Archaeological Desk-Based Assessment
In advance of Development of land at Preston Hall Farm, Bexhill, East Sussex

NGR: TQ 4059 2091

Report for
Persimmon Homes (South-East) Ltd
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1 SUMMARY

Swale & Thames Survey Company (SWAT Archaeology) has been commissioned to carry out an archaeological desk-based assessment of the proposed development of residential dwellings on land at Preston Hall Farm, Bexhill, East Sussex as part of a planning application by Strutt & Parker Planning.

This Desk Based Assessment examines the wide variety of archaeological data held by East Sussex County Council and other sources.

Based on this data the potential for archaeological sites either on or in the near vicinity of the proposed development can be summarised as:

- *Prehistoric: Moderate*
- *Romano-British: Moderate*
- *Anglo-Saxon: Moderate*
- *Post-medieval: High*

The Desk Based Assessment concludes that:

- *The site has potential for Prehistoric remains given the archaeological discoveries on the nearby Hastings to Bexhill bypass*
- *Roman archaeology has been found on similar farm sites in the near vicinity*
- *Place-name evidence suggests that Preston Hall Farm may be of Anglo-Saxon foundation*

A Design and Access Statement was prepared by Strutt & Parker Planning and this document sets out the architectural proposals for the development of the site in a sustainable manner both environmentally and economically.

The site is located south-east of Preston Hall and Preston Hall Cottage, south and east of Watermill Lane, east of recent residential development at Watergate and Faygate Close and north of Redgate Wood. The site is about 37 ha in area (Fig.20).

2 INTRODUCTION

SWAT Archaeology has been commissioned by Persimmon Homes (South-East) Ltd to carry out an Archaeological Desk-Based Assessment and Walkover Survey to supplement a planning application for the development of the site situated south-west of Preston Hall Farm (Figure 20). The report has accessed various sources of information to identify any known heritage assets which may be located within the vicinity of the Proposed Development Area. Archaeological investigations, both recent and historic have been studied and the information from these investigations has been incorporated in the assessment. The PDA is centered on National Grid Reference TQ 4059 2091.

A search of the East Sussex Historic Environment Record (HER) within 1km of the survey area has identified evidence of Romano-British, Saxon, and medieval activity. The Roman activity is recorded c.700m east of the survey area in the form of a cinder bank (HER number MES63). A Saxon settlement has been identified c.350m west of the site at Mayo Farm (HER number MES19689), whilst evidence of medieval activity is evident as three farmsteads in the surrounding area (HER numbers MES19468, MES19681, MES19685) (East Sussex County Council 2015).

Recent and ongoing archaeological investigations in advance of the Bexhill to Hasting bypass road (Plate 6) has found considerable evidence of Mesolithic flint scatters amounting to thousands of individual worked flint.

Near Upper Wilting Farm east of the Assessment Area the footprint of Roman buildings and enclosures have been found with a large number of iron smelting bloomery furnaces and slag. The site at Upper Wilting Farm was a Saxon Manor and corn drying ovens have been found with charred cereal grains which have been dated to the 7th-8th centuries AD (ESCC Archaeology 6)

2.1 Geology and Topography

The Geological Survey of Great Britain (1:50,000) indicates that the underlying surface is anticipated to be Tunbridge Wells Sand Formation- Siltstone, Mudstone and Sandstone. There is no recorded drift geology (BGS 1:50,000 digital). The overlying soils are known as Curtisden, which are typical stagnogleyic argillic brown earths. These consist of silty soils over siltstone (Soil Survey of England and Wales, Sheet 6 South-East England). The site averages 20-27m.aOD.

2.2 Planning Background

The National Planning Policy Framework (March 2012)

Policy 12 is the relevant policy for the historic environment:

12. Conserving and enhancing the historic environment

12.6. Local planning authorities should set out in their Local Plan a positive strategy for the conservation and enjoyment of the historic environment, including heritage assets most at risk through neglect, decay or other threats. In doing so, they should recognise that heritage assets are an irreplaceable resource and conserve them in a manner appropriate to their significance. In developing this strategy, local planning authorities should take into account:

● the desirability of sustaining and enhancing the significance of heritage assets and putting them to viable uses consistent with their conservation;

● the wider social, cultural, economic and environmental benefits that conservation of the historic environment can bring;

● the desirability of new development making a positive contribution to local character and distinctiveness; and

● opportunities to draw on the contribution made by the historic environment to the character of a place.

12.8. In determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the

assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum the relevant historic environment record should have been consulted and the heritage assets assessed using appropriate expertise where necessary. Where a site on which development is proposed includes or has the potential to include heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation (NPPF 2012).

The Rother District Council Core Strategy adopted September 2014 has two policies relating to Archaeology and Cultural Heritage which serve to protect the heritage assets of local, regional and national importance.

Regional Policies

The South-East Research Framework (SERF) is ongoing with groups of researchers producing a Resource Assessment which will identify research questions and topics in order to form a Research Agenda for the future.

Research Frameworks

The national and regional policies outlined above should be considered in light of the non statutory heritage frameworks that inform them.

English Heritage has issued detailed guidance on the *Setting of Heritage Assets* (2011). This guidance is based on principles and guidance already issued by English Heritage in the *Historic Environment Planning Practice Guide* (2010), and *Conservation Principles: Policies and Guidance for the Sustainable Management of the Historic Environment* (2008).

It provides a framework for assessing impacts based on the identification of individual asset's cultural significance and the relationship between that and its surroundings followed by assessment of the degree to which change in the surroundings affects significance.

This Archaeological Desk-Based Assessment has been prepared in accordance with the guidance in the National Planning Policy Framework and the Good Practise Advice notes 1, 2 and 3 which now supersede the PPS 5 Practise Guide which has been withdrawn by the Government. The Good Practise Advice notes emphasises the need for assessments of the significance of any heritage assets which are likely to be changed, so the assessment can inform the decision process. Significance is defined in the NPPF Guidance in the Glossary as "the value of the heritage asset to this and future generations because of its heritage interest. That interest may be archaeological, architectural, artistic, or historical. Significance derives not only from a heritage asset's physical presence, but also its setting". The setting of the heritage asset is also clarified in the Glossary as "the surroundings in which a heritage asset is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve".

This Desk-Based Assessment therefore forms the initial stage of the archaeological investigation and is intended to inform and assist in decisions regarding archaeological mitigation for the proposed development and associated planning applications.

2.3 The Proposed Development

The proposed development will comprise of the build of housing and construction of vehicular access, associated car parking and landscaping.

The site is located south-east of Preston Hall and Preston Hall Cottage, south and east of Watermill Lane, east of recent residential development at Watergate and Faygate Close and north of Redgate Wood.

Walkover Survey

The site is about 37 ha in area (Figure 20). The site is made up of one parcel of land divided into four fields and a farm. The site is open in character, and has a combination of mature hedging and stock proof fencing boundaries with neighbouring properties. It is predominantly maintained grassland used for grazing. Overall, the site is well screened from the wider landscape (Plates 3, 5). There were

no obvious signs of archaeological features apart from a small area of possible ridge and furrow. The farm itself is of particular interest and it may be that recording of buildings and their setting may be required as part of the planning process.

2.4 Project Constraints

No project constraints were encountered during the data collection for this assessment.

3 AIMS AND OBJECTIVES

3.1 The Desk-Based Assessment was commissioned by Persimmon Homes (South-East) Ltd in order to supplement a planning application for the development of the site of land adjacent to Preston Hall Farm, Bexhill, East Sussex.

3.2 Desktop Study – Institute for Archaeologists (revised 2011)

This desktop study has been produced in line with archaeological standards, as defined by the Institute for Archaeologists (2014). A desktop, or desk-based assessment, is defined as being:

"*a programme of study of the historic environment within a specified area or site on land, the inter-tidal zone or underwater that addresses agreed research and/or conservation objectives. It consists of an analysis of existing written, graphic, photographic and electronic information in order to identify the likely heritage assets, their interests and significance and the character of the study area, including appropriate consideration of the settings of heritage assets and, in England, the nature, extent and quality of the known or potential archaeological, historic, architectural and artistic interest. Significance is to be judged in a local, regional, national or international context as appropriate*". (CiFA 2014)

4 METHODOLOGY

4.1 Desk-Based Assessment

4.1.1 Archaeological databases

The local Historic Environment Record (HER) held at East Sussex County Council provides an accurate insight into catalogued sites and finds within both the proposed development area (PDA) and the surrounding environs of Bexhill.

The search was carried out within a 500m radius of the proposed development site (19/05/15).

The Archaeology Data Service Online Catalogue (ADS) was also consulted.

Relevant HER data is included in the report. The Portable Antiquities Scheme Database (PAS) was also searched as an additional source as the information contained within is not always transferred to the local HER.

4.1.2 Historical documents

Historical documents, such as charters, registers, wills and deeds etc were considered not relevant to this specific study.

4.1.3 Cartographic and pictorial documents

A cartographic and pictorial document search was undertaken during this assessment. Research was carried out using resources offered by East Sussex County Council, the Internet and Ordnance Survey Historical mapping (Appendices 1, 2).

4.1.4 Aerial photographs

The study of the collection of aerial photographs held by ESRO and Google Earth was undertaken (Plates 1-6).

4.1.5 Geotechnical information

To date, no known geotechnical investigations have been carried out at the site. However, Stratascan have carried out a geophysical survey (Appendix 3).

4.1.6 Secondary and statutory resources

Secondary and statutory sources, such as regional and periodic archaeological studies, landscape studies; dissertations, research frameworks and Websites are considered appropriate to this type of study and have been included within this assessment where necessary.

4.2 Map Regression 1778-1995

Visits to the East Sussex Record Office were productive in viewing early maps including the Tithe maps and aerial photographs from the 1940's. All results of interpretation of this data are presented in order of chronology. A map regression exercise on historic OS maps was carried out on the Proposed Development Area (PDA) and has shown that the site includes a farm with historic beginnings that can be mapped in some detail from the mid 19th century. The PDA is adjacent south and west to a large area of recent residential development.

4.2 1. Maps consulted for this earlier period include, the Yeakell & Gardner map of 1778 (Plate 21). The scale on this map is a such that the fine detail required for a Desk-Based Assessment (DBA) is not there but it is worth in passing to highlight that on the Yeakell & Gardner (2 inches to 1 mile) does show that parcels of woodland in the Assessment Area have survived to the present day and the odd shapes of these woodlands is probably because the woodlands were restrained and contained within natural features of the landscape. This large scale map was the first to use triangulation which enabled actual field boundaries to be drawn. The Yeakell & Gardner surveyors claimed to illustrate 'every inclosure, however small.....every road, public and private....the rivers, with their bends, fords and bridges'.

4.2.2. From the 1840s the Ordnance Survey started work on the Great Britain 'County Series', modelled on the earlier Ireland survey. A start was made on mapping the whole country, county by county, at six inches to the mile (1:10,560). From 1854, to meet requirements for greater detail, including land-parcel numbers in rural areas and accompanying information, cultivated and inhabited areas were mapped at

1:2500 (25.344 inches to the mile), at first parish by parish, with blank space beyond the parish boundary, and later continuously. Early copies of the 1:2500s were available hand-coloured. Up to 1879, the 1:2500s were accompanied by Books of Reference or "area books" that gave acreages and land-use information for land-parcel numbers. After 1879, land-use information was dropped from these area books; after the mid-1880s, the books themselves were dropped and acreages were printed instead on the maps. After 1854, the six-inch maps and their revisions were based on the "twenty-five inch" maps and theirs. The six-inch sheets covered an area of six by four miles on the ground; the "twenty-five inch" sheets an area of one by one and a half. One square inch on the "twenty-five inch" maps was roughly equal to an acre on the ground. In later editions the six-inch sheets were published in "quarters" (NW,NE,SW,SE), each covering an area of three by two miles on the ground. The first edition of the two scales was completed by the 1890s. A second edition (or "first revision") was begun in 1891 and completed just before the First World War. From 1907 till the early 1940s, a third edition (or "second revision") was begun but never completed: only areas with significant changes on the ground were revised, many two or three times.

4.2.3. The Ordnance Survey Tithe map of 1830-40 (Plate 22) is focused on Preston and shows (in red) Preston Hall a listed building (DES 2629) and to the east five buildings (grey) one of which, the cottage is listed (DES 2630) and set in a courtyard whilst to the west and on the other side of Buckholt Lane are four additional buildings overlooking a large pond situated just to the west. Another large pond is located to the south at the terminus of the modern road in Buckholt Lane and adjacent to the east and south of Preston Hall there is a rectangular formal pond of about 40m length. To the north of the pond there seems to be a formal garden with another formal garden adjacent to Preston Hall on its west side. To the east of the formal garden is an orchard and the fields beyond are either arable or pasture.

4.2.4. By 1873 (Fig. 1) the site is called ‘Preston Farm’ and the listed building of Preston Hall has the same set of buildings in its curtilage but with the addition of a small rectangular building (orange) located on the south side of the entrance drive in

what was in 1840 a formal garden. The formal garden is now orchard and the formal pond is now natural as is the previous formal garden situated to the west of the listed building which now is grass with a hedge row of specimen trees. To the west across Buckholt Lane the four farm buildings have expanded to five. The colour coding on this map shows additional buildings or extensions (orange, yellow, green), with the building coloured green the only building to survive to the present day. In addition the building coloured yellow will be shown throughout the map regressive exercise to the point it becomes a ruin which may still survive in the archaeological record (Figures 12-19).

4.2.5. To the west of these buildings is the pond identified on the 1840 map. To the north can be seen a well and to the south a spring with the flow of water downhill to the north-east. On it journey it feeds the pond to the south of Preston Farm and the relict formal pond within the curtilage of the farm. The well and especially the spring are important ingredients in the location and running of the farm and could suggest that flocks and herds were the mainstay of the farm economics.
The wider landscape on this map shows Redgrove Wood to the south with its possible Anglo-Saxon name, Mayo Farm to the south-west, and the Lodge at the top of Buckholt Lane.

4.2.6. The 1909 OS map shows little change, there is an additional building (greenhouse) on the right of the drive of 'Preston House' as it is now called. The buildings to the west have one additional linking building (orange) and to the south the 'spring' is no longer shown. To the north the woodland to the south-west of Preston Lodge has mostly been turned to pasture and to the north of Preston Lodge a large detached house has been built called 'Chetwynd' (Fig. 2).

4.2.7. By 1909 the OS map (Fig. 2) 'Preston House' has been extended to the north.
The 1930 OS map (Fig. 3) shows 'Preston Hall' with its new extension embellished on the west and south sides by a glass veranda. To the west residential development has been established with the demise of Mayo Farm and its replacement with large detached houses including 'Little Preston' immediately west of Preston Farm.

4.2.8. By 1939 the OS map (Fig. 4) shows additional large detached houses (coloured orange) to the south of 'Little Preston' whilst at 'Preston House' a screen of trees has been added to the north boundary of 'Preston House' and the formal pond in the south garden re-established. Of particular interest is the building (coloured yellow) to the west of 'Preston House' which is now a ruin with its west gable missing. This building can be identified on the 1840 map (Fig. 15).

4.2.9 The 1953 and 1961 OS maps (Figures 5, 6, 16, 17) shows that the building (coloured yellow) has disappeared with a re-design of the entrances and the small front building at the entrance to 'Preston Hall' has also gone. The ornamental ponds to the south of 'Preston Hall' have been truncated to three smaller ponds and planted with trees whilst to the west the water course has reappeared fed by 'Issues'. To the far west behind the large detached houses fronting Watermill Lane is a legacy of wartime activity-'Allotment Gardens'.

4.2.10. By 1971-74 the OS map (Figures 7, 18) shows tremendous change at Preston Farm with 17 new buildings (coloured yellow) surrounding the only farm building shown on the 1830-40 map (coloured green) to have survived. 'Preston Hall has had the glass veranda removed by 1953 and a drive added to the front (west facing) of the house. 'Preston Hall Cottage' has acquired an additional building to the south and close to the stream whilst 'Preston Hall' now has a large greenhouse located in the centre of the relict formal garden. To the south a 'Pumping Station' has appeared no doubt to gather the water from the adjacent springs. To the south-west a massive urban development has taken place to the east of 'Watermill Lane'.

4.2.11. The 1995 OS map (Figures 9, 19) again shows tremendous change with only three of the 1974 farm buildings to survive and with the addition of two new buildings, the large detached houses to the west, 'Little Preston'. 'Redgrove', and 'The Dwellan' having been demolished. To the east at 'Preston Hall' all the greenhouse and stables have been demolished, no doubt to enhance the setting of the two listed buildings 'Preston Hall' and 'Preston Hall Cottage'.

The Map Regression Exercise indicates Preston Hall Farm has one building surviving from the 19th century (Figure 12) whilst another 19th century building (coloured yellow) may survive in the archaeological record (Figure 19). It is likely these two buildings although shown on the 1873 OS map are of an earlier date.

The location of Preston Hall Farm with its adjacent ponds and springs and the place-name evidence as recorded by Dr Margaret Gelling could suggest that the farm and its surrounding environs may date back to the Anglo-Saxon period if not beyond.

5 ARCHAEOLOGICAL AND HISTORICAL DEVELOPMENT

5.1 Introduction

Prehistoric	Palaeolithic	*c*. 500,000 BC – *c*.10,000 BC
	Mesolithic	*c*.10,000 BC – *c*. 4,300 BC
	Neolithic	*c*. 4.300 BC – *c*. 2,300 BC
	Bronze Age	*c*. 2,300 BC – *c*. 600 BC
	Iron Age	*c*. 600 BC – *c*. AD 43
Romano-British		AD 43 – *c*. AD 410
Anglo-Saxon		AD 410 – AD 1066
Medieval		AD 1066 – AD 1485
Post-medieval		AD 1485 – AD 1900
Modern		AD 1901 – present day

Table 1 Classification of Archaeological Periods

5.1.2 The landscape in which the proposed development sits is old and has been worked by hunter gatherers and early farmers from the Early Mesolithic to the Late Medieval. Trial trenching in advance of the creation of an allotment area in 2005 recovered Mesolithic, Neolithic and Early Bronze Age worked flints together with Late Bronze Age and Early Iron Age pottery sherds. The author of the report suggests

Mesolithic seasonal activity with a possible Bronze Age settlement in the vicinity of the Assessment Area (Cornwall, K., 2006).

In addition prehistoric find spots are to be found in the Bexhill area at the former Bexhill West railway station, Terminus Road of Neolithic scrapers and flint wasters (MES69). On the Bexhill Downs Bronze Age a broken barbed and tanged flint arrowhead was found on the ground after a gorse fire in c.1926 (MES 65) with another found at Collington Wood in May 1934 (MES 64).

5.1.3 Recent and ongoing archaeological investigations in advance of the Bexhill to Hasting bypass road (Plate 6) has found considerable evidence of Mesolithic flint scatters amounting to thousands of individual worked flint. The stone tools seem to have been imported to this part of East Sussex suggesting extensive and sophisticated trade patterns. Mesolithic pits have also been found with the fills including charcoal and hazelnuts which will be able to give goods dates to this type of activity. In addition a Late Neolithic ring ditch with a gap has been excavated which may be a henge. Moving on into the Bronze Age landscape several burnt mounds with associated pottery have also been found.

Near Upper Wilting Farm east of the Assessment Area the footprint of Roman buildings and enclosures have been found with a large number of iron smelting bloomery furnaces and slag. The site at Upper Wilting Farm was a Saxon Manor and corn drying ovens have been found with charred cereal grains which have been dated to the 7th/8th centuries AD (ESCC Archaeology 6).

5.1.4 There is also extensive evidence of Roman ironworking with at least five known bloomery sites to found in the Assessment Area.

5.1.5 The landscape around the Assessment Area is in essence rural with arable and pasture land won from the surrounding forest in the last 1000 years. Evidence for this process can be seen in the place names like Preston Farm in the centre of the Assessment Area. In addition Redgrove Wood to the south, Cole Wood to the north and Levetts Wood to the south-east. More importantly the east boundary of the PDA seems to be adjacent to a Prehistoric trackway that can be seen to run beyond

Preston Lodge to the north and beyond Redgrove Wood to the south. This lane or 'hollow-way' is called Buckholt Lane (Plate 15 and Figure 3).

5.1.6 The known history of the area indicates that the first historical reference to Bexhill (Bexelai) was in a charter dated 772AD. During the Norman Conquest it seems Bexhill (Bexelai) was badly damaged and 'layed waste' and given by William as conquered lands to one of his knights Robert Count of EU who gave it to his grandson John who gave it to the church in 1148. The possible ownership by the church from this time may be the reason the farm is called 'Preston Farm' or Priests Farm (Figure 2).

5.1.7 Margaret Gelling comments that some categories of habitative names such as 'Preston' must be of relatively late coinage because they refer to social and administrative arrangements following the conquest 'Preston' (estate of the priests) and the reference is likely to have been to the use of the profits of the estate for the upkeep of a group of people who were not themselves farmers (Gelling 1978:184).

