



**ARCHAEOLOGICAL
DESK-BASED
ASSESSMENT**

**WHITE CROSS FARM
WALLINGFORD
OXFORDSHIRE**

Planning • Heritage

Specialist & Independent Advisors to the Property Industry

APRIL 2016

**Planning Authority:
SOUTH OXFORDSHIRE
DISTRICT COUNCIL**

**Site centred at:
NGR 460500, 187689**

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N.B. The illustrations are not to scale

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Executive Summary

This archaeological desk-based assessment has been prepared on behalf of Greenfield Associates. It assesses an area of land being considered for sand and gravel extraction at White Cross Farm, Wallingford. The study site measures approximately 17.5ha in area, and is centred on NGR 460500, 187689.

This desk-based assessment has established that no designated archaeological heritage assets lie within, or in the immediate proximity of the study site, such that the proposed extraction and processing plant would result in any harm to their significance or setting.

Recent geophysical survey of the study site has identified no evidence for any significant archaeological activity. Given the proven effectiveness of this technique in identifying Prehistoric and Roman activity in the immediate surrounding, a high degree of confidence is given to these results. Based on current evidence, this assessment has identified a low potential for significant archaeological activity of all periods to be present within the proposed extraction site.

Although a potential for discrete, low-level Prehistoric activity may remain within the study site, given the general level of known activity in the surrounding area, it is anticipated that should archaeological deposits be present within the study site, they would not be of such significance to preclude extraction. Activity within the study site may be predominantly confined to that of former agricultural practices of local significance.

In line with the NPPF and local plan policy, this archaeological assessment and the results of the geophysical survey provide the sufficient level of information to determine an application for proposed mineral extraction. It is considered that any further archaeological evaluation and/or mitigation required could be secured by a suitably worded condition to planning consent.

1.0 INTRODUCTION AND SCOPE OF STUDY

- 1.1 This archaeological desk-based assessment has been researched and prepared by Emily Plunkett and Hannah Smalley of CgMs Consulting for Greenfield Associates.
- 1.2 The assessment considers land at White Cross Farm, Wallingford, Oxfordshire, which is being considered for mineral extraction and would be subsequently reinstated as a marina (Fig. 1). The potential extraction site and proposed plant area (hereafter referred to as the study site) comprises agricultural land to the west of the River Thames, measuring 17.5ha in area and centred at NGR 460500, 187689.
- 1.3 This assessment considers archaeological heritage assets only. A separate report assesses built heritage assets (including listed buildings, Registered Parks and Gardens and Conservation Areas) in relation to the proposed scheme (CgMs 2016).
- 1.4 In accordance with government policy on archaeology and planning (Section 12 of the National Planning Policy Framework) and local policies, 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 Additionally, in accordance with the Standard and Guidance for Historic Environment Desk-Based Assessment (Chartered Institute for Archaeologists 2014), the assessment includes the results of a site inspection, an examination of published and unpublished records and charts historic land-use through a map regression exercise. This assessment also incorporates the results of a geophysical survey commissioned to inform this study.
- 1.6 As a result, the assessment enables relevant parties to assess the significance of heritage/archaeological assets on and close to the study site and assesses the potential for hitherto undiscovered archaeological assets, thus enabling potential impacts on assets to be identified along with the need for design, civil engineering or archaeological solutions.

2.0 RELEVANT STATUTORY AND PLANNING POLICY FRAMEWORK

2.1 Statutory Framework

Ancient Monuments & Archaeological Areas Act 1979

- 2.1.1 The Ancient Monuments & Archaeological Areas Act 1979 (as amended) protects the fabric of Scheduled Monuments, but does not afford statutory protection to their settings. Relevant policies relating to the protection of the setting of scheduled monuments are contained within national and local development plan policy, and guidance published by English Heritage for assessing and managing change within the setting of heritage assets is set out in 'The Setting of Heritage Assets' (Historic England 2015).

2.2 Policy Background

National Planning Policy Framework (NPPF)

- 2.2.1 In March 2012, the government published the National Planning Policy Framework (NPPF).
- 2.2.2 Section 12 of the NPPF, entitled Conserving and enhancing the historic environment provides policy for planning authorities, property owners, developers and others on the conservation and investigation of heritage assets. Overall, the objectives of Section 12 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 contributes to our knowledge and understanding of the past.
- 2.2.3 Section 12 of the NPPF recognises that intelligently managed change may sometimes be necessary if heritage assets are to be maintained for the long term. Paragraph 128 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.

- 2.2.4 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 (including local listing).
- 2.2.5 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. Heritage assets with archaeological interest are the primary source of evidence about the substance and evolution of places, and of the people and cultures that made them.
- 2.2.6 A Designated Heritage Asset comprises a: World Heritage Site, Scheduled Monument, Listed Building, Protected Wreck Site, Registered Park and Garden, Registered Battlefield or Conservation Area.
- 2.2.7 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.
- 2.2.8 'Historic environment' is defined as: all aspects of the environment resulting from the interaction between people and places through time, including all surviving physical remains of past human activity, whether visible, buried, submerged, and landscaped and planted or managed flora (Annex 2 of NPPF).
- 2.2.9 Paragraphs 128-132 of the NPPF set out the approach to be adopted for assessing heritage assets in order that their significance, the impact of proposed development on that significance and the need to avoid or minimise conflict between a heritage asset's conservation and proposed development, can be understood.
- 2.2.10 In specific relation to designated heritage assets paragraph 133 of the NPPF states that, where a proposed development will lead to substantial harm to or total loss of significance of a designated heritage asset, local planning authorities should refuse consent, unless it can be demonstrated that the substantial harm

or loss is necessary to achieve substantial public benefits that outweigh that harm or loss, or all of the following apply:

- the nature of the heritage asset prevents all reasonable uses of the site; and
- no viable use of the heritage asset itself can be found in the medium term through appropriate marketing that will enable its conservation; and
- conservation by grant-funding or some form of charitable or public ownership is demonstrably not possible; and the harm or loss is outweighed by the benefit of bringing the site back into use.

