Drawn	Checked	Approved	Scale	Date
AB	SW	JC	1:4,000 @ A3	27/04/2023



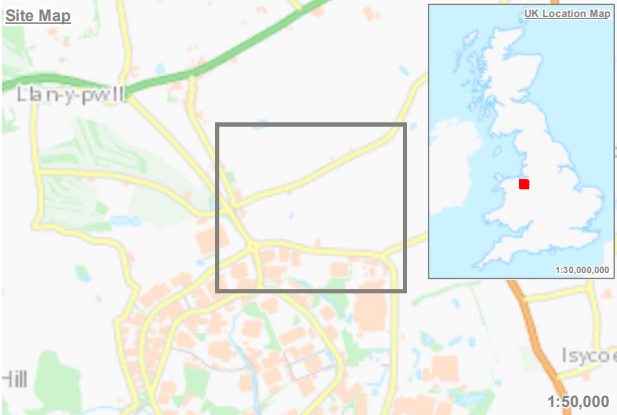
KEY

Site boundary



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Site Map



UK Location Map



1:50,000

Rev	Description	Drawn	Approved	Date



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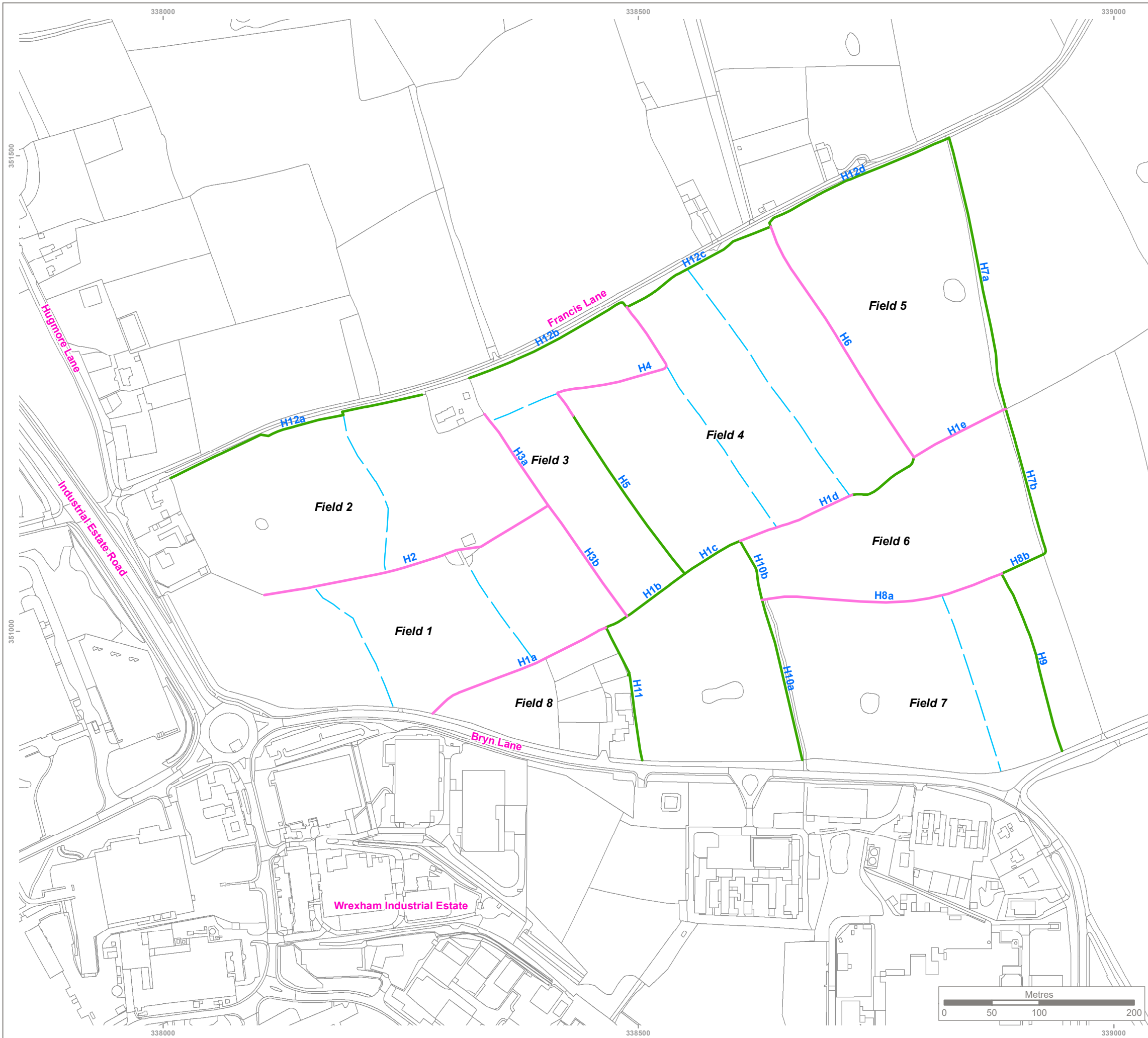
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Project
Land North of Bryn Lane

Title
G9134.02.008

Drawing Number
Lidar information

Drawn	Checked	Approved	Scale	Date
AB	CW	JC	1:4,000 @ A3	27/04/2023

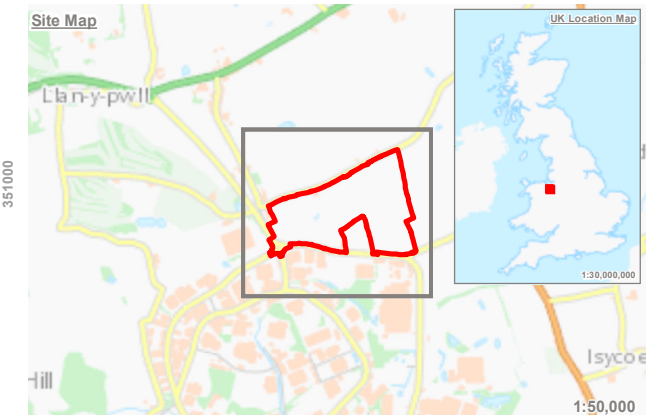


KEY

-  Hedgerows anticipated to be retained
-  Hedgerows anticipated to be removed
-  Location of former hedgerows



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Project
Land North of Bryn Lane

Title
G9134.02.009

Drawing Number
Impacts on Important Hedgerows

Drawn	Checked	Approved	Scale	Date
AB	SP	JC	1:4,000 @ A3	28/04/2023

APPENDIX C: Historic Hedgerow Impact Assessment

Land North of Bryn Lane, Wrexham - Historic Hedgerow Impact Assessment

Project	Land North of Bryn Lane	Author	Amir Bassir BSc PGCert MCIfA
Date	07/06/2023	Checked	Franki Webb BA Hons, PGDip, MA MCIfA
Doc Ref	9134.02.005	Approved	Jason Clarke BSC (Hons) MA MCIfA
Version	1.1	Purpose	Addendum to heritage impact assessment

1.0 Introduction

- 1.1 This report comprises an addendum to a Heritage Impact Assessment (HIA) (TEP 2023¹) and should be read in conjunction with that report. It provides an assessment of the importance of hedgerows based on heritage criteria within the application site 'Land North of Bryn Lane, Wrexham'. It identifies important hedgerows and provides an assessment of the anticipated impacts of development upon identified important hedgerows, as well as suggested mitigation and recommendations.
- 1.2 An initial HIA was submitted as part of the EIA scoping request and included an overview of the historic background of the proposed development site including a review of available cartographic evidence. Information derived through this process was used to assess the importance of identified hedgerows against the criteria defined under the Hedgerow Regulations 1997. This report provides a further and updated assessment of the hedgerows in accordance with the proposed development as well as statutory heritage consultee comments on the initial scoping report.
- 1.3 Supporting figures:
- G9134.02.007 – Important Hedgerows
 - G9134.02.009 – Impacts on Important Hedgerows

¹ TEP 2023, *Land North of Bryn Lane, Wrexham, Clwyd, Heritage Impact Assessment*, The Environment Partnership (TEP) Ltd, 9134.02.003

2.0 Important Hedgerows

2.1 The archaeology and heritage criteria used to assess the importance of hedgerows are contained within Schedule 1, Part II of the 1997 Hedgerow Regulations². For a hedgerow to be classified as “important” under these criteria it must have existed for 30 years or more and satisfy at least one of the criteria listed in paragraphs 1-5 as follows:

1. Any hedgerow that marks the boundary or part of the boundary, of at least one historic parish or township; and for this purpose “historic” means existing before 1850.
2. Any hedgerow that incorporates an archaeological feature which is:
 - a) included in the schedule of monuments compiled by the Secretary of State under section 1 (schedule of monuments) of the Ancient Monuments and Archaeological Areas Act 1979; or
 - b) recorded on or prior to the 24th March 1997 in a Sites and Monuments record.
3. The hedgerow:
 - a) is situated wholly or partly within an archaeological site included or recorded as mentioned in paragraph 2, or on land adjacent to and associated with such a site; and
 - b) is associated with any monument or features on that site.
4. The hedgerow:
 - a) marks the boundary of a pre-1600 AD estate or manor recorded at the relevant date in a Sites and Monuments Record or in a document held at that date at a Record office; or
 - b) is visibly related to any building or other feature of such an estate or manor.
5. The hedgerow:
 - a) is recorded in a document held at a Record Office as an integral part of a field system pre-dating the Inclosure Acts; or
 - b) is part of, or visibly related to, any building or other feature associated with such a system, and that system:
 - i. is substantially complete; or
 - ii. is of a pattern which is recorded in a document prepared before the relevant date by a local planning authority, within the meaning of the 1990 Act, for the purposes of development control within the authority's area, as a key landscape characteristic.

2.2 Application of Regulations provides criteria for determining whether a hedgerow falls within the Regulations including:

- (3) These Regulations do not apply to any hedgerow within the curtilage of, or marking a boundary of the curtilage of, a dwelling-house.
- (4) A hedgerow which meets (whether by intersection or junction) another hedgerow is to be treated as ending at the point of intersection or junction

2.3 Assessment under the archaeology and heritage criteria of the Hedgerow Regulations 1997 considers the significance of a hedgerow as a component of the historic landscape or as an archaeological feature and does not take into consideration the variety or quality of the living component or its habitat value which have been assessed in separate reports. No degree or scale of importance is provided under the Hedgerow Regulations. Where hedgerows are associated with a designated historic asset such as a Scheduled Monument or Registered Park and Garden then they are likely to be afforded statutory protection.

² [The Hedgerows Regulations 1997 \(legislation.gov.uk\)](https://www.legislation.gov.uk/ukpga/1997/24/schedule/1/part_ii)

- 2.4 “Inclosure Acts” as referenced in paragraph 5 of the regulations has been interpreted as a collective title applied to a to a number of Acts of Parliament and is so named by the Short Titles Act of 1896 with the earliest Act known by this collective title dating to 1845.
- 2.5 This conclusion was confirmed by the outcome of a Judicial Review case, Flintshire County Council -v- NAW & Mr J T Morris (2002), following which, in May 2002, a guidance letter on the application of the Hedgerow Regulations 1997 was issued by Defra to the Chief Planning Officers in England³.
- 2.6 It is therefore considered that for the purposes of assessment under criteria 5a, that if a hedgerow is shown on a tithe map or other map as predating 1845, regardless of the completeness of the field system, it will fulfil that criterion and be considered as ‘Important’.
- 2.7 Consultation was received through an EIA scoping opinion request and was provided by the Senior Planning Archaeologist at Clwyd-Powys Archaeological Trust (CPAT). This highlighted that the removal of “Important” hedgerows was a key direct impact and every effort should be made to retain them within any future development. It was requested that the above-ground impacts to historic hedgerows must be scoped into the HIA. Mitigation must be stated where hedgerows may be impacted.