5.1.8 Cole Wood may mean 'wood on a hill' whilst Buckholt means 'beech wood' whilst the grove bit of Redgrove wood is stemmed from 'graefe' a Saxon word for coppiced wood with a ditch and bank to enclose it (which it still has), the red part of the place name can mean 'reeds' (Rackham 1976: 115). The area and shape of Cole Wood has not changed from the Yeakell and Gardner 1778 map to the present day (Figures 1, 3, 10).

5.1.9 There are two entries in the East Sussex HER data of archaeological data in the vicinity of the proposed development site. To the north Cockerels Farm (MES 19468) a farm dating from the medieval period and designated an Archaeological Notification Area (ANA) and Mayo Farm to the west (MES 19689) a 17th farm complex and again an ANA.

On the Historic Landscape Characterisation (HLC) data from the East Sussex HER there are two areas of interest, both adjoining the Proposed Development Area (PDA). A settlement area (HES 46190) which includes the farm itself and an informal

parkland (HES 46189) which stretches from the Lodge to the house itself. Preston Hall and the cottage in the grounds are both listed (DES 2629, 2630), the main house dating from 1800-1832 and the cottage also from 1800-1832.

This section of the assessment will focus on the archaeological and historical development of this area, placing it within a local context. Each period classification will provide a brief introduction to the wider landscape (1km radius centered on the PDA), followed by a full record of archaeological sites, monuments and records within the site's immediate vicinity. Time scales for archaeological periods represented in the report are listed on page 15 in **Table 1**.
There are 29 HER results for the specified search area. Nine Archaeological Events and 11 Archaeological Notification Areas (see Table 1).

5.2 Scheduled Monuments; Listed Buildings; Historic Parks & Gardens and Conservation Areas

No scheduled monuments; two Listed Buildings; No Historic Parks & Gardens and Conservation Areas are recorded within the confines of the proposed development area (PDA). The two listed buildings in the vicinity of the Proposed Development Site (PDA) are 'Preston Hall' Grade II (DES 2629) an early 19th century two storey house, five windows with stuccoed exterior and 'Cottage in the grounds of Preston Hall' Grade II (DES 2629) an early 19th century two storey cottage with three windows, modern roof with stuccoed exterior (Plates 13, 14).

5.3 Prehistoric (Palaeolithic, Mesolithic, Neolithic and Bronze Age)

The Palaeolithic represents the earliest phases of human activity in the British Isles, up to the end of the last Ice Age.
The Mesolithic period reflects a society of hunter-gatherers active after the last Ice Age. Recent and ongoing archaeological investigations in advance of the Bexhill to Hasting bypass road has found considerable evidence of Mesolithic flint scatters amounting to thousands of individual worked flint. The stone tools seem to have been imported to this part of East Sussex suggesting extensive and sophisticated

trade patterns. Mesolithic pits have also been found with the fills including charcoal and hazelnuts which will be able to give goods dates to this type of activity.

In addition a Late Neolithic ring ditch with a gap has been excavated which may be a henge (Plate 6).

The Bronze Age, a period of large migrations from the continent and more complex social developments on a domestic, industrial and ceremonial level are represented in the assessment area. Recent archaeological work on the Hastings Bexhill bypass has recovered several burnt mounds with associated pottery.

5.4 Iron Age

The Iron Age is, by definition a period of established rural farming communities with extensive field systems and large 'urban' centres. The East Sussex HER records no activity within the assessment area.

5.5 Romano-British

The Romano-British period is the term given to the Romanised culture of Britain under the rule of the Roman Empire, following the Claudian invasion in AD 43, Britain then formed part of the Roman Empire for nearly 400 years.

The predominant feature of the Roman infrastructure within East Sussex is arguably the extensive network of Roman roads connecting administrative centres: the towns to military posts and rural settlements (villas, farmsteads and temples) increasing the flow of trade, goods, communications and troops. The assessment area includes two records from this period. Near Upper Wilting Farm east of the Assessment Area the footprint of Roman buildings and enclosures have been found with a large number of iron smelting bloomery furnaces and slag.

5.6 Anglo-Saxon

The Anglo-Saxon period is represented in the assessment area by the site at Upper Wilting Farm which was a Saxon Manor. Corn drying ovens have been found with charred cereal grains which have been dated to the 7th-8th centuries AD.

5.7 Medieval

The medieval period is represented within the assessment area with documentary evidence of a Medieval Farmstead at Cockerels Farmhouse some 350m north of the PDA (MES19468).

5.8 Post-Medieval

The Post Medieval period within the assessment area is represented by the site of Mayo Farm, a small 17th century farmstead about 280m west of the PDA (MES19689).

5.9 Modern

Modern development within the assessment area has been limited to residential housing and farming – all being partly responsible for the present landscape.

5.10 Undated

There is no East Sussex HER undated records that fall within the assessment area.

5.11 Cartographic Sources and Map Regression

A full map regression exercise carried out on the proposed development area has shown that most of the site has always been open ground. Ten detailed maps of the area dating from 1778 up to 1993 show the area of Preston Hall Farm and its associated woodland/pasture and fresh water springs (Figures 1-19).

6 ARCHAEOLOGICAL POTENTIAL

6.1 Palaeolithic, Mesolithic, Neolithic and Bronze Age

There is ample evidence from the Hastings Bexhill bypass of prehistoric activity within the search area. The potential for finding remains that date prior to the Iron Age within the confines of the proposed development is therefore considered **moderate**.

6.2 Iron Age

The potential for finding remains dating to the Iron Age within the confines of the PDA is considered **undefined**.

6.3 Romano-British

The presence of Romano-British archaeology in the research area suggests that the potential is therefore to be considered as **moderate**.

6.4 Anglo-Saxon

Anglo-Saxon archaeology within the assessment area has not been represented. The potential for finding remains dating to the Anglo-Saxon period on the development site is considered as **moderate.**

6.5 Medieval

The potential for finding remains dating to the medieval period is considered as **moderate**.

6.6 Post-Medieval

The potential for finding remains dating to the post-medieval period is considered as **high** as cartographic evidence suggests Preston Hall Farm like its close neighbour Mayo and Cockerels Farm may have an unknown longevity but with good evidence from the post-medieval period.

7 IMPACT ASSESSMENT

7.1 Existing Impacts

The search area is for the most part, subject to farming and the potential impact on buried archaeological deposits will have been due to agricultural activities. Therefore, the previous impacts are considered **moderate** but widespread. In addition the excavation of footings and services for the farm will have had a localised but **high** impact on the potential archaeological resource.

7.2 Proposed Impacts

At the time of preparing this archaeological assessment, the extent of the proposed development was for the build of residential units, access roads, landscaping and car

parking. Extensive impact is to be expected within the development area once construction begins. The excavation of footings and the installation of services will be the main cause of this impact and it is therefore considered as **high**.

8 MITIGATION

The purpose of this archaeological desk-based assessment was to provide an assessment of the contextual archaeological record, in order to determine the potential survival of archaeological deposits that maybe impacted upon during any proposed construction works.

The assessment has generally shown that the area to be developed is within an area of **moderate** archaeological potential. The potential for Late Iron Age and Romano-British remains on ridges and hilltops has been confirmed by recent archaeological work on the Hastings to Bexhill bypass whilst an Anglo-Saxon foundation for Preston Hall Farm is a possibility given the place name and location evidence. In a recent geophysical survey by Stratascan an area of potential ridge and furrow was identified to the south-west of Preston Hall Farm but no other major archaeological features were identified (Appendix 3).

9 OTHER CONSIDERATIONS

Setting of Listed Buildings

The Site Visit aimed to assess any designated heritage assets within the wider context of the Site which might be considered potential sensitive receptors to the proposed development, by comparing the theoretical Zone of Visual Influence (ZVI) to the actual views available of the landscape surrounding the Site. Other aspects of the landscape were also considered in order to attempt to establish whether the Site constituted or contributed to the setting of any monuments within the theoretical ZVI, in accordance with *The Setting of Heritage Assets – English Heritage Guidance* (English Heritage 2011). The above guidance states that "*setting embraces all of the surroundings (land, sea, structures, features and skyline) from which the heritage*

asset can be experienced or that can be experienced from or with the asset" (The Setting of Heritage Assets, English Heritage 2011). Assessment of impact has been carried out in accordance with the English Heritage guidance *'The Setting of Heritage Assets (October 2011)* which has now been superseded by the Historic Environment Good Practise Advice in Planning Note 3 'The Setting of Heritage Assets (March 2015).

The nearest Designated Heritage Assets to the Site are all at *c*.50-100m distance, the Listed Building 'Preston Hall' to the east of the PDA (DES 2629),and the Listed Building 'Cottage' (DES 2630) again to the east of the PDA. Both heritage assets are screened from the proposed development by existing modern buildings, hedgerows, trees and share no intervisibility with it. No intervisibility between the Site and the other designated heritage assets within the Study Area was established during the site visit (Plates 13, 14, 15).

The pattern of dispersed farmsteads of which Preston Hall Farm is one is characteristic of this area of East Sussex and was probably in place by the Late Medieval Period. Where there has been archaeological investigation of nearby farmsteads the results have been spectacular with Roman buildings and Anglo-Saxon features found at the nearby Wilting Farm.

Preston Hall Farm is located on a probable Prehistoric trackway which with the nearby stream and ponds suggest that Prehistoric activity although not proven is likely.

The name of the farm suggests a Late Medieval foundation and buildings and activities which are contemporary or predate the foundation may survive below ground.

The Historic Mapping (Figures 12-19) shows the development of the farm from the 1830's to the 20th century. The farmstead is set in a landscape that is typical of the

Weald with dispersed settlements set within small irregular fields 'won' out of woodland. This can be seen clearly on the Yeakell & Gardner map of 1778 (Plate 21). By 1830 the farm had split either side of the postulated Prehistoric trackway with the farmhouse to the east and the working farmyard across the lane to the west.
Assessment of both listed buildings is limited by the lack of internal inspection which may allow an understanding of the original functions of the buildings and their subsequent development and indeed their heritage significance.

Other building clustered around are either 19th century shelter sheds or 20th century concrete prefabricated buildings of limited heritage significance. However, they provide evidence for the age, function and historic layout of the farmstead from the 1830's to the present day.

The setting of the buildings is defined by the surrounding fields, which provides their context in the little changed medieval rural landscape.

Map evidence shows earlier buildings relating to the farm and there is the potential for archaeological evidence which may contribute to the understanding of Preston Hall Farm (Figures 12-19).

The assessment has generally shown that the area to be developed is within an area of **moderate** archaeological potential and with that in mind a detailed geophysical survey by Stratascan was conducted over approximately 4.6 hectares of grassland.
The survey has not identified any anomalies of probable archaeological origin. A small number of possible archaeological anomalies have been detected, however a more modern agricultural origin would be more likely. An area of ridge and furrow cultivation suggests the area has been used for mostly agricultural purposes in the medieval period. The remaining anomalies are modern in origin, relating to an underground service, former structures, scattered magnetic debris, ferrous objects and fencing (Appendix 3).

The draft Archaeological Desk-based Assessment and the results of the Geophysical Survey were communicated to Casper Johnson, County Archaeologist, who commented that:

'However, there are no obvious significant monuments or features represented by the results and given the topographic location of this site, I think that in this case the combined results of the Desk-Based Assessment and geophysical survey would be sufficient to put forward a reasonable consideration of archaeological potential and the likely significance of impacts without pre-application evaluation trial trenching'.

There are only two entries in the East Sussex HER data of archaeological data in the vicinity of the proposed development site. To the north Cockerels Farm (MES 19468), a farm dating from the medieval period and designated an Archaeological Notification Area (ANA) and Mayo Farm to the west (MES 19689) a 17th farm complex and again an ANA.

On the Historic Landscape Characterisation (HLC) data from the East Sussex HER there are two areas of interest, both adjoining the Proposed Development Area (PDA). A settlement area (HES 46190) which includes the farm itself and an informal parkland (HES 46189) which stretches from the Lodge to the house itself. Preston Hall and the cottage in the grounds are both listed (DES 2629, 2630), the main house dating from 1800-1832 and the cottage from 1800-1832.

An archaeological walkover was conducted by the writer in late August of the PDA and no archaeological features or artefacts were noted. The farm is in a state of disrepair and most of the buildings have little archaeological or architectural importance apart from the cottage which may require a Building Recording Programme. Historic mapping shows that there were earlier buildings on the site of the farm and this area may require an archaeological investigation once the site has been cleared of the modern buildings (Figures 12-19).

9.1 Archive

Subject to any contractual requirements on confidentiality, two copies of this desk-based assessment will be submitted to East Sussex County Council (Heritage) within 6 months of completion.

9.2 Reliability/limitations of sources

The sources that were used in this assessment were, in general, of high quality. The majority of the information provided herewith has been gained from either published texts or archaeological 'grey' literature held at East Sussex County Council, and therefore considered as being reliable.

9.3 Copyright

10 ACKNOWLEDGEMENTS

The author would like to thank Persimmon Homes (South-East) Ltd for commissioning this report.

Paul Wilkinson PhD., MCifA., FRSA.
06/01/ 2016

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APPENDIX 1 ARCHAEOLOGICAL SITES (Ref.176/15 May 19th 2015)

HER Ref.	Location	Period	Summary
MES 125	NE of site	Prehistoric	Sidley Wood- Flint arrowhead
MES 21064	S of site	Prehistoric	Pinetree Farm- Flint arrowhead
MES 63	NE of site	Roman	Little Henniker Wood- Bloomery
MES 66	NW of site	Roman	Cinderbanks-Bloomery
MES 113	W of Site	Modern	Ninfield Road- Brickworks
MES 114	SE of site	Roman/Medieval	36 Meadow Crescent- Bloomery
MES 126	E of site	Medieval	Sidley Wood-Medieval pottery
MES 7310	E of site	Undated	Glovers Farm- undated earthworks
MES 7313	E of site	Roman/Medieval	Glovers Farm-Bloomery
MES 8643	W of site	Undated	Gunters Lane- possible hearths
MES 19468	N of site	Medieval	Cockerals Farmhouse- Medieval
MES 19681	S of site	Medieval	Freezeland Farm-Medieval
MES 19685	S of site	Medieval	Woods Farm-Medieval
MES 19687	SW of site	Medieval	Sidley Green-Medieval hamlet
MES 19689	E of site	Post-Medieval	Mayo Farm- Post Medieval
MES 19795	S of site	Modern	Smiths Garage- Anti tank devices

Plates

Plate 1. The site (Google Earth 2005)

Plate 2. The site (Google Earth 2009)

Plate 3. The site (Google Earth 2013)

Plate 4. Close up of Preston Farm, the two listed buildings highlighted (Google Earth 2013)

Plate 5. The site (Google Earth 2013)

Plate 6. The Hastings Bexhill Bypass (2013) and location of Preston Hall Farm

Plate 7. The PDA (looking south)

Plate 8. The PDA (looking south)

Plate 9. The farm (looking east)

Plate 10. The farm (looking east)

Plate 11. The farm (looking south)

Plate 12. The 'Green Building' (looking south-west)

Plate 13. The 'Cottage' listed building (looking east from Buckholt Lane)

Plate 14. 'Preston Hall' listed building (looking north-east from entrance)

Plate 15. Buckholt Lane (Looking south)

Plate 16. The farm and the site of the 'Yellow Building' (looking north-east)

Plate 17. The farm (looking west)

Plate 18. The farm and looking at the 'Green Building' (looking south-west)

Plate 19. The farm (looking west)

Plate 20. The farm (looking east)

FIGURES

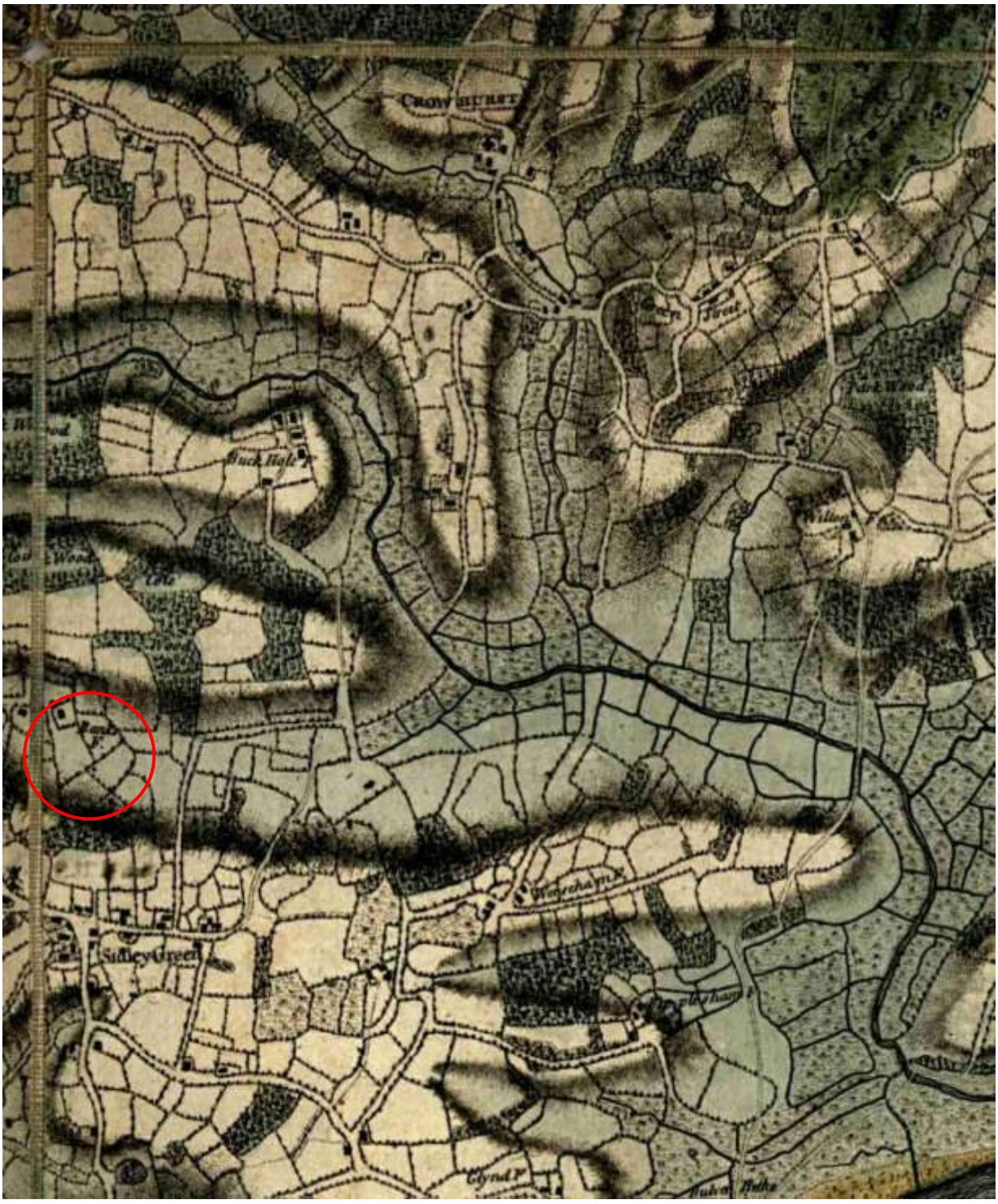
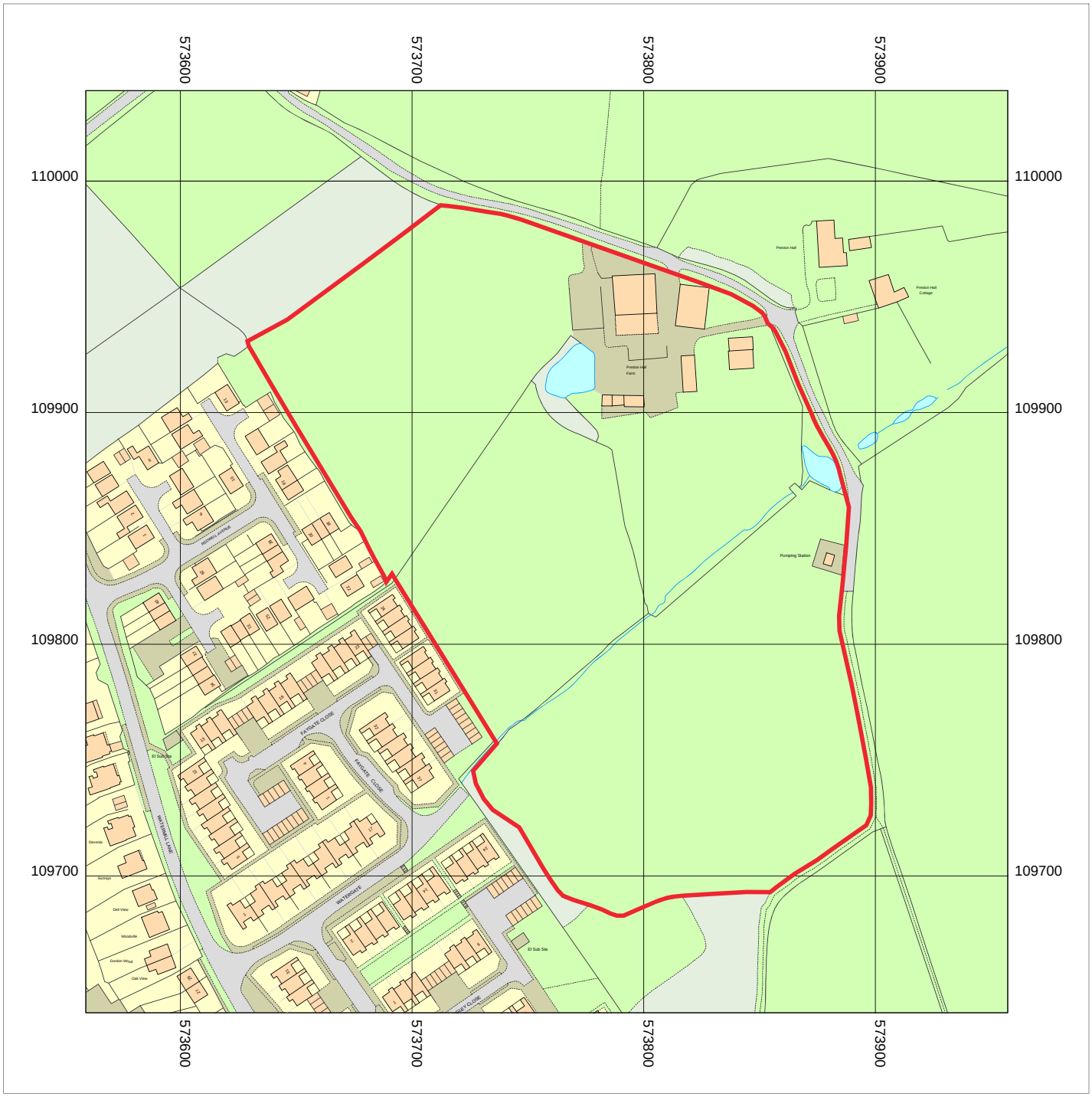


