ARCHAEOLOGICAL DESK BASED ASSESSMENT

Land South of Henham Road, Elsenham

JAC27946
Henham Road, Elsenham
July 2022

Quality Management

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EXECUTIVE SUMMARY

Land South of Henham Road, Elsenham, Essex has been assessed for its archaeological potential.

The Site is proposed for residential-led development.

In accordance with relevant government planning policy and guidance, a desk-based assessment has been undertaken to clarify the archaeological potential of the Site.

In terms of relevant designated archaeological assets, no World Heritage Sites, Scheduled Monuments, Historic Wreck or Historic Battlefield sites are present within the Study Site or its environs.

Geophysical survey of the Site in March 2022 identified a small number of anomalies of possible archaeological origin in the northern (upslope) portion of the Site. These are thought to be associated with a single ditch and a small number of possible pit-like features.

Based on current evidence, this assessment has identified a moderate to high archaeological potential for Bronze Age and Iron Age occupation remains on the Study Site, a moderate potential for Neolithic remains, a low to moderate potential for Early Prehistoric remains and a low potential for all remaining past periods of human activity.

Any such remains, if present, are likely to be of overall low/local significance.

Past, post-depositional activity can be considered to have had a negative impact on any archaeological remains on the Study Site.

A requirement for an archaeological investigation to define the presence, nature and significance of any archaeological deposits that may be present on the Site is anticipated by the Local Planning Authority's archaeological advisor.

It is suggested that any such archaeological investigation, if required by the Local Planning Authority, could follow planning permission secured by an appropriately worded planning condition.

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Appendices

1 INTRODUCTION AND SCOPE OF STUDY

1.1 This archaeological desk-based assessment has been prepared by RPS Consulting Services Ltd on behalf of Countryside Properties PLC.

1.2 The subject of this assessment (referred to as the Site or Study Site) comprises land South of Henham Road, Elsenham, Essex and is centred at NGR TL 53997 26265 within the District of Uttlesford. The Study Site comprises agricultural fields lying west of Pennington Lane and lies immediately north west of the built area of Stansted Mountfitchet.

1.3 Countryside Properties PLC have commissioned RPS to establish the archaeological potential of the Study Site and to provide guidance on ways to address any archaeological constraints identified.

1.4 In accordance with the relevant government policy and guidance on archaeology and planning, and in accordance with the 'Standard and Guidance for Historic Environment Desk-Based Assessments' (Chartered Institute for Archaeologists, January 2017) this assessment draws together the available archaeological, topographic and land-use information in order to clarify the archaeological potential of the Study Site.

1.5 This desk-based assessment comprises an examination of evidence on the Essex Historic Environment Record (HER), and other sources, including the results of a comprehensive map regression exercise.

1.6 This document draws together the available archaeological, topographic and land-use information in order to clarify the archaeological potential of the Study Site, together with its likely significance, and to consider the need for design, civil engineering, and archaeological solutions to any constraints identified.

2 PLANNING BACKGROUND AND DEVELOPMENT PLAN FRAMEWORK

2.1 National legislation regarding archaeology, including scheduled monuments, is contained in the Ancient Monuments and Archaeological Areas Act 1979, amended by the National Heritage Act 1983 and 2002, and updated in April 2014.

2.2 In March 2012, the government published the National Planning Policy Framework (NPPF), and it was last updated in February 2019. The NPPF is supported by the National Planning Practice Guidance (NPPG), which was published online 6th March 2014 and last updated 23rd July 2019 (https://www.gov.uk/guidance/conserving-and-enhancing-the-historic-environment).

2.3 The NPPF and NPPG are additionally supported by three Good Practice Advice (GPA) documents published by Historic England: GPA 1: The Historic Environment in Local Plans; GPA 2: Managing Significance in Decision-Taking in the Historic Environment (both published March 2015). The second edition of GPA3: The Setting of Heritage Assets was published in December 2017.

National Planning Policy

2.4 Section 16 of the NPPF, entitled Conserving and enhancing the historic environment provides guidance for planning authorities, property owners, developers and others on the conservation and investigation of heritage assets. Overall, the objectives of Section 16 of the NPPF can be summarised as seeking the:

- Delivery of sustainable development;
- Understanding the wider social, cultural, economic and environmental benefits brought by the conservation of the historic environment;
- Conservation of England's heritage assets in a manner appropriate to their significance; and
- Recognition that heritage makes to our knowledge and understanding of the past.

2.5 Section 16 of the NPPF recognises that intelligently managed change may sometimes be necessary if heritage assets are to be maintained for the long term. Paragraph 189 states that planning decisions should be based on the significance of the heritage asset and that level of detail supplied by an applicant should be proportionate to the importance of the asset and should be no more than sufficient to review the potential impact of the proposal upon the significance of that asset.

2.6 *Heritage Assets* are defined in Annex 2 of the NPPF as: a building, monument, site, place, area or landscape positively identified as having a degree of significance meriting consideration in planning decisions. They include designated heritage assets (as defined in the NPPF) and assets identified by the local planning authority during the process of decision-making or through the plan-making process.

2.7 Annex 2 also defines *Archaeological Interest* as a heritage asset which holds or potentially could hold evidence of past human activity worthy of expert investigation at some point.

2.8 A *Nationally Important Designated Heritage Asset* comprises a: World Heritage Site, Scheduled Monument, Listed Building, Protected Wreck Site, Registered Park and Garden, Registered Battlefield or Conservation Area.

2.9 *Significance* is defined as: The value of a heritage asset to this and future generations because of its heritage interest. This interest may be archaeological, architectural, artistic or historic. Significance derives not only from a heritage asset's physical presence, but also from its setting.

2.10 *Setting* is defined 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. Elements of a setting may make a positive or negative contribution to the significance of an asset, may affect the ability to appreciate that significance or may be neutral.

2.11 In short, government policy provides a framework which:

- Protects nationally important designated Heritage Assets;
- Protects the settings of such designations;
- In appropriate circumstances seeks adequate information (from desk based assessment and field evaluation where necessary) to enable informed decisions;
- Provides for the excavation and investigation of sites not significant enough to merit *in-situ* preservation.

2.12 The NPPG reiterates that the conservation of heritage assets in a manner appropriate to their significance is a core planning principle, requiring a flexible and thoughtful approach. Furthermore, it highlights that neglect and decay of heritage assets is best addressed through ensuring they remain in active use that is consistent with their conservation. Importantly, the guidance states that if complete, or partial loss of a heritage asset is justified, the aim should then be to capture and record the evidence of the asset's significance and make the interpretation publicly available. Key elements of the guidance relate to assessing harm. An important consideration should be whether the proposed works adversely affect a key element of the heritage asset's special architectural or historic interest. Additionally, it is the degree of harm, rather than the scale of development, that is to be assessed. The level of 'substantial harm' is considered to be a high bar that may not arise in many cases. Essentially, whether a proposal causes substantial harm will be a judgment for the decision taker, having regard to the circumstances of the case and the NPPF. Importantly, harm may arise from works to the asset or from development within its setting. Setting is defined as the surroundings in which an asset is experienced and may be more extensive than the curtilage. A thorough assessment of the impact of proposals upon setting needs to take into account, and be proportionate to, the significance of the heritage asset and the degree to which proposed changes enhance or detract from that significance and the ability to appreciate it.

Local Planning Policy

2.13 In considering any planning application for development, the planning authority will be mindful of the framework set by government policy, in this instance the NPPF, by current Development Plan Policy and by other material considerations.

2.14 Local planning policy is provided for by the Uttlesford Local Plan which was adopted in January 2005. In December 2007 all policies, aside from two relating specifically to Takeley were saved. The Uttlesford District Council is currently drafting a new Local Plan and associated policies that will extend until 2033 and beyond. At present the policy relevant to archaeology at the Study Site states:

POLICY ENV4: ANCIENT MONUMENTS AND SITES OF ARCHAEOLOGICAL IMPORTANCE

WHERE NATIONALLY IMPORTANT ARCHAEOLOGICAL REMAINS, WHETHER SCHEDULED OR NOT, AND THEIR SETTINGS, ARE AFFECTED BY PROPOSED DEVELOPMENT THERE WILL BE A PRESUMPTION IN FAVOUR OF THEIR PHYSICAL PRESERVATION IN SITU. THE PRESERVATION IN SITU OF LOCALLY IMPORTANT ARCHAEOLOGICAL REMAINS WILL BE SOUGHT UNLESS THE NEED FOR THE DEVELOPMENT OUTWEIGHS THE IMPORTANCE OF THE ARCHAEOLOGY. IN SITUATIONS WHERE THERE ARE GROUNDS FOR BELIEVING THAT SITES, MONUMENTS OR THEIR SETTINGS WOULD BE AFFECTED DEVELOPERS WILL BE REQUIRED TO ARRANGE FOR AN ARCHAEOLOGICAL FIELD ASSESSMENT TO BE CARRIED OUT BEFORE THE PLANNING APPLICATION CAN BE DETERMINED THUS ENABLING AN INFORMED AND REASONABLE PLANNING DECISION

TO BE MADE. IN CIRCUMSTANCES WHERE PRESERVATION IS NOT POSSIBLE OR FEASIBLE, THEN DEVELOPMENT WILL NOT BE PERMITTED UNTIL SATISFACTORY PROVISION HAS BEEN MADE FOR A PROGRAMME OF ARCHAEOLOGICAL INVESTIGATION AND RECORDING PRIOR TO COMMENCEMENT OF THE DEVELOPMENT.

2.15 In terms of relevant designated heritage assets, as defined above and as shown on Figure 2, no nationally designated World Heritage Sites, Registered Parks or Gardens or Historic Wreck sites lie within the vicinity of the Study Site. The Stansted Mountfitchet Castle Scheduled Monument (HE ref.1009311) and Grade II listed building (HE ref. 1238635) lies c.1km south east of the Study Site boundary at its closest point.

2.16 In line with relevant planning policy and guidance, this desk-based assessment seeks to clarify the archaeological potential of the Study Site, the likely significance of that potential and the need or otherwise for additional mitigation measures.

3 GEOLOGY AND TOPOGRAPHY

Geology

3.1 The British Geological Survey Online shows the bedrock geology of the Study Site to comprise Thanet Formation and Lambeth Group Deposits (Clay, Silt and Sand).

3.2 The superficial geology is composed of Head deposits - Clay, Silt, Sand And Gravel in the southern portion of the Site, and Kesgrave Catchment Subgroup - Sand And Gravel in the northern portion of the Site.

3.3 No Study Site specific geotechnical information is currently available.

Topography

3.4 The Study Site lies within the upper reaches of the Stort Valley which comprises an undulating landscape with water courses running between low hills. The Site itself is located on a southeast-facing valley slope with highpoint of c.94m Above Ordnance Datum (AOD) at the northwest boundary, reducing to c.82m AOD at the southeast boundary. The ground within the Site is undulating, and dips down to the southwest corner. The northern edge of the Site is much flatter and is comparatively level.

3.5 Stanstead Brook flows along the Site`s southeast boundary.

4 ARCHAEOLOGICAL BACKGROUND WITH ASSESSMENT OF SIGNIFICANCE

Timescales used in this report

Prehistoric

Palaeolithic	900,000	-	12,000 BC
Mesolithic	12,000	-	4,000 BC
Neolithic	4,000	-	2,500 BC
Bronze Age	2,500	-	800 BC
Iron Age	800	-	AD 43

Historic

Roman	AD 43	-	410
Saxon/Early Medieval	AD 410	-	1066
Medieval	AD 1066	-	1485
Post Medieval	AD 1486	-	1799
Modern	AD 1800	-	Present

Introduction

4.1 This chapter reviews the archaeological background of the Study Site and the historical background of the general area, and, in accordance with the NPPF, considers the potential for any as yet to be discovered archaeological evidence to be present within the Study Site.