³ Cane, Stephen, “Guidance on the Application of The Hedgerow Regulations 1997: Criteria for Determining “Important” Hedgerows”, 23 May 2002, DEFRA, available at [Tiff2PDF \(publishing.service.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/100000/Tiff2PDF_publishing.service.gov.uk)

3.0 Identification of Important Hedgerows

- 3.1 The HIA has identified twelve hedgerows which form site boundaries and subdivide the current field system. These can be demonstrated from historic mapping to have been in place since at least 1843 and have been assessed as Important in accordance with criteria of the Hedgerow Regulations.
- 3.2 In accordance with guidance provided in the Hedgerow Regulations Act 1997, 'Application of Regulations' the hedgerows have been numbered to provide subdivisions where hedgerows meet at intersections. None of the hedgerows are recorded within the Historic Environment Record.

Hedgerow number	Description	Assessment of Importance
H1a, H1b, H1c, H1d, H1e	These five lengths of hedgerow form a continuous boundary that divides the site from east to west. The boundary serves as a parliamentary boundary between the townships of Holt and Ridley within the parish of Gresford. It consists predominantly of regularly spaced and closely cropped hawthorn with occasional outgrown oak hedgerow trees. The ditch base is either generally flat or consists of a shallow ditch. Occasional gaps are present for field gates.	The hedgerows are visible on 1843 Tithe Maps and form part of a Parliamentary Parish boundary. The hedgerows are Important in accordance with criteria 1 and 5a
H2	The west end of H2 has been truncated very recently in association with nearby residential development. A large pond interrupts the line of the hedge. It is comprised predominantly of hawthorn with occasional larger oaks and sits within a shallow ditch	The hedgerow is visible on 1843 Tithe Maps and is Important in accordance with criteria 5a.
H3a, H3b	Closely spaced hawthorn with large outgrown oak hedgerow trees. It includes a shallow ditch forming the hedge base.	The hedgerows are visible on 1843 Tithe Maps and are Important in accordance with criteria 5a.
H4	Closely spaced hawthorn with large outgrown oak hedgerow trees and a shallow ditch forming the hedge base. The western end of the ditch was truncated to create a larger field.	The hedgerow is visible on 1843 Tithe Maps and is Important in accordance with criteria 5a.
H5	Closely spaced hawthorn with large outgrown oak hedgerow trees and a shallow ditch forming the hedge base.	The hedgerow is visible on 1843 Tithe Maps and is Important in accordance with criteria 5a.

H6	Closely spaced hawthorn with large outgrown oak hedgerow trees and a shallow ditch forming the hedge base. The hedgerow defines the western side of an area of ridge and furrow.	The hedgerow is visible on 1843 Tithe Maps and is Important in accordance with criteria 5a.
H7a, H7b	Hawthorn hedge with outgrown oak hedgerow trees. Some of the areas of the hawthorn have been removed, exposing the cut of a ditch in which the hedgerow was planted. Where visible, the ditch was between 1.2m-2m in width and c0.5m to 1m in depth. The hedgerows define the eastern extent of an area of ridge and furrow.	The hedgerows are visible on 1843 Tithe Maps and are Important in accordance with criteria 5a.
H8a, H8b	Hawthorn hedgerow with occasional oaks. The base of the hedgerow is a shallow depression reduced to flat in areas. The hedgerow separates areas of ridge and furrow.	The hedgerows are visible on 1843 Tithe Maps and are Important in accordance with criteria 5a.
H9	Hawthorn hedgerow with occasional oaks. The base of the hedgerow is a shallow depression reduced to flat in areas. The hedgerow separates areas of ridge and furrow.	The hedgerow is visible on 1843 Tithe Maps and is Important in accordance with criteria 5a.
H10a, H10b	Hawthorn hedgerow with occasional oaks. The base of the hedgerow is a shallow depression reduced to flat in areas. The hedgerow separates areas of ridge and furrow.	The hedgerows are visible on 1843 Tithe Maps and are Important in accordance with criteria 5a.
H11	Hawthorn hedgerow with occasional oaks. The base of the hedgerow is a shallow depression reduced to flat in areas. The hedgerow forms the eastern boundary of a modern equestrian centre, stables and paddocks.	The hedgerow is visible on 1843 Tithe Maps and is Important in accordance with criteria 5a.
H12a, H12b, H12c, H12d	This is the northern boundary of the Site, forming the southern side of Francis Lane. Some minor alterations to the hedgerows include road expansion to create vehicle passing places.	The hedgerows are visible on 1843 Tithe Maps and are Important in accordance with criteria 5a.

3.3 The Hedgerows labelled H1 to H12 can be demonstrated from cartographic evidence to have been in place since at least 1843 and H1 is also part of a Parliamentary boundary. These hedgerows have been assessed as Important in accordance with the criteria in Schedule 1, Part II of the Hedgerow Regulations Act 1997.

4.0 Assessment of Impact

- 4.1 The proposed development will include the demolition of existing buildings, site clearance and preparation works including removal of vegetation and reprofiling of topsoil. The site preparation and construction phase of the proposed development is anticipated to result in the total loss of several hedgerows which have been assessed as important.

Hedgerows anticipated to be retained

- 4.2 It is anticipated that the hedgerows forming the north and eastern application site boundaries, as well as existing hedgerows enclosing a southern field, would be retained within the proposed development to provide residential buffers and screening. A central hedgerow would also be retained to serve as an ecological corridor. These hedgerows include the following which are assessed as Important:

- H1b, H1c
- H5
- H7a, H7b
- H8b
- H9
- H10a, H10b
- H12a, H12b, H12c, H12d

Hedgerows anticipated to be removed

- 4.3 The construction of Unit 2 and associated hardstanding areas and Zone B of the outline part of the hybrid application will result in complete removal of hedgerows H4, H6 and H8a.
- 4.4 The construction of Units 3, 4, 5 and associated hardstanding and access will result in the complete removal of hedgerows H3a and H3b.
- 4.5 The construction of Units 6 and 7 and development at the western extent of the application site (Zone A2 of the outline part of the hybrid application) will result in the complete removal of hedgerow H2.
- 4.6 Hedgerow H1a will be removed to allow development in the south-west of the application site (Zone A1 of the outline part of the hybrid application). A small section of this hedgerow, forming its eastern end, would be retained. Hedgerows H1d and H1e will be removed to accommodate the construction of an access road and pedestrian routes.
- H1a, H1d, H1e
 - H2
 - H3a, H3b
 - H4
 - H6
 - H8a

5.0 Mitigation and Recommendations

- 5.1 Through design development the Important hedgerows have been recognised and the need to minimise their loss has been a determining factor in the resulting design. Important hedgerows have been retained where possible including along the application site boundaries and through the creation of an ecological corridor.
- 5.2 Following this design exercise, the loss of Important hedgerows will be mitigated by preservation through record in the form of a targeted archaeological survey to record the hedgerow profiles, associated earthworks and stratigraphic makeup, as well as to enable finds recovery which would help understand the historic development of the application site. The scope of the survey should be commensurate with the scale of the impact of development and the methodology should be set out in a Written Scheme of Investigation to be approved by CPAT as archaeological advisors to the local authority. The results of the work should be made publicly available and submitted to the Historic Environment Record. This work can be secured as a Condition of a planning consent.
- 5.3 It is strongly recommended that the mitigation and recommendations proposed in this report be agreed with CPAT.

APPENDIX D: Geophysical Survey Report



WYAS
**Archaeological
Services**

Land North of Bryn Lane

Wrexham

Clywd

Geophysical Survey

Report no. 3800

June 2022

Client: The Environment Partnership



Land North of Bryn Lane, Wrexham, Clywd

Geophysical Survey

Crynodeb

Cynhaliwyd arolwg geoffisegol (magnetometr) ar tua 36 hectar o dir i'r gogledd o Lôn Bryn, Wrecsam, Clwyd. Mae mwyafrif yr anomaleddau a gofnodwyd yn rhai amaethyddol gan gynnwys amaethu cefnen a rhych, hen ffiniau caeau, pyllau a/neu byllau marl a chyfundrefnau amaethyddol modern. Gellir priodoli aflonyddwch magnetig o fewn y set ddata i adeiladau cyfagos a ffensys metel o fewn ffiniau caeau. Mae pibell wasanaeth hefyd wedi'i chofnodi. Ni chafwyd tystiolaeth bendant o ymatebion yn ymwneud ag awyren a gafodd ddamwain yn y 1940au a gofnodwyd yn y CAH. Gall anomaleddau fferrus bach yn ardal y ddamwain hysbys fod yn gysylltiedig â malurion awyrennau ond gellir eu priodoli yn yr un modd i falurion modern. Yn seiliedig ar yr arolwg geoffisegol, ystyrir bod potensial archeolegol y Safle yn isel.

Summary

A geophysical (magnetometer) survey was undertaken on approximately 36 hectares of land located to the north of Bryn Lane, Wrexham, Clywd. The majority of the anomalies recorded are agricultural including ridge and furrow cultivation, former field boundaries, ponds and/or marl pits and modern agricultural regimes. Magnetic disturbance within the dataset can be attributed to adjacent buildings and metal fencing within field boundaries. A service pipe has also been recorded. There has been no definite evidence of responses associated with a crashed 1940s aircraft which was recorded in the HER. Small ferrous anomalies in the area of the known crash may be associated with aircraft debris but they can equally be attributed to modern debris. Based on the geophysical survey, the archaeological potential of the Site is deemed to be low.

Report Information

Client: The Environment Partnership (TEP)
Address: The Reynard Suite, Bowden Business Village, Market
Harborough, Leicestershire, LE16 7SA
Report Type: Geophysical Survey
Location: Wrexham
County: Clywd
Grid Reference: SJ 3838 5112
Period(s) of activity: medieval - modern
Report Number: 3800
Project Number: XF93
Site Code: BYL22
Date of fieldwork: June 2022
Date of report: June 2022
Project Management: Emma Brunning BSc MCIfA
Fieldwork: Amy Chatterton BSc MA
Claire Stephens BA MA
Illustrations: Emma Brunning
Photography: Amy Chatterton
Report: Emma Brunning

Authorisation for
distribution: _____



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Document Issue Record

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1 Introduction

Archaeological Services ASWYAS has been commissioned by The Environment Partnership (TEP) on behalf of Net World Sports to undertake a geophysical survey at land north of Bryn Lane, Wrexham, Clywd. This was undertaken in line with current best practice (CIfA 2020; Schmidt et al. 2016) and in accordance with a Written Scheme of Investigation approved by Clwyd-Powys Archaeological Trust (Brunning 2022). The survey was carried out between 13th and 16th June 2022 to provide additional information on the archaeological resource of the Site.

Site location, topography and land-use

The Site is located at SJ 3838 5112 (approximate centre), comprising c. 36ha across eight fields situated to the east of Wrexham (see Fig. 1) and consisted of pasture and paddocks. The Site is situated to the north of Wrexham Industrial Estate, between Francis Lane and Bryn Lane, in an area predominantly comprised of low-lying agricultural fields divided by regular hedgerows. The site lies at an average topography of 35m Above Ordnance Datum (aOD) with a west to east decline of c. 40-32m and a gradual decline towards the north.

Soils and geology

The underlying bedrock of the survey area comprises of Kinnerton Sandstone formation, a sedimentary bedrock which was formed 247-252 million years ago in the Triassic Period (BGS 2022). Superficial deposits within the survey area consist of Till, Devensian – Diamicton, a deposit which was formed up to 2 million years ago during the Quaternary Period (BGS 2022). Soils of the sites are described as slowly permeable seasonally wet soils with slightly acidic but base rich loamy and clayey soils (CSAI 2022).

2 Archaeological Background

The following archaeological background is an extract provided by TEP from their draft Heritage Desk-Based Assessment, which is informed by the Historic Environment Team at Clwyd Powys Archaeological Trust (Bassir 2022).