Plate 21. Yeakell & Gardner map of 1778. Area of Preston Farm highlighted

Plate 22. OS Tithe map 1830-40 showing Preston Farm

NATIONAL MAP CENTRE

OS Plan Colour



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Map data

Bexhill site

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Produced: 29/04/15
Serial number: 1504537

Plot centre co-ordinates: 573758, 109840
Download file: Print52611_1504537
Project name: bexhill

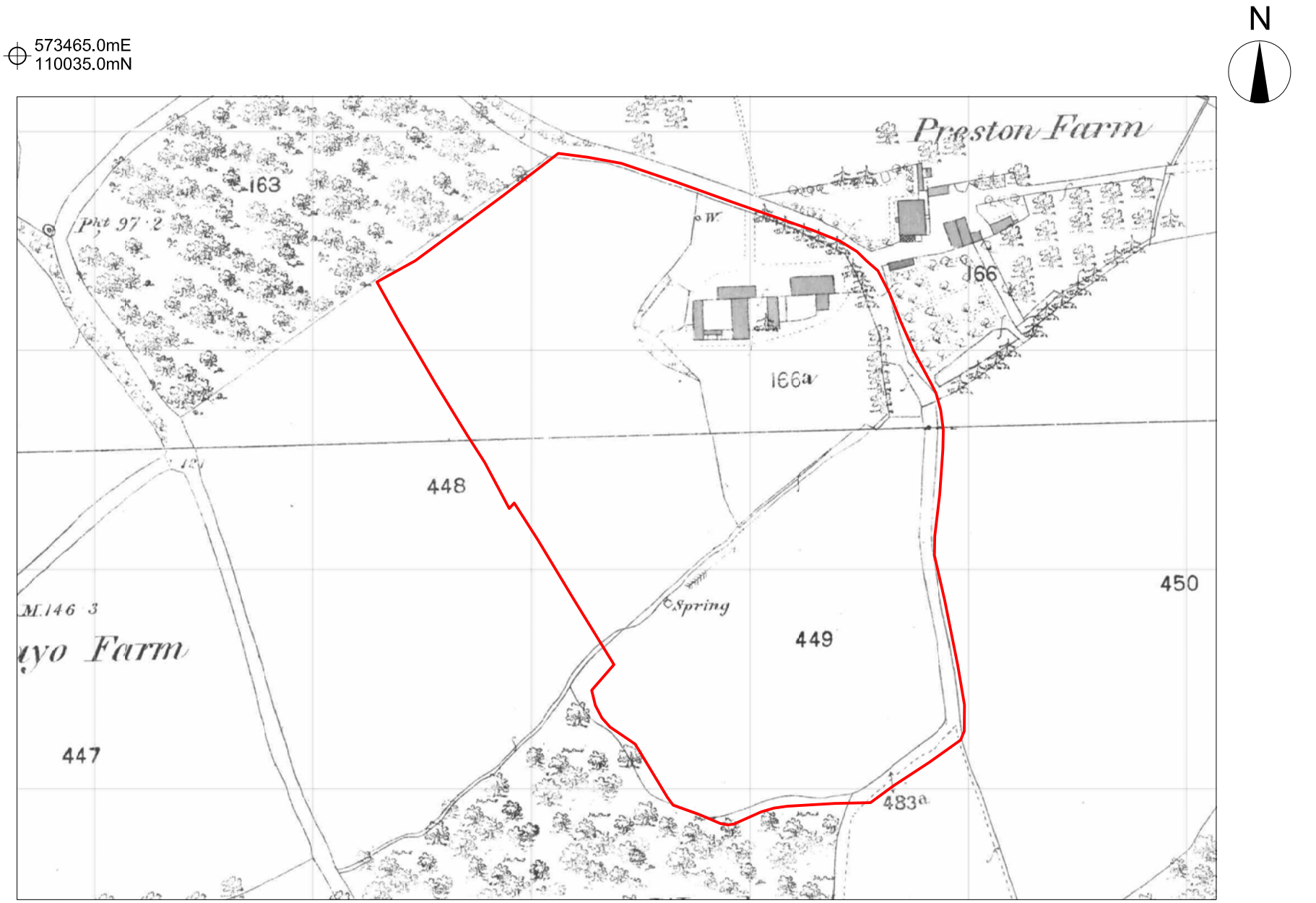

Figure 1: Historic mapping 1873

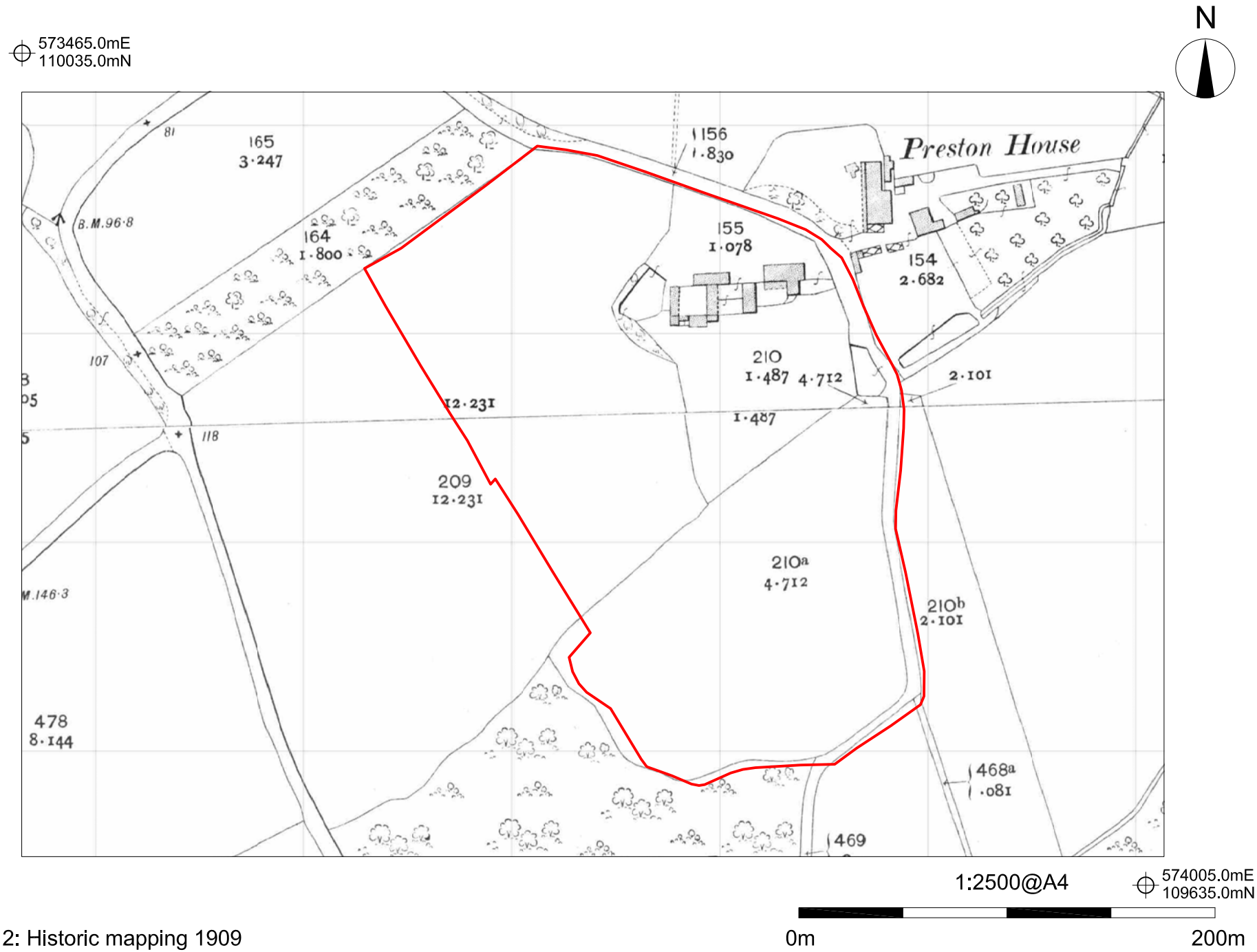

Figure 2: Historic mapping 1909

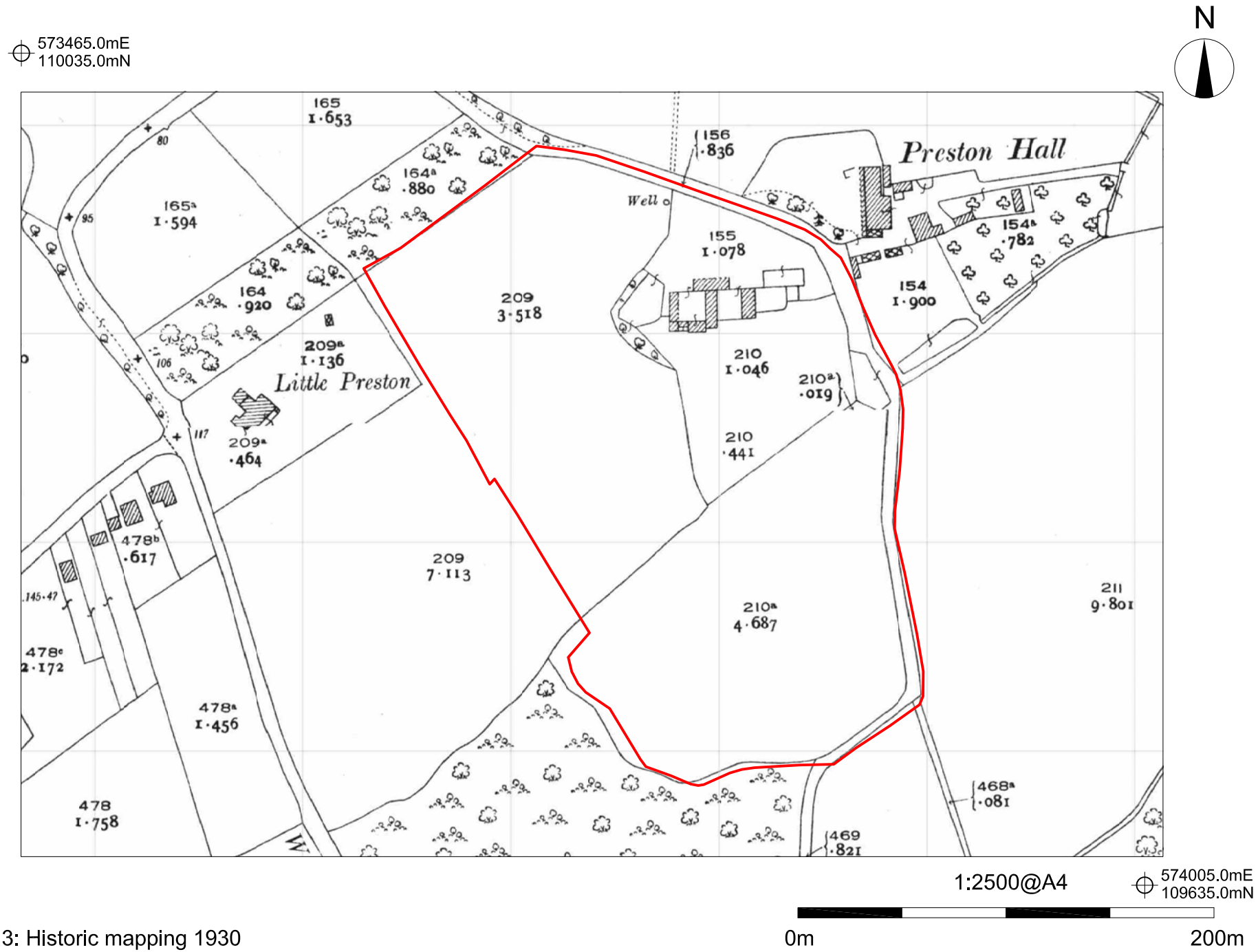

Figure 3: Historic mapping 1930

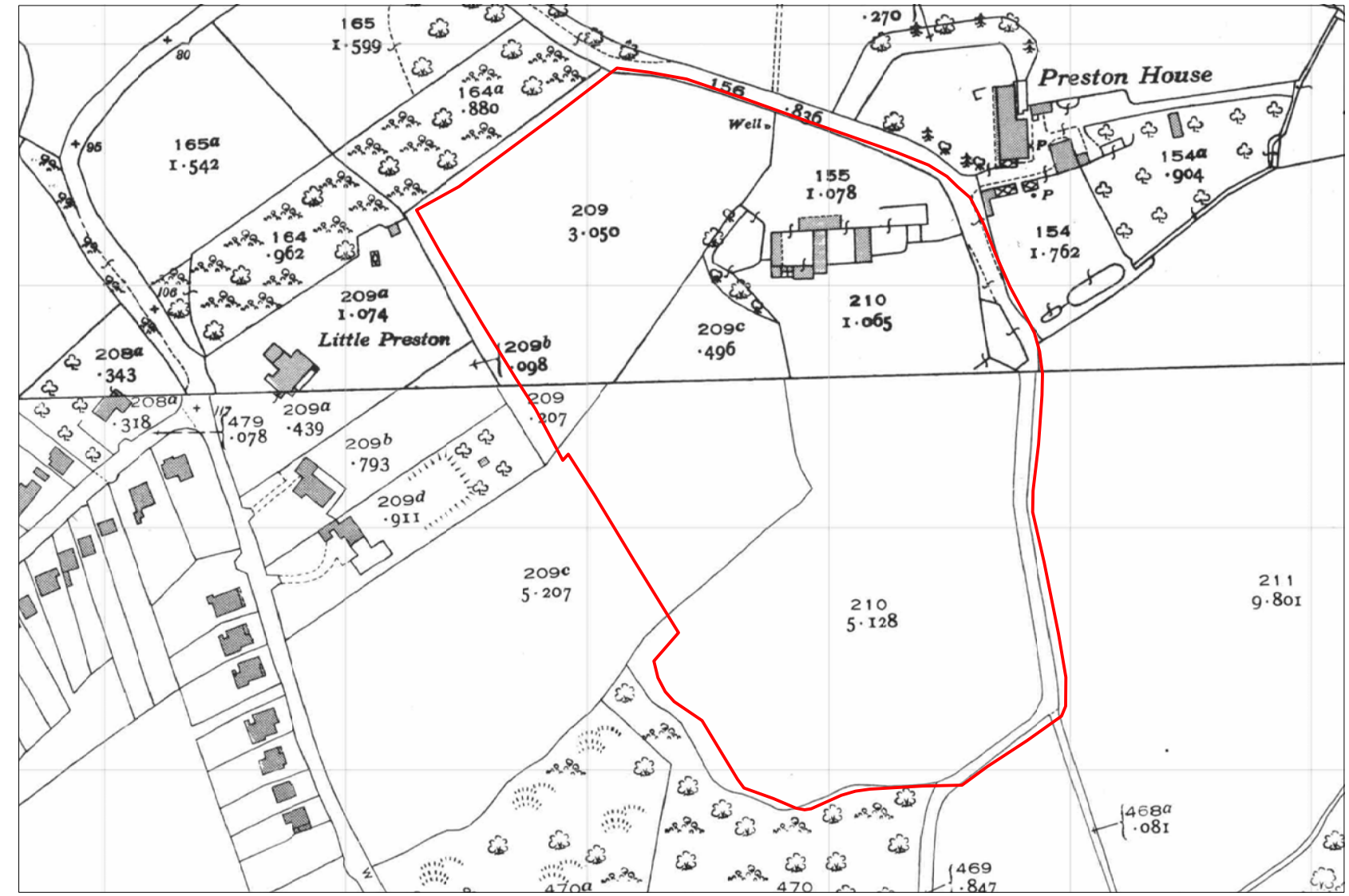

Figure 4: Historic mapping 1939

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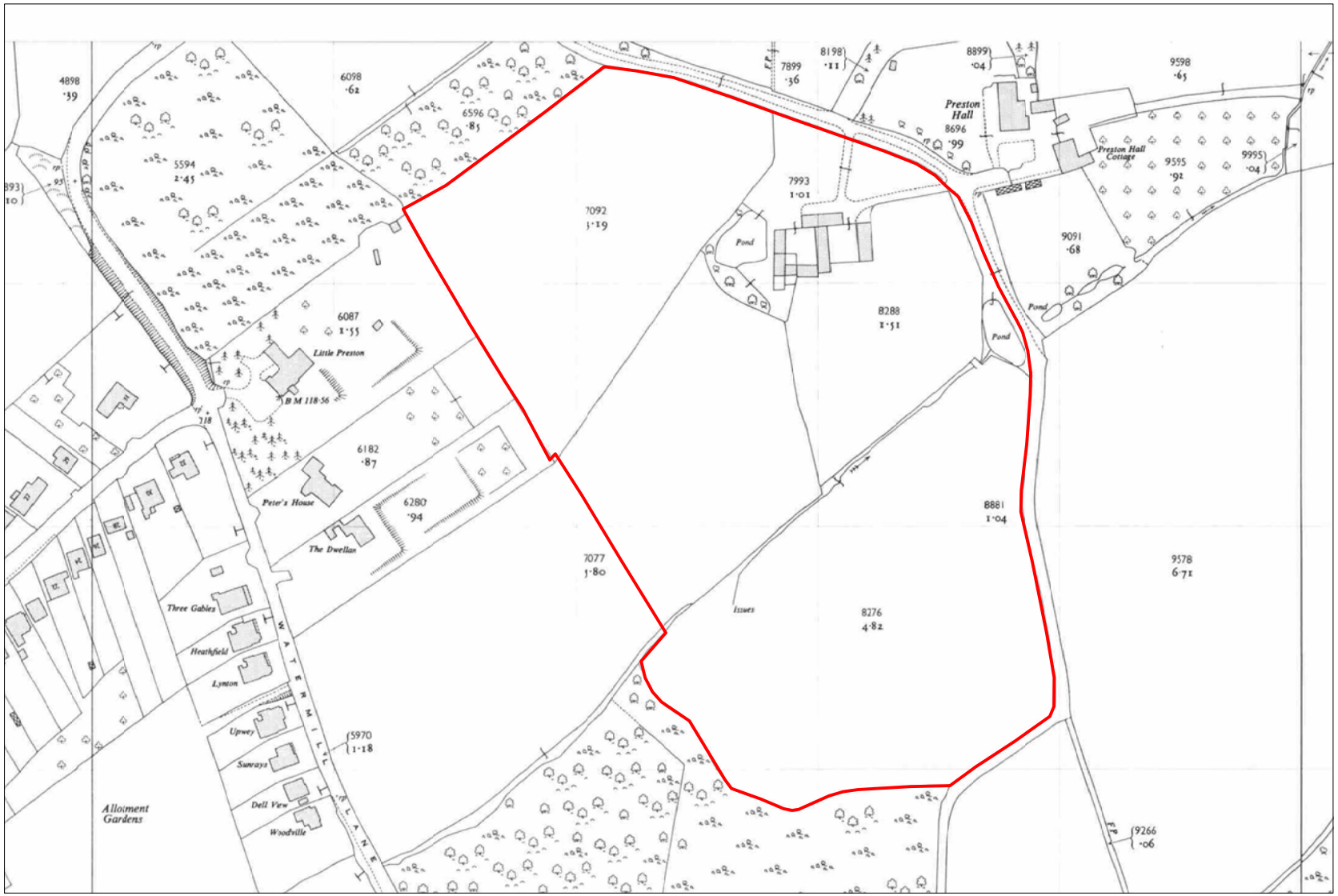