2.2.11 Paragraph 134 states that, where a development proposal will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal, including securing its optimum viable use.

2.2.12 Paragraph 135 states that, the effect of an application on the significance of a non-designated heritage asset should be taken into account in determining the application. In weighing applications that affect directly or indirectly non-designated heritage assets, a balanced judgement will be required having regard to the scale of any harm or loss and the significance of the heritage assets.

2.2.13 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.

Local Planning Policy

2.2.14 The current Minerals and Waste Local Plan was adopted in July 1996 and covered the period to 2006. Forty-six policies in the Minerals and Waste Local Plan have been 'saved' in order to avoid a gap in planning policy for minerals and waste development while the new Minerals and Waste Plan is developed. Saved policies relating to the Historic Environment are as follows:

**PE8
BEFORE DETERMINING AN APPLICATION FOR MINERAL EXTRACTION
THE COUNTY COUNCIL WILL NORMALLY REQUIRE THE APPLICANT TO
CARRY OUT A PRELIMINARY ARCHAEOLOGICAL ASSESSMENT TO
DETERMINE THE NATURE AND SIGNIFICANCE OF ANY
ARCHAEOLOGICAL REMAINS. THE COUNTY COUNCIL MAY, SUBJECT**

TO THE RESULTS OF THIS INITIAL ASSESSMENT REQUIRE AN ARCHAEOLOGICAL FIELD EVALUATION OF THE SITE TO DETERMINE THE APPROPRIATE MEANS FOR MITIGATING THE IMPACT OF EXTRACTION ON THE ARCHAEOLOGICAL RESOURCE.

PE9

SCHEDULED ANCIENT MONUMENTS, OTHER ARCHAEOLOGICAL REMAINS OF NATIONAL IMPORTANCE AND THEIR SETTINGS SHOULD BE PRESERVED IN SITU.

FOR ALL OTHER REMAINS OF IMPORTANCE PRESERVATION IN SITU WILL BE PREFERRED. WHERE THIS IS NOT APPROPRIATE AND FOR ALL OTHER REMAINS, ADEQUATE PROVISION SHOULD BE MADE FOR THEIR EXCAVATION AND RECORDING. THIS POLICY APPLIES TO ALL REMAINS, INCLUDING THOSE NOT REVEALED BY POLICY PE8.

- 2.2.15 A new Minerals and Waste Local Plan for Oxfordshire is being developed in two parts; core strategy and site allocations. It will replace the current planning policy contained in the Minerals and Waste Local Plan (1996). Part 1: the Core Strategy was published in August 2015 for pre-submission consultation and on 30th December 2015 it was submitted to the government for independent examination. The Inspector's report is expected to be received in August 2016. Provided the Core Strategy has been found to be legally compliant and 'sound', the council will then adopt it. This is expected to be in November 2016. Emerging policy relating to the Historic Environment and archaeology is as follows:

**POLICY C9: HISTORIC ENVIRONMENT AND ARCHAEOLOGY
PROPOSALS FOR MINERALS AND WASTE DEVELOPMENT WILL NOT BE PERMITTED UNLESS IT IS DEMONSTRATED, INCLUDING WHERE NECESSARY THROUGH PRIOR INVESTIGATION, THAT THEY OR ASSOCIATED ACTIVITIES WILL NOT HAVE AN UNACCEPTABLE ADVERSE IMPACT ON THE HISTORIC ENVIRONMENT.**

GREAT WEIGHT WILL BE GIVEN TO THE CONSERVATION OF DESIGNATED HERITAGE ASSETS: BLENHEIM PALACE WORLD HERITAGE SITE; SCHEDULED MONUMENTS; LISTED BUILDINGS; CONSERVATION AREAS; HISTORIC BATTLEFIELDS; REGISTERED PARKS AND GARDENS; AND NON-DESIGNATED ARCHAEOLOGICAL ASSETS WHICH ARE DEMONSTRABLY OF EQUIVALENT SIGNIFICANCE TO A SCHEDULED MONUMENT; AND THE SETTING OF THOSE ASSETS.

WHERE AN APPLICATION WOULD AFFECT A NON-DESIGNATED HERITAGE ASSET, THE BENEFITS OF THE PROPOSAL WILL BE BALANCED AGAINST THE SCALE OF HARM TO OR LOSS OF THE HERITAGE ASSET AND ITS SIGNIFICANCE.

WHERE, FOLLOWING ASSESSMENT OF AN APPLICATION, THE LOSS (WHOLLY OR IN PART) OF A HERITAGE ASSET IS CONSIDERED ACCEPTABLE IN PRINCIPLE, THE APPLICANT WILL BE REQUIRED TO RECORD AND ADVANCE UNDERSTANDING OF THAT ASSET, PROPORTIONATE TO THE NATURE AND LEVEL OF THE ASSET'S SIGNIFICANCE, AND TO PUBLISH THEIR FINDINGS.

PROPOSALS FOR MINERAL WORKING AND LANDFILL SHALL WHEREVER POSSIBLE DEMONSTRATE HOW THE DEVELOPMENT WILL

**MAKE AN APPROPRIATE CONTRIBUTION TO THE CONSERVATION
AND ENHANCEMENT OF THE HISTORIC ENVIRONMENT.**

2.2.16 The study site is included as a nominated site by the County Council for a possible sand and gravel mineral site option (SG-60).