4.2 The following includes a review of known archaeological finds and features within a 1km radius of the Study Site (Fig.2a), referred to as the Study Area, held on the Essex Historic Environment Record (HER). A historic map progression exercise then charts the development of the Study Site from the 18th Century until the present day.

4.3 Chapter 5 subsequently considers the conditions of the Study Site and whether the proposed development will impact the archaeological potential identified below.

Previous Archaeological Investigation

4.4 A geophysical survey of the Site undertaken in March 2022 by Wessex Archaeology (Appendix 1) identified a small number of anomalies of possible archaeological origin in the northern (upslope) portion of the Site. These are thought to be associated with a single ditch and a small number of possible pit-like features. In the centre of the Site, a former field boundary was located, which is also recorded 1840 tithe mapping of the Site. In addition, several linear trends to the north of this boundary may relate to lynchets, which share the same alignment, indicating that this area was likely subject to medieval and post-medieval agricultural practices. Elsewhere across the Site, variation in the superficial geology was recorded by the survey. In the very south of the Site, adjacent to Stansted Brook, these may relate at least in part to alluvial sediments. Two possible buried metallic features were also identified in the south of the Site. These are of unknown origin but could relate to an unexploded bomb or modern metallic debris.

4.5 Archaeological excavations undertaken in 2014 on adjacent land west of Hall Road recorded multi-period remains in two areas totalling 1.4ha (Fig. 2- HER ref: 49001/EEX59063, NGR: TL 53679 26122). A small assemblage of largely residual Mesolithic/Early Neolithic flint attests to some activity of this date in the vicinity of the Site. The earliest definite activity on the site, however, dated to the Late Neolithic/Early Bronze Age and comprised a ring-ditch monument, with possible associated pits. This later became the focus for a brief period of Saxon activity, represented by two large pits. Medieval activity on the site comprised a well-preserved field system of narrow strip fields, concentrated in the southeast part of the site but possibly extending to the northwest. The agricultural character of the site continued into the Post Medieval period, with the retention and modification of the Medieval field system and a sequence of two later Post Medieval brick-built outbuildings, which may be part of a farmstead.

4.6 Trial trench evaluation in 2021 to the north of the Study Site recorded activity from the Mesolithic through to Post Medieval period. Finds of struck flint indicated a human presence from the Mesolithic to the Bronze Age, and two or three cremation burials were identified, indicating Prehistoric mortuary activity. A concentration of archaeological features was also identified in the proximity of the cremations and further to the southeast. The evaluation identified several Late Bronze Age/Early Iron Age features, including a ring ditch, a group of large intercutting watering holes, and boundary ditches of a probable field system, as well as a Late Iron Age layer of burnt material. Following the Prehistoric period, the human activity on site appeared to be predominantly agricultural. Only a small number of dispersed Roman features were identified, along with a single Medieval pit and several Post Medieval field boundaries depicted on historical maps from the 19th century, recorded as cropmarks on aerial photographs and correlating with anomalies detected by geophysical survey (MEX1050244, TL 5379 2669).

Early Prehistoric (Palaeolithic & Mesolithic)

4.7 Surveys including ‘The Palaeolithic Period in Essex’ (Wymer 1996) and ‘The Lower Palaeolithic Occupation of Britain’ (Wymer 1999) have led to a wider understanding of the potential of Southern England for Palaeolithic material. As a result of this and related geoarchaeological work, it is evident that areas of highest potential occur within the principal gravel terraces of the region.

4.8 Lower Palaeolithic flint flakes have been recovered from the Pledgdon Sandpit to the northeast of the Study Site, within the underlying Kesgrave Sands and Gravels (HER 4609 MEX16213; TL 542 268).

4.9 However, the extensive archaeological recording of 22 hectares at Stansted Airport Mid Term Car Park (MTCP) recovered only two handaxes and a single flint scraper (Cooke, Brown & Phillpotts, 2008), elsewhere on the Boulder Clay finds are even sparser. A late Upper Palaeolithic long blade was found within the fills of a later tree-throw on the Long Term Car Park site (LTCP) (Cooke, Brown & Phillpotts, 2008). Thus, although an isolated handaxe of intrinsic interest might occur at depth within Pleistocene deposits on the Study Site, a significant concentration of artefacts of this date is not anticipated.

4.10 Mesolithic flints-blades, flakes, micro and blade cores, scrapers, gravers, axes, and microliths have been recovered from the Pledgdon Sandpit to the northeast of the Study Site (HER 4610 MEX16216; Grid Ref TL 542 268).

4.11 Small quantities of largely residual Mesolithic/Early Neolithic flint was recovered during the archaeological investigations to the north and west of the Site (see section 4.5 & 4.6 above).

4.12 The Stort valley has produced evidence for exploitation of the area during the Mesolithic close to the river and it is likely that the heavily wooded Boulder Clay areas were used for hunting (Havis & Brooks 2004). Thus a very low density of lithic material would not be unexpected in the valley of the Stansted Brook.

4.13 Scatters of residual Mesolithic flints were recovered from Stansted. The material was recovered from along the edges of river valleys, suggesting that these acted as foci for hunting and gathering activities as well as routes through the landscape. Three tranchet axes were recovered from the Long Term Car Park at Stansted Airport possibly suggesting Mesolithic tree clearance in the area (Cooke, Brown & Phillpotts 2008).

4.14 The recovery of three flint axes from soil stripping and excavation at the Long Term Car Park at Stansted Airport indicates that the heavily forested environment of adjacent Boulder Clays of north-west Essex was utilised. Nevertheless, the density of artefactual evidence on a regional basis suggests that any evidence for the Mesolithic period on the Study Site overlooking the Stansted Brook is likely to be limited to one or two lithic artefacts.

4.15 Overall, the available evidence indicates a low to moderate potential for isolated, chance finds and deeply buried artefacts in the Kesgrave Sand deposits from the Early Prehistoric periods on the Study Site.

Neolithic

4.16 An isolated Neolithic polished axehead was found at St Mary's Church, c.500m southeast of the Site (HER 4608 MEX16210, TL5430 2588).

4.17 Three possible Neolithic pit dwellings are recorded on the HER within the quarry at Pledgdon Sandpit to the northeast of the Site. The 'pit dwellings' were associated with handmade pottery of Neolithic or Windmill Hill type, together with worked flint including a flake from a polished flint axe, the broken point of a flake arrowhead, finely serrated, saw edged flakes and cores, flakes and a scraper (HER 4611 MEX16219; TL 542 268).

4.18 The 2014 excavations to the west of the Site recorded a Late Neolithic/Early Bronze Age ring-ditch monument with possible associated pits and postholes, located c.350 west of the Site (MEX1049435/EEX59063, TL 53679 26122).

4.19 Despite an extensive programme of fieldwalking and excavation at Stansted Airport, only a very limited quantity of Neolithic evidence has been located. During initial work (Essex CC 1989), involving an intensive survey of 600 hectares, the broken end of a polished flint axe was found. More recent work at the Airport has produced evidence of scattered pits and tree throws into which a range of Neolithic and early Bronze Age material was found (Cooke, Brown & Phillpotts 2008). Two pits and a small assemblage of flintwork were recorded at the Long Term Car Park, and work at the Mid Term Car Park has located a few small pits containing pottery and flints. Nevertheless, despite extensive searches, the available evidence still suggests sparse occupation and occasional hunting within an essentially forested environment, within which only localised openings had been cleared.

4.20 In view of the above, the Site's archaeological potential for the Neolithic period can be identified as generally moderate.

Bronze Age & Iron Age

4.21 Trial trench evaluation in 2021 to the north of the Study Site recorded two or three cremation burials, indicating Prehistoric mortuary activity. A concentration of archaeological features was also identified in the proximity of the cremations and further to the southeast. The evaluation identified several Late Bronze Age/Early Iron Age features, including a ring ditch, a group of large intercutting watering holes, and boundary ditches of a probable field system, as well as a Late Iron Age layer of burnt material (MEX1050244, TL 5379 2669).

4.22 In the Early Bronze Age, evidence from the Stansted Airport investigations suggests the continuation of hunting within a forested and sparsely occupied landscape, possibly grazed by herd animals (Cooke, Brown & Phillpotts 2008). However, off the Boulder Clay, the lighter, more fertile gravel-

based soils were probably favoured areas for episodes of tree clearance for 'slash and burn' type agriculture. Although even here largely empty areas have been located, suggesting maintenance of pasture or woodland cover, as was found at Rochford Nursery.

4.23 By the middle Bronze Age communities were establishing settlements, dividing the landscape and farming the land in the Stansted area (Cooke, Brown & Phillpotts 2008). Further evidence for Bronze Age settlement was discovered during excavations on the M11 at Stansted and the Forward Logistics Base (FLB) site at Stansted where a single roundhouse was recorded, and widespread activity and a roundhouse was recorded at the Long Term Car Park site (Cooke, Brown & Phillpotts 2008). The discovery of a complete enclosed Middle Bronze Age settlement of roundhouses at Stansted indicates that incursions were being made into the forest locally and that permanent settlement and agriculture was occurring. Several funerary monuments were recorded in the Stansted landscape; a middle Bronze Age barrow was found near the Pincey Brook and a possible barrow (windmill barrow) was found north-west of the Mid Term Car Park site

4.24 By the Late Bronze Age there is an increasing body of evidence to suggest that clearance was occurring on a larger scale than previously and that stock farming was occurring on an organised and more intensive basis. Excavations at the Long Term Car Park have also added further detail and exposed a network of ditches forming a Late Bronze Age or Iron Age field system and a small ring ditch, interpreted as a ploughed down Bronze Age round barrow. Nearby, a possible burnt mound and associated artefactual evidence suggests a small occupation site (Cooke, Brown & Phillpotts 2008).

4.25 The gradual extension of woodland clearance continues into the Iron Age and the first landscape divisions in the form of trackways and boundaries appear at this time (Cooke, Brown & Phillpotts 2008). At Stansted Airport Late Bronze Age and early Iron Age activity focused on the western edge of the Boulder Clay plateau, the settlement continued into the middle Iron Age and an increased density in population was recognised

4.26 Iron Age occupation and burial activity was apparent from the excavations at Elsenham Quarry, c.1km east of the site (Preston 2008). Five features of early Iron Age date were recorded and ditches and cremations of middle Iron Age date were recorded. Several Late Iron Age to early Roman cremations were recorded (MEX48392, TL 5516 2657).

4.27 There is a large body of evidence in the landscape surrounding the Study Site for Bronze Age and Iron Age occupation. On this basis, it can be suggested that there is a moderate to high potential for the occurrence of archaeological remains from these periods on the Study Site. The geophysical survey indicates any such remains may be of relatively small number and localised to the northern part of the Site.

Roman

4.28 A small number of dispersed Roman features were identified during trial trench evaluation in 2021 to the north of the Study Site (MEX1050244, TL 5379 2669).

4.29 Roman pottery is recorded from Catt's Lane, c.400m northeast of the Site (HER 4615, TL 543 265). The Pledgdon Sandpit has produced Roman finds comprising a quernstone, pottery and tile fragments, c.500m north of the Site (HER 4613, TL 542 268).

4.30 Late Iron Age and Roman activity was recorded during an archaeological evaluation at Stansted Road, c.800m west of the Site (EEX56708 TL 5306 2655).

4.31 Three trial trenches in advance of the M11 widening c.1km WSW of the Study Site recorded Roman pits and ditches (HER 4689; TL 539 284).

4.32 Cremation burials with grave goods have been found at Elsenham, as well as Takeley and Stansted (Havis & Brooks 2004). Late Iron Age/early Roman cemeteries were excavated at Stansted, associated with settlements at the LTCP and M11 sites.