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574005.0mE
109635.0mN

0m 200m

Figure 5: Historic mapping 1953

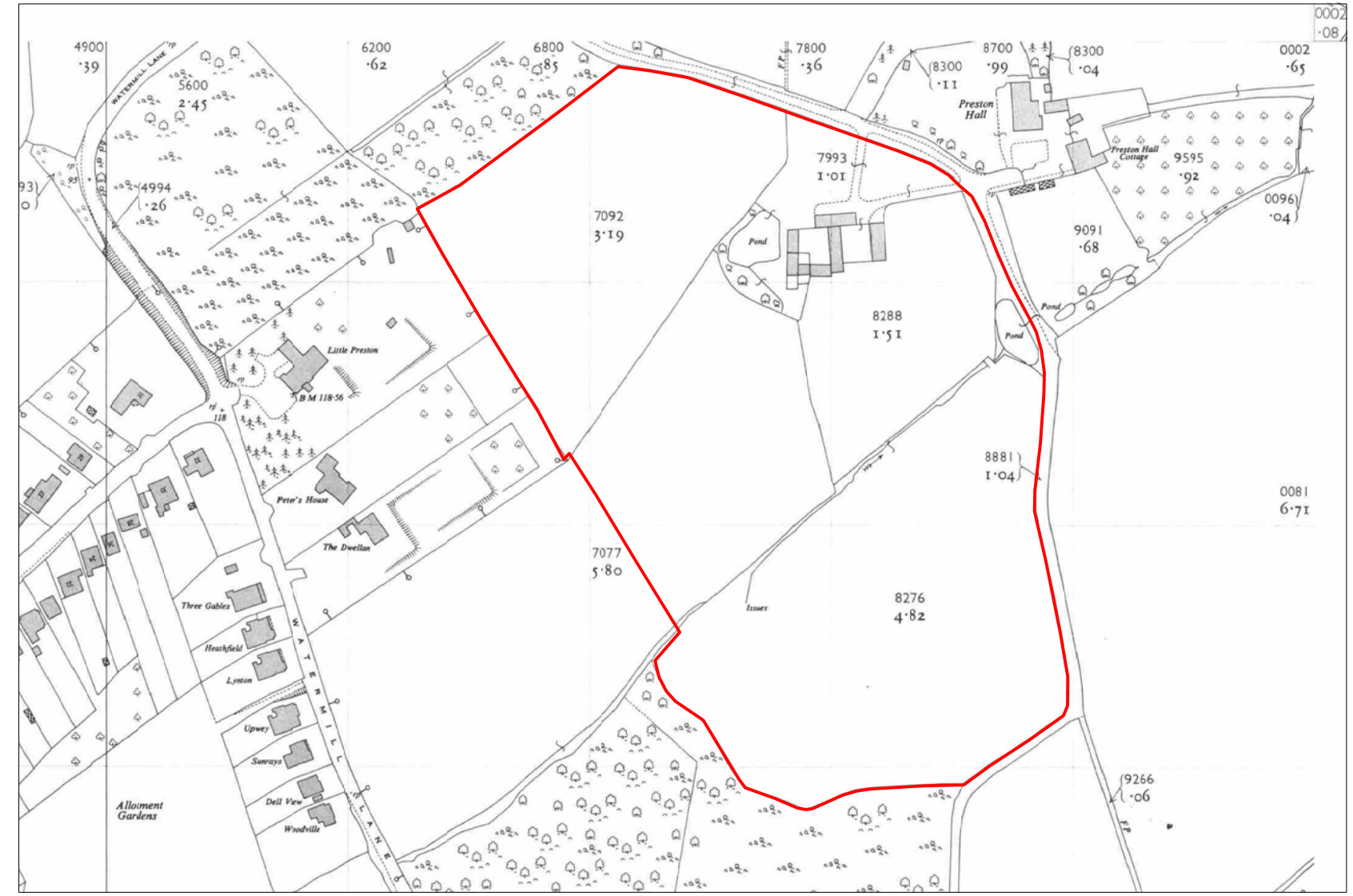

Figure 6: Historic mapping 1960-1961

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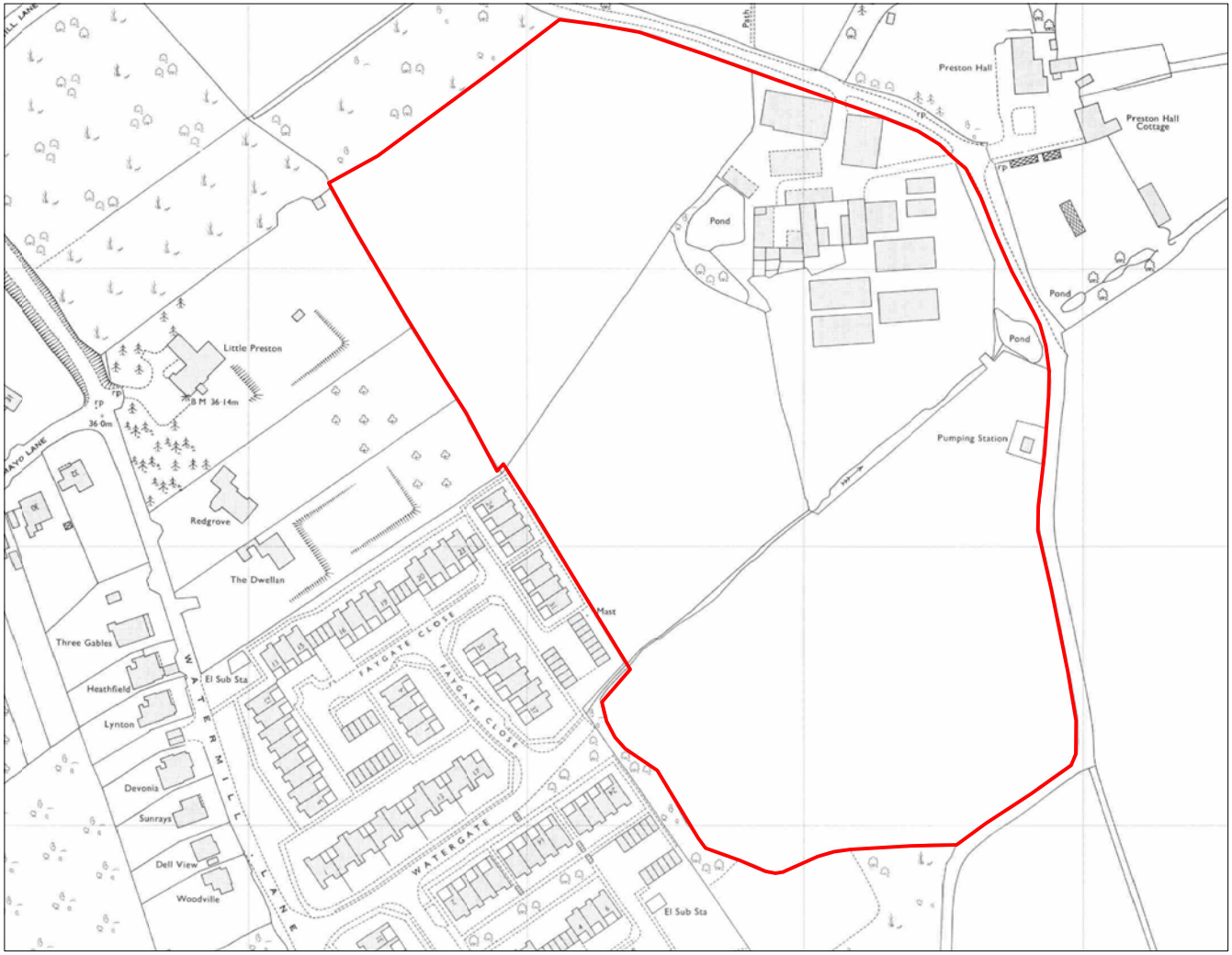

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Figure 7: Historic mapping 1971-1974

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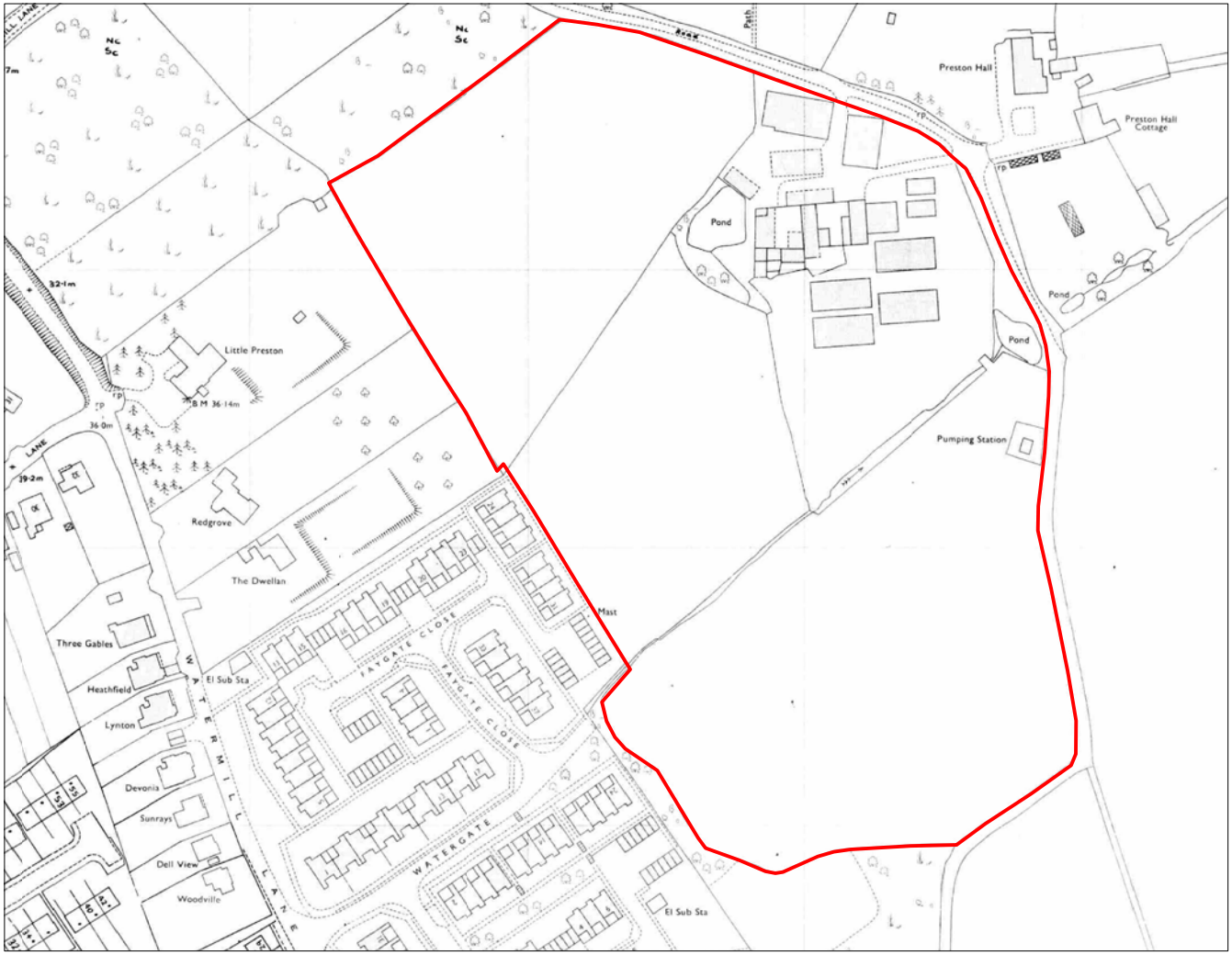

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Figure 8: Historic mapping 1984-1987

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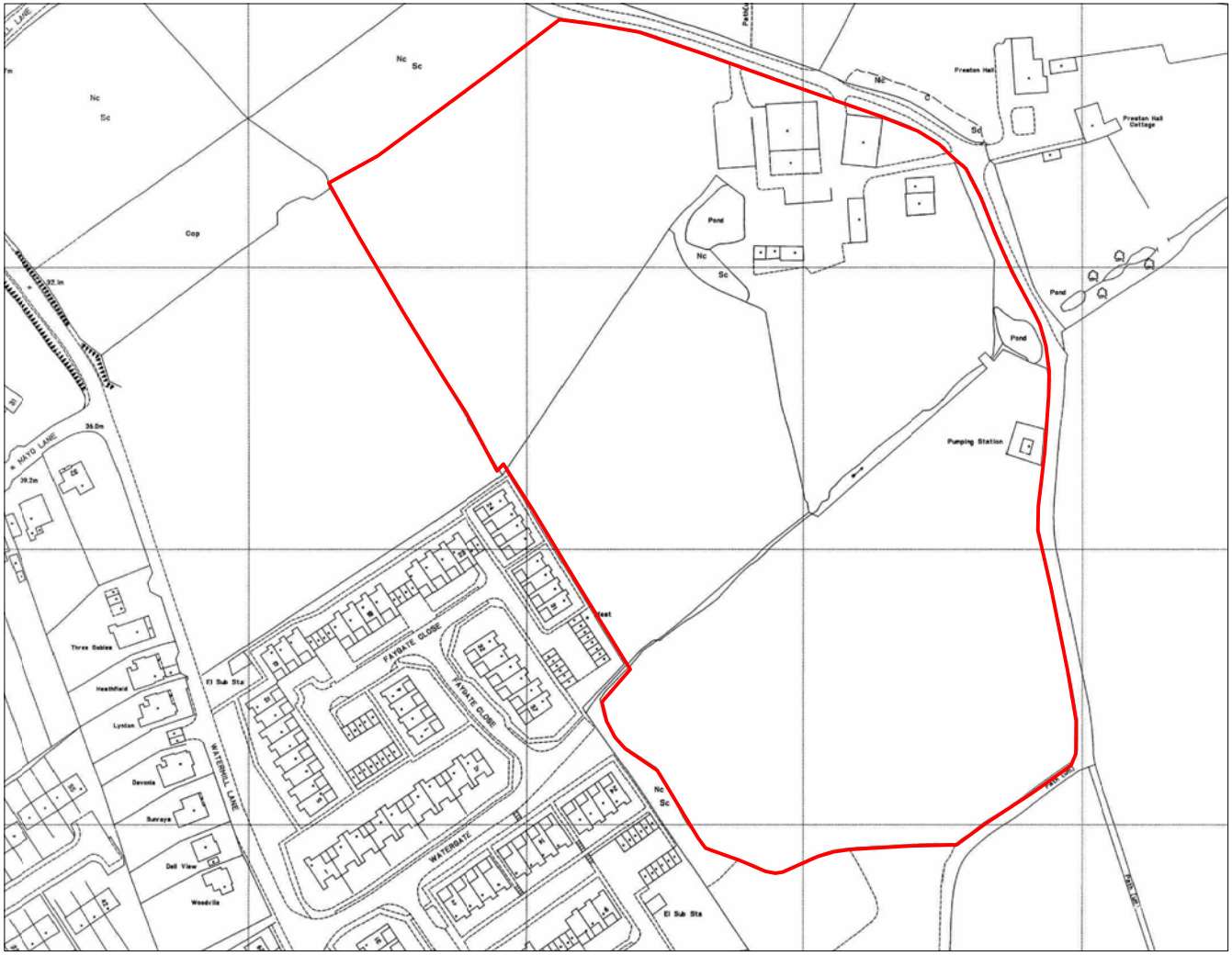

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Figure 9: Historic mapping 1995

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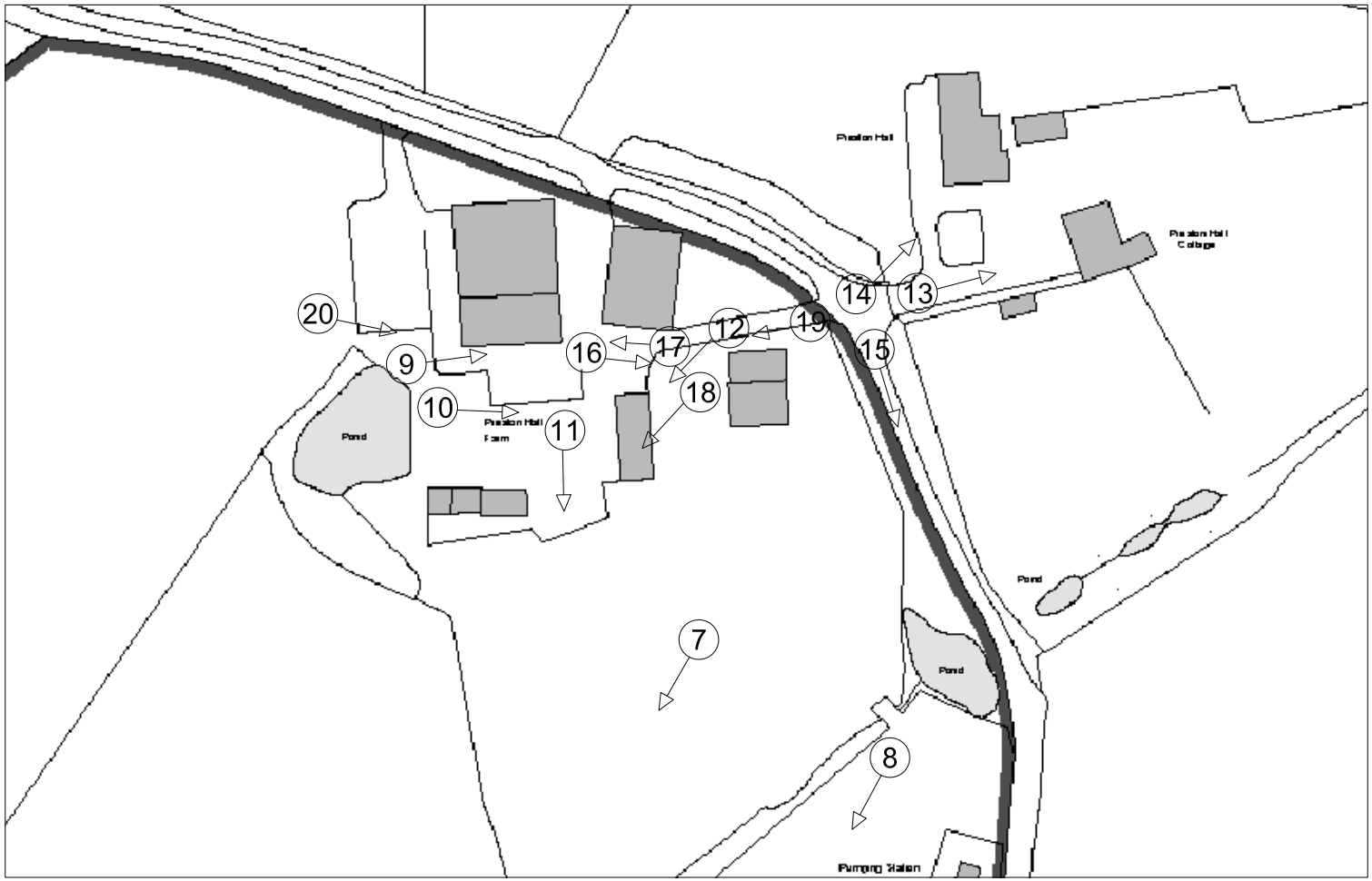

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Figure 11: Photo location plan