2.2.17 Local Plan policy is provided by the South Oxfordshire Core Strategy (adopted December 2012), which forms part of the Local Plan. The following policy relates to the Historic Environment:

**POLICY CSEN3 HISTORIC ENVIRONMENT
THE DISTRICT'S DESIGNATED HISTORIC HERITAGE ASSETS, BOTH
ABOVE AND BELOW GROUND SUCH AS:**

- **NATIONALLY DESIGNATED ASSETS INCLUDING LISTED BUILDINGS, HISTORIC PARKS AND GARDENS, HISTORIC BATTLEFIELDS AND SCHEDULED ANCIENT MONUMENTS;**
- **CONSERVATION AREAS; AND**
- **THEIR SETTINGS**

WILL BE CONSERVED AND ENHANCED FOR THEIR HISTORIC SIGNIFICANCE AND THEIR IMPORTANT CONTRIBUTION TO LOCAL DISTINCTIVENESS, CHARACTER AND SENSE OF PLACE.

THIS WILL BE CARRIED OUT THROUGH:

- **CONSERVATION AREA APPRAISALS/REVIEWS;**
- **MANAGEMENT PLANS;**
- **DESIGNATING NEW CONSERVATION AREAS WHERE APPROPRIATE;**
- **THE DETERMINATION OF PLANNING, LISTED BUILDING CONSENT AND OTHER RELEVANT APPLICATIONS.**

PROPOSALS FOR DEVELOPMENT THAT AFFECT NON-DESIGNATED HISTORIC ASSETS WILL BE CONSIDERED TAKING ACCOUNT OF THE SCALE OF ANY HARM OR LOSS AND THE SIGNIFICANCE OF THE HERITAGE ASSET.

2.2.1 Relevant 'saved' policies from the South Oxfordshire Local Plan include the following:

POLICY CON11

THERE WILL BE A PRESUMPTION IN FAVOUR OF PHYSICALLY PRESERVING NATIONALLY IMPORTANT ARCHAEOLOGICAL REMAINS, WHETHER SCHEDULED OR NOT, AND THEIR SETTINGS.

POLICY CON12

BEFORE THE DETERMINATION OF AN APPLICATION FOR DEVELOPMENT WHICH MAY AFFECT A SITE OF ARCHAEOLOGICAL INTEREST OR POTENTIALLY OF ARCHAEOLOGICAL IMPORTANCE, PROSPECTIVE DEVELOPERS WILL BE REQUIRED, WHERE NECESSARY, TO MAKE PROVISION FOR AN

ARCHAEOLOGICAL FIELD EVALUATION, IN ORDER TO ENABLE AN INFORMED AND REASONED PLANNING DECISION TO BE MADE.

POLICY CON13

WHEREVER PRACTICABLE AND DESIRABLE, DEVELOPMENTS AFFECTING SITES OF ARCHAEOLOGICAL INTEREST SHOULD BE DESIGNED TO ACHIEVE PHYSICAL PRESERVATION IN SITU OF ARCHAEOLOGICAL DEPOSITS. WHERE THIS IS NOT PRACTICABLE OR DESIRABLE, CONDITIONS WILL BE IMPOSED ON PLANNING PERMISSIONS, OR PLANNING OBLIGATIONS SOUGHT, WHICH WILL REQUIRE THE DEVELOPER TO PROVIDE AN APPROPRIATE PROGRAMME OF ARCHAEOLOGICAL INVESTIGATION, RECORDING AND PUBLICATION BY A PROFESSIONALLY-QUALIFIED BODY.

- 2.2.18 This assessment therefore seeks to establish whether archaeological evidence from the study site or its vicinity suggests that the study site contains heritage assets as defined by the NPPF and falls within the scope of policies contained within the current and emerging Minerals and Waste Local Plan policies.

3.0 SITE CONDITIONS, GEOLOGY AND TOPOGRAPHY

3.1 Site Conditions

3.1.1 The study site was visited on the 9th February 2016 (Plates 1-12). The study site comprises an area of agricultural land (three pasture and one arable field) situated to the immediate west of the River Thames. At the time of the site visit the easternmost fields, located adjacent to the river, were waterlogged. The A4130 and A329 define the northern and western site boundary.

3.1.2 The study site is accessed via a track leading off the A329 at the western site boundary. The track continues eastwards across the northern extent of the study site. A steel framed barn is sited to the south of the track in the north-western part of the study site. A drainage ditch runs along the eastern side of the arable field running north to south through the centre of the study site.

3.1.3 No earthworks or other features of potential archaeological interest were noted during the site visit.

3.2 Geology

3.2.1 The underlying geology for the study site is primarily mapped as Glauconitic Marl Member, comprising glauconitic sandstone. A small area of the south-western extent of the study site is mapped as chalk of the West Melbury Marly Chalk Formation.

3.2.2 Overlying sand and gravel deposits of the Northmoor Sand and Gravel Member are mapped across the study site. Alluvium deposits associated with the adjacent River Thames are also recorded across the eastern extent of the study site.

3.2.3 A series of boreholes conducted across the study site has recorded Thames Terrace Sand and Gravel between 0.5m – 4.4m in thickness, varying in depth between c.0.7m in the west to over 2m deep across the eastern part of the site. Alluvial deposits of over 1.5m in depth were encountered across the eastern extent of the study site only (Greenfield Associates 2014 and 2015 borehole logs).

3.3 Topography

- 3.3.1 The study site is predominantly flat at an average height of 44m Above Ordnance Datum (AOD), although a slight rise is discernible towards the north-western corner of the study site, increasing to a height of 47m AOD.