4.33 The available evidence indicates that Roman occupation in the vicinity of the Study Site can be characterised as an open farmed environment, punctuated by dispersed rural farmsteads and villas. The geophysical survey results suggest the Site did not host such structures and so the potential for Roman settlement remains on the Site can be defined as low. Evidence for agricultural activity and land division is perhaps most likely to be represented.

Anglo-Saxon and Medieval

4.34 Generally, it is suggested that the early and middle Saxon period saw settlement and farming withdrawn from the more marginal Boulder Clay soils onto the better drained, more fertile soils of the river valleys, with a resultant regeneration of woodland on former farmed areas.

4.35 Two large Saxon pits were recorded during the archaeological excavations undertaken in 2014 on adjacent land west of Hall Road (HER 49001/EEX59063, NGR: TL 53679 26122)

4.36 Possible Saxon objects were found at the Pledgdon pit in c. 1936 and, according to workers at the pit, five extended human skeletons and fragments of "crumbly brown pottery" have been found in the area. The finds were removed by someone working for a "London Museum" (HER 4614, TL 542 268).

4.37 The extensive archaeological investigations at Stansted Airport recorded very limited evidence of Saxon occupation, although the palynological data suggests that the landscape was open and supported mixed farming (Havis & Brooks 2004).

4.38 The Domesday Survey noted that Elsenham and Takeley formed part of the densely wooded district in Essex for “they feed between them 3500 swine”. In Elsenham, the destruction of woodland was progressive and between 1066 and 1086 the number of swine fell from 1300 to 1000. In Edward the Confessor’s time a freewoman named Merunaand and a man called Lestan owned the land, which was made up of 4 hides with two ploughs, eight villeins and five serfs. There were 12 acres of meadow and a corn mill, 220 sheep, eight cows, 60 swine, one horse and one colt.

4.39 The earliest records of St Marys Church at Elsenham (c.300m south of the Site) are in 1070 when John, nephew of Waleran, gave the church as an endowment to the Abbey of St. Stephen at Caen in Normandy (HER 4604, TL 5422 2592).

4.40 The Uttlesford District Historic Characterisation Project describes the fieldscape around Elsenham as a complex network of irregular fields of probable Medieval date, some may be older, interspersed with linear greens (ECC 2009). Many of the roads, green lanes and bridleways are intricate, twisting and sunken, indicating their ancient origin.

4.41 The medieval core of Elsenham lies to the south of the Study Site at Elsenham Cross at St Mary’s Church. A possible deserted Medieval village is located around the church at Elsenham Hall (ECC 2009), and would have lain south of the Study Site on the south bank of the Stansted Brook.

4.42 The archaeological excavations undertaken in 2014 on adjacent land west of Hall Road recorded a well-preserved Medieval field system of narrow strip fields (HER 49001/EEX59063, NGR: TL 53679 26122).

4.43 Archaeological fieldwork in the wider landscape of the Site has indicated a dispersed pattern of late Saxon settlement and the foundation of secondary hamlets associated with assarting in the early Medieval period. In the later Medieval period, some of the smaller early Medieval settlements were abandoned. As a result, it is assumed that the Study Site was increasingly cleared of woodland and used for agriculture throughout the Saxon and Medieval periods.

4.44 On the basis of the available evidence, and particularly the geophysical survey results, the archaeological potential of the Study Site for significant settlement (ie non-agricultural) remains from these periods is considered to be low. Evidence of agricultural activity and land management may be present.

Post Medieval & Modern (including map regression exercise)

4.45 There are no Post Medieval or Modern finds recorded on the HER for the Study Site.

4.46 During the later Post Medieval and Modern periods, our understanding of settlement, land-use and the utilisation of the landscape is enhanced by cartographic and documentary sources, which can give additional detail to data contained within the HER.

4.47 The Site can be accurately located on the 1840 Tithe map (Fig. 3), which shows it to comprise three enclosed fields north of Stanstead Brook.

4.48 By 1898 (Fig. 4), there has been remodelling of field boundaries with the amalgamation of the two southern fields.

4.49 There are no further changes up to the present day (Figs. 5-9).

4.50 In summary, the available evidence indicates that during these periods the Study Site has comprised unimproved or agricultural land. The potential for Post Medieval or Modern settlement remains is therefore considered to be low. Evidence of agricultural activity and former field boundaries could conceivably be present.

Assessment of Significance

4.51 Existing national policy guidance for archaeology (the NPPF as referenced in section 2) enshrines the concept of the 'significance' of heritage assets. Significance as defined in the NPPF centres on the value of an archaeological or historic asset for its 'heritage interest' to this or future generations.

4.52 No relevant nationally significant designated archaeological assets as defined in the NPPF are recorded within, or within the vicinity of, the Study Site.

4.53 Based on current evidence, this assessment has identified a moderate to high archaeological potential for Bronze Age and Iron Age occupation remains on the Study Site, a moderate potential for Neolithic remains, a low to moderate potential for Early Prehistoric remains and a low potential for all remaining past periods of human activity.

4.54 The significance of any archaeological remains which may be present would be derived from their evidential value and contributions that could be made towards local and regional research agendas. Overall, any such remains that survive on the Study Site would, in the context of the Secretary of State's non-statutory criteria for Scheduled Monuments (DCMS 2013), most likely be of low (local) significance.

4.55 As identified by desk-based work, the archaeological potential by period and the likely significance of any archaeological remains which may be present within the Study Site is summarised in table form below:

Period:	Identified Archaeological Potential	Identified Archaeological Significance (if present)
Early Prehistoric (Palaeolithic & Mesolithic)	Low to Moderate	Low/Local
Neolithic	Moderate	Low/Local

Bronze Age	Moderate to High	Low/Local
Iron Age	Moderate to High	Low/Local
Roman	Low	Low/Local
Anglo-Saxon	Low	Low/Local to Medium/Regional
Medieval	Low	Low/Local
Post Medieval & Modern	Low	Low/Local

5 SITE CONDITIONS, THE PROPOSED DEVELOPMENT & REVIEW OF POTENTIAL DEVELOPMENT IMPACTS ON ARCHAEOLOGICAL ASSETS

Site Conditions

5.1 The Study Site is centred at NGR TL 53997 26265, to the south-west of Henham Road and to the northeast of Hall Road in Elsenham, Essex. The Site comprises a large open field which is principally laid to grass. It measures 5.3ha in total and is broadly rectangular in shape. The Site is largely one open field, however a line of trees exists at a previous subdivision. To the south-east of the Site dense mature tree planting provides a clear boundary. The south-eastern boundary of the Site is also marked by Stanstead Brook.

5.2 The Study Site has been in agricultural use throughout its recorded history. A moderate but widespread below ground impact is identified as a result of historic and Modern agricultural use.

Proposed Development

5.3 The Study Site is proposed for residential-led development.

Review of Potential Development Impacts on Cultural Heritage Assets

5.4 Development on the Study Site will not impact on any designated archaeological assets.

5.5 Based on current evidence, this assessment has identified a moderate to high archaeological potential for Bronze Age and Iron Age occupation remains on the Study Site, a moderate potential for Neolithic remains, a low to moderate potential for Early Prehistoric remains and a low potential for all remaining past periods of human activity.

5.6 Any such remains, if present, are likely to be of overall low/local significance.

5.7 Past, post-depositional activity can be considered to have had a negative impact on any archaeological remains on the Study Site.

5.8 Following a programme of archaeological evaluation and mitigation where necessary (eg targeted excavation), development within the site is considered unlikely to result in a significant negative archaeological impact.

6 SUMMARY AND CONCLUSIONS

6.1 Land South of Henham Road, Elsenham, Essex has been assessed for its archaeological potential.

6.2 The Site is proposed for residential-led development.

6.3 In accordance with relevant government planning policy and guidance, a desk-based assessment has been undertaken to clarify the archaeological potential of the Site.

6.4 In terms of relevant designated archaeological assets, no World Heritage Sites, Scheduled Monuments, Historic Wreck or Historic Battlefield sites are present within the Study Site or its environs.

6.5 Geophysical survey of the Site in March 2022 identified a small number of anomalies of possible archaeological origin in the northern (upslope) portion of the Site. These are thought to be associated with a single ditch and a small number of possible pit-like features.

6.6 Based on current evidence, this assessment has identified a moderate to high archaeological potential for Bronze Age and Iron Age occupation remains on the Study Site, a moderate potential for Neolithic remains, a low to moderate potential for Early Prehistoric remains and a low potential for all remaining past periods of human activity.

6.7 Any such remains, if present, are likely to be of overall low/local significance.

6.8 Past, post-depositional activity can be considered to have had a negative impact on any archaeological remains on the Study Site.

6.9 A requirement for an archaeological investigation to define the presence, nature and significance of any archaeological deposits that may be present on the Site is anticipated by the Local Planning Authority's archaeological advisor.

6.10 It is suggested that any such archaeological investigation, if required by the Local Planning Authority, could follow planning permission secured by an appropriately worded planning condition.

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1777 Chapman and Andre Map of Essex

1840 Plan of the Parish of Elsenham, Tithe Map

1898 Ordnance Survey Map

1923 Ordnance Survey Map

1951 Ordnance Survey Map

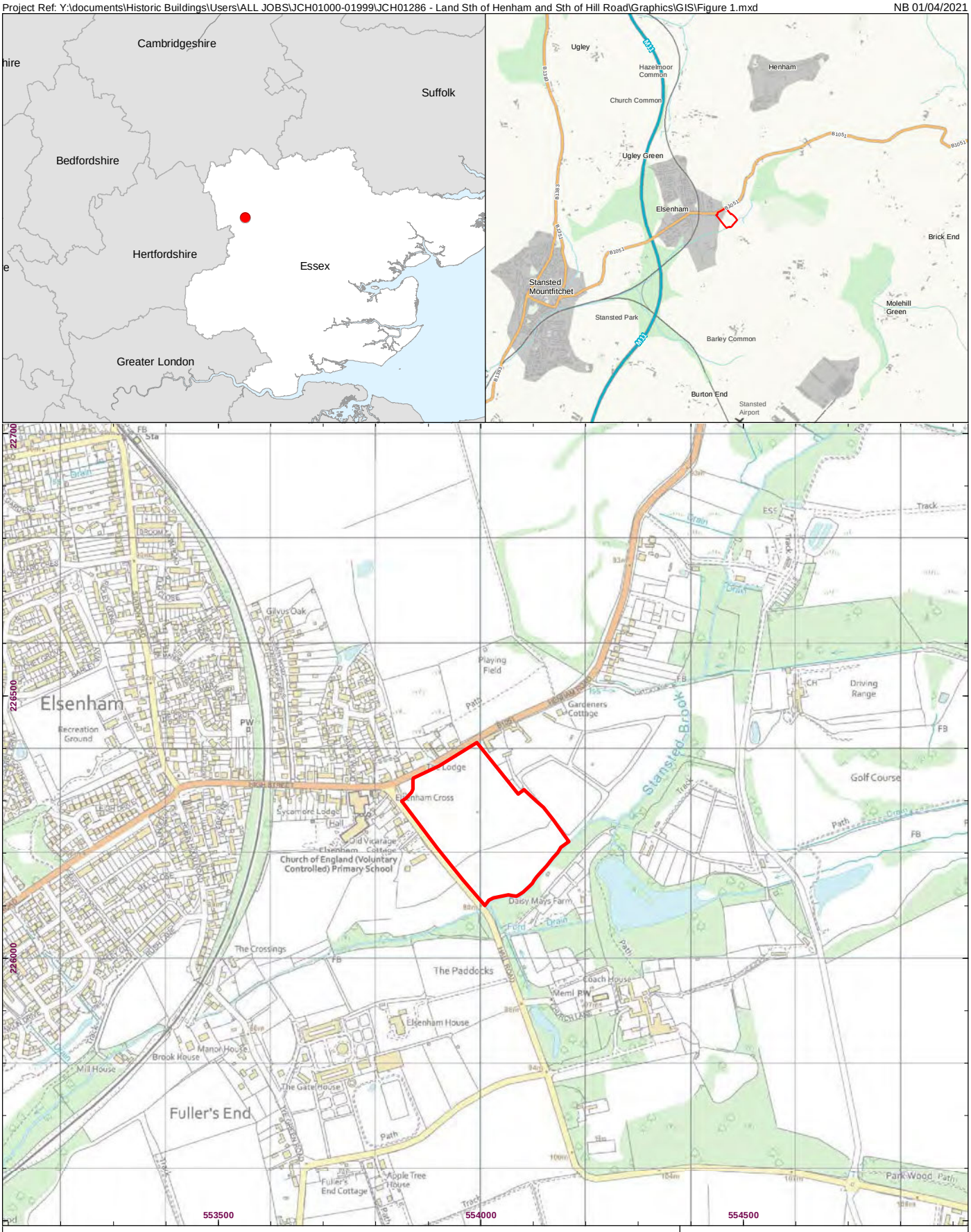
1982 Ordnance Survey Map

2020 Google Earth Image

2021 Ordnance Survey Map

1985-2020 Google Earth Image

FIGURES



Site Boundary

N

0 100 200m

Scale at A4: 1:10,000

MAKING COMPLEX EASY

Figure 1

Site Location

NB 08/07/2022

Legend

- Site Boundary
- 1km search radius

Non-designated Heritage Assets:

HER Record (point)

- HER Building
- Findspot
- Monument
- No Finds or Features
- PAS Findspot

HER Record (polygon)

- Findspot
- Monument
- No Finds or Features

Previous Archaeological Work:

- Event Record (point)
- Event Record (polygon)

N

0 100 200m

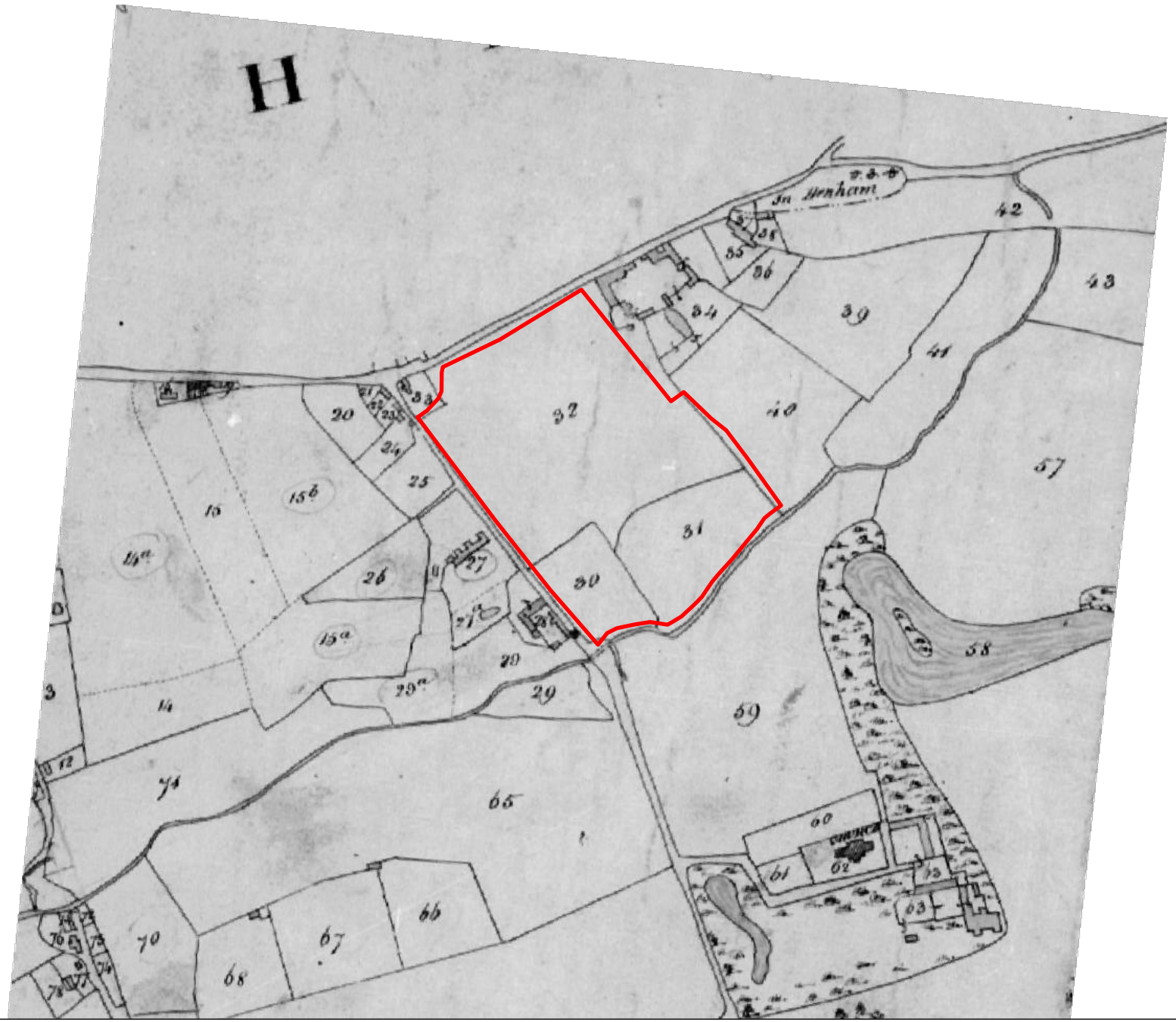
Scale at A3: 1:8,500

MAKING COMPLEX EASY

Figure 2:
HER Plot
(data from Essex HER)

Project Ref: M:\documents\Historic Buildings\Users\ALL JOBS\JCH\01000-01999\JCH01286 - Land Sth of Henham and Sth of Hill Road\Graphics\GIS\HER Plot.mxd

NB / 08/07/22



Site Boundary

N

0 50 100m

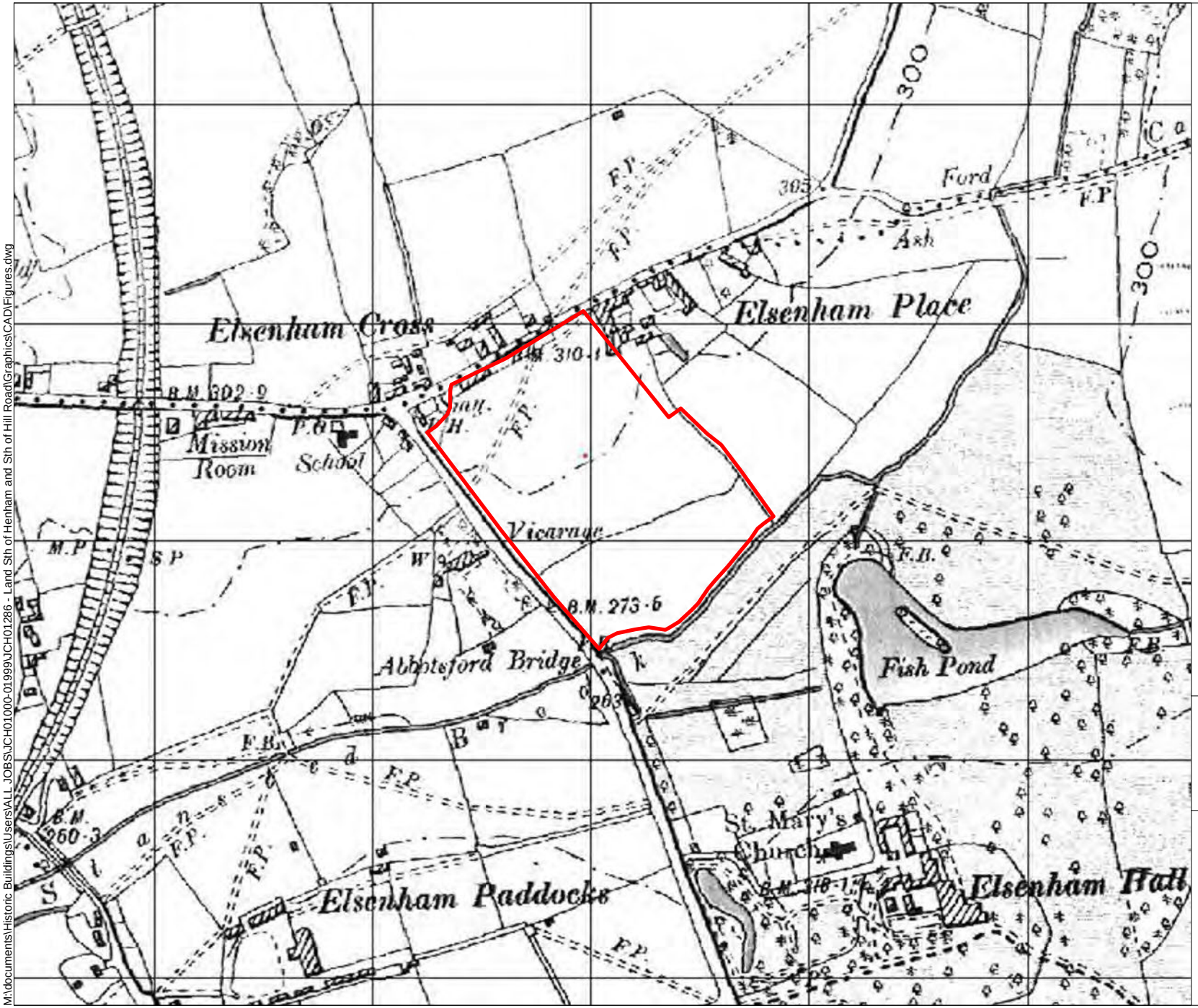
Scale at A4: 1:5,000

MAKING COMPLEX EASY

Figure 3:
1840 Plan of the Parish of Elsenham, Tithe Map

M:\documents\Historic Buildings\Users\ALL JOBS\JCH01000-01999\JCH01286 - Land Sth of Henham and Sth of Hill Road\Graphics\CAD\Figures.dwg