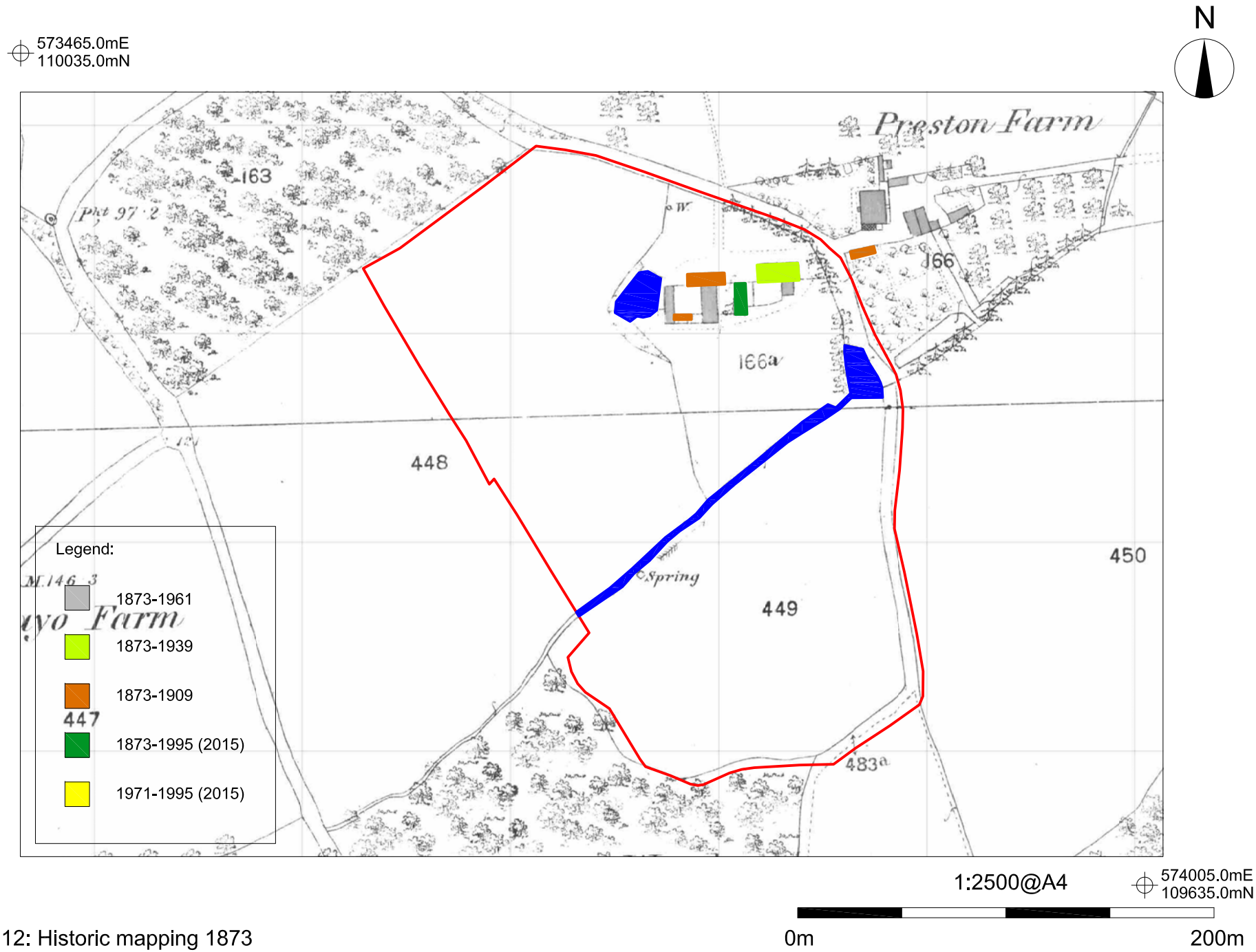

Figure 12: Historic mapping 1873

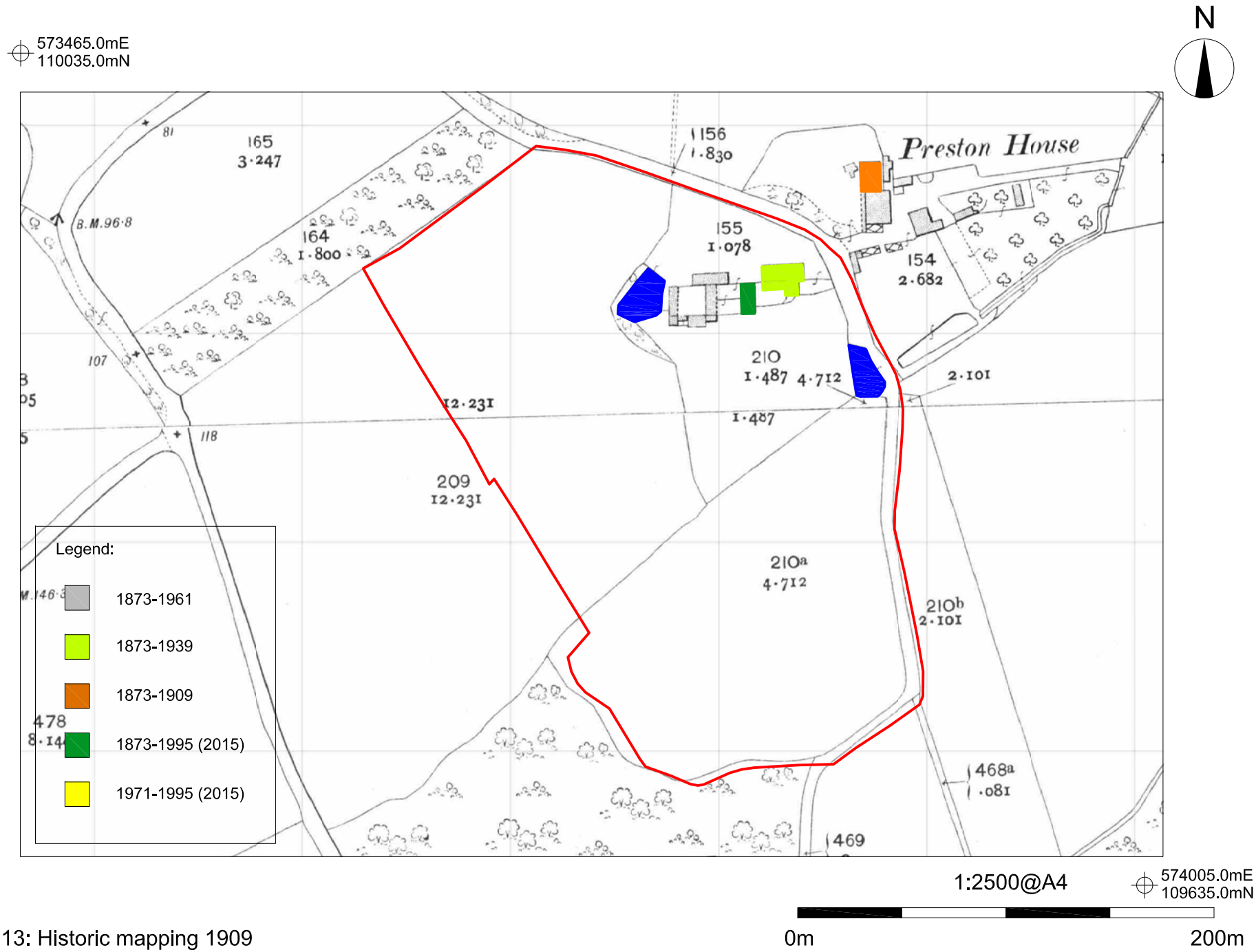

Figure 13: Historic mapping 1909

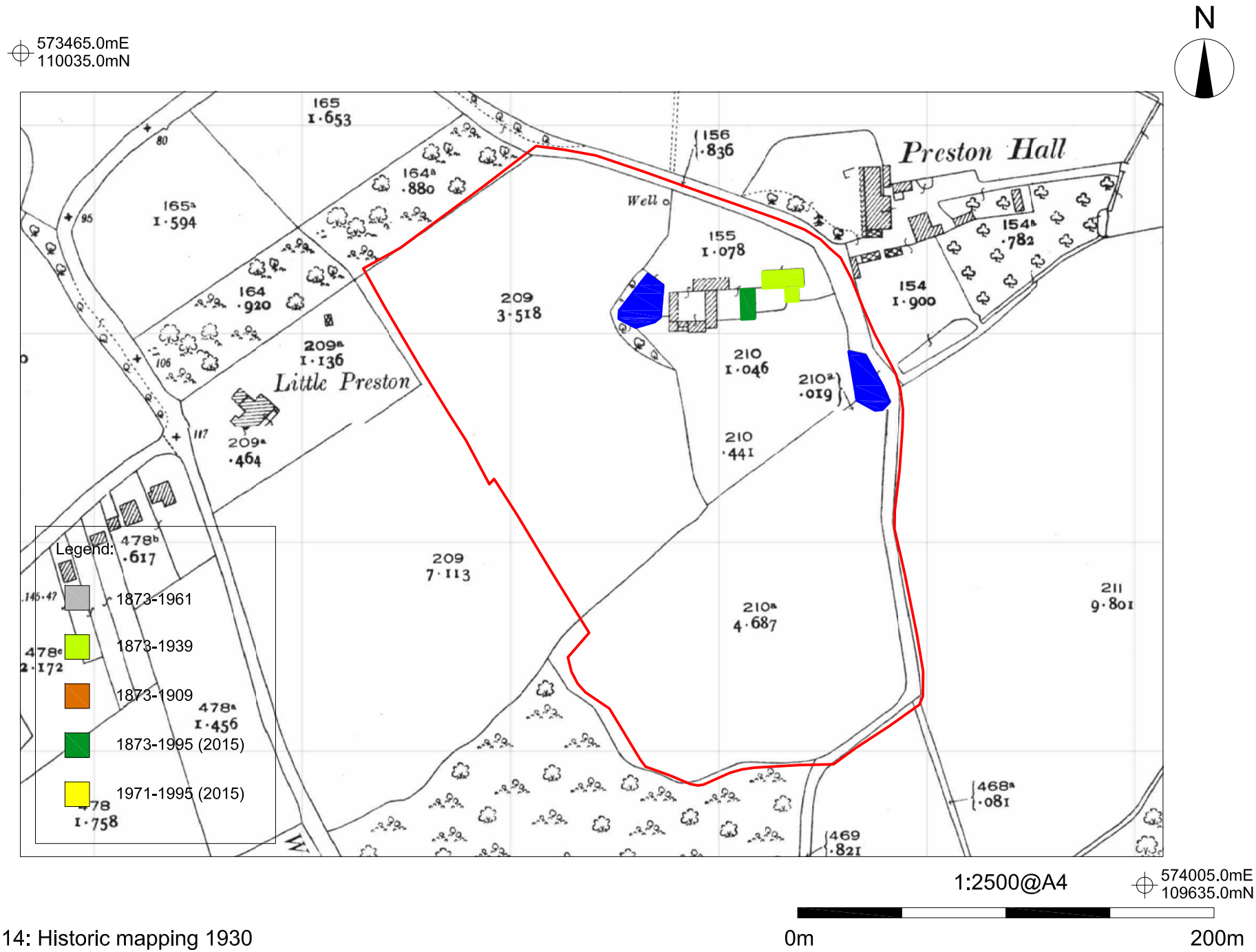

Figure 14: Historic mapping 1930

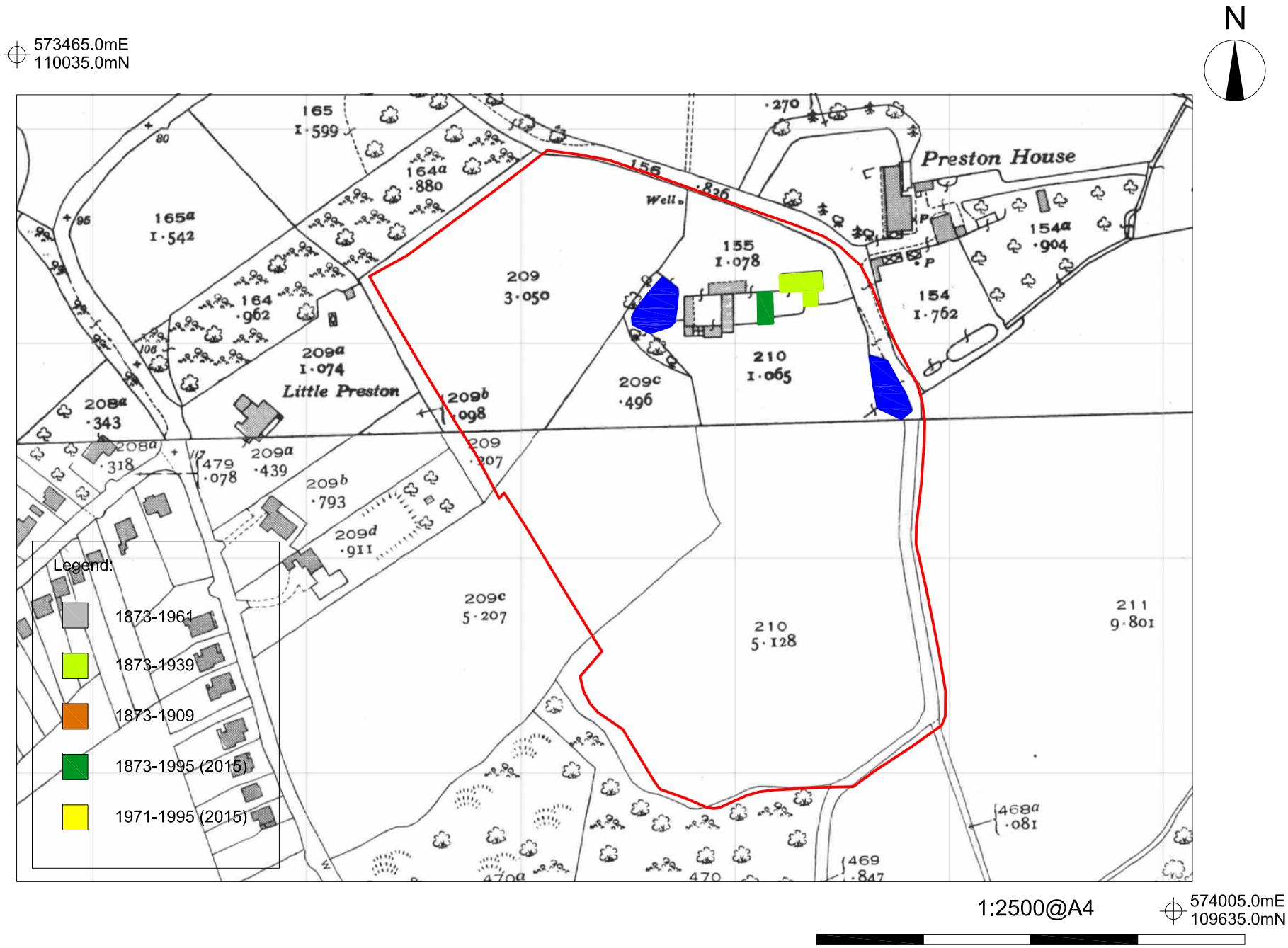

Figure 15: Historic mapping 1939

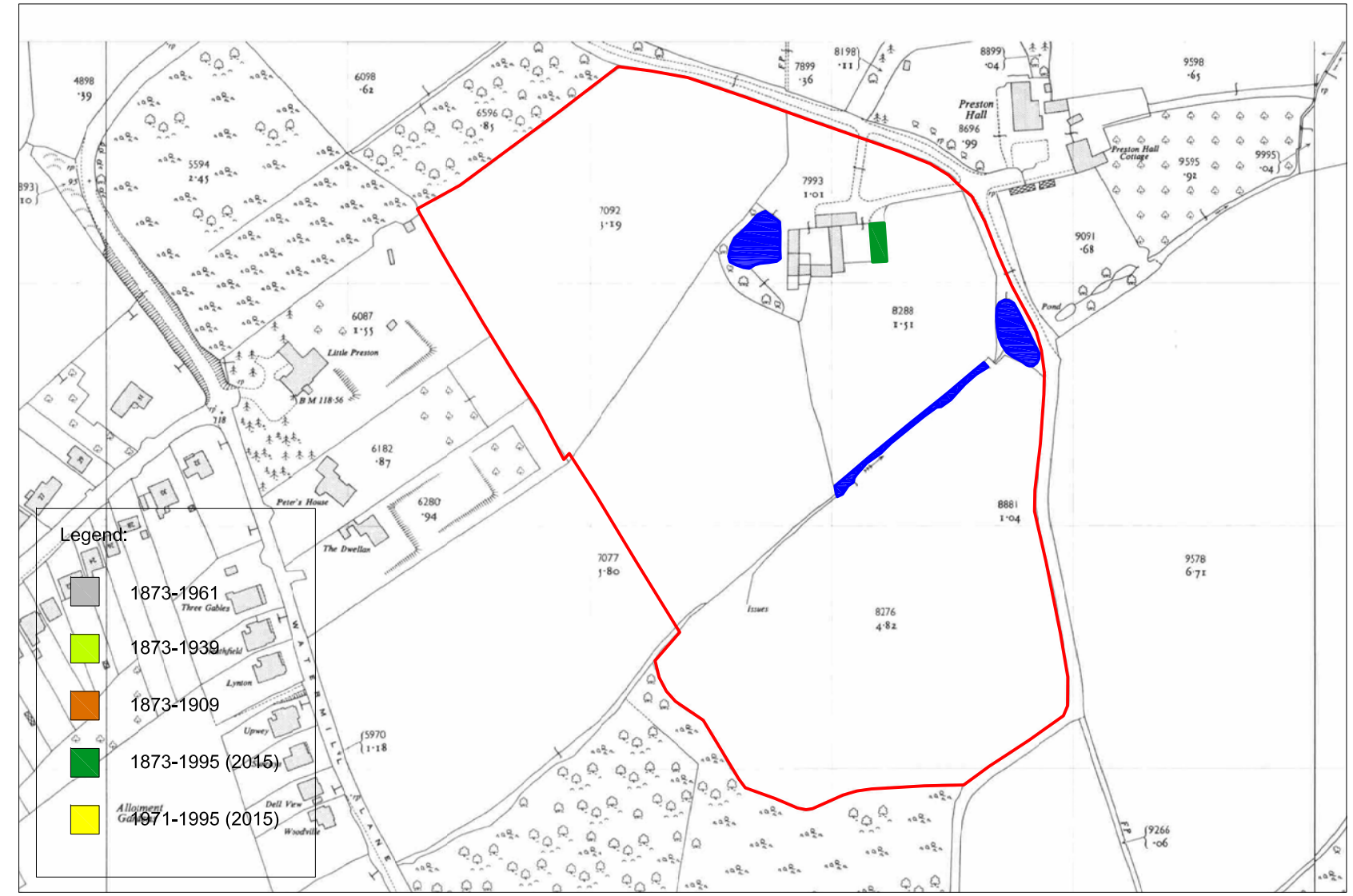

Figure 16: Historic mapping 1953

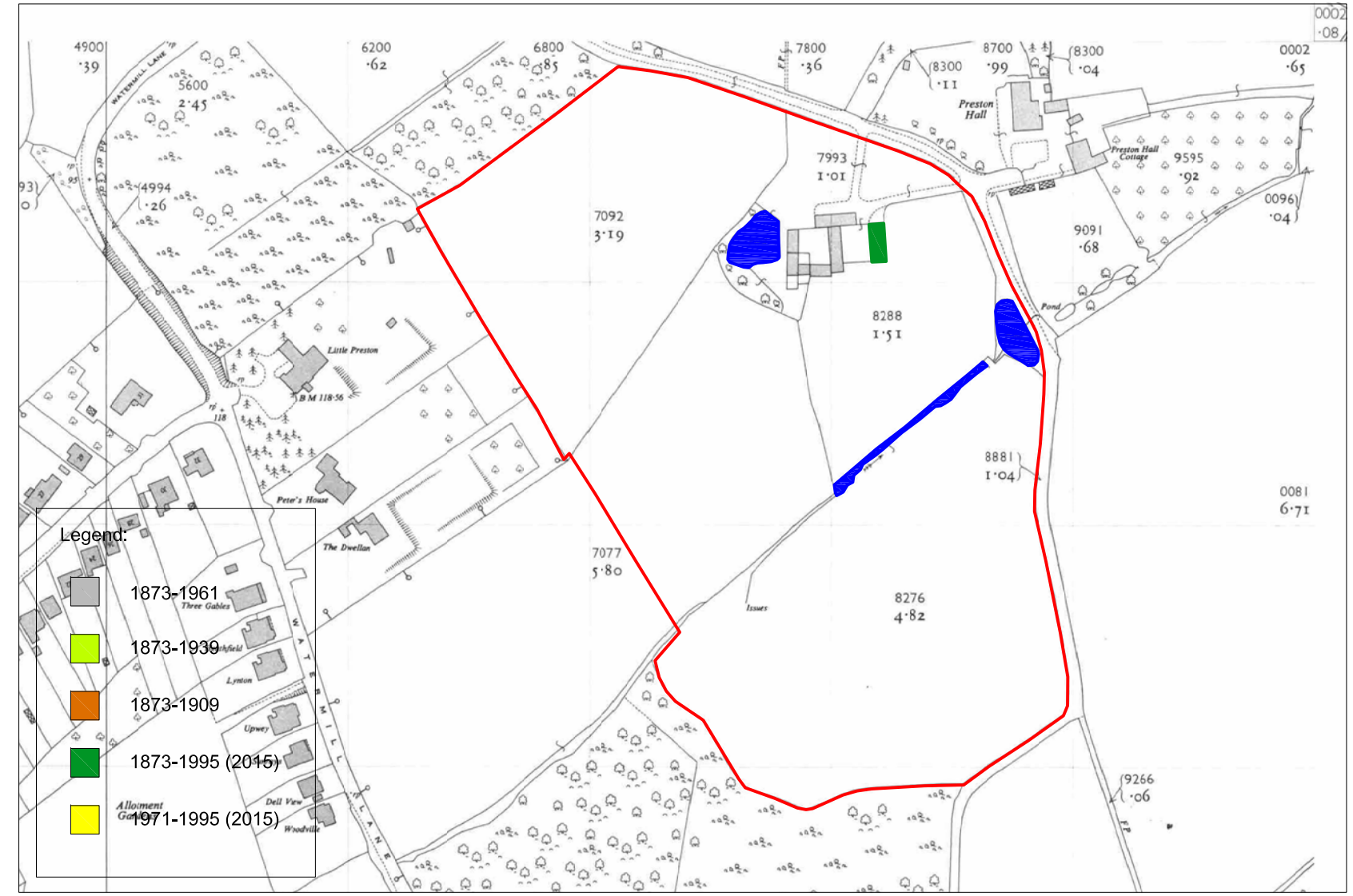

Figure 17: Historic mapping 1960-1961

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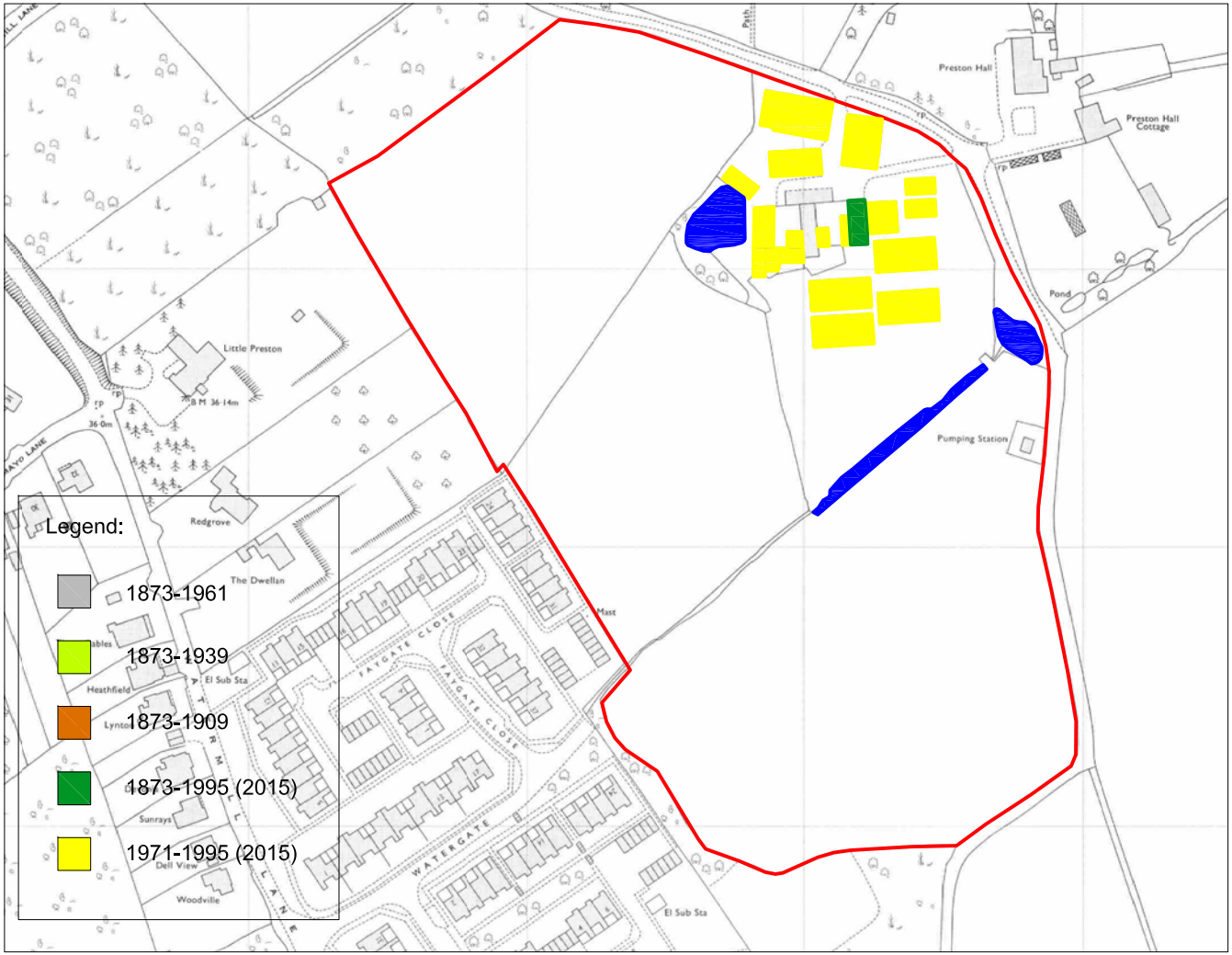

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Figure 18: Historic mapping 1971-1974

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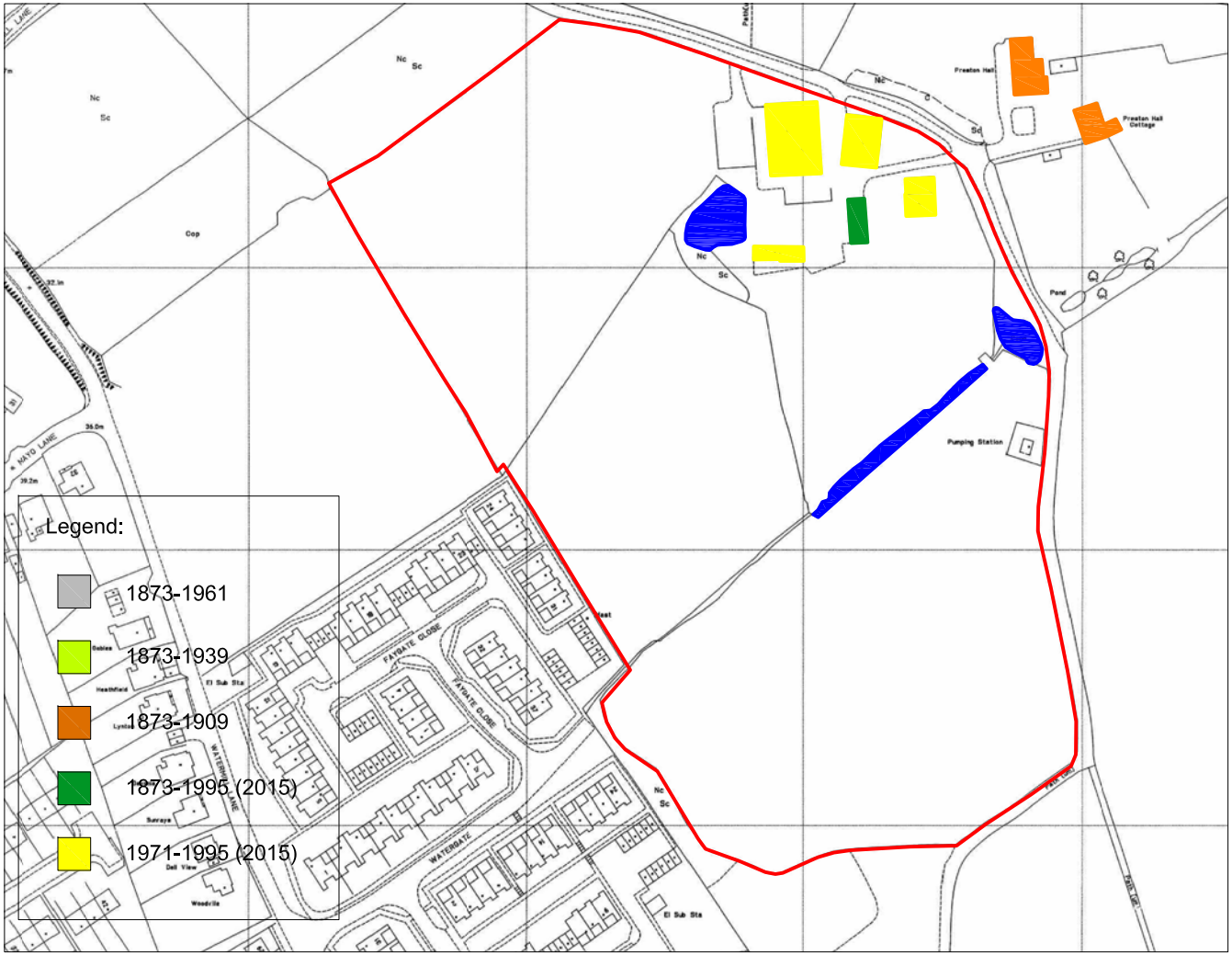