4.0 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND INCLUDING ASSESSMENT OF SIGNIFICANCE

Timescales used in this report:

Prehistoric

Palaeolithic	800,000	-	12,000	BC
Mesolithic	12,000	-	4,000	BC
Neolithic	4,000	-	1,800	BC
Bronze Age	1,800	-	600	BC
Iron Age	600	-	AD 43	

Historic

Roman	AD	43	-	410
Saxon/Early Medieval	AD	410	-	1066
Medieval	AD	1066	-	1485
Post Medieval	AD	1486	-	1899
Modern	AD	1900	-	Present

4.1 Introduction and methodology

- 4.1.1 This assessment is based on a consideration of evidence in the Oxfordshire Historic Environment Record (HER), the Historic England Archive (HEA) and the National Heritage List for England (NHLE) for the study site, and a zone 1km in extent around its boundary (the study area). The Berkshire and Oxfordshire Record Office were visited in order to examine historic maps of the area.
- 4.1.2 Archaeological data from a 1km radius around the study site has been reviewed to produce a predictive model of the study site's potential for the presence of additional, as-yet undiscovered, below-ground archaeological features. Heritage assets are considered in the relevant sections below and are identified as either HER, NHLE or HEA depending on the data source followed by the unique

reference number. Plans showing the location of data mentioned in the text can be found in Appendix 1.

- 4.1.3 A review of available open source Environment Agency Lidar data (Appendix 2), online aerial photographic imagery and the results of a recent geophysical survey of the study site (Appendix 3) has also been used to inform this assessment.
- 4.1.4 This chapter reviews existing archaeological evidence for the study site, and the archaeological/historical background of the general area, and, in accordance with the NPPF, considers the potential for as yet undiscovered archaeological evidence on the study site. Chapter 5 subsequently considers the site conditions of the study site and whether the theoretical potential identified in this chapter is likely to survive.

4.2 **Previous Archaeological Investigations**

- 4.2.1 Although no previous intrusive archaeological investigations have been conducted within the study site, the study site has been subject to an aerial photographic assessment, forming part of the wider Thames Valley National Mapping Programme (NMP) (Fenner and Dyer 1994). Although cropmarks are noted to the north-west of the study site, including two Bronze Age round barrows, no cropmarks are noted within or seen to continue into the study site itself. As part of this assessment, a review of on-line aerial imagery (Google Earth, Bing Maps) and available open source Environment Agency Lidar data was conducted; no features of potential archaeological interest were noted within the study site from this date.
- 4.2.2 A large number of archaeological investigations have been conducted to the north and east of the study site. These demonstrate an occupied and utilised Prehistoric landscape. A monograph describing the archaeology of Wallingford Bypass (covering a period of archaeological works from 1986-1992), which passes to the immediate north of the study site, sets out an understanding of the late Bronze Age ritual and habitation activity of the area (Oxford Archaeology 2006).
- 4.2.3 A geophysical survey of the study site has recently been undertaken (see Appendix 3, Stratascan 2016). No evidence for any significant archaeological activity has been identified within the study site by this survey.

4.2.4 Further details on the results of these investigations are provided in the relevant sections below.

4.3 **Designated Archaeological Heritage Assets**

- 4.3.1 The scheduled monument of Grim's Ditch (NHLE 1006368) is sited over 970m to the east of the study site. The earthwork remains of this linear bank is considered to be late Iron Age/early Roman in origin and later may have marked the territorial boundary of Cuthwulf's conquest of A.D 571 (HEA625291, HEA655580). The below ground remains of the linear ditch and bank is understood to have extended further westwards, beyond the scheduled area, towards the eastern bank of the River Thames, to within 420m of the study site boundary.
- 4.3.2 Designated built heritage assets (listed buildings and conservation areas) are considered in a separate report (CgMs 2016).

4.4 **Prehistoric (Palaeolithic - Iron Age)**

- 4.4.1 The Thames Valley has been a focus of occupation and settlement activity from the early Prehistoric period onwards. The rich resources of the river valley floodplain and the topography of the area, forming a natural corridor, attracted past human populations to visit, exploit and utilise them (Allen 2014, Chapter 2 in Hey and Hind 2014). Such human activity varied from periodic short term use, through to seasonal use and later developed into long term exploitation and in places, long term settlement (*ibid*). Within the search area, evidence for Mesolithic activity through to the Iron Age period is recorded. A single Palaeolithic flint implement is also noted at the southern end of the study site (HEAR 241843), this however relates to the locality of a flint implement found in gravel near the Thames at Cholsey. The age of the Northmoor Sand and Gravel suggests that any artefactual evidence within the gravel in which it would be derived would be in a heavily rolled condition.
- 4.4.2 During the Mesolithic period it is considered that the numerous, anastomised channels of the River Thames were free flowing at this time (Hey 2014, Chapter 5, 70). Major river valley corridors have been the location of important late Upper Palaeolithic and Mesolithic sites. In many cases these were buried under layers of alluvium, although sometimes thin. The alluvial deposition process suggests the possibility of Palaeolithic and Mesolithic horizons to be concealed within the layers of alluvial deposits within the study site. However, current evidence for Palaeolithic activity and Mesolithic utilisation of the landscape in the search radius is scarce (limited to a small number of flint implements – HER

16420-MOX11247, HER 16523-MOX12227, HER 28462-MOX26772, HER EOX875, HER 16523-MOX12227) and the potential for in situ Palaeolithic deposits is considered to be low. If present, the nature of this activity is likely to represent small mobile groups of short term or seasonal use sites.