NB / 08/07/22



Site Boundary

N

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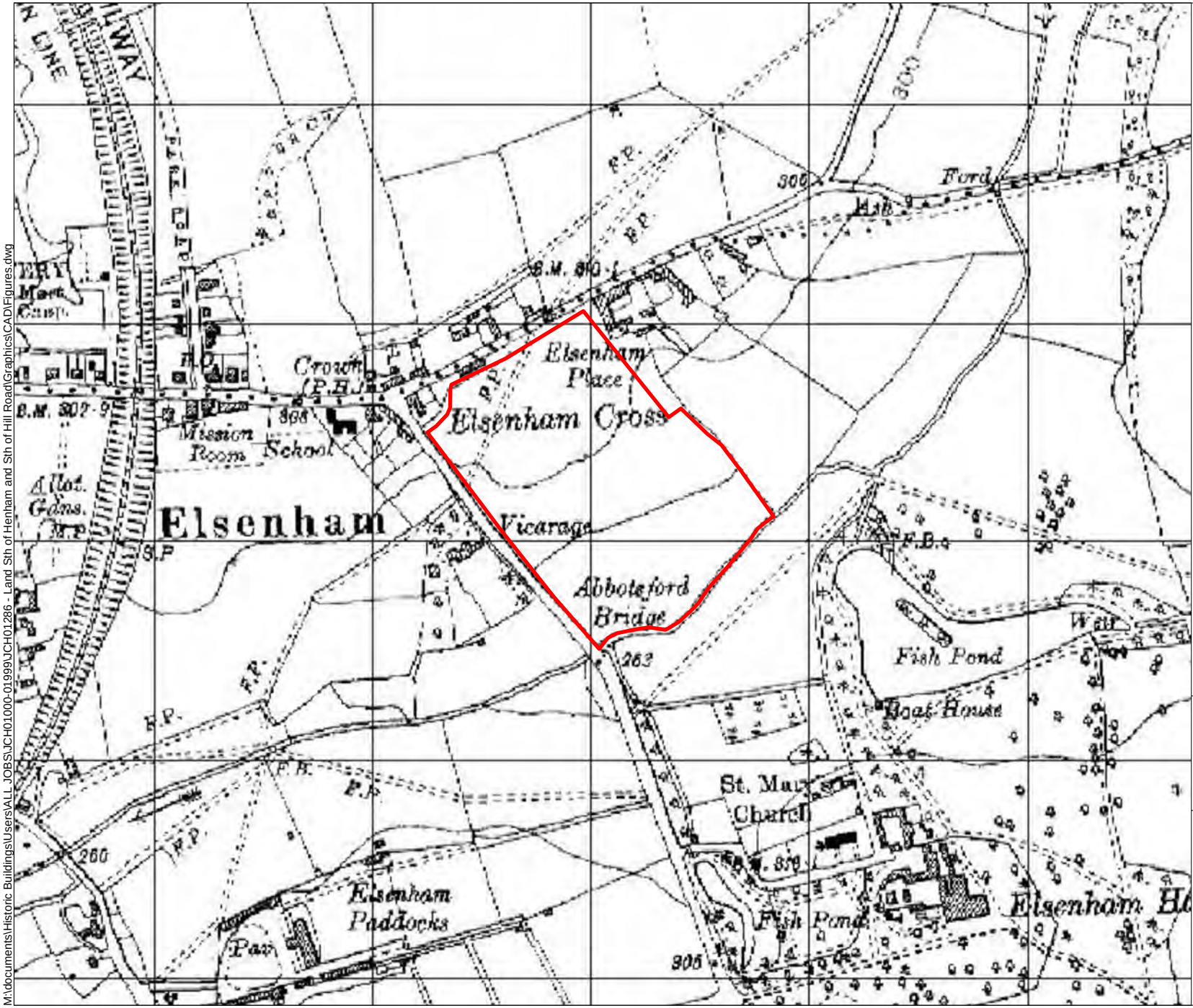
Scale at A4: 1:5,000

MAKING COMPLEX EASY

Figure 4:
1898 Ordnance Survey Map

M:\documents\Historic Buildings\Users\ALL JOBS\JCH01000-01999\JCH01286 - Land Sth of Henham and Sth of Hill Road\Graphics\CAD\Figures.dwg

NB / 08/07/22



Site Boundary

N

0 50 100m

Scale at A4: 1:5,000

MAKING COMPLEX EASY

Figure 5:
1923 Ordnance Survey Map

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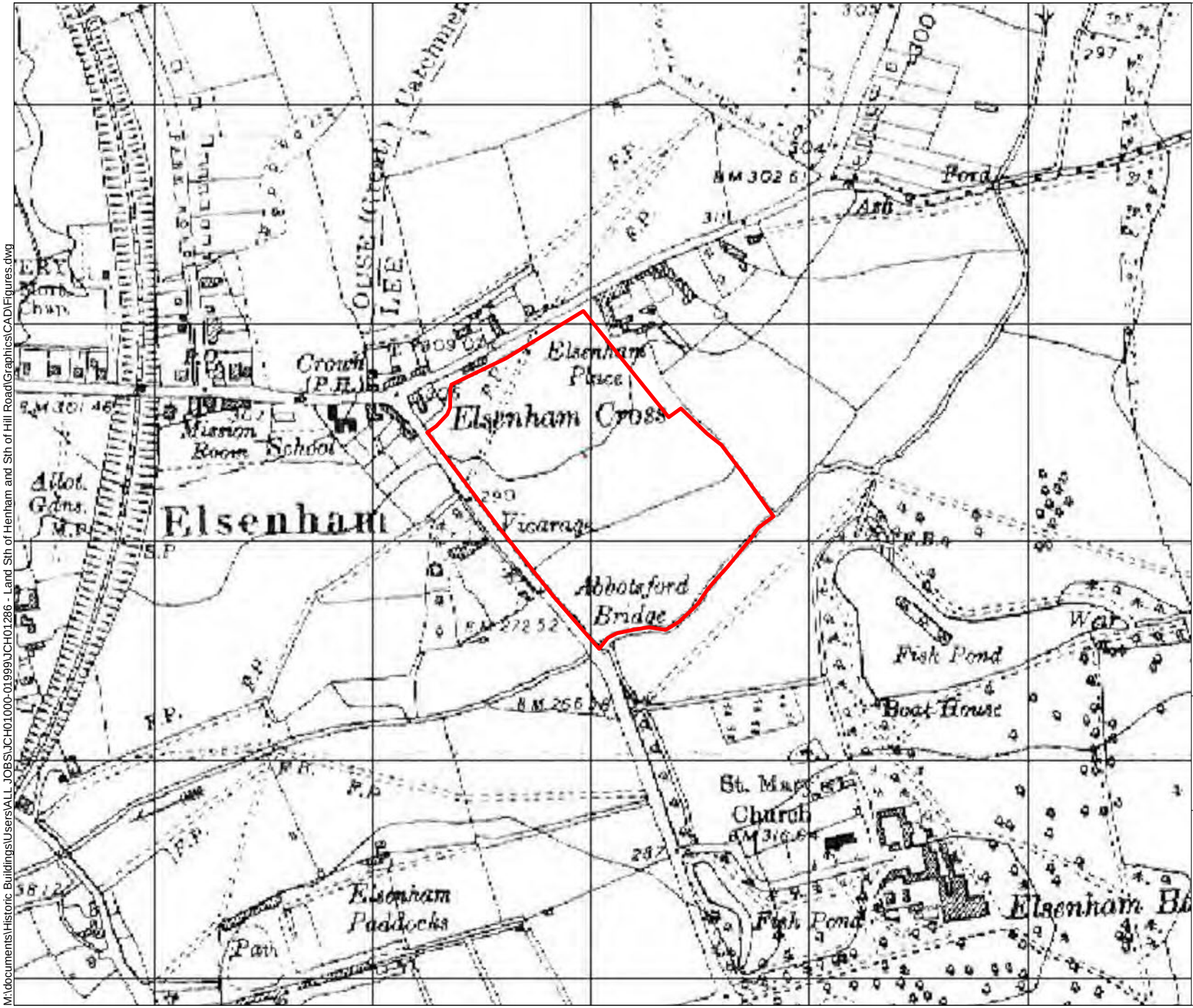
NB / 08/07/22



MAKING COMPLEX EASY

Figure 6:
1951 Ordnance Survey Map

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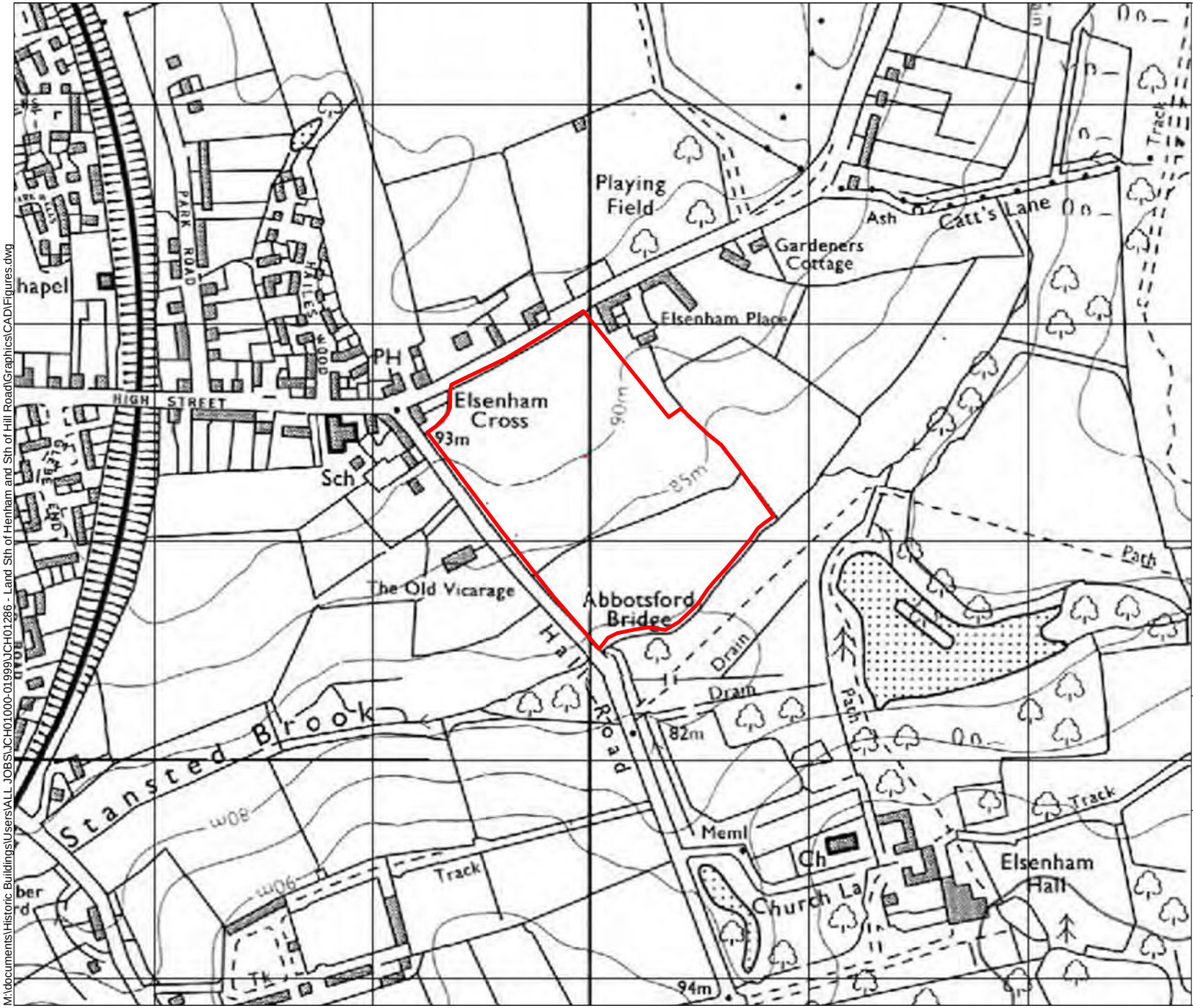
NB / 08/07/22



Site Boundary

N

0 50 100m

Scale at A4: 1:5,000

MAKING COMPLEX EASY

Figure 7:
1982 Ordnance Survey Map

M:\documents\Historic Buildings\Users\ALL JOBS\JCH\01000-01999\JCH01286 - Land Sth of Henham and Sth of Hill Road\Graphics\CAD\Figures.dwg