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574005.0mE
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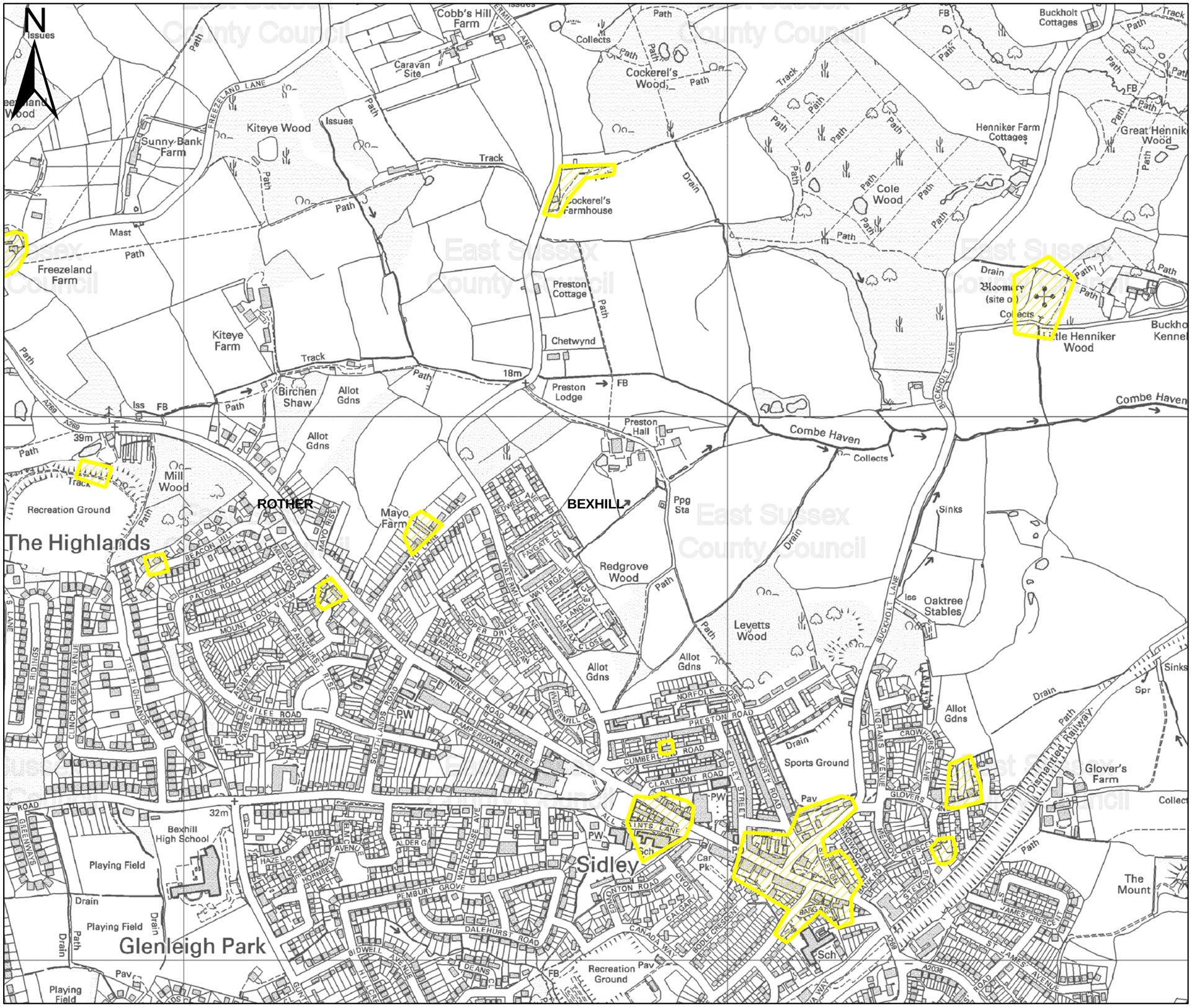
0m 200m

Figure 19: Historic mapping 1995

ESHER

Preston Hall Farm



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- County
- Unitary
- District
- Parishes

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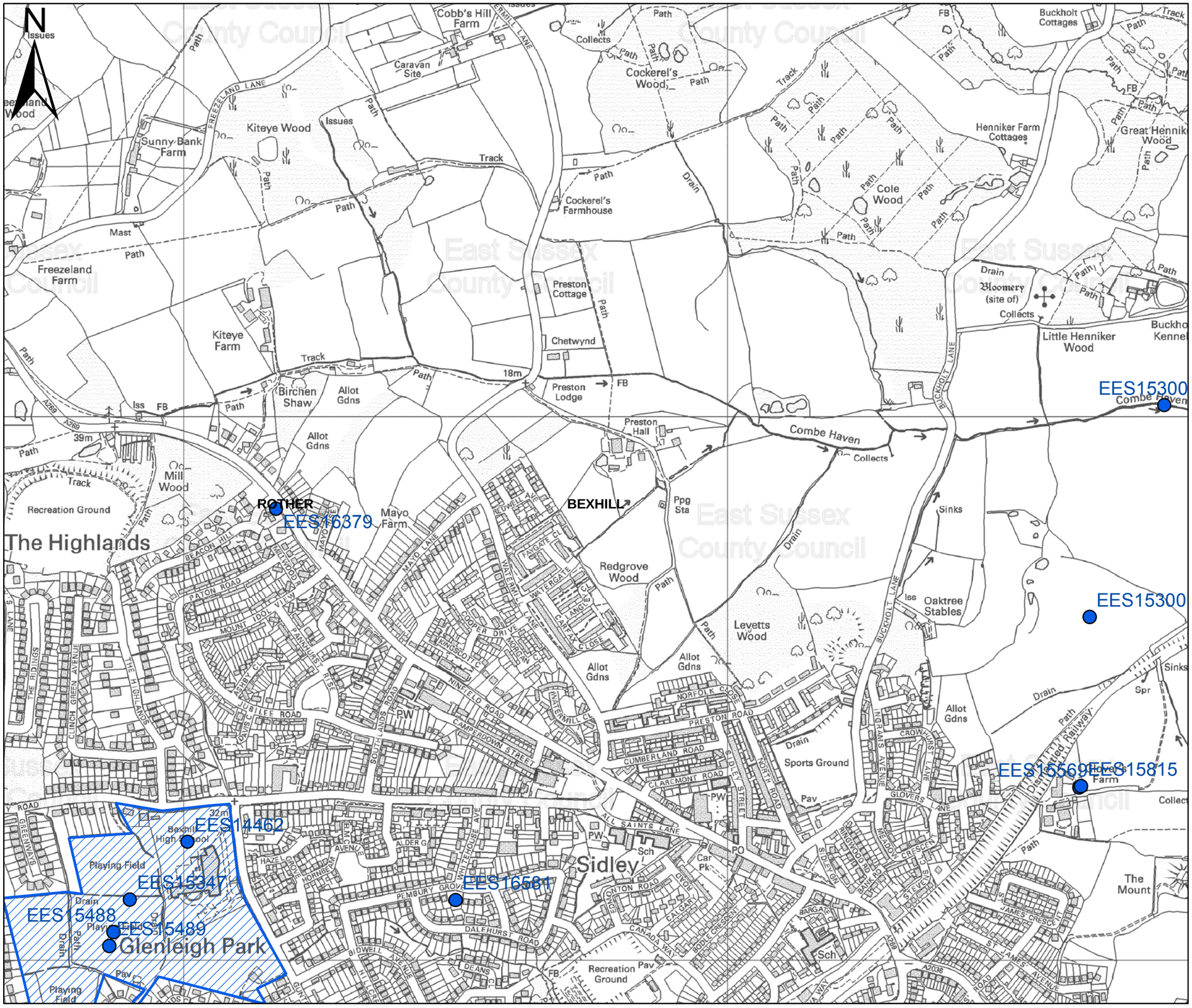
Drawn by: Archaeology Team

ESHER

Preston Hall Farm



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- Events (line)
- Events (poly)
- County
- Unitary
- District
- Parishes

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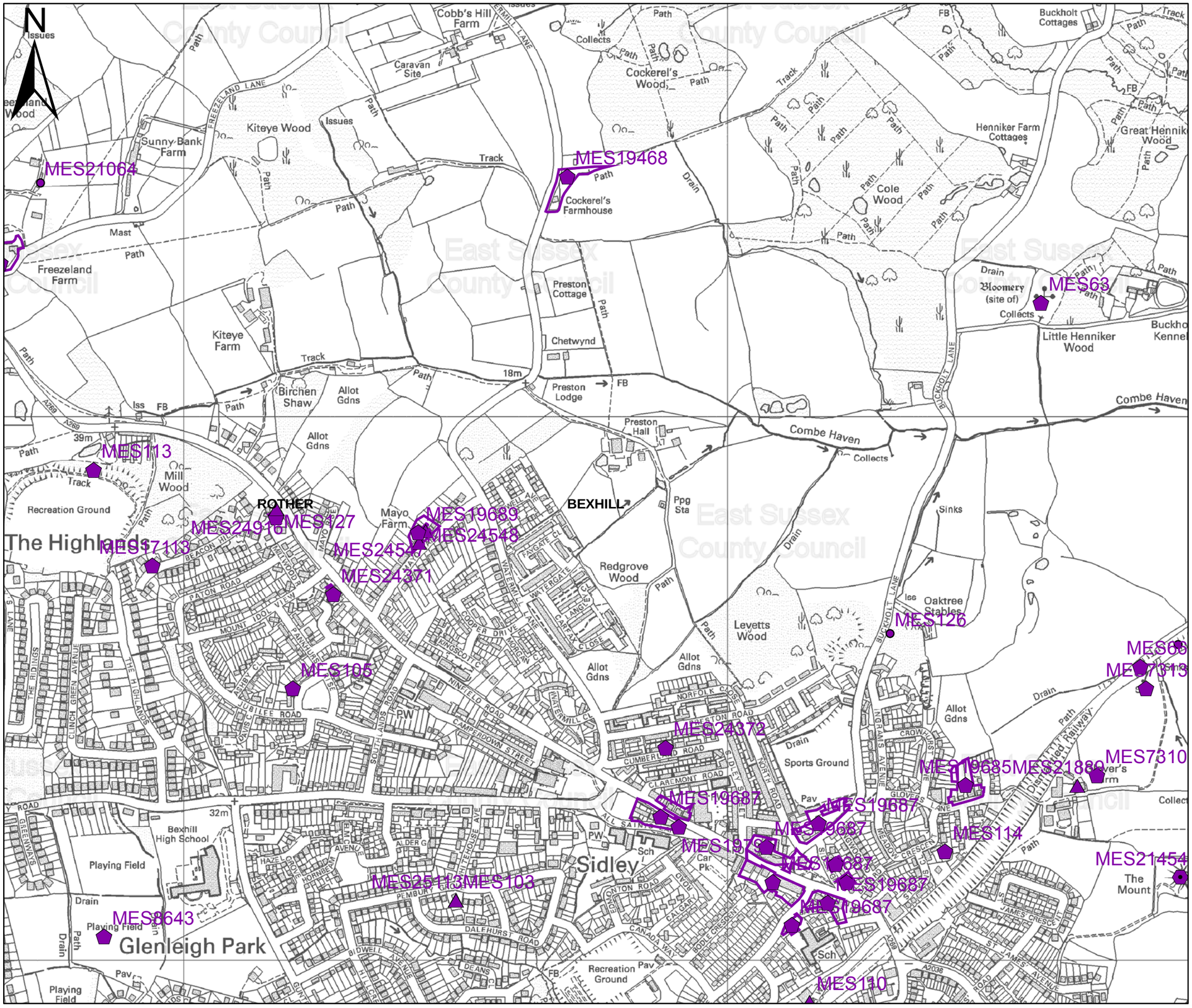
Drawn by: Archaeology Team