Three areas of medieval ridge and furrow earthworks survive within the survey area and demonstrate that the present field boundaries reflect the contemporary medieval landscape. These earthworks are found within an area of agricultural prevalence as demonstrated by the regular occurrence of ridge and furrow earthworks within the area.

The historic environment baseline data and the earliest available historic map of the study, the Tithe Maps of 1843, confirm a primarily agricultural landscape with extensive ridge and furrow cultivation with numerous scattered farmsteads frequently located adjacent to the roads. A further characteristic feature of the post medieval landscape of the study area are marl pits and ponds, frequently occurring as single or pairs of oval or rectangular excavated depressions often at the centre of each field. Marl pits are associated with the agricultural

practice of 'marling' in which a mixture of clay and limestone was spread on soil as a form of fertiliser. It is noted that the effects of marling lasted approximately 30 years and was required to be carried out once a generation. The position of the pits in the centre of the fields reduced the effort required for spreading the marl. The pits being left open would generally fill with water and form ponds. It is suggested that although marling was practiced in Britain since ancient times, there was a considerable increase from the 17th century due to population growth and pressure for increased agricultural output. Twelve marl pits / ponds are recorded within the site of which five remain as open features with the remainder having been infilled.

Several aircraft crash sites dated to the 1940s and associated with activity at RAF Wrexham are recorded within the study area, including one whose location is recorded within the site bounds. No further information relating to the date, reasons for the crash, and subsequent actions such as recovery of wreckage was found.

The survey areas includes twelve hedgerows which form the site boundaries and subdivide the field system of the site. These hedgerows can be demonstrated from historic mapping to have been in place since at least 1843, with evidence from ridge and furrow cultivation remains to suggest a possible medieval origin to some of them.

One of the twelve hedgerows forms a township boundary between Holt and Ridley within the parish of Gresford and divides the site horizontally.

3 Aims, Methodology and Presentation

The aims and objectives of the programme of geophysical survey were to gather sufficient information to establish the presence/absence, character and extent, of any archaeological remains within the specific area and to inform an assessment of the archaeological potential of the site. To achieve this aim, a magnetometer survey covering all amenable parts of the Site was undertaken (see Fig. 2). Areas not included in the geophysical survey included paddocks and buildings in the south and Honeysuckle Cottage in the north.

The general objectives of the geophysical survey were:

- to provide information about the nature and possible interpretation of any magnetic anomalies identified;
- to therefore determine the presence/absence and extent of any buried archaeological features; and
- to prepare a report summarising the results of the survey.

Magnetometer survey

The cart-based survey was undertaken using an eight channel SenSYS MX V3 system containing eight FGM650 sensors. Readings are taken every 20MHz (between 0.05 and 0.1m). Data were recorded onto a device, using a Carlson GNSS Smart antenna, for centimetre accuracy. These readings were stored in the memory of the instrument and downloaded for processing and interpretation. DLMGPS and MAGNETO software, alongside bespoke in-house software was used to process and present the data. Further details are given in Appendix 1.

Due to the size of Field 8 and being divided into paddocks survey was collected using Bartington Grad601 magnetic gradiometers. These were employed taking readings at 0.25m intervals on zig-zag traverses 1.0m apart within 30m by 30m grids, so that 3600 readings were recorded in each grid. These readings were stored in the memory of the instrument and later downloaded to computer for processing and interpretation. Bespoke in-house software was used to process and present the data. Further details are given in Appendix 1.

Reporting

A general site location plan, incorporating the 1:50000 Ordnance Survey (OS) mapping, is shown in Figure 1. Figure 2 displays processed magnetometer data at a scale of 1:4000 whilst Figure 3 shows an overview of the interpretation at the same scale. Processed and minimally processed data, together with interpretation of the survey results are presented in Figures 4 to 18 inclusive at a scale of 1:1250.

Technical information on the equipment used, data processing and survey methodologies are given in Appendix 1. Technical information on locating the survey area is provided in Appendix 2. Appendix 3 describes the composition and location of the archive.

The survey methodology, report and any recommendations comply with guidelines outlined by the European Archaeological Council (Schmidt *et al.* 2015) and by the Chartered Institute for Archaeologists (CIfA 2020). All figures reproduced from Ordnance Survey mapping are with the permission of the controller of Her Majesty's Stationery Office (© Crown copyright).

The figures in this report have been produced following analysis of the data in processed formats and over a range of different display levels. All figures are presented to most suitably display and interpret the data from this site based on the experience and knowledge of Archaeological Services staff

4 Results and Discussion (see Figures 4 to 18)

Ferrous anomalies and magnetic disturbance

Ferrous anomalies, as individual ‘spikes’, or as large discrete areas are typically caused by ferrous (magnetic) material, either on the ground surface or in the plough-soil. Little importance is normally given to such anomalies, unless there is any supporting evidence for an archaeological interpretation, as modern ferrous debris or material is common on rural sites, often being present as a consequence of manuring or tipping/infilling. There is no obvious pattern or clustering to their distribution in this survey to suggest anything other than a random background scatter of ferrous debris in the plough-soil.

Areas of magnetic disturbance (**F1** and **F2**) in Field 1; Sector 1, **F3** to **F6** in Field 4; Sector 3, **F7** to **F9** in Field 5; Sector 4 and **F10** in Field 6; Sector 5 all correspond to ponds or marl pits marked on historic mapping. Responses **F3**, **F4**, **F5** and **F10** indicate two to three ponds/marl pits. All the responses except **F6** are shown on the 1873 map. **F6** is first seen on mapping dated 1964 (NLS 2022). The responses are likely to correspond to the magnetic infill. Given these correlate with known historical mapped features these areas of disturbance are not considered to be associated with the putative airplane crash sites.

Linear dipolar trends have been recorded in the eastern Fields 4-7 which relate to a service pipe.

Magnetic disturbance along the limits of the survey areas is due to metal fencing within the field boundaries and adjacent farm buildings.

A 1940s aircraft crash site is recorded in the HER (HER 86025) in the east of Field 2; Sector 2. Other than the background scattering of ferrous debris, there are no large magnetic responses which may be suggestive of the aircraft within the surveyed area. However, it is possible that some of the ferrous anomalies may be associated but this is speculative.

Agricultural anomalies

Former field boundaries (**FFB1** – **FFB7**) have been recorded throughout the Site and correspond to the Tithe Maps of 1843 and are still visible on the historic map published in 1964.

Further possible boundaries (**FFB8** - **FFB10**) have been recorded in Fields 1 and 2. **FFB8** and **FFB9** correspond with parchmarks seen on Google imagery dating from 2009. Boundary **FFB9** mirrors the boundary to the immediate east (**FFB4**) which adds weight to this interpretation. **FFB10** lies on the same alignment as the ridge and furrow in this area and it may reflect a deeper furrow producing a more enhanced response. However it lines up perfectly with the boundary in the south (**FFB3**) and may be a continuation of this.

Field drains have been record in Field 4; Sector 3 and lie between **FFB6** and **FFB7**.

Medieval or post-medieval ridge and furrow cultivation has been recorded within a number of the fields. The clearest examples are seen in Fields 1, 2, 4 and 5.

Other parallel linear trends can be seen within some of the fields and are associated with modern agricultural regimes.

5 Conclusions

The geophysical survey has detected a number of magnetic anomalies associated mainly with an agricultural landscape including former field boundaries, medieval/post-medieval ridge and furrow cultivation, ponds and/or marls pits and a handful of land drains which would be of a low heritage significance.

Magnetic disturbance within the dataset can be attributed to adjacent buildings and metal fencing within field boundaries. A service pipe has also been recorded.

There has been no definite evidence of responses associated with a crashed 1940s aircraft which was recorded in the HER. Small ferrous anomalies in the area of the known crash may be associated with aircraft debris but they can equally be attributed to modern debris.

Based on the geophysical survey, the archaeological potential of the Site is deemed to be low.