NB / 08/07/22

Site Boundary

N

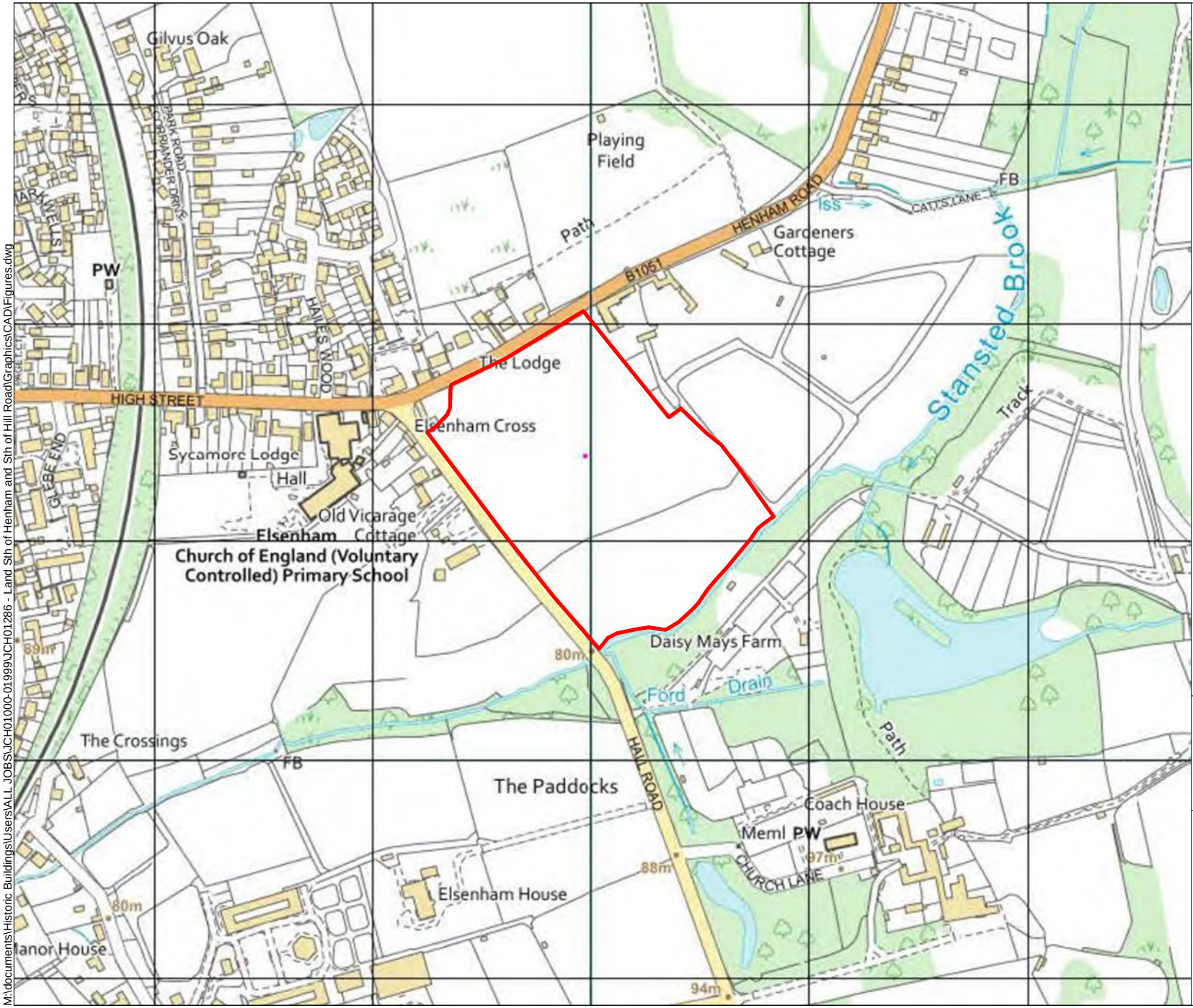
Not to Scale:
Illustrative Only

MAKING COMPLEX EASY

Figure 8:
2020 Google Earth Image

M:\documents\Historic Buildings\Users\ALL JOBS\JCH01000-01999\JCH01286 - Land Sth of Henham and Sth of Hill Road\Graphics\CAD\Figures.dwg

NB / 08/07/22



Site Boundary

N

0 50 100m

Scale at A4: 1:5,000

MAKING COMPLEX EASY

Figure 9:
2021 Ordnance Survey Map

M:\documents\Historic Buildings\Users\ALL JOBS\JCH01000-01999\JCH01286 - Land Sth of Henham and Sth of Hill Road\Graphics\CAD\Figures.dwg

APPENDICES

Land South of Henham Road, Elsenham, Essex

Detailed Gradiometer Survey Report

Ref: 261730.03
April 2022

wessexarchaeology

Portway House
Old Sarum Park
Salisbury
Wiltshire
SP4 6EB

Wessex Archaeology Ltd is a Registered Charity no. 287786 (England & Wales) and SC042630 (Scotland)

Document Information

Document title	Land South of Henham Road, Elsenham, Essex
Document subtitle	Detailed Gradiometer Survey Report
Document reference	261730.03

Client name	RPS Consulting Services Ltd
Address	20 Western Avenue Milton Park Abingdon Oxfordshire OX14 4SH

Site location	Henham Road, Elsenham
County	Essex
National grid reference	554000 226260 (TL 54005 26280)
Statutory designations	None
Planning authority	Uttlesford District County Council

WA project name	Elsenham, Essex
WA project code	261730
Date of fieldwork	29 March 2022
Fieldwork directed by	Pamela Warne
Project management by	Brett Howard
Document compiled by	Alastair Trace
Contributions from	Brett Howard and Cameron Ray
Graphics by	Alastair Trace

Quality Assurance

Issue	Date	Author	Approved by
1	25/04/2022	ADT	NLC [redacted]
2	25/04/2022	ADT	NLC

Contents

List of Figures

Summary

A detailed gradiometer survey was conducted over land to the south of Henham Road, Elsenham, Essex (centred on NGR 554000 226260). The project was commissioned by RPS Consulting Services Ltd with the aim of establishing the presence, or otherwise, and nature of detectable archaeological features in support of a planning application for the development of the site.

The site comprises of an arable field located to the south-east of the hamlet of Elsenham, 6 km north-east of Bishop Stortford, covering an area of 5.2 ha. The geophysical survey was undertaken on 29 March 2022.

The geophysical survey has identified a small number of anomalies of possible archaeological origin in the northern (upslope) portion of the site. This is thought to be associated with a single ditch and a small number of possible pit-like features.

In the centre of the site, a former field boundary was located, which is also recorded 1840 tithe mapping of the site. In addition, several linear trends to the north of this boundary may relate to lynchets, which share the same alignment, indicating that this area was likely subject to medieval and post-medieval agricultural practices.

Elsewhere across the site, variation in the superficial geology has been recorded. In the very south of the site, adjacent to Stansted Brook, these may relate, at least in part to alluvial sediments.

Two possible buried metallic features have been identified in the south of the site. These are of unknown origin but could relate to an unexploded bomb or modern metallic debris.

Acknowledgements

Wessex Archaeology would like to thank RPS Consulting Services Ltd for commissioning the geophysical survey. The assistance of Nikki Cook is gratefully acknowledged in this regard.

The fieldwork was undertaken by Pamela Warne and Callum Jervis. Brett Howard and Cameron Ray processed and interpreted the geophysical data and Alastair Trace wrote the report and produced the illustration. The geophysical data was quality controlled by Nicholas Crabb and the project was managed on behalf of Wessex Archaeology by Tom Richardson.

Land South of Henham Road, Elsenham, Essex

Detailed Gradiometer Survey Report

1 INTRODUCTION

1.1 Project background

1.1.1 Wessex Archaeology was commissioned by RPS Consulting Services Ltd to carry out a geophysical survey at land to the south of Henham Road, Elsenham, Essex (centred on NGR 554000 226260) (**Figure 1**). The survey forms part of an ongoing programme of archaeological works being undertaken in support of a planning application for a proposed residential development.

1.2 Scope of document

1.2.1 This report presents a brief description of the methodology followed by the detailed survey results and the archaeological interpretation of the geophysical data.

1.3 The site

1.3.1 The site is located east of the village of Elsenham and 6 km north-east of Bishop Stortford, in the county of Essex.

1.3.2 The survey comprises 5.2 ha of agricultural land, currently utilised for pasture. The site is bounded by Henham Road to the north, Hall Road to the west, with further agricultural land to the east and south.

1.3.3 The site is on an incline from 82 m above Ordnance Datum (aOD) at the southern edge to 94 m aOD at the northern edge.

1.3.4 The solid geology comprises Clay, Silt, and Sand of the Thanet Formation and Lambeth Group with overlying superficial deposits of Head comprising clay, silt, sand, and gravel in the south of the site (BGS 2022). Beyond the site to the south, Alluvium is also recorded adjacent to Stansted Brook.

1.3.5 The soils underlying the site are likely to consist of Eutric stagnosol soils of the 571o (Melford) association (SSEW SE Sheet 4 1983). Soils derived from such geological parent material have been shown to produce magnetic contrasts acceptable for the detection of archaeological remains through magnetometer survey.

2 ARCHAEOLOGICAL BACKGROUND

2.1 Introduction

2.1.1 The following historical and archaeological background has been compiled using publicly available online resources, combined with the results of Wessex Archaeology's previous investigations in the area, and in-house resources. In addition, a Built Heritage Assessment was prepared by RPS Consulting Services Ltd (2021), which considered Heritage Assets which have the potential to be impacted within a 1 km search radius of the site. Although not exhaustive the following information is summarised from aspects of this assessment as well as publicly available online resources, considered relevant to the interpretation of the geophysical survey data.

2.2 Summary of the archaeological resource

2.2.1 There are no scheduled monuments within the study area but there are 32 listed buildings. The only Grade I listed building is the Church of St Mary the Virgin, which was largely built in the 12th century and is 450m south-east of site (NHLE: 1112335). The church is thought to be constructed on the site of an earlier Saxon church due to a record from 1070 showing the gifting of the church as an endowment to the Abbey of St Stephen, at Caen in Normandy.

2.2.2 Most of the listed buildings surrounding the site are Grade II listed properties located on the outskirts of the village of Elsenham. These are predominantly adjacent to Tye Green Road to the west of the site and Henham Road to the north of the site. The closest example is directly east of the site where several properties are associated with Elsenham Place are located (NHLE: 112337). This includes the 16th to 17th century timber-framed house and barns (NHLE: 1171188) and Dovecote (NHLE: 1112338) to the west of the main house.

2.2.3 Directly north-west of the site, on the south-eastern boundary of Elsenham, are several further post-medieval listed buildings including an early 18th century timber-framed building at 1 and 2 The Cross (NHLE: 1322511). In addition, directly north of Henham Lane is 'The Lodge', which principally dates to the 17th century (NHLE: 1391101). The site is located immediately east of 'the Old Vicarage', which is a 19th century property.

2.2.4 The earliest records within the study area include the findspots of Lower Palaeolithic Levallois flints at Pledgdon Sandpit, 500 m north-east of the site. Several other Mesolithic and Neolithic flint artefacts have been recorded at this location, together with a 'pit dwelling' containing pottery and another pit containing a beaker.

2.2.5 A Neolithic axe was found whilst digging the garden of Elsenham place, although the exact location is not known. Excavations at land west of Hall Road revealed a late Neolithic/early Bronze Age curvilinear feature, believed to be a barrow. Further west of this, 1 km west of the site, a Bronze Age pit and 'battle-axe' has been located.

2.2.6 Within fields to the north-east of Elsenham, a series of cropmarks have been recorded, including a possible enclosure with a pit in the north corner. A geophysical survey carried out in 2012 confirmed the linear features and also indicated a possible ring ditch to the north of the cropmarks and a possible incomplete rectilinear enclosure.

2.2.7 There is Iron Age activity recorded at land at Stansted Road, on the western outskirts of Elsenham, in a trial-trench evaluation. Roman activity was also recorded but this appears to be limited to the presence of field boundaries within an agricultural landscape. Other linear features also likely to represent an agricultural landscape were undated and a single undated cremation burial was also recorded.