- 4.4.3 Throughout the Neolithic to Iron Age period the Thames Valley was widely utilised. The HER contains numerous findspots and occupation activity of the Neolithic period within the search radius, clearly demonstrating that the local landscape was exploited during this period (HER 2006-MOX6499, HER 7494-MOX6543, 16523-MOX6664, HER 2199-MOX6509, HER 15535-MOX6674, HER 15420-MOX6615, 15493-MOX6662). Located within 200m of the study site are two areas of recorded Neolithic occupation. A Neolithic or Bronze Age pit was recorded during archaeological monitoring at White Cross, 135m to the north of the study site (HER 16420-MOX11247) and a fragment of a Neolithic polished stone axe was recovered nearby (HER 2198-MOX6508). From the eastern side of the river, deposits containing Neolithic pottery, antler comb and worked flint along with a pit and a ditch were recorded during evaluation works at Wallingford Rowing Club, c.170m to the east of the study site (HER 16940-MOX12721).
- 4.4.4 Evidence of occupation activity continues into the Bronze Age period, with the local landscape containing both burial monuments and settlement activity. Numerous Bronze Age barrows and possible ring ditch features are noted within the search area, sited to the south-west, west and north-west of the study site (HER 8593-MOX6546, HER 26387-MOX23815, HEA 241840). Identified c.85m to the south-west of the south western site boundary, a small ring ditch was identified by geophysical survey (HER 2990-MOX6521) along with a stronger circular anomaly sited 170m further to the south (HER 28322-MOX26595). These may represent additional Bronze Age barrows.
- 4.4.5 Bronze Age occupation activity is notably recorded at three sites within the search radius. A principle area of occupation activity is recorded on a former eyot or island on the Thames, now located to the north of the study site, on the western bank of the river, located within 95m of the north-eastern site boundary. The eyot appears to represent the location of a possible high status area of settlement. Late Bronze Age and early Iron Age settlement activity is also recorded to the south of Bradford's Brook, located some 750m to the north-west of the study site. During a programme of archaeological works at Grim's Ditch conducted prior to the construction of Wallingford Bypass evidence of

Bronze Age cultivation, Late Bronze Age-Early Iron Age tree clearance and possible settlement activity were recorded beneath the earthen bank of Grim's Ditch, c.300m to the east of the study site (HER 16523-MOX12227, Cromarty *et al* 2006, 157-166).

- 4.4.6 Settlement and agricultural activity in the local landscape continues into the Iron Age period. Early and middle Iron Age settlement activity is recorded 630m to the north of the study site (HER 26339-MOX23766, HER 26396-MOX23824, EOX2624, EOX2829). An archaeological evaluation conducted to the west of the study site recorded a possible later Prehistoric linear feature, sealed by a layer of alluvial deposit (c. 190m west of the study site, HER EOX5898, HER 28529-MOX26856). Geophysical survey conducted to the south-west of the study site (HER EOX5524) identified a potential settlement site located approximately 280m from the western site boundary. Although, the geophysical anomalies remain undated, the shape and form of this activity may be attributed to the late Prehistoric period. The construction of the Grim's Ditch has been dated to the late Iron Age (HEA 625291, NHLE 1006368 – c.300m to the north-east of the study site), sited on the eastern side of the Thames and extending eastwards.
- 4.4.7 However, despite the level of Prehistoric occupation activity noted in the surrounding area, the geophysical survey results of the study site have identified no evidence for significant occupation activity or funerary monuments to be present (see Appendix 3, Stratascan 2016). Similar surveys have been conducted in the area that have proved effective in clarifying former activity of this date on the gravels, which therefore gives a high degree of confidence to the generally negative results produced by the survey of the study site.
- 4.4.8 Although the study site is sited within a landscape that was occupied throughout the Prehistoric period, with a particular emphasis on Neolithic-Iron Age activity, the geophysical survey of the study site has not identified any evidence for any significant occupation or funerary monument activity. On this basis, the potential for significant archaeological deposits, multi-phase or complex activity is considered to be low. The study site may have principally laid within agricultural land surrounding known Prehistoric settlement sites recorded to the north, north-west and west of the study site. Although given the presence of Prehistoric activity recorded in the surrounding area, low density, discrete areas of archaeological activity may be present. The potential for in situ Palaeolithic deposits is considered to be low, although artefactual and palaeoenvironmental

evidence of the early Prehistoric periods may be present, potentially sealed beneath alluvial deposits.

4.5 **Roman**

4.5.1 The presence of occupation activity in the local landscape continues into the Roman period with continuing settlement activity recorded to the south of Bradford's Brook along with a Roman inhumation burial and bowl, c.800m to the north-west of the study site (HER 16524-MOX12228, HER 2992-MOX6535). Elsewhere, Roman agricultural activity is recorded to the east of the River Thames (HER 28462 – MOX26772) along with a number of residual artefacts and find spots noted in the HER or recorded during archaeological fieldwork (HER 27974-MOX24499, EOX3382, EOX1545). These further illustrate that the local area was occupied during this period. There is currently no evidence to suggest the study site itself was subject to settlement activity, with known settlement foci located over 800m to the north. As the study site is sited partially within the River Thames flood plain, the study site may have been confined to seasonal grazing and agricultural activity located within the hinterland of such settlement.

4.5.2 The results of the geophysical survey within the study site have not identified any potential occupation activity that may be attributed to the Roman period (Appendix 3, Stratascan 2016). Based on current evidence, it is considered that the study site likely formed part of the surrounding agricultural land to former settlement foci at this time. The study site may have been utilised for seasonal pasture.

4.5.3 Based on current evidence, a low potential for the presence of significant archaeological deposit dating to the Roman period, other than for remains relating to former agricultural practices, is identified.

4.6 **Saxon-Medieval**

4.6.1 No Saxon-Medieval activity is recorded within the study site by the HER or HEA. The nearby settlements of Wallingford (1.7km to the north of the study site), Cholsey (2km to the south of the study site) and Mongewell, which is sited on the opposing eastern bank of the river from that of the study site, are recorded in the Domesday Survey of A.D 1086 and suggest that they were well established settlements prior to this. Wallingford was certainly an established settlement in the Saxon period, it forming a defensive burh during the reign of King Alfred (NHLE 1006329).

4.6.2 The study site during this period is likely to have been situated within surrounding agricultural land of these settlements, it likely forming part of the open field system, common pasture and/or meadowland sited between Wallingford and Cholsey.

4.6.3 On current evidence, a low potential for significant archaeological activity dating from the Saxon through to the Medieval period is identified for the study site. Any activity, if present, is likely to be limited to that of former agricultural practices.