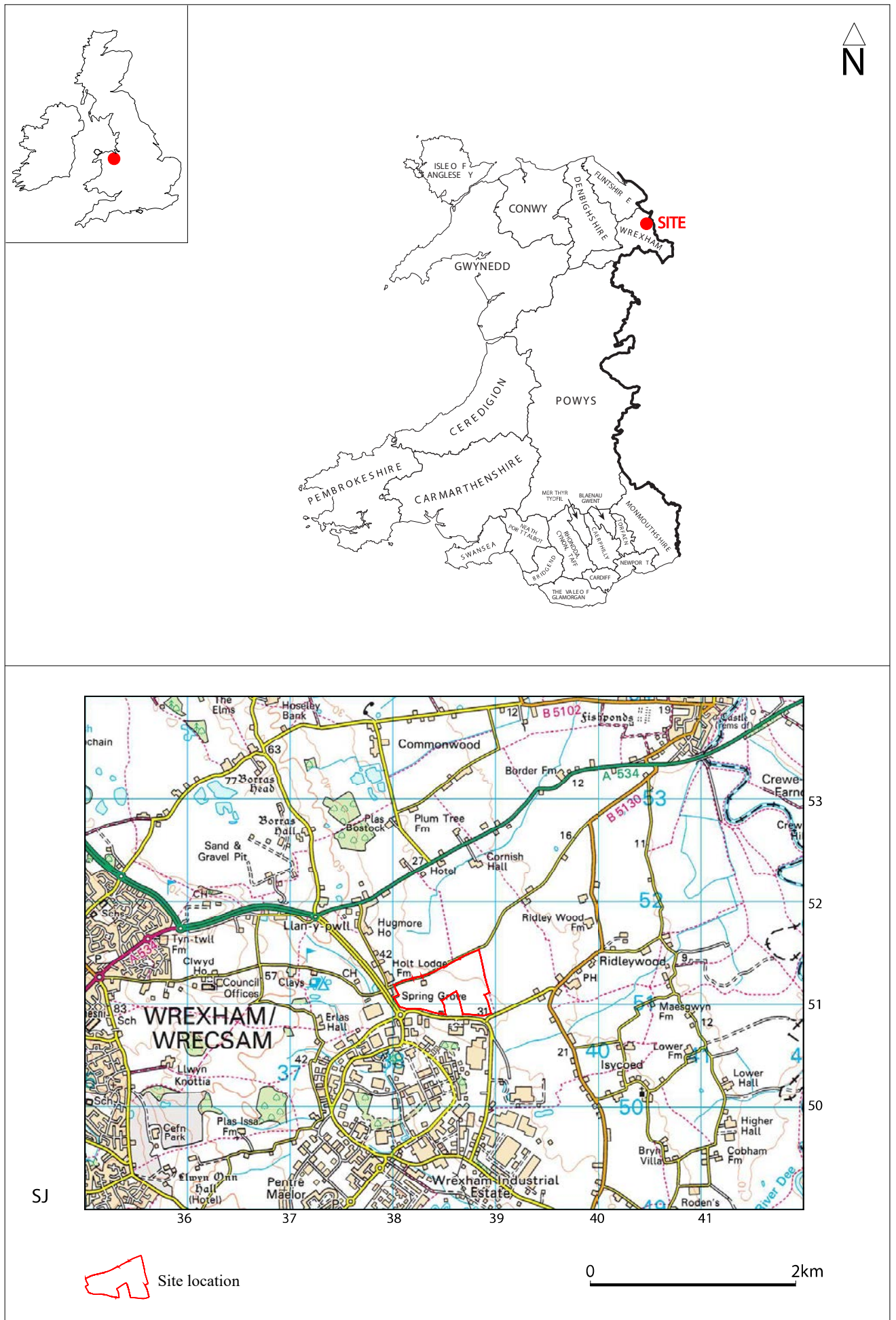
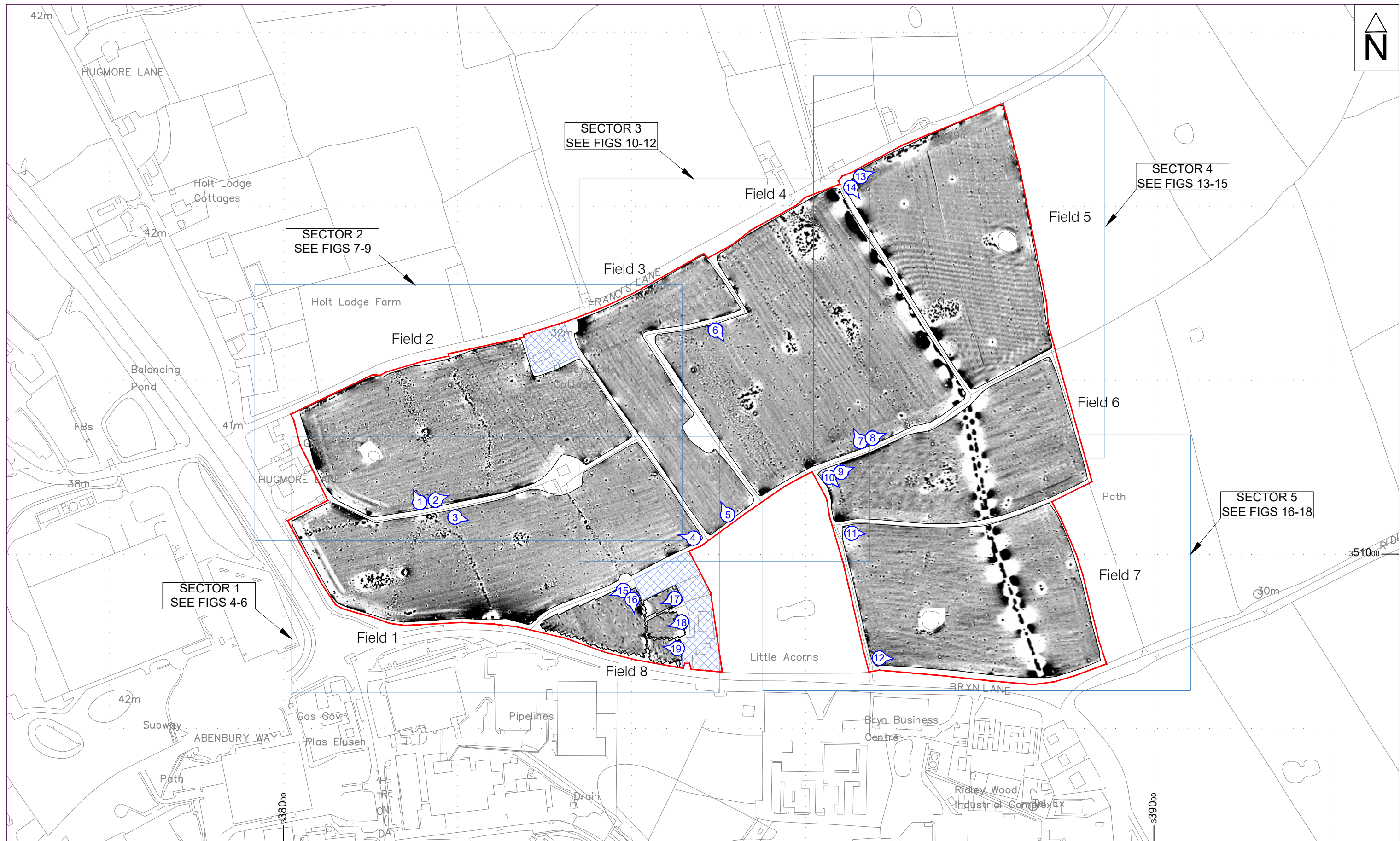
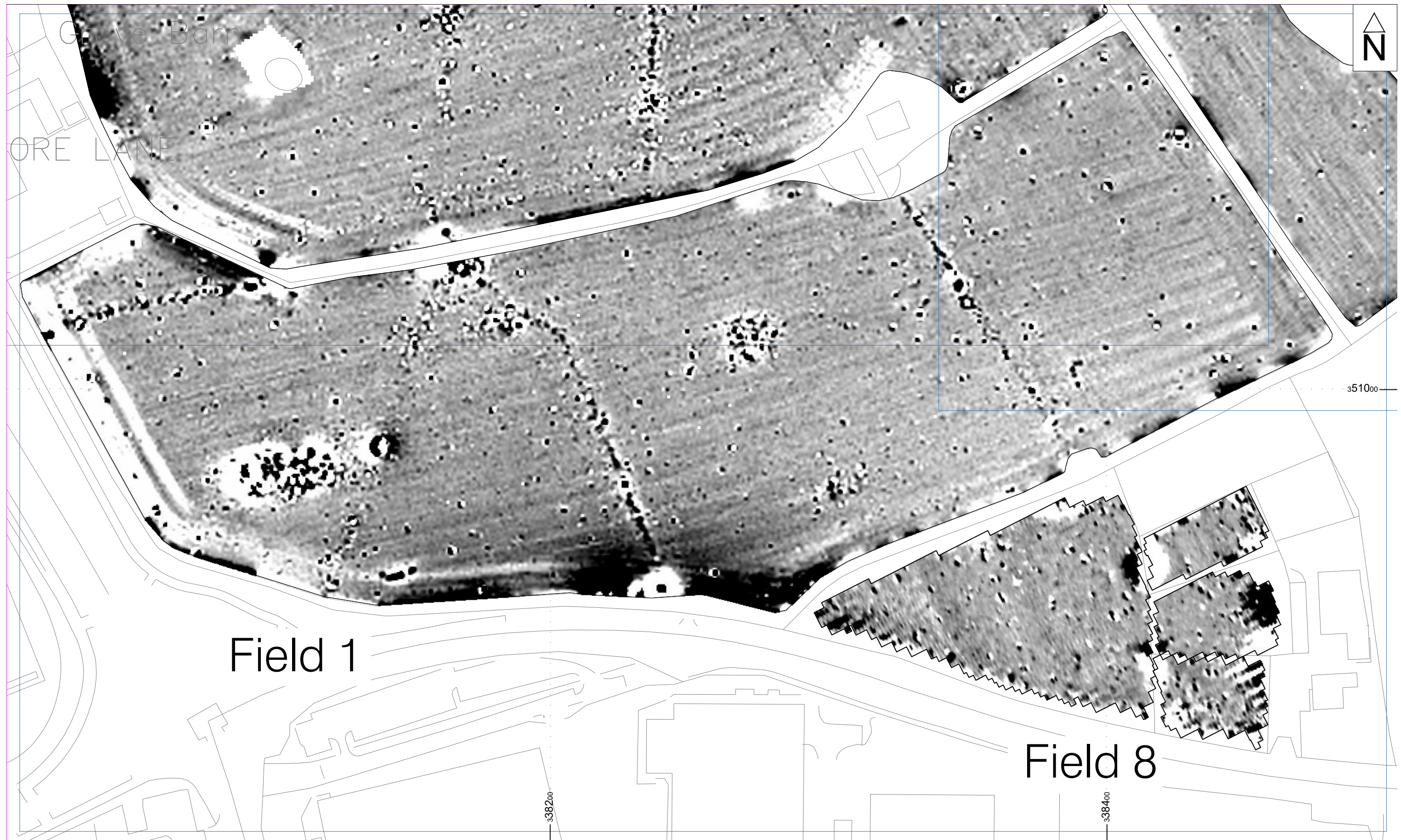


Fig. 1. Site location



Title	
	SURVEY AREA
	SECTOR BOUNDARY
	UNSUITABLE FOR SURVEY
	PHOTO LOCATIONS





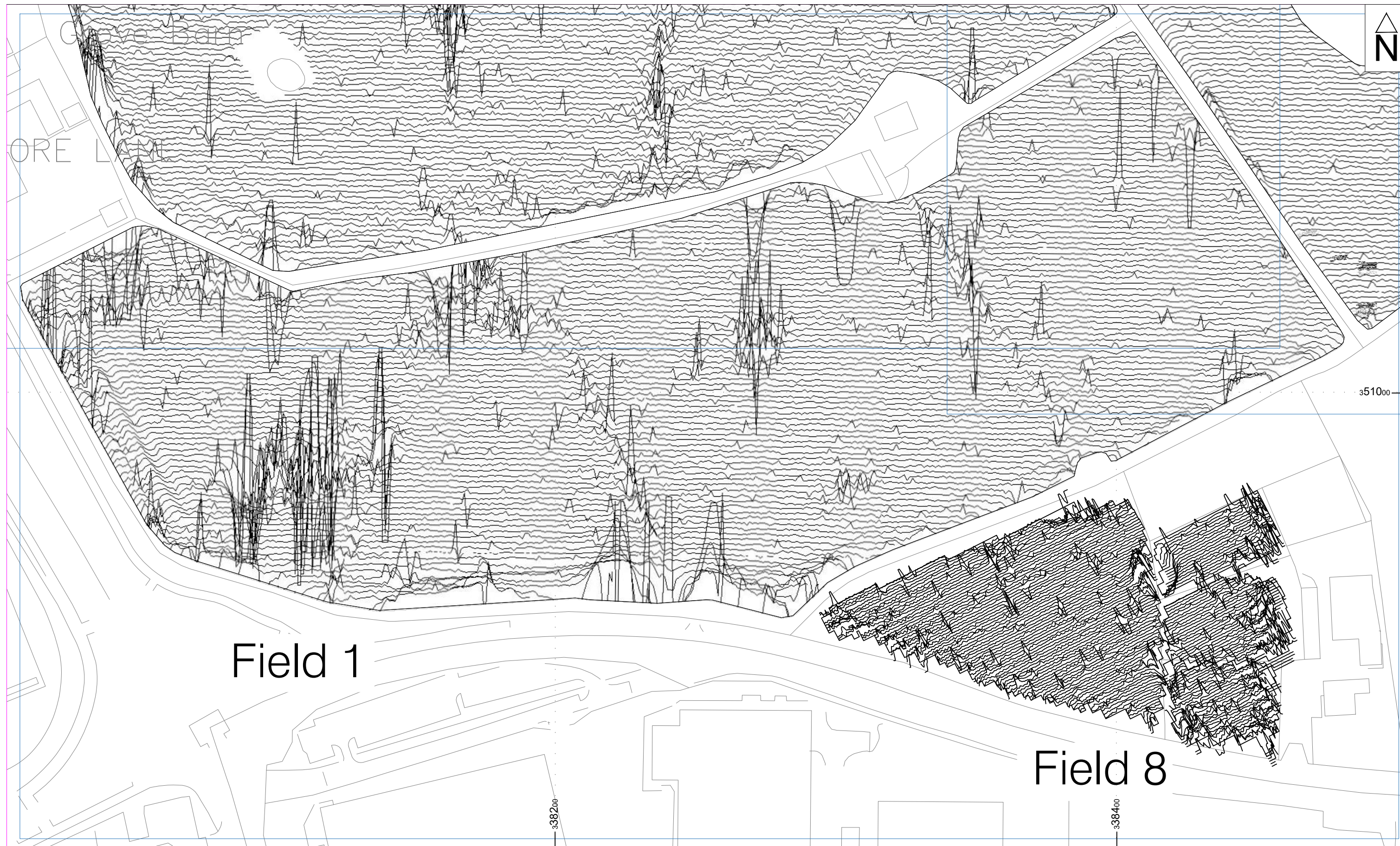
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Processed greyscale magnetometer data; Sector 1