2.2.8 A possible round barrow at land west of Hall Road became the foci for a brief period of Saxon activity. Inhumations of the same date were also reportedly discovered within Pledgdon Sandpit.

2.2.9 There are numerous records pertaining to the medieval period surrounding the site, largely relating to agricultural landscape. However, a deserted medieval village has been posited surrounding the Church of St Mary the Virgin, as it is an isolated position on a hill.

2.2.10 Local knowledge has suggested the presence of an unexploded WWII bomb within the site. However there are no other records of this.

2.3 Recent investigations in the area

There have been a number of archaeological investigations within the vicinity of the site. The nearest is an archaeological evaluation comprising eight trial trenches, which was carried 200 m to the north of site on land adjacent with Hailes Wood, Elsenham (Morgan-Shelbourne 2015). The evaluation identified a single shallow north-east to south-west ditch which contained no finds. A single tree throw was also identified, which contained pottery and bone of medieval date.

3 METHODOLOGY

3.1 Introduction

3.1.1 The geophysical survey was undertaken by Wessex Archaeology's in-house geophysics team on 29 March 2022. Field conditions at the time of the survey were good throughout the period of survey. An overall coverage of 4.8 ha was achieved, due to the presence of trees across the centre of the site.

3.1.2 The methods and standards employed throughout the geophysical survey conform to current best practice, and guidance outlined by the Chartered Institute for Archaeologists' (CIfA 2014) and European Archaeologiae Consilium (Schmidt *et al.* 2015).

3.2 Aims and objectives

3.2.1 The aims of the survey comprise the following:

- To determine, as far as is reasonably possible, the nature of the detectable archaeological resource within a specified area using appropriate methods and practices; and
- To inform either the scope and nature of any further archaeological work that may be required; or the formation of a mitigation strategy (to offset the impact of the development on the archaeological resource); or a management strategy.

3.2.2 In order to achieve the above aims, the objectives of the geophysical survey are:

- To conduct a geophysical survey covering as much of the specified area as possible, allowing for on-site obstructions;
- To clarify the presence/absence of anomalies of archaeological potential; and
- Where possible, to determine the general nature of any anomalies of archaeological potential.

3.3 Fieldwork methodology

3.3.1 The cart-based gradiometer system used a Leica Captivate RTK GNSS instrument, which receives corrections from a network of reference stations operated by the Ordnance Survey (OS) and Leica Geosystems. Such instruments allow positions to be determined with a precision of 0.02 m in real-time and therefore exceeds European Archaeologiae Consilium recommendations (Schmidt *et al.* 2015).

3.3.2 The detailed gradiometer survey was undertaken using four SenSys FGM650/3 magnetic gradiometers spaced at 1 m intervals and mounted on a non-magnetic cart towed by an ATV. Data were collected with an effective sensitivity of ±8 µT over ±1000 nT range at a rate of 100 Hz, producing intervals of 0.02 m along transects spaced 4 m apart.

3.4 Data processing

3.4.1 Data from the survey were subjected to minimal correction processes. These comprise a 'Destripe' function (±5 nT thresholds), applied to correct for any variation between the sensors, and an interpolation used to grid the data and discard overlaps where transects have been collected too close together.

3.4.2 Further details of the geophysical and survey equipment, methods and processing are described in **Appendix 1**.

4 GEOPHYSICAL SURVEY RESULTS AND INTERPRETATION

4.1 Introduction

4.1.1 The detailed gradiometer survey has identified magnetic anomalies across the site, as well as a selection of linear trends and large ferrous anomalies. Results are presented as a greyscale plot and archaeological interpretation at a scale of 1:2000 (**Figures 2** to **3**). The data are displayed at -2 nT (white) to +3 nT (black) for the greyscale image.

4.1.2 The interpretation of the datasets highlights the presence of potential archaeological anomalies, ferrous responses, burnt or fired objects, and magnetic trends (**Figure 3**). Full definitions of the interpretation terms used in this report are provided in **Appendix 2**.

4.1.3 Numerous ferrous anomalies are visible throughout the dataset. These are presumed to be modern in provenance and are not referred to, unless considered relevant to the archaeological interpretation.

4.1.4 It should be noted that small, weakly magnetised features may produce responses that are below the detection threshold of magnetometers. It may therefore be the case that more archaeological features may be present than have been identified through geophysical survey.

4.1.5 Gradiometer survey may not detect all services present on site. This report and accompanying illustrations should not be used as the sole source for service locations and appropriate equipment (e.g. CAT and Genny) should be used to confirm the location of buried services before any trenches are opened on site.

4.2 Gradiometer survey results and interpretation

4.2.1 The geophysical survey has not identified any features that can be confidently associated with archaeological remains. The only anomaly of possible archaeological origin is in the northern portion of the site, where a north – south aligned positive sinuous anomaly has been recorded at **4000**. This is 3 m wide and may relate to a ditch feature of unknown date. However, the poorly defined nature suggests that this could equally be natural in origin.

4.2.2 To the west of **4000**, and across the northern portion of the site, there are a small number of discrete positive anomalies. These are 2 – 3 m in diameter and could relate to pit-like features. They are not positioned in an easily observable arrangement, so it is also possible that they relate to natural undulation in the underlying bedrock.

4.2.3 A faint negative linear anomaly has been identified centrally bisecting the site, on an ENE to WSW east orientation at **4001**. The anomaly relates to a former field boundary, that is still partially present on site. The weak and fragmented nature of the anomaly suggests any remains are poorly preserved and likely damaged by modern agricultural practices. The boundary is recorded on the 1840 Elsenham Tithe Map and is still present on 1696 OS mapping. According to digital satellite mapping, the boundary appears to start being broken up in 2000.

4.2.4 Protruding into the site from the northern portion of the site is a weakly positive linear trend at **4002**. As this is parallel with the existing field boundaries, it is most likely related to agricultural activity, but it is not possible to rule out an archaeological origin.

4.2.5 In the northern half of the survey area, two weakly positive linear anomalies have been identified on an approximate ENE to WSW alignment at **4003** – **4004**. Given their weak magnetic signature and roughly linear form they could be associated with shallow ditch-like features. As they are positioned perpendicular to the direction of the slope, and on the same alignment as **4001**, they could be associated with lynchets relating to further former field divisions.

4.2.6 In the southernmost portion of the site, there is an area of slightly increased positive and negative magnetic response at **4005**. This is likely associated with variation in the superficial geology of this part of the site. As this is located directly north of Stansted Brook, this may be associated with the deposition of alluvium. However, Head deposits are recorded within this part of the site so they may equally have been deposited through colluvial slope processes.

4.2.7 There are two large ferrous anomalies in the southern portion of the site and **4006** and **4007**. There are no clear surface features that these relate to, so it is considered that they likely relate to buried metallic objects. While it is possible that either of these could relate to an unexploded WWII bomb at depth, they could equally relate to shallow pieces of debris from farming machinery or other modern activity.

5 DISCUSSION

5.1.1 The geophysical survey has not identified any anomalies that can confidently be interpreted as archaeology. A small number of anomalies of possible archaeological origin have been identified in the northern (upslope) portion of the site. These are thought to be associated with a single linear ditch and a small number of pit-like features of uncertain origin.

5.1.2 In the centre of the site, a former field boundary has been identified, which is also recorded on 1840 tithe mapping of the site. However, according to satellite imagery, it appears that the boundary began to be broken up in 2000 and some trees and hedgerows are still present on site today. In addition, several linear trends to the north of this boundary may relate to lynchets, which share the same alignment, indicating that this area was likely subject to medieval and post-medieval agricultural practices.

5.1.3 Elsewhere across the site, variation in the superficial geology has been recorded. In the very south of the site, adjacent to Stansted Brook, these may relate, at least in part, to alluvial sediments. Whilst these deposits are not considered to be of specific archaeological significance, they can bury and preserve archaeological features and palaeoenvironmental material.

5.1.4 Two possible buried metallic features have been identified in the south of the site. These are of unknown origin but could relate to an unexploded bomb or modern metallic debris.

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APPENDICES

Appendix 1: Survey Equipment and Data Processing

Survey methods and equipment

The magnetic data for this project were acquired using a Bartington 601-2 dual magnetic gradiometer system. This instrument has two sensor assemblies fixed horizontally 1 m apart allowing two traverses to be recorded simultaneously. Each sensor contains two fluxgate magnetometers arranged vertically with a 1 m separation and measures the difference between the vertical components of the total magnetic field within each sensor array. This arrangement of magnetometers suppresses any diurnal or low frequency effects.

The gradiometers have an effective resolution of 0.03 nT over a ±100 nT range, and measurements from each sensor are logged at intervals of 0.25 m. All data are stored on an integrated data logger for subsequent post-processing and analysis.

Wessex Archaeology undertakes two types of magnetic surveys: scanning and detail. Both types depend upon the establishment of an accurate 20 m or 30 m site grid, which is achieved using a Leica Viva RTK GNSS instrument and then extended using tapes. The Leica Viva system receives corrections from a network of reference stations operated by the Ordnance Survey and Leica Geosystems, allowing positions to be determined with a precision of 0.02 m in real-time and therefore exceed the level of accuracy recommended by European Archaeologiae Consilium (Schmidt *et al.* 2015) for geophysical surveys.

Scanning surveys consist of recording data at 0.25 m intervals along transects spaced 10 m apart, acquiring a minimum of 80 data points per transect. Due to the relatively coarse transect interval, scanning surveys should only be expected to detect extended regions of archaeological anomalies, when there is a greater likelihood of distinguishing such responses from the background magnetic field.

The detailed surveys consist of 20 m x 20 m or 30 m x 30 m grids, and data are collected at 0.25 m intervals along traverses spaced 1m apart. These strategies give 1600 or 3600 measurements per 20 m or 30 m grid respectively and are the recommended methodologies for archaeological surveys of this type (Schmidt *et al.* 2015).

Data may be collected with a higher sample density where complex archaeological anomalies are encountered, to aid the detection and characterisation of small and ephemeral features. Data may be collected at up to 0.125 m intervals along traverses spaced up to 0.25 m apart, resulting in a maximum of 28800 readings per 30 m grid, exceeding that recommended by European Archaeologiae Consilium recommendations (Schmidt *et al.* 2015) for characterisation surveys.

Post-processing

The magnetic data collected during the detail survey are downloaded from the Bartington system for processing and analysis using both commercial and in-house software. This software allows for both the data and the images to be processed in order to enhance the results for analysis; however, it should be noted that minimal data processing is conducted so as not to distort the anomalies.

As the scanning data are not as closely distributed as with detailed survey, they are georeferenced using the GPS information and interpolated to highlight similar anomalies in adjacent transects. Directional trends may be removed before interpolation to produce more easily understood images.

Typical data and image processing steps may include:

- Destripe – Applying a zero-mean traverse in order to remove differences caused by directional effects inherent in the magnetometer;

- Destagger – Shifting each traverse longitudinally by a number of readings. This corrects for operator errors and is used to enhance linear features;

- Despike – Filtering isolated data points that exceed the mean by a specified amount to reduce the appearance of dominant anomalous readings (generally only used for earth resistance data)

Typical displays of the data used during processing and analysis:

- Greyscale – Presents the data in plan view using a greyscale to indicate the relative strength of the signal at each measurement point. These plots can be produced in colour to highlight certain features but generally greyscale plots are used during analysis of the data.

- XY Plot – Presents the data as a trace or graph line for each traverse. Each traverse is displaced down the image to produce a stacked profile effect. This type of image is useful as it shows the full range of individual anomalies.

Appendix 2: Geophysical Interpretation

The interpretation methodology used by Wessex Archaeology separates the anomalies into four main categories: archaeological, modern, agricultural, and uncertain origin/geological.