4.7 **Post-Medieval and Modern**

4.7.1 The study site during this period remains an area of agricultural land and is likely to have undergone enclosure in the 18th century.

4.7.2 In this period, 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.

4.7.3 Roques' 1761 map of Berkshire shows the study site comprising an area of riverside meadow and two enclosed arable fields (Fig. 2). A number of eyots or islands are depicted along the River Thames, adjacent to the study site.

4.7.4 By the 1842 Cholsey Tithe map (Fig. 3) the study site is shown to be divided into individual strips of an area known as Mead Furlong. A drainage ditch runs north to south through the centre of the study site.

4.7.5 The 1877 Ordnance Survey (Fig. 4) no longer depicts the strip field division of the earlier tithe map. Bucklands, a detached residential property, has been constructed to the west of the study site. A trackway is shown across the north-eastern extent of the study site. The riverside field is depicted as sparsely wooded.

4.7.6 The 1968-70 Ordnance Survey (Fig. 5) shows the construction of the modern barn currently sited in the north-eastern extent of the study site. The central drainage channel has been slightly diverted and re-cut across the northern part of the study site. The remainder of the study site remains unchanged.

- 4.7.7 By 1990 (Fig. 6), minor alteration and re-cutting of the drainage ditch again occurs at the northern end of the study site. A trackway is now shown to extend eastwards from the barn and turn northwards before the central drainage ditch. A light aircraft airstrip is noted in the north-east corner of the study site. The study site remains unchanged on the 1993 Ordnance Survey (Fig. 7).
- 4.7.8 By 2006 (Fig. 8), the Wallingford By-Pass is shown abutting the northern site boundary and the airstrip is no longer in use. The rest of the study site remains unchanged.
- 4.7.9 Throughout this period, the study site remains an area of enclosed agricultural land. The central drainage ditch is subject to re-cutting in the 20th century and for a short period of time the north-eastern field is used as a light aircraft airstrip. The geophysical survey has identified a series of rectangular areas of modern disturbance, aligned north to south across the western half of the study site (Appendix 3). These anomalies are of modern origin and may be associated with former World War II home defence infrastructure, site along the River Thames and positioned opposite Mongewell Park (former headquarters to No 2 Group RAF Bomber Command) or may relate to possible foundation bases associated with a prospective caravan site development that was purportedly carried out by a previous land owner (pers. comm current land owner). Corresponding crop marks of these rectangular anomalies can be seen in aerial imagery on Google Earth (2005 historical imagery) and Bing Maps and the southern rectangular disturbances can be seen on the Lidar data (Appendix 2). No visible surface remains associated within these anomalies were noted during the geophysical survey or site visit and no evidence of any structural or modern debris were noted within the plough soil within these areas. Should these anomalies be associated with former defence infrastructure, the archaeological significance of these is considered to be negligible. A low to nil potential for any significant archaeological remains is identified for the study site.

4.8 **Historic Landscape**

- 4.8.1 Historic Landscape Characterisation (HLC) for Oxfordshire is on-going and is not yet available for the study site.
- 4.8.2 The study site and surrounding area has been subject to enclosure by the 18th century, as depicted by Rocque's 1761 map of Berkshire (Figure 2) and may have formally laid within the Medieval open field system between Wallingford

and Cholsey. Excluding the hedged boundary defining the western site boundary (running alongside the A329), no historic hedgerows are present within the study site that may be classed as important in accordance with the 1997 Hedgerow Regulations. Although the study site predominantly remains within its historical rural landscape, the implementation of modern agricultural farming within the study site, the construction of the Wallingford By-Pass to the north, the presence of encroaching settlement activity to the north and nearby residential dwellings has reduced any significant historic landscape value present.

4.9 **Assessment of Significance and Potential**

- 4.9.1 No designated archaeological heritage assets of national importance are recorded on the study site itself. The designated archaeological heritage assets located within the 1km search radius of the study site are of national importance.
- 4.9.2 Based on current evidence, this assessment has identified a low potential for significant levels of archaeological activity to present within the study site. Although the study site is located within an area rich in Prehistoric activity, geophysical survey of the study site has not identified the presence of any definitive, complex or multi-period archaeological activity. Although the potential for discrete, low-level areas of Prehistoric archaeological activity may remain, the study site is likely to have predominantly been utilised as an area of agricultural land throughout all periods. Given the results of the geophysical survey and the nature of anticipated archaeological activity to be present within the study site, any as yet unknown archaeological deposits that may be present are considered not to be of such significance to preclude development.

5.0 THE PROPOSED DEVELOPMENT AND IMPACT ON HERITAGE ASSETS

5.1 The Proposed Development

- 5.1.1 The study site is being considered for proposed sand and gravel extraction (covering an area of some 13.4ha) with an associated processing plant, although this may be extended to include the north-eastern section of the study site, pending further geotechnical investigations. The processing plant would be located in the north-western part of the site, sited off the mapped floodplain area.
- 5.1.2 The proposed plant will comprise a 'standard' mobile wash plant, with screens and conveyors stockpiling gravel products. It is assumed that a minimum working margin of 7m will be taken to the A329 and 5m to the toe of the A4130 embankment, to ensure no impact upon the stability of the highway. A 25m standoff from the River Thames will be assumed.
- 5.1.3 Following completion of the gravel extraction works, it is proposed that the site will undergo restoration as a marina, along with ancillary development such as a facilities building, workshop and internal roads. The facilities building, marina workshop and parking area would be constructed on backfilled land. It is anticipated that the construction of the marina would begin five years from the commencement of extraction operations.