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Fig. 4



Title

 SECTOR BOUNDARY

15.0 nT/cm

0 50m

1:1250 @ A3

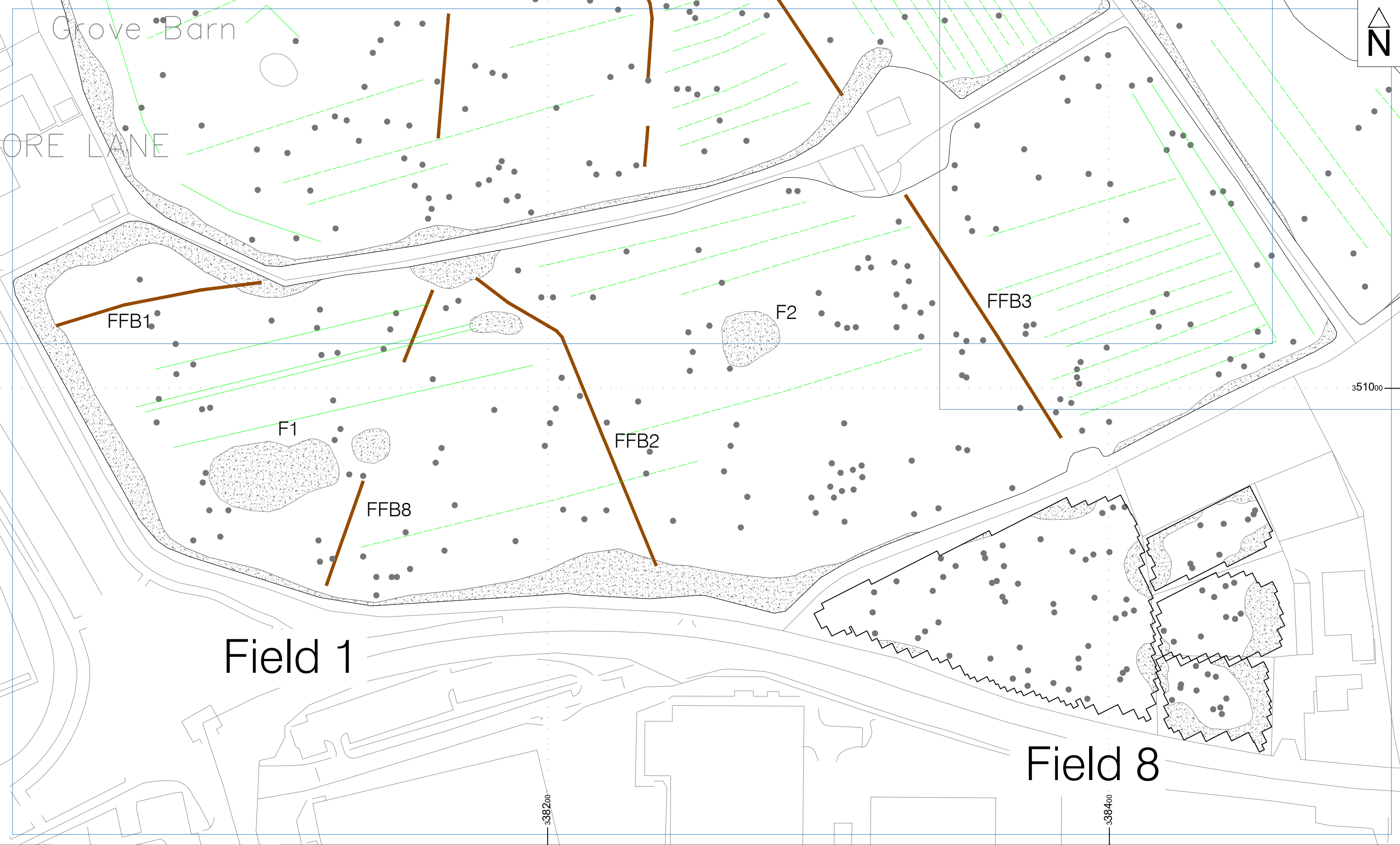


Fig. 5



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Processed greyscale magnetometer data; Sector 2

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Fig. 7

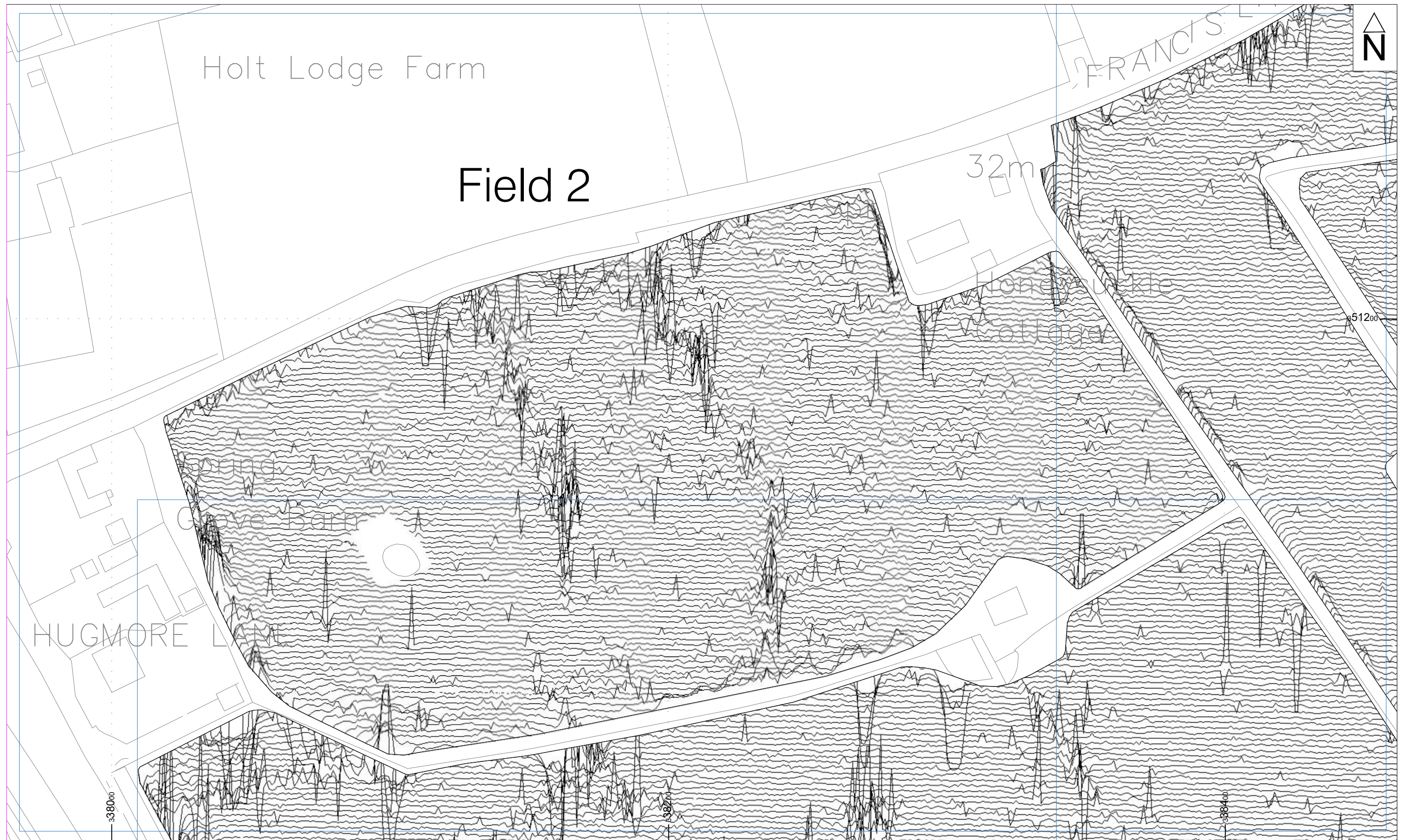
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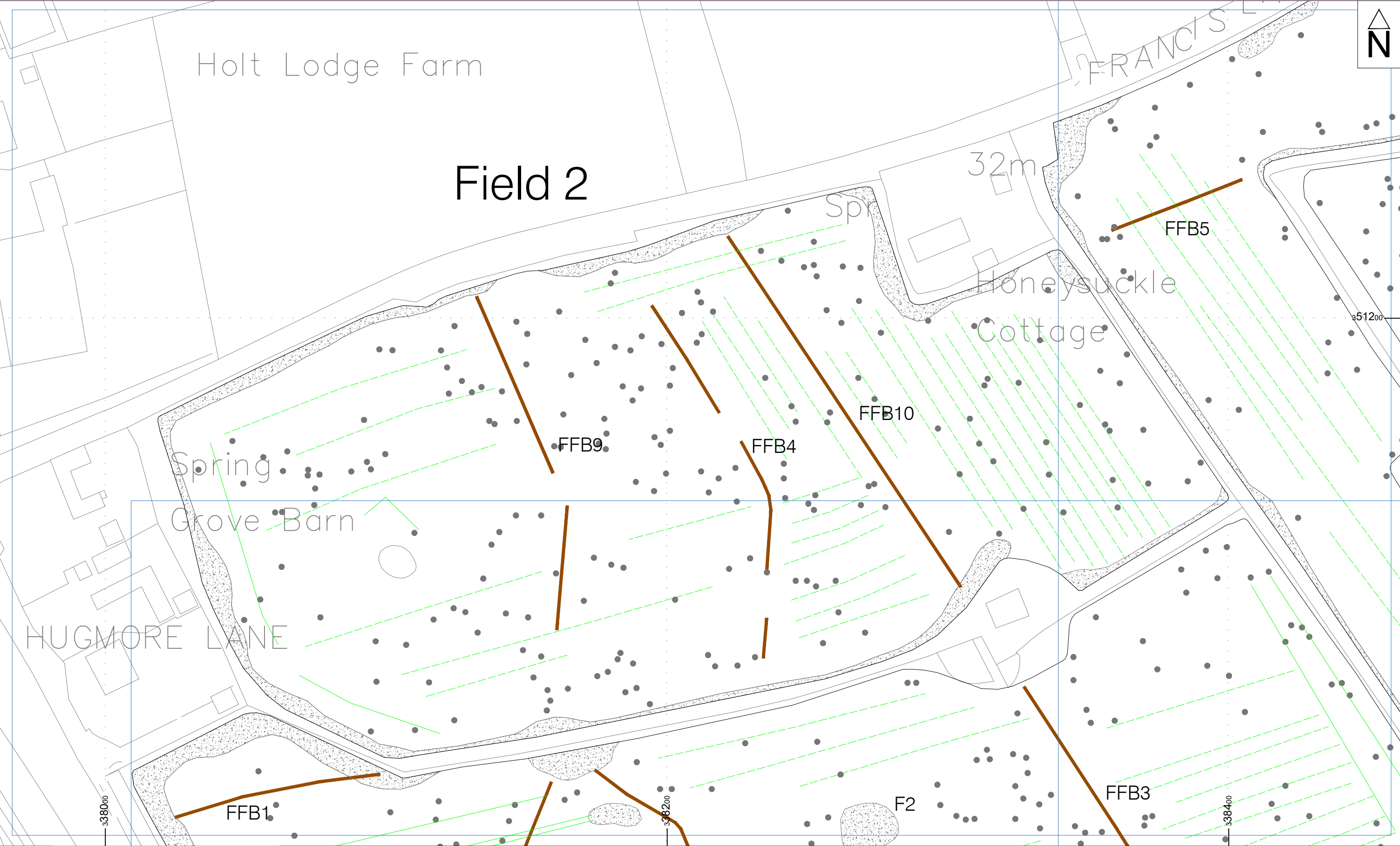
Title

SECTOR BOUNDARY

15.0 nT/cm

0 50m

1:1250 @ A3





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Interpretation of magnetometer data; Sector 2