ESHER

Preston Hall Farm



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- BLD — *Historic Building*
- LND
- PLA
- MAR

- Monuments (line)
- Monuments (poly)
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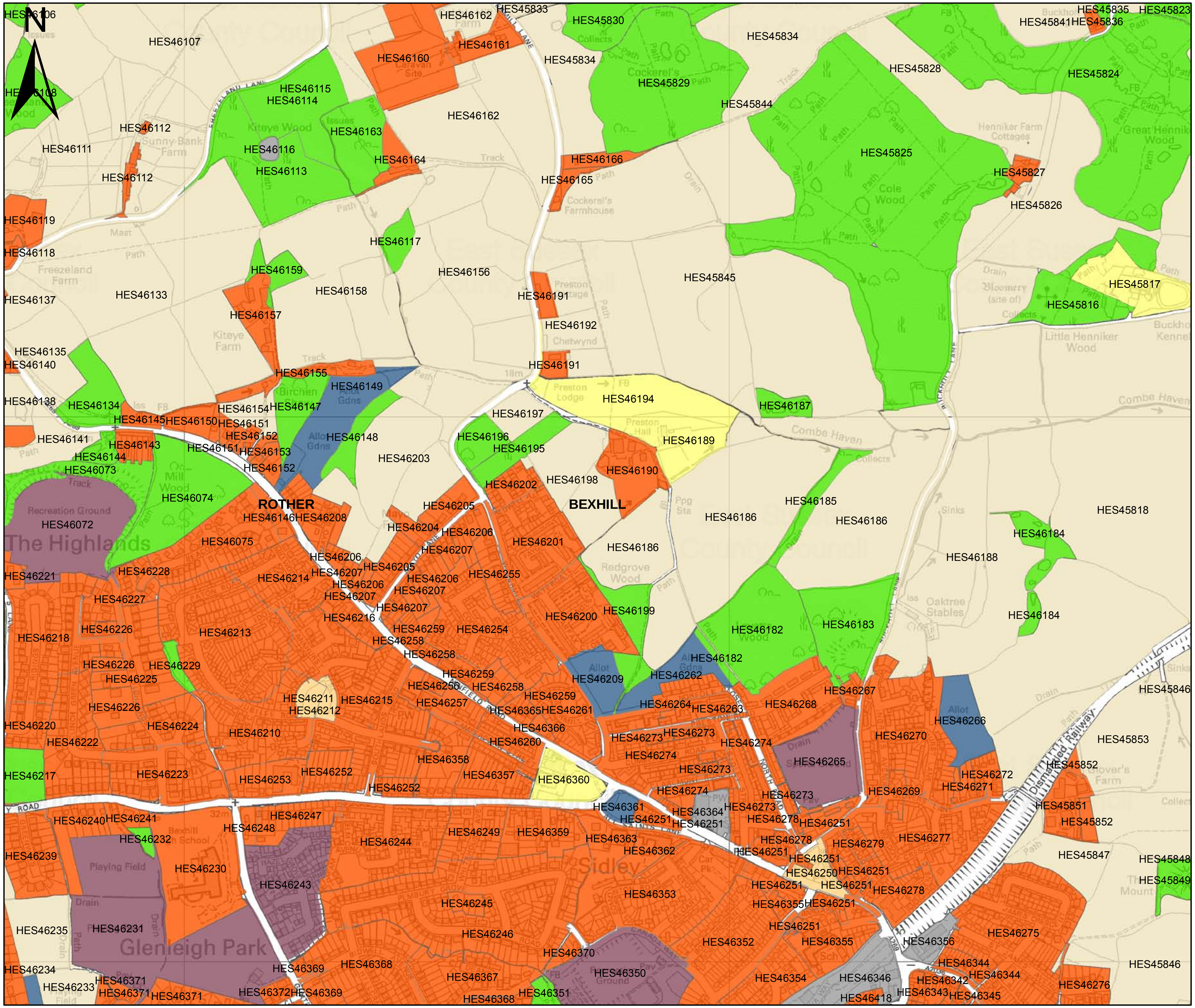
- Unitary
- District
- Parishes

Drawn by: Archaeology Team

ESHER

Preston Hall Farm



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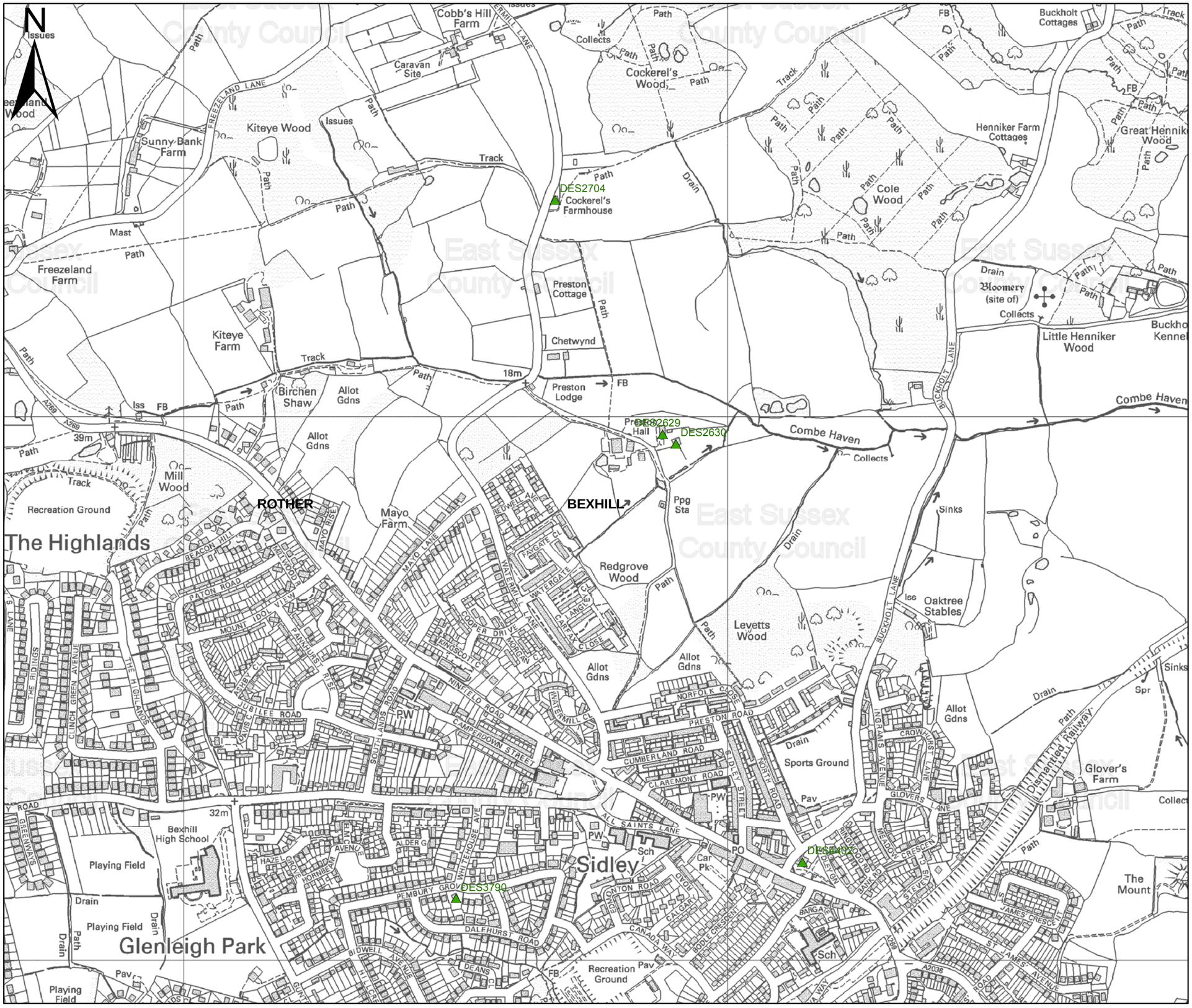
CHAR

- Coastal
- Communications
- Designed Landscapes
- Fieldscapes
- Horticulture
- Industry
- Military
- Reclaimed Marshland
- Recreation
- Settlement
- Unimproved/Unenclosed
- Water
- Woodland
- County
- Unitary
- District
- Parishes

Drawn by: Archaeology Team

ESHER

Preston Hall Farm



Legend

- Listed Buildings (point)
- County
- Unitary
- District
- Parishes

Drawn by: Archaeology Team

0 45 90 180 270 360 Meters

1:7,000

GEOPHYSICAL SURVEY REPORT

STRATASCAN™

SUMO Survey Services
SUMO Group Member

Project name:

Preston Hall Farm, Bexhill, East Sussex

Client:

Persimmon Homes

November 2015

Job ref:

J9155

Report author:

Thomas Richardson MSc ACIfA

GEOPHYSICAL SURVEY REPORT

Project name:
Preston Hall Farm, Bexhill, East Sussex
Client:
Persimmon Homes

Job ref:
J9155

Techniques:
Detailed magnetic survey – Gradiometry

Survey date:
2nd-3rd November 2015

Site centred at:
TQ 738 099

Post code:
TN39 5DQ

Field team:
Stephen Weston BA (Hons)
Robert Gill

Project manager:
Simon Haddrell BEng(Hons) AMBCS PCIfA

Report written By:
Thomas Richardson MSc ACIfA

CAD illustrations by:
Thomas Richardson MSc ACIfA

Checked by:
David Elks MSc ACIfA

TABLE OF CONTENTS

LIST OF FIGURES

1 SUMMARY OF RESULTS

A detailed gradiometry survey was conducted over approximately 4.6 hectares of grassland. The survey has not identified any anomalies of probable archaeological origin. A small number of possible archaeological anomalies have been detected, however a more modern agricultural origin would be more likely. An area of ridge and furrow cultivation suggests the area has been used for mostly agricultural purposes in the medieval period. The remaining anomalies are modern in origin, relating to an underground service, former structures, scattered magnetic debris, ferrous objects and fencing.

2 INTRODUCTION

2.1 *Background synopsis*

Stratascan were commissioned to undertake a geophysical survey of an area outlined for residential development. This survey forms part of an archaeological investigation being undertaken by Persimmon Homes.

2.2 *Site location*

The site is located to the east of Watermill Lane, Bexhill, East Sussex at OS ref. TQ 738 099.

2.3 *Description of site*

The survey area is approximately 4.6 hectares over four fields of grassland. The site lies on a north east facing slope, with a single small obstruction in the east of the area.

2.4 *Geology and soils*

The underlying geology is Tunbridge Wells Sand Formation – Siltstone, Mudstone and Sandstone (British Geological Survey website). There is no recorded drift geology (British Geological Survey website).

The overlying soils are known as Curtisden, which are typical stagnogleyic argillic brown earths. These consist of silty soils over siltstone (Soil Survey of England and Wales, Sheet 6 South East England).

2.5 *Site history and archaeological potential*

A previous survey conducted by Stratascan (2015) to the north and east of the current site identified evidence of prehistoric activity in the form of a ring ditch with associated pits. A search of the East Sussex Historic Environment Record (HER) within 1km of the survey area has identified evidence of Romano-British, Saxon, and medieval activity. The Roman activity is recorded c.700m east of the survey area in the form of a cinder bank (HER number MES63). A Saxon settlement has been identified c.350m west of the site at Mayo Farm (HER number

MES19689), whilst evidence of medieval activity is evident as three farmsteads in the surrounding area (HER numbers MES19468, MES19681, MES19685) (East Sussex County Council 2015).

2.6 Survey objectives

The objective of the survey was to locate any features of possible archaeological origin in order that they may be assessed prior to development.

2.7 Survey methods

This report and all fieldwork have been conducted in accordance with both the English Heritage guidelines outlined in the document: *Geophysical Survey in Archaeological Field Evaluation, 2008* and with the Chartered Institute for Archaeologists document *Standard and Guidance for Archaeological Geophysical Survey.*

Given the potential for activity from a number of periods, detailed magnetic survey (gradiometry) was used as an efficient and effective method of locating archaeological anomalies. More information regarding this technique is included in Appendix A.

2.8 Processing, presentation and interpretation of results

2.8.1 Processing

Processing is performed using specialist software. This can emphasise various aspects contained within the data but which are often not easily seen in the raw data. Basic processing of the magnetic data involves 'flattening' the background levels with respect to adjacent traverses and adjacent grids. Once the basic processing has flattened the background it is then possible to carry out further processing which may include low pass filtering to reduce 'noise' in the data and hence emphasise the archaeological or man-made anomalies.

The following schedule shows the basic processing carried out on all minimally processed gradiometer data used in this report:

1. *Destripe* (Removes striping effects caused by zero-point discrepancies between different sensors and walking directions)
2. *Destagger* (Removes zigzag effects caused by inconsistent walking speeds on sloping, uneven or overgrown terrain)

2.8.2 Presentation of results and interpretation

The presentation of the data for each site involves a print-out of the minimally processed data both as a greyscale plot and a colour plot showing extreme magnetic values. Magnetic anomalies have been identified and plotted onto the 'Abstraction and Interpretation of Anomalies' drawing for the site.

3 RESULTS

The detailed magnetic gradiometer survey conducted at Preston Hall Farm has identified a small number of anomalies that have been characterised as being of a *possible* archaeological origin.

The difference between *probable* and *possible* archaeological origin is a confidence rating. Features identified within the dataset that form recognisable archaeological patterns or seem to be related to a deliberate historical act have been interpreted as being of a probable archaeological origin.

Features of possible archaeological origin tend to be more amorphous anomalies which may have similar magnetic attributes in terms of strength or polarity but are difficult to classify as being archaeological or natural.

The following list of numbered anomalies refers to numerical labels on the interpretation plots.

3.1 Probable Archaeology

No probable archaeology has been identified within the survey area.

3.2 Possible Archaeology

1 Two positive linear anomalies in the north of the site. These are indicative of former cut features, and may be of archaeological or agricultural origin.

2 A weak negative linear anomaly in the north of the site. This is indicative of a former bank or earthwork feature, and may be of archaeological or agricultural origin.

3.3 Medieval/Post-Medieval Agriculture

3 An area of widely spaced, curving, parallel linear anomalies in the south-east of the site. These are indicative of ridge and furrow cultivation.

3.4 Other Anomalies

4 A high amplitude, bipolar linear anomaly in the south of the site. This is indicative of an underground service, such as a pipe or cable.

5 An area of strong scattered magnetic debris in the east of the site. This is likely related to former structures present on available OS mapping 1971-1987.

6 An area of scattered magnetic debris in the north of the site. This is likely to be modern in origin.

7 Areas of magnetic disturbance are the result of substantial nearby ferrous metal objects such as fences and underground services. These effects can mask weaker archaeological anomalies, but on this site have not affected a significant proportion of the area.

8 A number of magnetic 'spikes' (strong focussed values with associated antipolar response) indicate ferrous metal objects. These are likely to be modern rubbish.

4 DATA APPRAISAL & CONFIDENCE ASSESSMENT

Sedimentary geologies, such as those seen at Preston Hall Farm, can generally be recommended for magnetic survey. Whilst no probable archaeology has been detected there is a strong contrast seen between the possible archaeological anomalies and background response. This combined with the detection of ridge and furrow cultivation suggests that the survey has been effective.

5 CONCLUSION

The survey at Preston Hall Farm has not identified any anomalies of probable archaeological origin. A small number of possible archaeological anomalies have been detected, however a more modern agricultural origin would be more likely. There is no evidence for prehistoric, Roman, or Saxon activity, all of which can be seen in the wider surrounding area. An area of ridge and furrow cultivation is in keeping with information from the HER, which shows three medieval farmsteads in the surrounding area, and suggests the area has been used for mostly agricultural purposes in the medieval period. The remaining anomalies are modern in origin, relating to an underground service, former structures, scattered magnetic debris, ferrous objects and fencing.

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APPENDIX A – METHODOLOGY & SURVEY EQUIPMENT

Grid locations

The location of the survey grids has been plotted together with the referencing information. Grids were set out using a Leica 705auto Total Station and referenced to suitable topographic features around the perimeter of the site or a Leica Smart Rover RTK GPS.

An RTK GPS (Real-time Kinematic Global Positioning System) can locate a point on the ground to a far greater accuracy than a standard GPS unit. A standard GPS suffers from errors created by satellite orbit errors, clock errors and atmospheric interference, resulting in an accuracy of 5m-10m. An RTK system uses a single base station receiver and a number of mobile units. The base station re-broadcasts the phase of the carrier it measured, and the mobile units compare their own phase measurements with those they received from the base station. A SmartNet RTK GPS uses Ordnance Survey's network of over 100 fixed base stations to give an accuracy of around 0.01m.

Survey equipment and gradiometer configuration

Although the changes in the magnetic field resulting from differing features in the soil are usually weak, changes as small as 0.2 nanoTeslas (nT) in an overall field strength of 48,000nT, can be accurately detected using an appropriate instrument.

The mapping of the anomaly in a systematic manner will allow an estimate of the type of material present beneath the surface. Strong magnetic anomalies will be generated by buried iron-based objects or by kilns or hearths. More subtle anomalies such as pits and ditches can be seen if they contain more humic material which is normally rich in magnetic iron oxides when compared with the subsoil.

To illustrate this point, the cutting and subsequent silting or backfilling of a ditch may result in a larger volume of weakly magnetic material being accumulated in the trench compared to the undisturbed subsoil. A weak magnetic anomaly should therefore appear in plan along the line of the ditch.

The magnetic survey was carried out using a dual sensor Grad601-2 Magnetic Gradiometer manufactured by Bartington Instruments Ltd. The instrument consists of two fluxgates very accurately aligned to nullify the effects of the Earth's magnetic field. Readings relate to the difference in localised magnetic anomalies compared with the general magnetic background. The Grad601-2 consists of two high stability fluxgate gradiometers suspended on a single frame. Each gradiometer has a 1m separation between the sensing elements so enhancing the response to weak anomalies.

Sampling interval

Readings were taken at 0.25m centres along traverses 1m apart. This equates to 3600 sampling points in a full 30m x 30m grid.

Depth of scan and resolution

The Grad 601-2 has a typical depth of penetration of 0.5m to 1.0m, though strongly magnetic objects may be visible at greater depths. The collection of data at 0.25m centres provides an optimum methodology for the task balancing cost and time with resolution.

Data capture

The readings are logged consecutively into the data logger which in turn is daily down- loaded into a portable computer whilst on site. At the end of each site survey, data is transferred to the office for processing and presentation.

APPENDIX B – BASIC PRINCIPLES OF MAGNETIC SURVEY

Detailed magnetic survey can be used to effectively define areas of past human activity by mapping spatial variation and contrast in the magnetic properties of soil, subsoil and bedrock.

Weakly magnetic iron minerals are always present within the soil and areas of enhancement relate to increases in *magnetic susceptibility* and permanently magnetised *thermoremanent* material.

Magnetic susceptibility relates to the induced magnetism of a material when in the presence of a magnetic field. This magnetism can be considered as effectively permanent as it exists within the Earth's magnetic field. Magnetic susceptibility can become enhanced due to burning and complex biological or fermentation processes.

Thermoremanence is a permanent magnetism acquired by iron minerals that, after heating to a specific temperature known as the Curie Point, are effectively demagnetised followed by re-magnetisation by the Earth's magnetic field on cooling. Thermoremanent archaeological features can include hearths and kilns and material such as brick and tile may be magnetised through the same process.

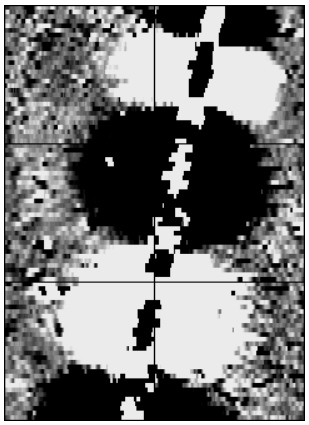
Silting and deliberate infilling of ditches and pits with magnetically enhanced soil creates a relative contrast against the much lower levels of magnetism within the subsoil into which the feature is cut. Systematic mapping of magnetic anomalies will produce linear and discrete areas of enhancement allowing assessment and characterisation of subsurface features. Material such as subsoil and non-magnetic bedrock used to create former earthworks and walls may be mapped as areas of lower enhancement compared to surrounding soils.

Magnetic survey is carried out using a fluxgate gradiometer which is a passive instrument consisting of two sensors mounted vertically 1m apart. The instrument is carried about 30cm above the ground surface and the top sensor measures the Earth's magnetic field whilst the lower sensor measures the same field but is also more affected by any localised buried field. The difference between the two sensors will relate to the strength of a magnetic field created by a buried feature, if no field is present the difference will be close to zero as the magnetic field measured by both sensors will be the same.

Factors affecting the magnetic survey may include soil type, local geology, previous human activity, disturbance from modern services etc.