5.2 Summary of Heritage Impacts

Potential Archaeological Impacts

- 5.2.1 The scheduled monument of Grim's Ditch (NHLE 1006368) is sited over 970m to the east of the study site and functioned as a territorial marker. The significance of this monument is primarily derived from its archaeological and historical interest and is contributed to, by a lesser degree, by its setting. The monument's immediate setting is that of its surrounding agricultural landscape, although it is also abutted to at its western end by the Wallingford By-Pass (A4130) and the A4074. Its associated and contextual setting continues eastwards along the route of the former earthwork remains (now only surviving as below ground archaeological deposits), extending up to the River Thames. It can be said that the River Thames provides a physical, visual and historic functional boundary to that of the setting of Grim's Ditch. There is no intervisibility, association or

connection between the study site and scheduled monument. The study site is located a sufficient distance away from the monument that any operational outputs (such as noise, dust or vibration) would not adversely impact upon its setting or significance.

- 5.2.2 The study site is not considered to contribute to the setting or significance of Grim's Ditch and proposed extraction would not result in any adverse harm to the monument.
- 5.2.3 The proposed gravel extraction would result in the wholesale removal of any potential archaeological deposits present within the proposed extraction areas.
- 5.2.4 Based on current evidence and the results of geophysical survey on the study site, this assessment has identified a low potential for significant archaeological activity of all periods to be present. Given the known presence of Prehistoric activity recorded in the surrounding area, the potential for discrete or low level/density archaeological deposits, artefact recovery and potential palaeoenvironmental deposits to be present within the study site remains. However, the significance of any such deposits is not considered to be of a sufficient level to preclude development.
- 5.2.5 In line with the NPPF and local plan policy, this archaeological assessment and the results of the geophysical survey provides a sufficient level of information to determine an application for proposed mineral extraction and concludes that any further archaeological evaluation and/or mitigation could be secured by a suitably worded condition to planning consent.

6.0 SUMMARY AND CONCLUSIONS

- 6.1 This desk-based assessment has established that no designated archaeological heritage assets lie within, or in the immediate proximity of the study site such that proposed development would result in any harm to their significance or setting.
- 6.2 Despite the study site being located within a known Prehistoric landscape, no cropmark evidence for such activity is recorded within the study site and recent geophysical survey has identified no evidence for potential significant archaeological activity to be present. On this basis, a low potential for significant archaeological activity for all periods within the proposed gravel extraction area is identified.
- 6.3 Current evidence would therefore not suggest that the study site contains any previously unrecorded archaeological remains of significance that would preclude its development. It is therefore considered that any further archaeological interest on the study site could be secured through a suitably worded planning condition.

SOURCES CONSULTED

General

Oxfordshire Historic Environment Record (HER)

Historic England Archive (HEA)

National Heritage List for England (NHLE)

Berkshire Record Office

Oxfordshire Record Office

National Planning Policy Framework

DCMS 2013 Scheduled Monuments and nationally important but non-scheduled monuments

Solent-Thames Research Framework for the Historic Environment Resource Assessments and Research Agendas

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Oxford Archaeology. 2006. *The Archaeology of the Wallingford Bypass, 1986-92*. Thames Valley Landscape Monograph No 22.

Williams, A. and Martin, G. 2003. *Domesday Book: A Complete Translation*

Cartographic

1761 Roque's map of Berkshire

1842 Cholsey Tithe Map

1851 Cholsey Enclosure Map

Ordnance Survey 1:10,000 / 1:10,560 editions: 1883, 1900, 1913-14, 1960, 1972, 1993, 2006, 2015

Ordnance Survey 1:2500 editions: 1877, 1898, 1912, 1968-70, 1993

Websites

Archaeological Data Service - ads.ahds.ac.uk

Heritage Gateway - www.heritagegateway.org.uk

MAGIC - www.magic.gov.uk

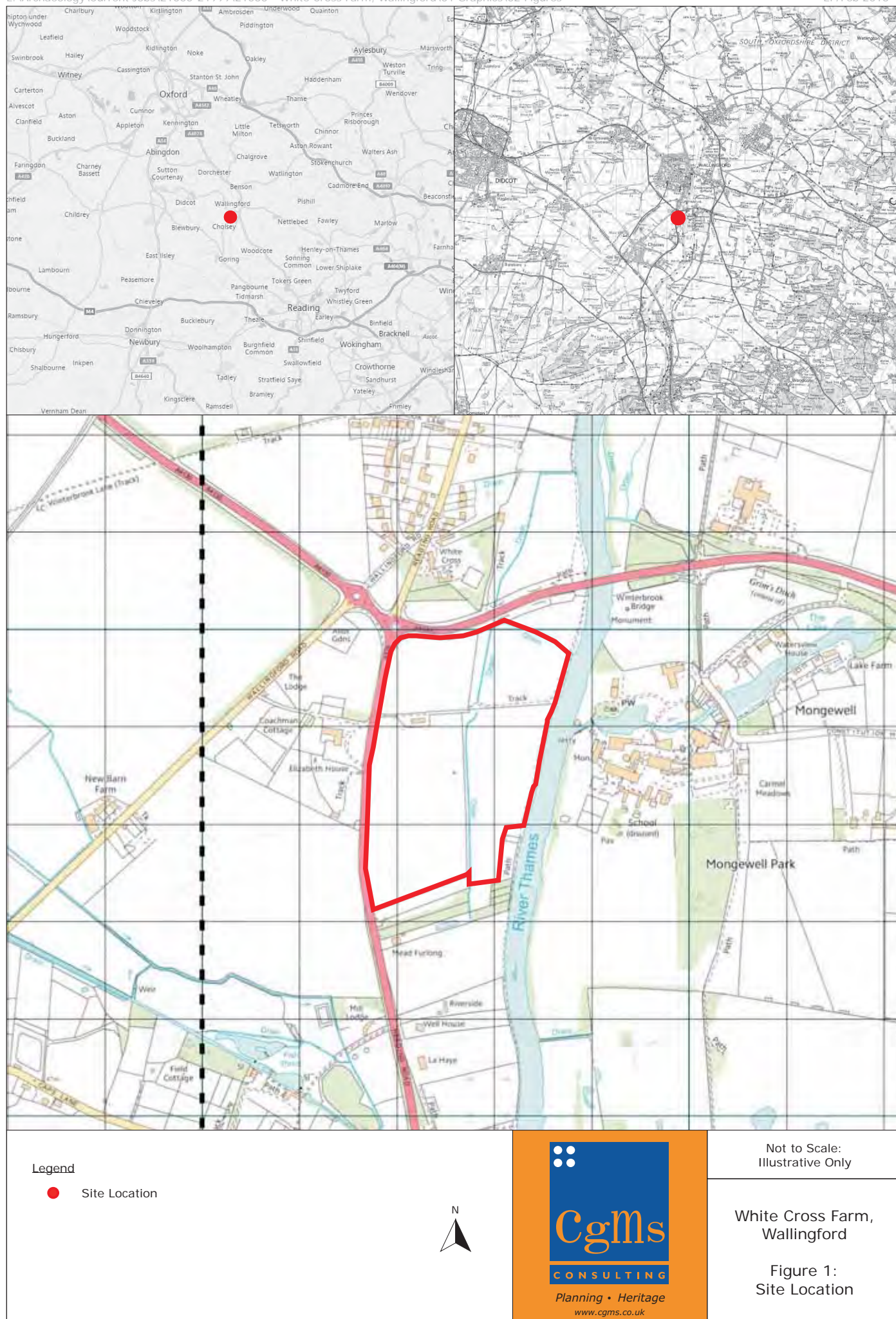
English Heritage National Heritage List for England - <http://list.english-heritage.org.uk/mapsearch.aspx>