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Fig. 9

Title

 SECTOR BOUNDARY

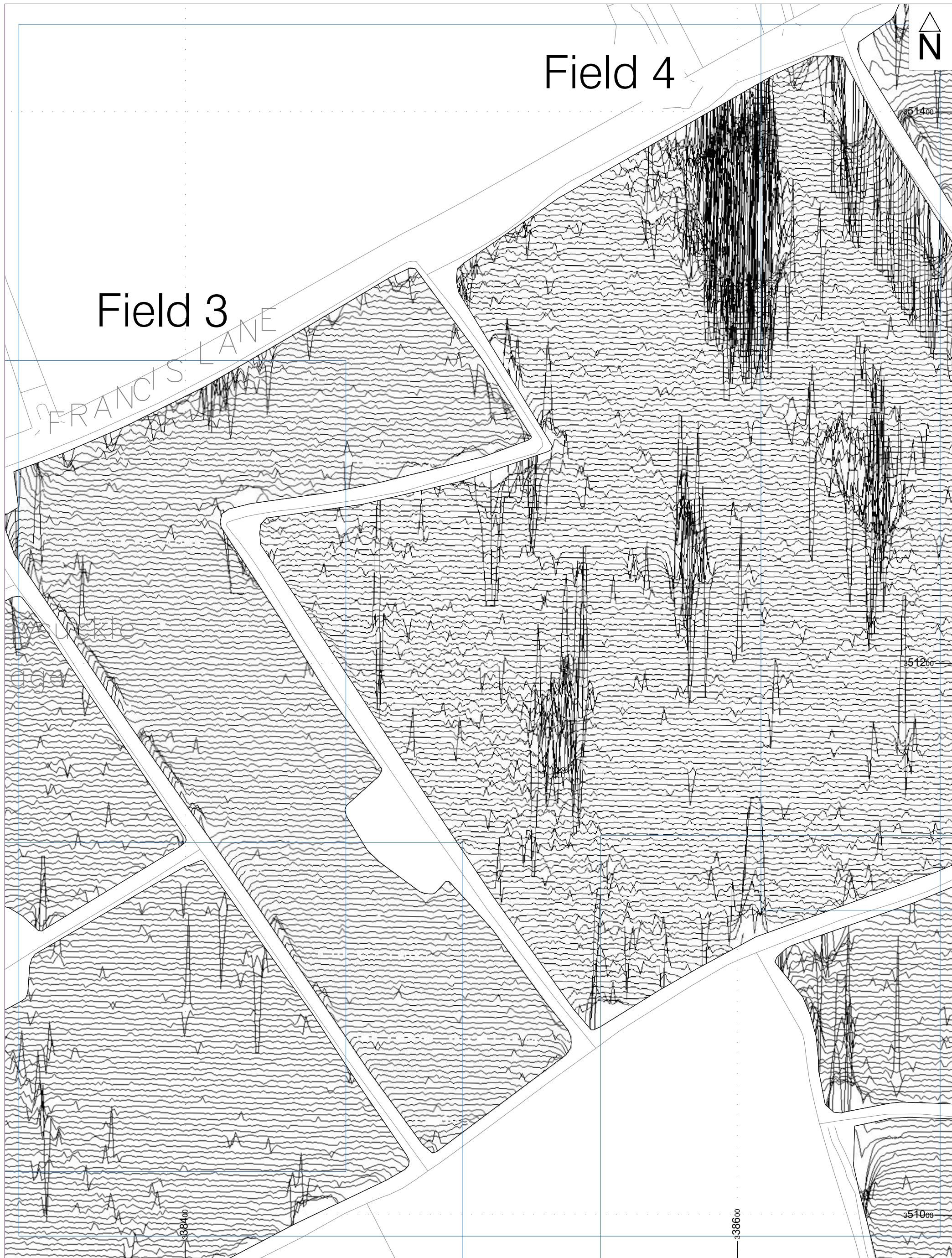
Interpretation

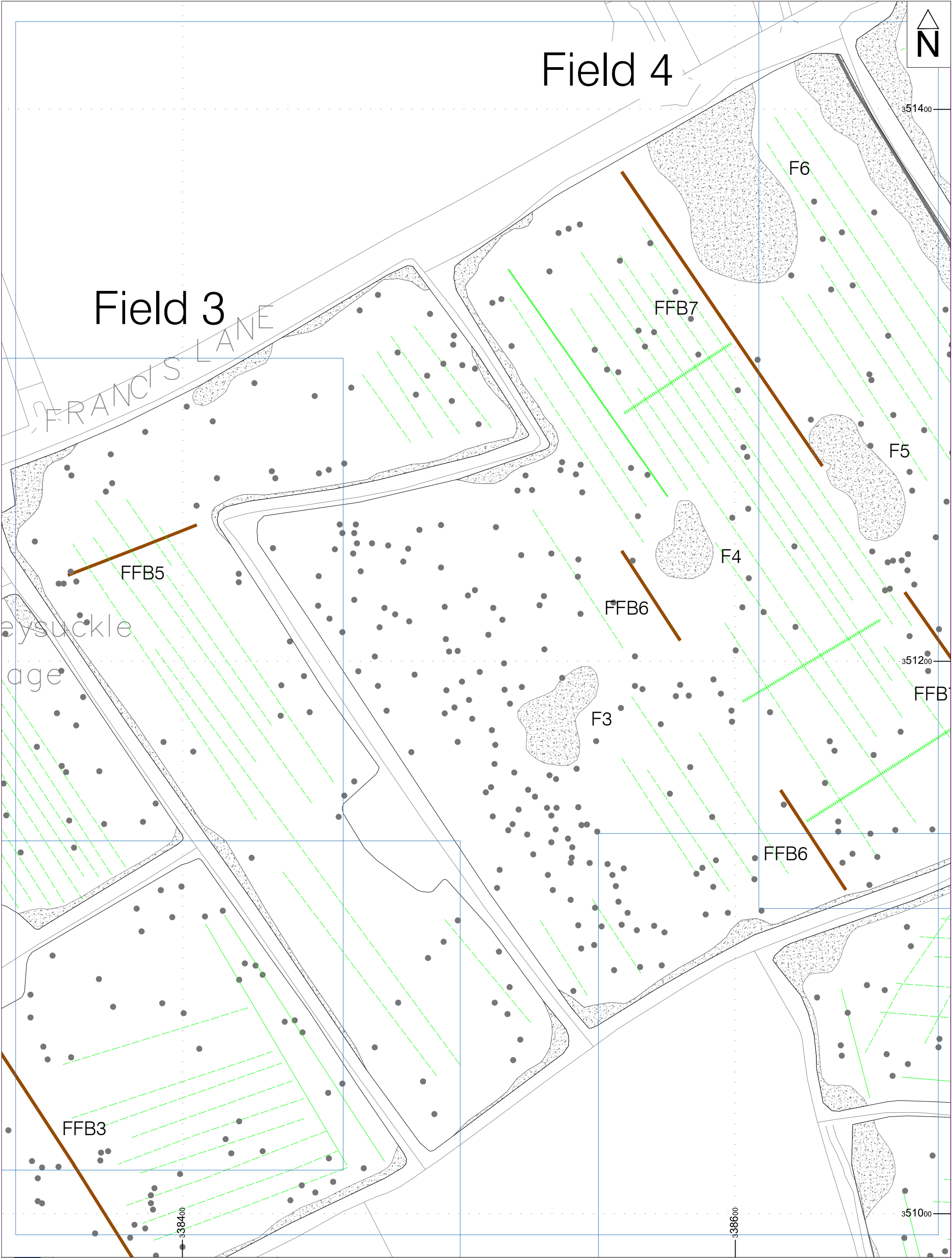
 FERROUS	 AGRICULTURAL
 MAGNETIC DISTURBANCE	 FORMER FIELD BOUNDARY
 RIDGE & FURROW	