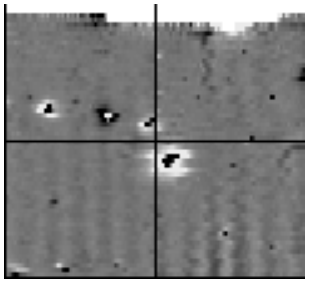
APPENDIX C – GLOSSARY OF MAGNETIC ANOMALIES

Bipolar



A bipolar anomaly is one that is composed of both a positive response and a negative response. It can be made up of any number of positive responses and negative responses. For example a pipeline consisting of alternating positive and negative anomalies is said to be bipolar. See also dipolar which has only one area of each polarity. The interpretation of the anomaly will depend on the magnitude of the magnetic field strength. A weak response may be caused by a clay field drain while a strong response will probably be caused by a metallic service.

Dipolar

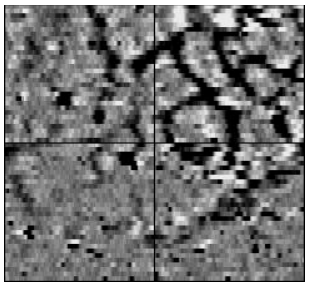


This consists of a single positive anomaly with an associated negative response. There should be no separation between the two polarities of response. These responses will be created by a single feature. The interpretation of the anomaly will depend on the magnitude of the magnetic measurements. A very strong anomaly is likely to be caused by a ferrous object.

Positive anomaly with associated negative response

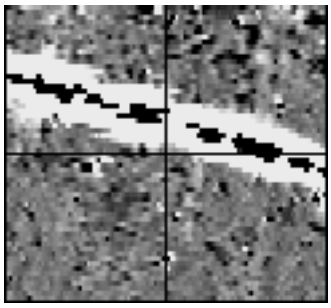
See bipolar and dipolar.

Positive linear



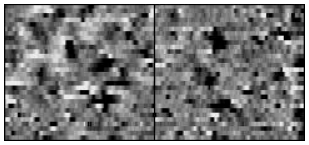
A linear response which is entirely positive in polarity. These are usually related to in-filled cut features where the fill material is magnetically enhanced compared to the surrounding matrix. They can be caused by ditches of an archaeological origin, but also former field boundaries, ploughing activity and some may even have a natural origin.

Positive linear anomaly with associated negative response



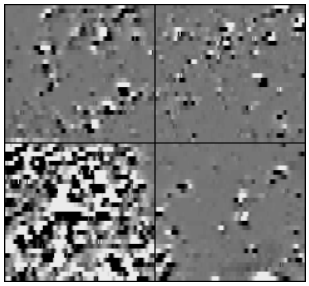
A positive linear anomaly which has a negative anomaly located adjacently. This will be caused by a single feature. In the example shown this is likely to be a single length of wire/cable probably relating to a modern service. Magnetically weaker responses may relate to earthwork style features and field boundaries.

Positive point/area



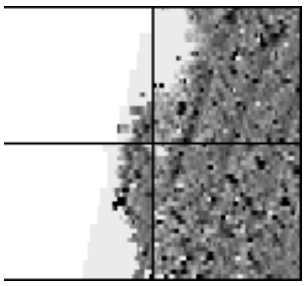
These are generally spatially small responses, perhaps covering just 3 or 4 reading nodes. They are entirely positive in polarity. Similar to positive linear anomalies they are generally caused by in-filled cut features. These include pits of an archaeological origin, possible tree bowls or other naturally occurring depressions in the ground.

Magnetic debris



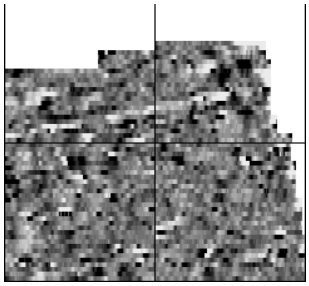
Magnetic debris consists of numerous dipolar responses spread over an area. If the amplitude of response is low (+/-3nT) then the origin is likely to represent general ground disturbance with no clear cause, it may be related to something as simple as an area of dug or mixed earth. A stronger anomaly (+/-250nT) is more indicative of a spread of ferrous debris. Moderately strong anomalies may be the result of a spread of thermoremanent material such as bricks or ash.

Magnetic disturbance



Magnetic disturbance is high amplitude and can be composed of either a bipolar anomaly, or a single polarity response. It is essentially associated with magnetic interference from modern ferrous structures such as fencing, vehicles or buildings, and as a result is commonly found around the perimeter of a site near to boundary fences.

Negative linear

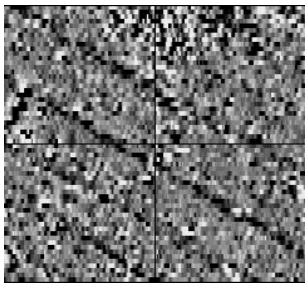


A linear response which is entirely negative in polarity. These are generally caused by earthen banks where material with a lower magnetic magnitude relative to the background top soil is built up. See also ploughing activity.

Negative point/area

Opposite to positive point anomalies these responses may be caused by raised areas or earthen banks. These could be of an archaeological origin or may have a natural origin.

Ploughing activity



Ploughing activity can often be visualised by a series of parallel linear anomalies. These can be of either positive polarity or negative polarity depending on site specifics. It can be difficult to distinguish between ancient ploughing and more modern ploughing. Clues such as the separation of each linear, straightness, strength of response and cross cutting relationships can be used to aid this, although none of these can be guaranteed to differentiate between different phases of activity.

Polarity

Term used to describe the measurement of the magnetic response. An anomaly can have a positive polarity (values above 0nT) and/or a negative polarity (values below 0nT).

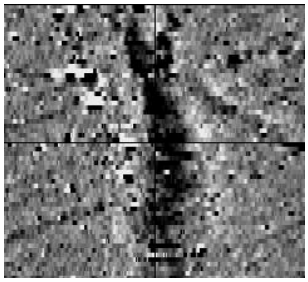
Strength of response

The amplitude of a magnetic response is an important factor in assigning an interpretation to a particular anomaly. For example a positive anomaly covering a 10m^2 area may have values up to around 3000nT, in which case it is likely to be caused by modern magnetic interference. However, the same size and shaped anomaly but with values up to only 4nT may have a natural origin. Colour plots are used to show the amplitude of response.

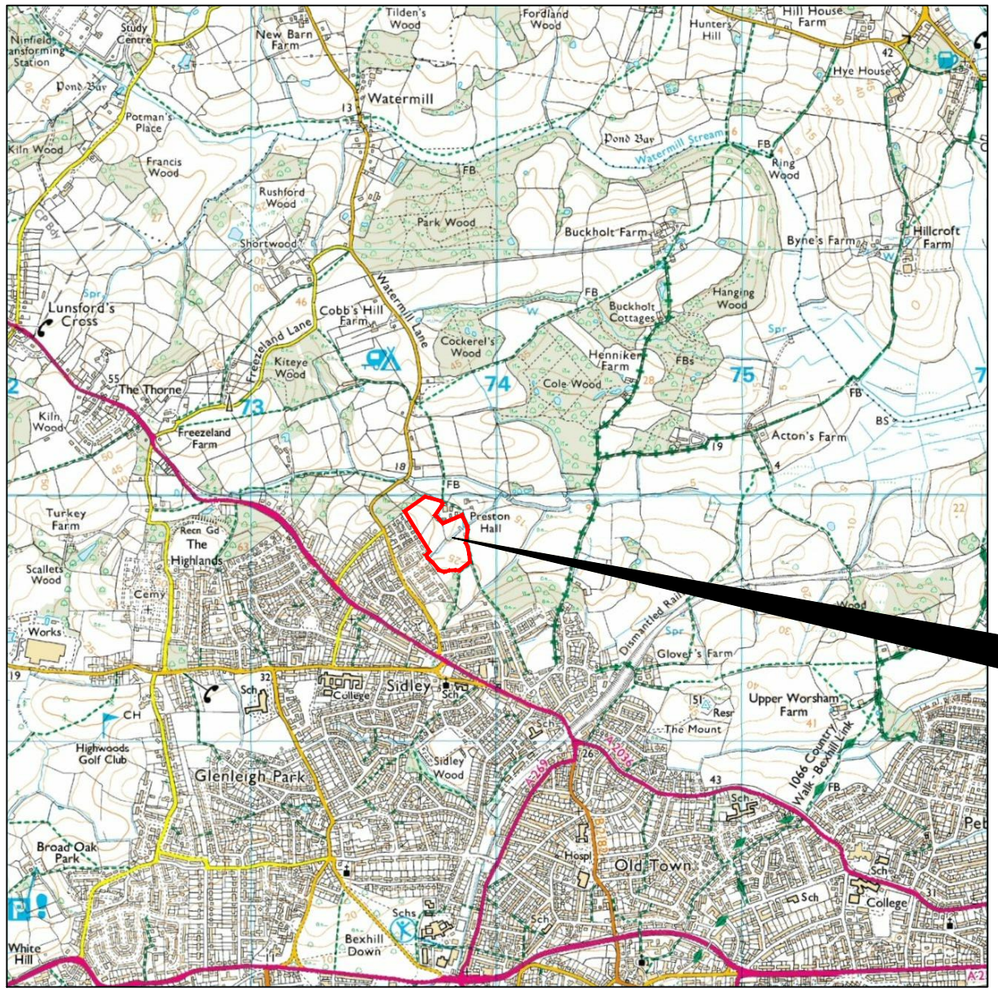
Thermoremanent response

A feature which has been subject to heat may result in it acquiring a magnetic field. This can be anything up to approximately +/-100 nT in value. These features include clay fired drains, brick, bonfires, kilns, hearths and even pottery. If the heat application has occurred in situ (e.g. a kiln) then the response is likely to be bipolar compared to if the heated objects have been disturbed and moved relative to each other, in which case they are more likely to take an irregular form and may display a debris style response (e.g. ash).

Weak background variations



Weakly magnetic wide scale variations within the data can sometimes be seen within sites. These usually have no specific structure but can often appear curvy and sinuous in form. They are likely to be the result of natural features, such as soil creep, dried up (or seasonal) streams. They can also be caused by changes in the underlying geology or soil type which may contain unpredictable distributions of magnetic minerals, and are usually apparent in several locations across a site.



Amendments

Issue No.	Date	Description
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-	-	-

Site centred on NGR: TQ 738 099

Client: PERSIMMON HOMES

Project Title: PRESTON HALL FARM, BEXHILL, EAST SUSSEX

Job No. J9155

Subject: LOCATION PLAN OF SURVEY AREA

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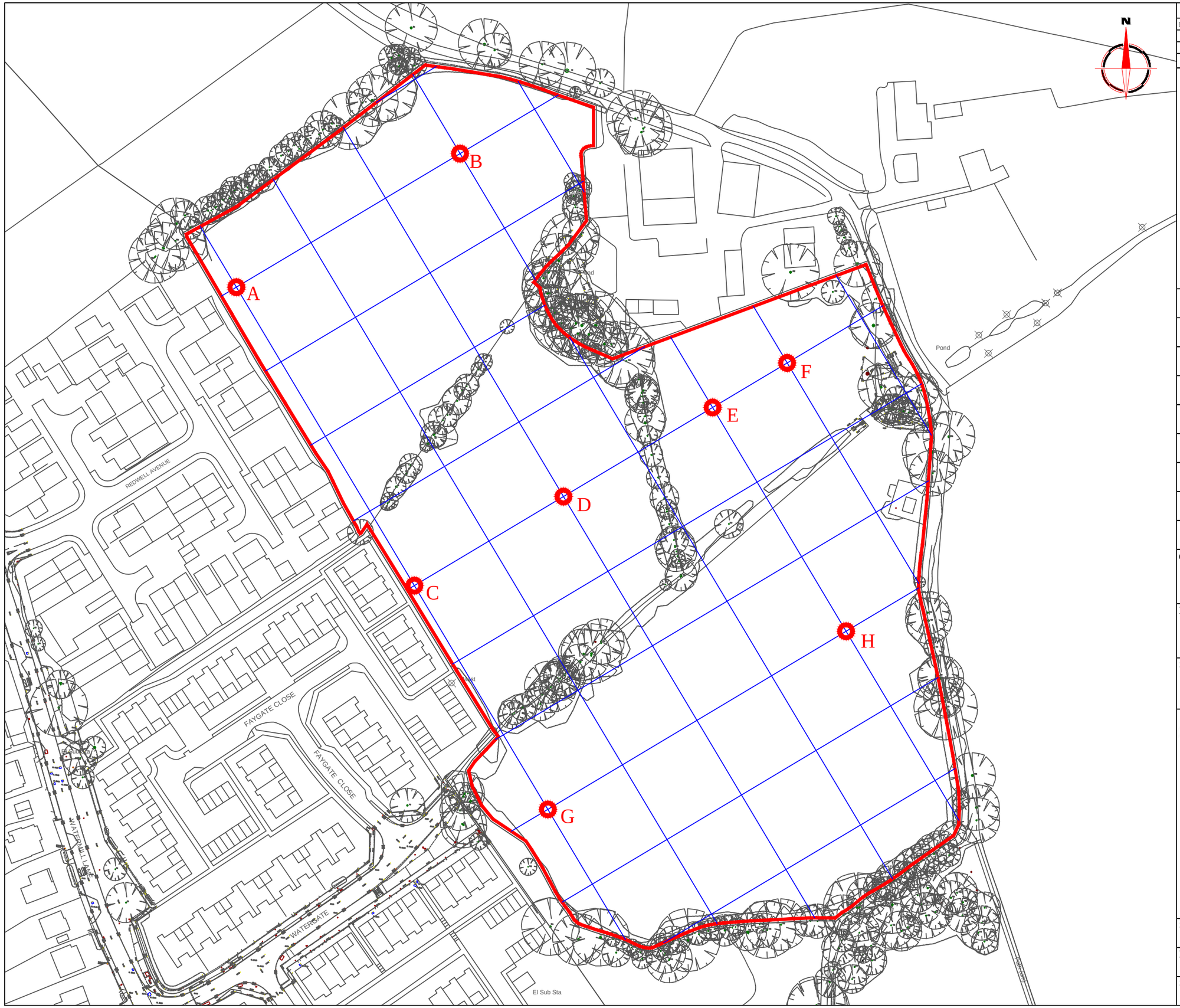
	Survey date	Drawn by	Figure No.
	NOV 15	TR	01



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D	573760.47, 109839.64
E	573811.99, 109870.40
F	573837.75, 109885.77
G	573755.08, 109731.61
H	573858.12, 109793.12

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LOCATION OF SURVEY GRIDS AND REFERENCING

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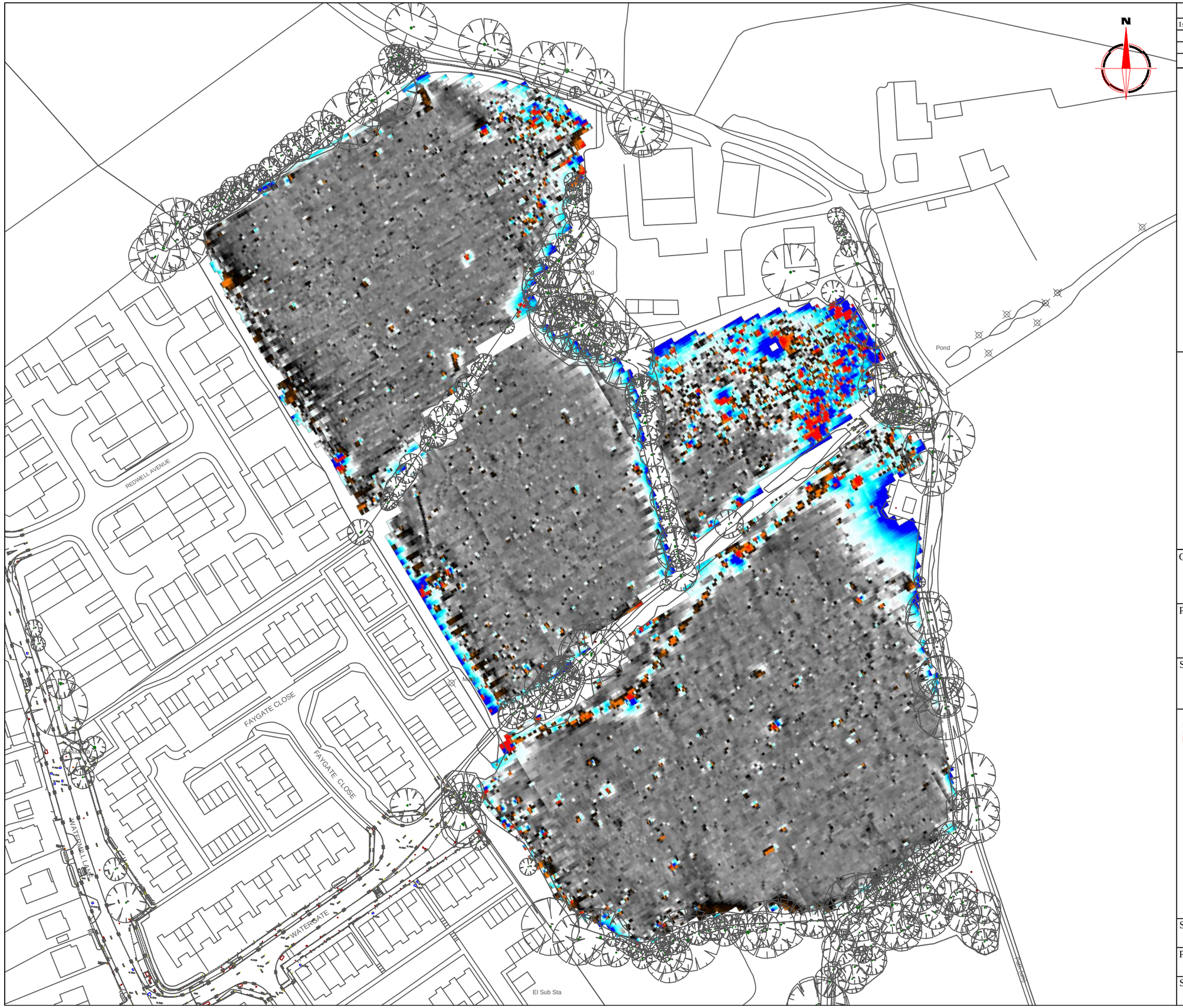

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-	-	-

Plotting parameters

Maximum +100nT (red)
Minimum -100nT (blue)

+100nT
+25nT
+3nT
-3nT
-25nT
-100nT

Client

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PRESTON HALL FARM, BEXHILL, EAST SUSSEX

Subject

COLOUR PLOT OF GRADIOMETER DATA SHOWING EXTREME VALUES

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Survey date	Drawn by	Figure No.
NOV 15	TR	03

Amendments

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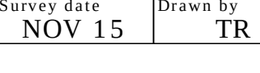
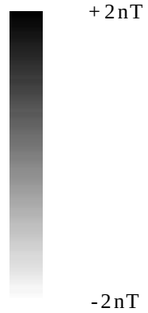
Minimum -2nT (white)





Client

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Project Title — Job No. J9155

PRESTON HALL FARM, BEXHILL, EAST SUSSEX

Subject

PLOT OF MINIMALLY PROCESSED GRADIOMETER DATA

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Survey date	Drawn by	Figure No.	
NOV 15	TR	04	

Amendments

Issue No.	Date	Description
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-	-	-

PROBABLE ARCHAEOLOGY

- Positive anomaly / weak positive anomaly - probable cut feature of archaeological origin
- Negative anomaly / weak negative anomaly - probable bank or earthwork of archaeological origin

POSSIBLE ARCHAEOLOGY

- Positive anomaly / weak positive anomaly - possible cut feature of archaeological origin
- Negative anomaly / weak negative anomaly - possible bank or earthwork of archaeological origin

MEDIEVAL/POST-MEDIEVAL AGRICULTURE

- Widely spaced curving parallel linear anomalies - probably related to ridge-and-furrow
- Closely spaced parallel linear anomalies - probably related to agricultural activity such as ploughing
- Linear anomaly - probably related to a former field boundary not present on available mapping
- Linear anomaly - related to a former field boundary present on available mapping

OTHER ANOMALIES

- Linear anomaly - probably related to pipe, cable or other modern service
- Linear anomaly - possibly related to land drain
- Magnetic disturbance associated with nearby metal object such as service or field boundary
- Scattered magnetic debris - related to former structures present on available mapping
- Scattered magnetic debris
- Area of amorphous magnetic variation - probable natural (e.g. geological or pedological) origin
- Magnetic spike - probable ferrous object

Client

PERSIMMON HOMES

Project Title — Job No. J9155

PRESTON HALL FARM, BEXHILL, EAST SUSSEX

Subject

ABSTRACTION AND INTERPRETATION OF GRADIOMETER ANOMALIES

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Survey date: NOV 15	Drawn by: TR	Figure No.: 05

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