The archaeological category is used for features when the form, nature and pattern of the anomaly are indicative of archaeological material. Further sources of information such as aerial photographs may also have been incorporated in providing the final interpretation. This category is further sub-divided into three groups, implying a decreasing level of confidence:

- Archaeology – used when there is a clear geophysical response and anthropogenic pattern.

- Possible archaeology – used for features which give a response, but which form no discernible pattern or trend.

The modern category is used for anomalies that are presumed to be relatively modern in date:

- Ferrous – used for responses caused by ferrous material. These anomalies are likely to be of modern origin.

- Modern service – used for responses considered relating to cables and pipes; most are composed of ferrous/ceramic material although services made from non-magnetic material can sometimes be observed.

The agricultural category is used for the following:

- Former field boundaries – used for ditch sections that correspond to the position of boundaries marked on earlier mapping.

- Ridge and furrow – used for broad and diffuse linear anomalies that are considered to indicate areas of former ridge and furrow.

- Ploughing – used for well-defined narrow linear responses, usually aligned parallel to existing field boundaries.

- Drainage – used to define the course of ceramic field drains that are visible in the data as a series of repeating bipolar (black and white) responses.

The uncertain origin/geological category is used for features when the form, nature and pattern of the anomaly are not sufficient to warrant a classification as an archaeological feature. This category is further sub-divided into:

- Increased magnetic response – used for areas dominated by indistinct anomalies which may have some archaeological potential.

- Trend – used for low amplitude or indistinct linear anomalies.

- Superficial geology – used for diffuse edged spreads considered to relate to shallow geological deposits. They can be distinguished as areas of positive, negative, or broad bipolar (positive and negative) anomalies.

Appendix 3: OASIS form

Project Details:

Project name		Land South of Henham Road			
Type of project		Detailed gradiometer survey (Field evaluation)			
Project description		The geophysical survey has identified a small number of anomalies of potential archaeological interest in the northern (upslope) portion of the site. This is thought to be associated with a single linear ditch and a small number of possible pit-like features of uncertain origin. Given the wide-ranging evidence recorded within the vicinity of the site, these features could date from the Neolithic to the Medieval period. In the centre of the site, a former field boundary was located, which is also recorded 1840 tithe mapping of the site. However, according to satellite imagery, it appears that the boundary began to be broken up in 2000 and some trees and hedgerows are still present on site today. In addition, several linear trends to the north of this boundary may relate to lynchets, which share the same alignment, indicating that this area was likely subject to medieval and post-medieval agricultural practices. Elsewhere across the site, variation in the superficial geology has been recorded. In the very south of the site, adjacent to Stansted Brook, these may relate, at least in part to alluvial sediments. Whilst these deposits are not considered to be of specific archaeological significance, they can bury and preserve archaeological features and palaeoenvironmental material.			
Project dates		**Start:** 29-03-2022		**End:** 29-03-2022	
Previous work		n/a			
Future work		n/a			
Project Code:	261730	**HER event no.**	If relevant	**OASIS form ID:**	wessexar1-506113
		NMR no.	N/A		
		SM no.	N/A		
Planning Application Ref.					
Site Status		None			
Land use		Agricultural land			
Monument type		N/A	**Period**	n/a	

Project Location:

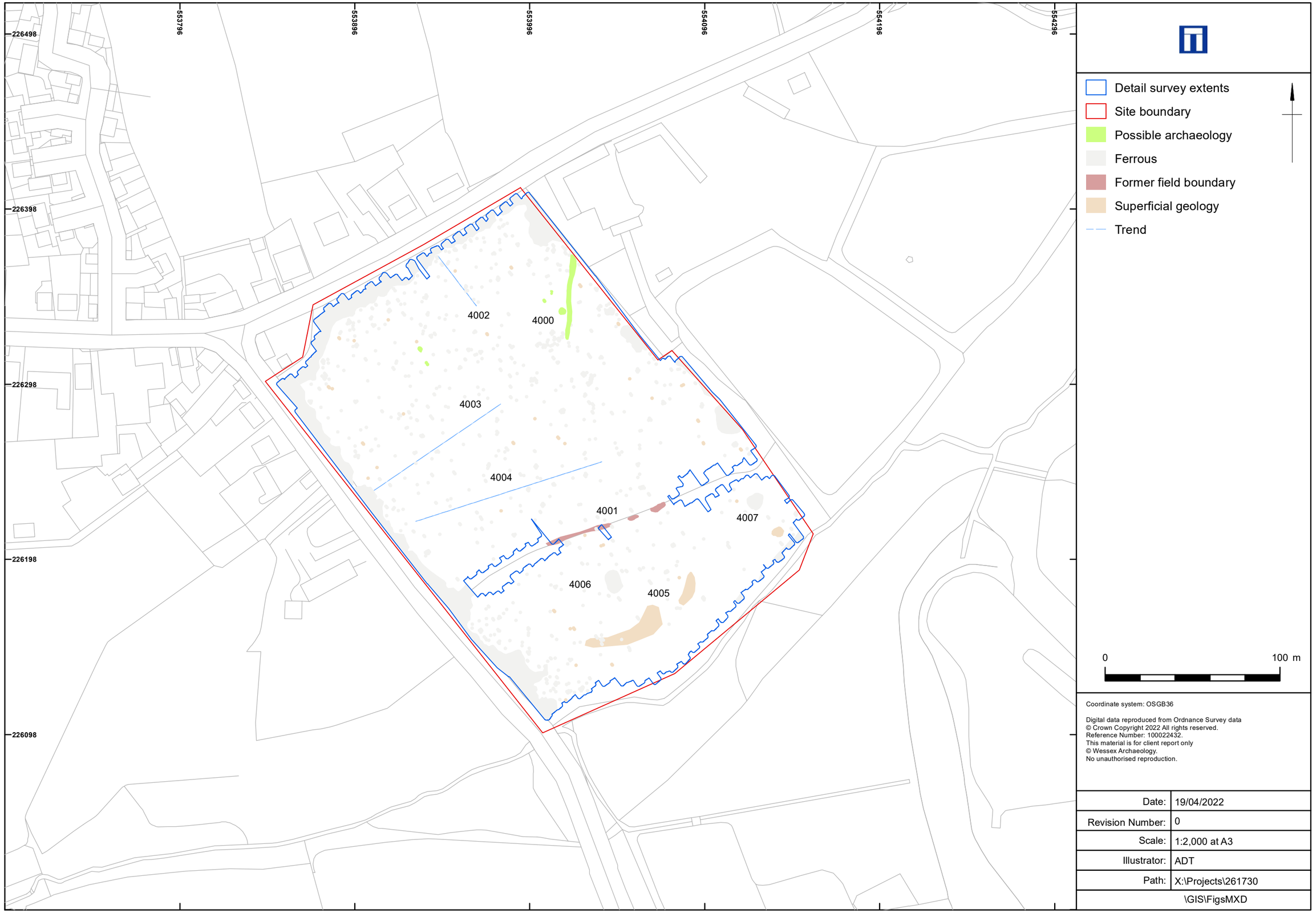
Site Address				**Postcode**	CM22 6DG
County	Essex	**District**	Uttesford	**Parish**	Elsenham
Study Area	5.2 ha	**Height OD**	82- 94 m aOD	**NGR**	TL 54000 26260

Project Creators:

Name of Organisation	Wessex Archaeology		
Project brief originator	Client	**Project design originator**	Wessex archaeology
Project Manager	Tom Richardson	**Project Supervisor**	Pamela Warne
Sponsor or funding body	Client	**Type of Sponsor**	Client

Project Archive and Bibliography:

Physical archive	N/A	**Digital Archive**	Geophysical survey and report	**Paper Archive**	N/A
Report title	Land South of Henham Road			**Date**	2022
Author	Wessex Archaeology	**Description**	Unpublished report	**Report ref.**	261730.03



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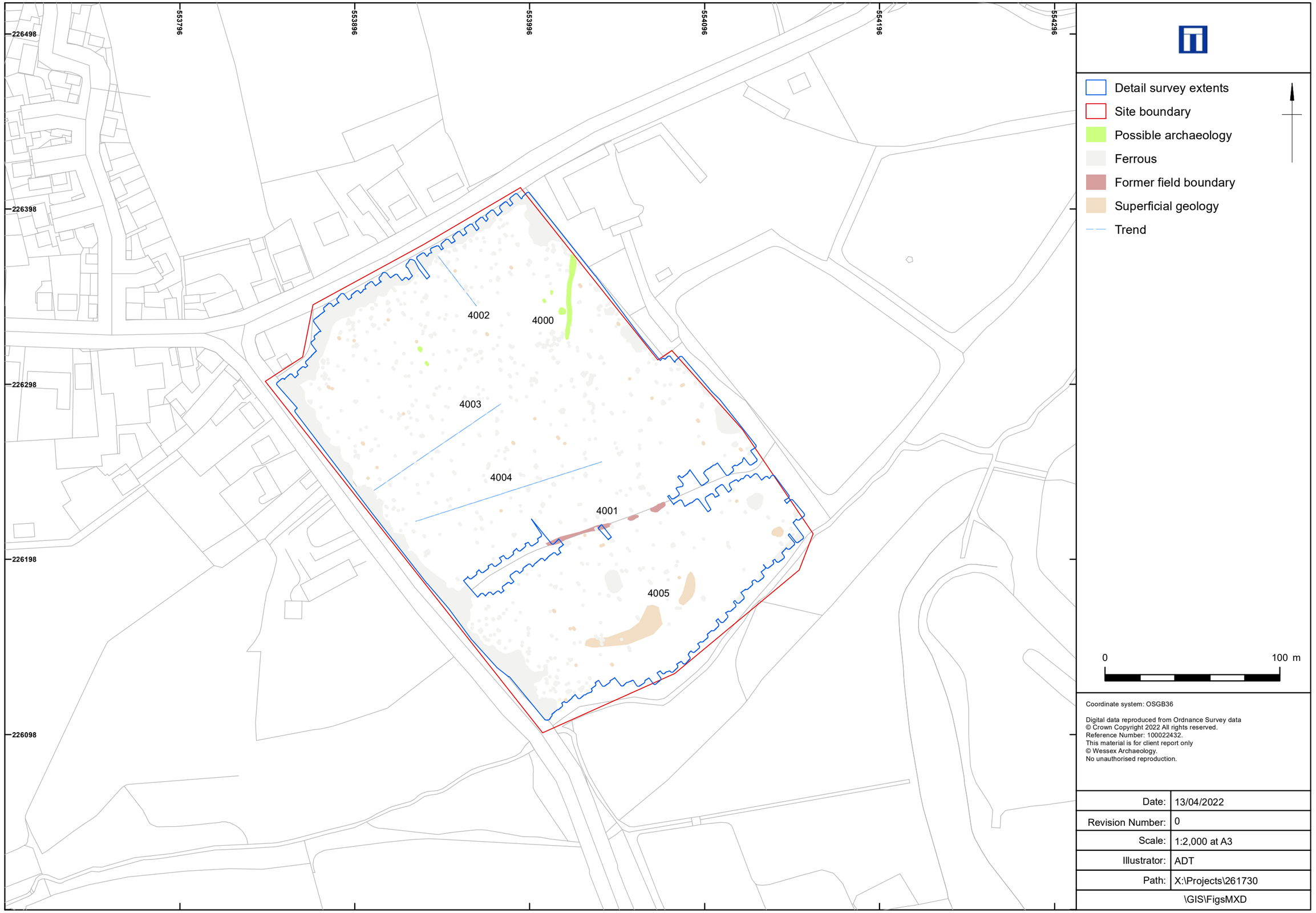
Detailed gradiometer survey results: interpretation plot

Figure 3



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Detailed gradiometer survey results: interpretation plot

Figure 3

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