0 50m

1:1250 @ A3



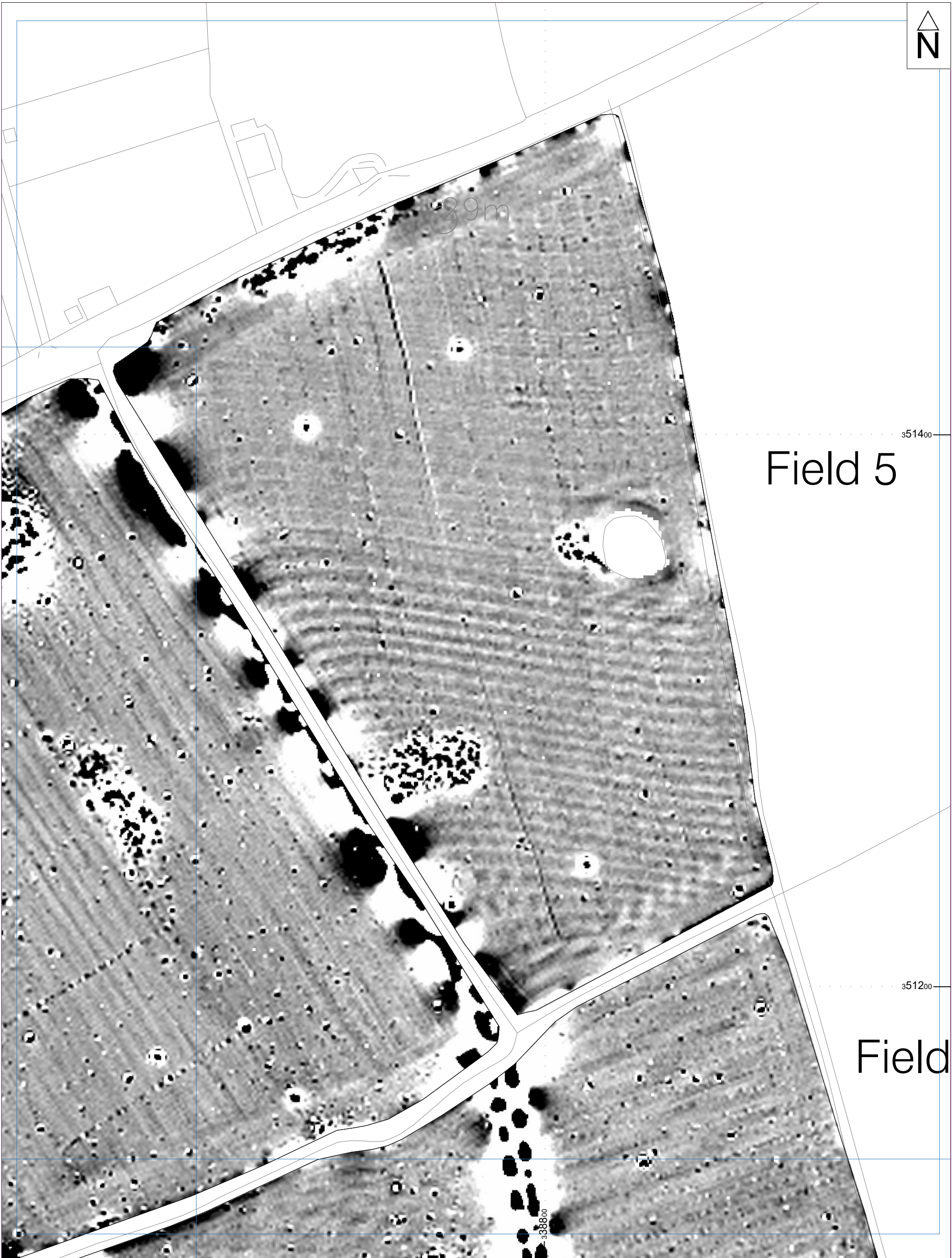


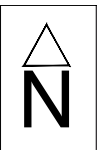
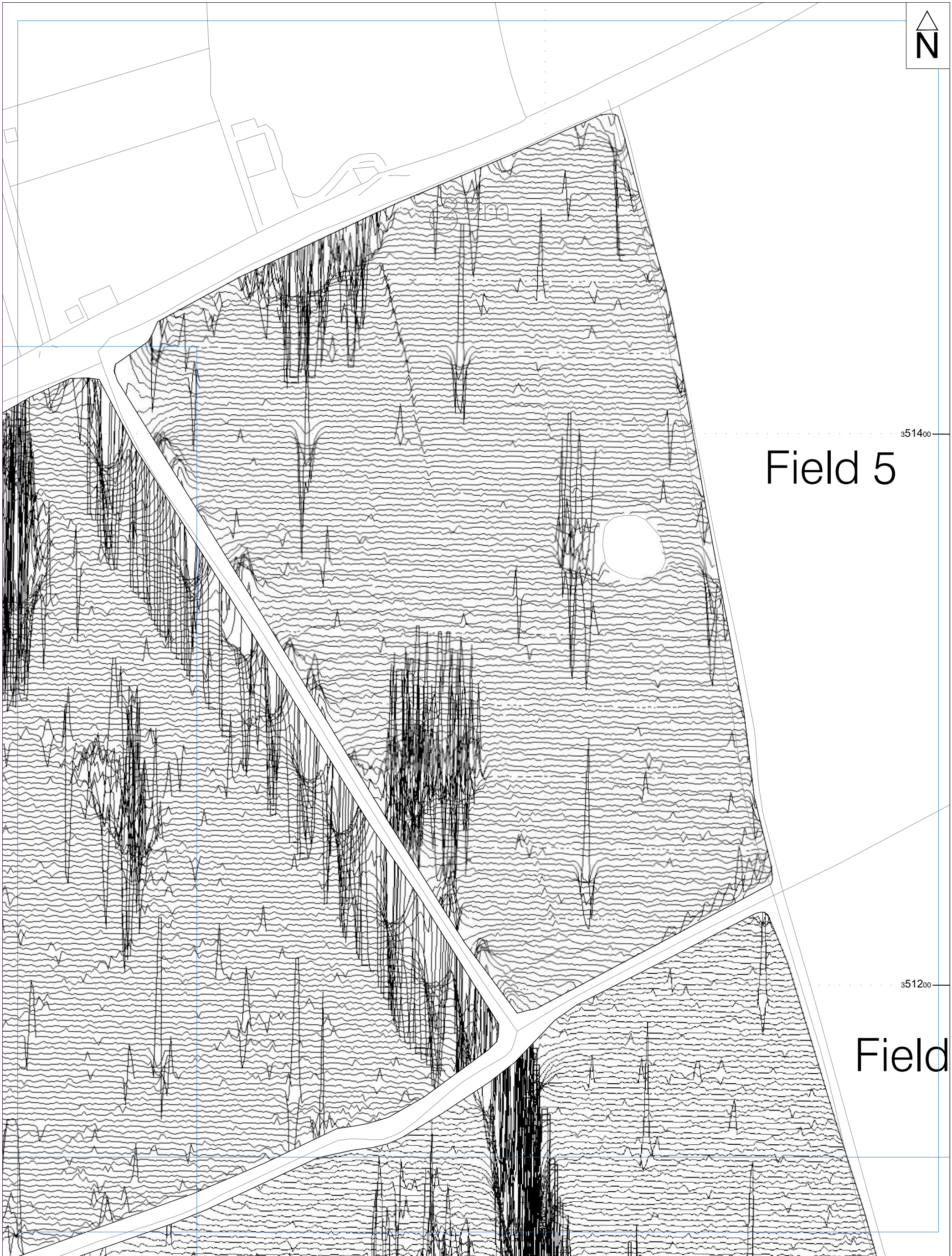
Interpretation			
	FERROUS		RIDGE & FURROW
	SERVICE PIPE		AGRICULTURAL
	MAGNETIC DISTURBANCE		FORMER FIELD BOUNDARY
	FIELD DRAIN		

0 50m

1:1250 @ A3

Fig. 12





351400

Field 5

351200

Field 6



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XY trace plot of minimally processed magnetometer data;
Sector 4

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Title

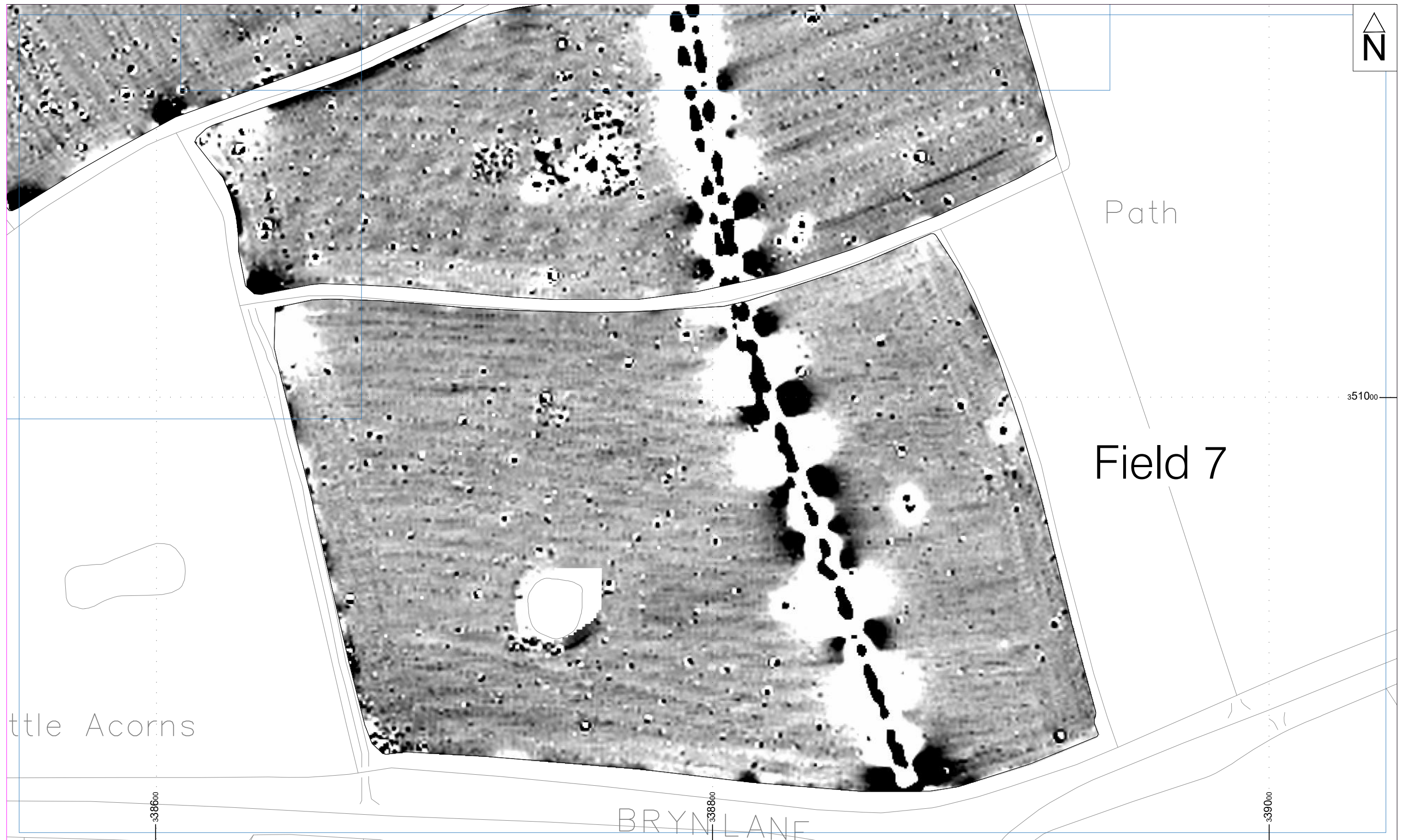
 SECTOR BOUNDARY

15.0 nT/cm

0 50m

1:1250 @ A3

Fig. 14



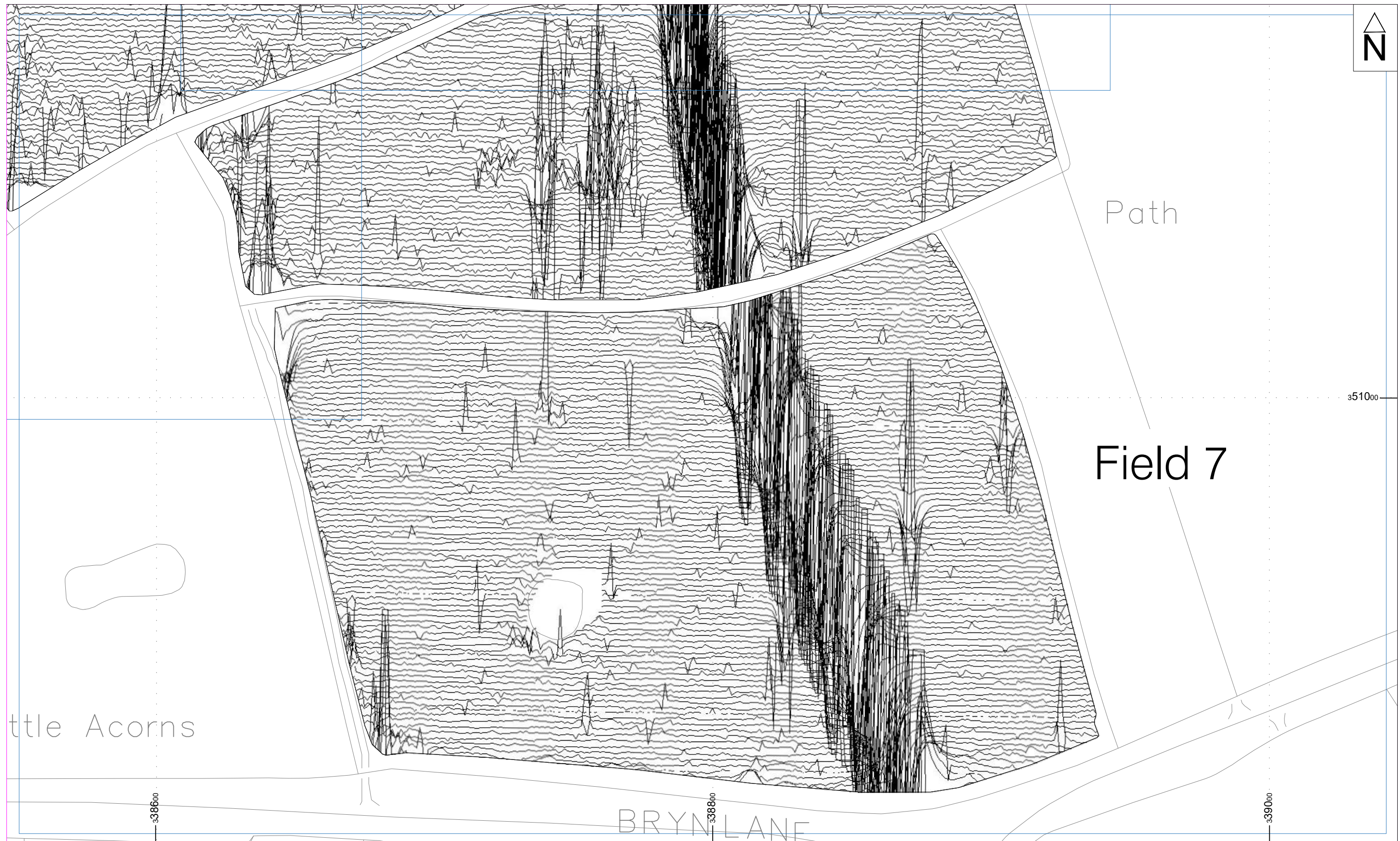
Title

 SECTOR BOUNDARY



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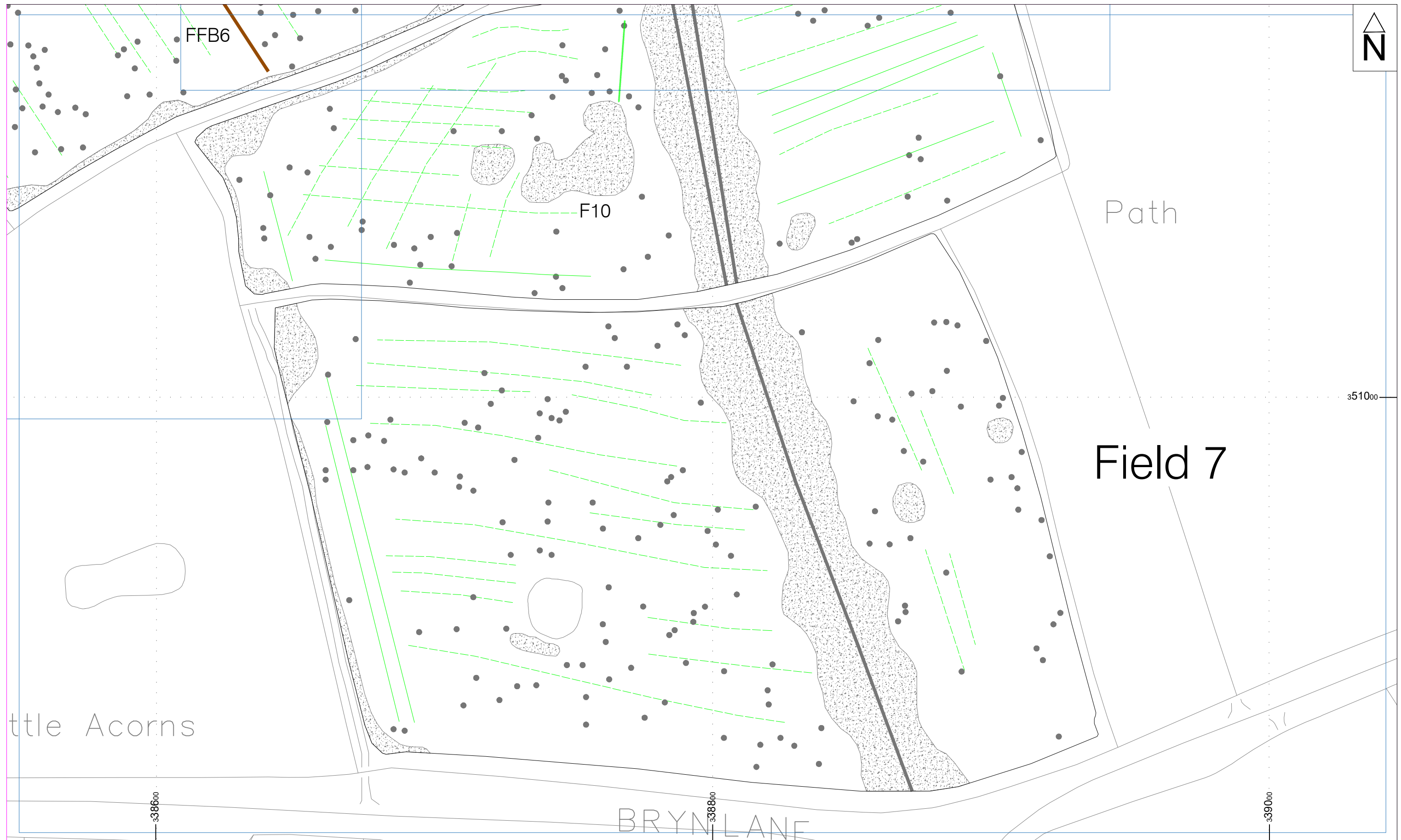




Plate 1. General view of Field 1, looking north



Plate 2. General view of Field 1, looking east



Plate 3. General view of Field 2, looking east



Plate 4. General view of Field 2, looking west



Plate 5. General view of Field 3, looking north



Plate 6. General view of Field 4, looking southeast



Plate 7. General view of Field 4, looking north



Plate 8. General view of Field 4, looking east



Plate 9. General view of Field 6, looking east



Plate 10. General view of Field 6, looking southeast



Plate 11. General view of Field 7, looking east



Plate 12. General view of Field 7, looking east



Plate 13. General view of Field 5, looking east



Plate 14. General view of Field 5, looking south



Plate 15. General view of Field 8, looking west



Plate 16. General view of Field 8, looking south



Plate 17. General view of Field 8, looking west



Plate 18. General view of Field 8, looking west



Plate 19. General view of Field 8, looking west

Appendix 1: Magnetic survey - technical information

Magnetic Susceptibility and Soil Magnetism

Iron makes up about 6% of the Earth's crust and is mostly present in soils and rocks as minerals such as maghaemite and haemetite. These minerals have a weak, measurable magnetic property termed magnetic susceptibility. Human activities can redistribute these minerals and change (enhance) others into more magnetic forms. Areas of human occupation or settlement can then be identified by measuring the magnetic susceptibility of the topsoil because of the attendant increase (enhancement) in magnetic susceptibility. If the enhanced material subsequently comes to fill features, such as ditches or pits, localised isolated and linear magnetic anomalies can result whose presence can be detected by a magnetometer (fluxgate gradiometer).

In general, it is the contrast between the magnetic susceptibility of deposits filling cut features, such as ditches or pits, and the magnetic susceptibility of topsoils, subsoils and rocks into which these features have been cut, which causes the most recognisable responses. This is primarily because there is a tendency for magnetic ferrous compounds to become concentrated in the topsoil, thereby making it more magnetic than the subsoil or the bedrock. Linear features cut into the subsoil or geology, such as ditches, that have been silted up or have been backfilled with topsoil will therefore usually produce a positive magnetic response relative to the background soil levels. Discrete feature, such as pits, can also be detected. The magnetic susceptibility of a soil can also be enhanced by the application of heat and the fermentation and bacterial effects associated with rubbish decomposition. The area of enhancement is usually quite large, mainly due to the tendency of discard areas to extend beyond the limit of the occupation site itself, and spreading by the plough.

Types of Magnetic Anomaly

In the majority of instances anomalies are termed 'positive'. This means that they have a positive magnetic value relative to the magnetic background on any given site. However some features can manifest themselves as 'negative' anomalies that, conversely, means that the response is negative relative to the mean magnetic background.

Where it is not possible to give a probable cause of an observed anomaly a '?' is appended.

It should be noted that anomalies interpreted as modern in origin might be caused by features that are present in the topsoil or upper layers of the subsoil. Removal of soil to an archaeological or natural layer can therefore remove the feature causing the anomaly.

The types of response mentioned above can be divided into five main categories that are used in the graphical interpretation of the magnetic data:

Isolated dipolar anomalies (iron spikes)

These responses are typically caused by ferrous material either on the surface or in the topsoil. They cause a rapid variation in the magnetic response giving a characteristic ‘spiky’ trace. Although ferrous archaeological artefacts could produce this type of response, unless there is supporting evidence for an archaeological interpretation, little emphasis is normally given to such anomalies, as modern ferrous objects are common on rural sites, often being present as a consequence of manuring.

Areas of magnetic disturbance

These responses can have several causes often being associated with burnt material, such as slag waste or brick rubble or other strongly magnetised/fired material. Ferrous structures such as pylons, mesh or barbed wire fencing and buried pipes can also cause the same disturbed response. A modern origin is usually assumed unless there is other supporting information.

Linear trend

This is usually a weak or broad linear anomaly of unknown cause or date. These anomalies are often caused by agricultural activity, either ploughing or land drains being a common cause.

Areas of magnetic enhancement/positive isolated anomalies

Areas of enhanced response are characterised by a general increase in the magnetic background over a localised area whilst discrete anomalies are manifest by an increased response on two or three successive traverses. In neither instance is there the intense dipolar response characteristic exhibited by an area of magnetic disturbance or of an ‘iron spike’ anomaly (see above). These anomalies can be caused by infilled discrete archaeological features such as pits or post-holes or by kilns. They can also be caused by pedological variations or by natural infilled features on certain geologies. Ferrous material in the subsoil can also give a similar response. It can often therefore be very difficult to establish an anthropogenic origin without intrusive investigation or other supporting information.

Linear and curvilinear anomalies

Such anomalies have a variety of origins. They may be caused by agricultural practice (recent ploughing trends, earlier ridge and furrow regimes or land drains), natural geomorphological features such as palaeochannels or by infilled archaeological ditches.

Methodology: Gradiometer Survey

The main method of using the fluxgate gradiometer for commercial evaluations is referred to as **detailed survey** and requires the surveyor to walk at an even pace carrying the instrument within a grid system. A sample trigger automatically takes readings at predetermined points, typically at 0.25m intervals, on traverses 1m apart. These readings are stored in the memory of the instrument and are later dumped to computer for processing and interpretation.

During this survey an eight channel Sensys MX V3 system containing eight FGM650 sensors was also used which was towed across the area using an ATV. Readings were taken every 20MHz (between 0.05 and 0.1m). Data was be recorded onto a device, using a Carlson GNSS Smart antenna, for centimetre accuracy. These readings were stored in the memory of the instrument and downloaded for processing and interpretation

The gradiometer data have been presented in this report in processed greyscale format. The data in the greyscale images have been interpolated and selectively filtered to remove the effects of drift in instrument calibration and other artificial data constructs and to maximise the clarity and interpretability of the archaeological anomalies.

Appendix 2: Survey location information

Data was recorded onto a device, using a Carlson GNSS BRx7 Smart antenna, for centimetre accuracy. These readings were stored in the memory of the instrument and downloaded for processing and interpretation. The accuracy of the BRx7 is between 0.15cm – 0.8cm. The BRx7 has a built in tilt sensor to correct collected point coordinates to within 2cm.

The survey data were then super-imposed onto a base map provided by the client to produce the displayed locations. However, it should be noted that Ordnance Survey positional accuracy for digital map data has an error of 0.5m for urban and floodplain areas, 1.0m for rural areas and 2.5m for mountain and moorland areas. This potential error must be considered if co-ordinates are measured off hard copies of the mapping rather than using the digital co-ordinates.

Archaeological Services WYAS cannot accept responsibility for errors of fact or opinion resulting from data supplied by a third party.

Appendix 3: Geophysical archive and metadata

The geophysical archive comprises:-

- an archive disk containing compressed (WinZip 8) files of the raw data, report text (Microsoft Word 2003), and graphics files (Adobe Illustrator CS8 and AutoCAD 2022) files; and
- a full copy of the report.

At present the archive is held by Archaeological Services WYAS although it is anticipated that it may eventually be lodged with the Archaeology Data Service (ADS). Brief details may also be forwarded for inclusion on the English Heritage Geophysical Survey Database after the contents of the report are deemed to be in the public domain (i.e. available for consultation in the Clwyd Powys Archaeological Trust).

Bibliography

- Bassir, A., 2022. Land North of Bryn Lane, Wrexham, Clwyd. Heritage Impact Assessment, TEP document ref 9134.02.003
- BGS, 2022. www.bgs.ac.uk/discoveringGeology/geologyOfBritain/viewer.html. British Geological Survey (viewed June 2022)
- Bunning, E., 2022. Land North of Bryn Lane, Wrexham, Clwyd. Geophysical Survey Project Design. ASWYAS unpublished document
- CIfA, 2020. *Standard and Guidance for Archaeological Geophysical Survey*. Chartered Institute for Archaeologists
- CSAI, 2022. <http://www.landis.org.uk/soilscapes/> Cranfield Soil and Agrifood Institute (viewed June 2022)
- MHCLG, 2019. *National Planning Policy Framework*. Ministry of Housing, Communities and Local Government.
- NLS, 2022. <https://maps.nls.uk/index.html>. National Library of Scotland (viewed June 2022)
- Schmidt, A. Linford, P., Linford, N., David, A., Gaffney, C., Sarris, A, and Fassbinder, J. 2016. *EAC Guidelines for the Use of Geophysics in Archaeology*. English Heritage



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