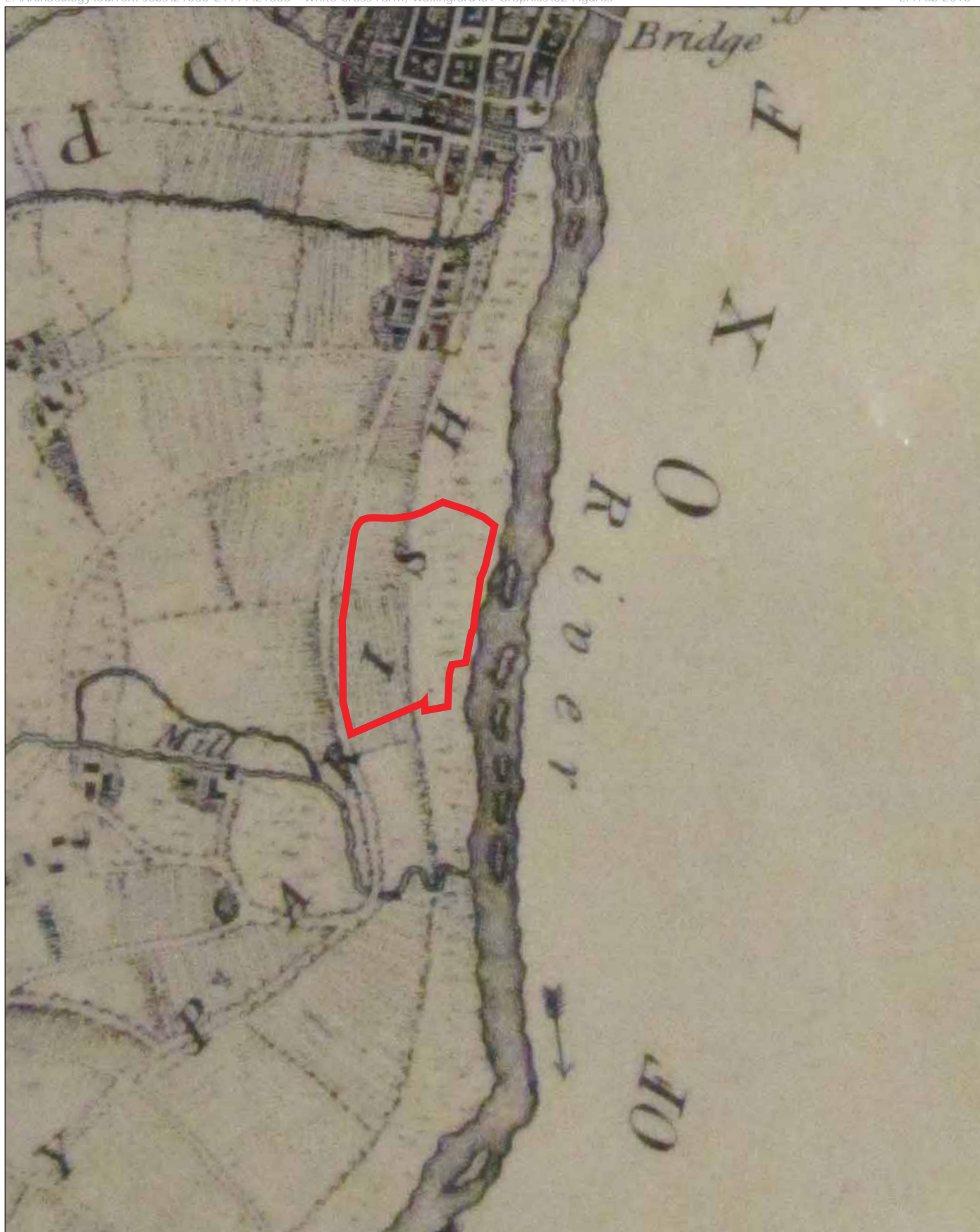
British Geological Society Geology of Britain Viewer - <http://www.bgs.ac.uk/discoveringGeology/geologyOfBritain/viewer.html>

Pastscape- www.pastscape.org.uk

Google Earth – accessed 16th February 2016

Bing Maps – accessed 16th February 2016



**Legend**

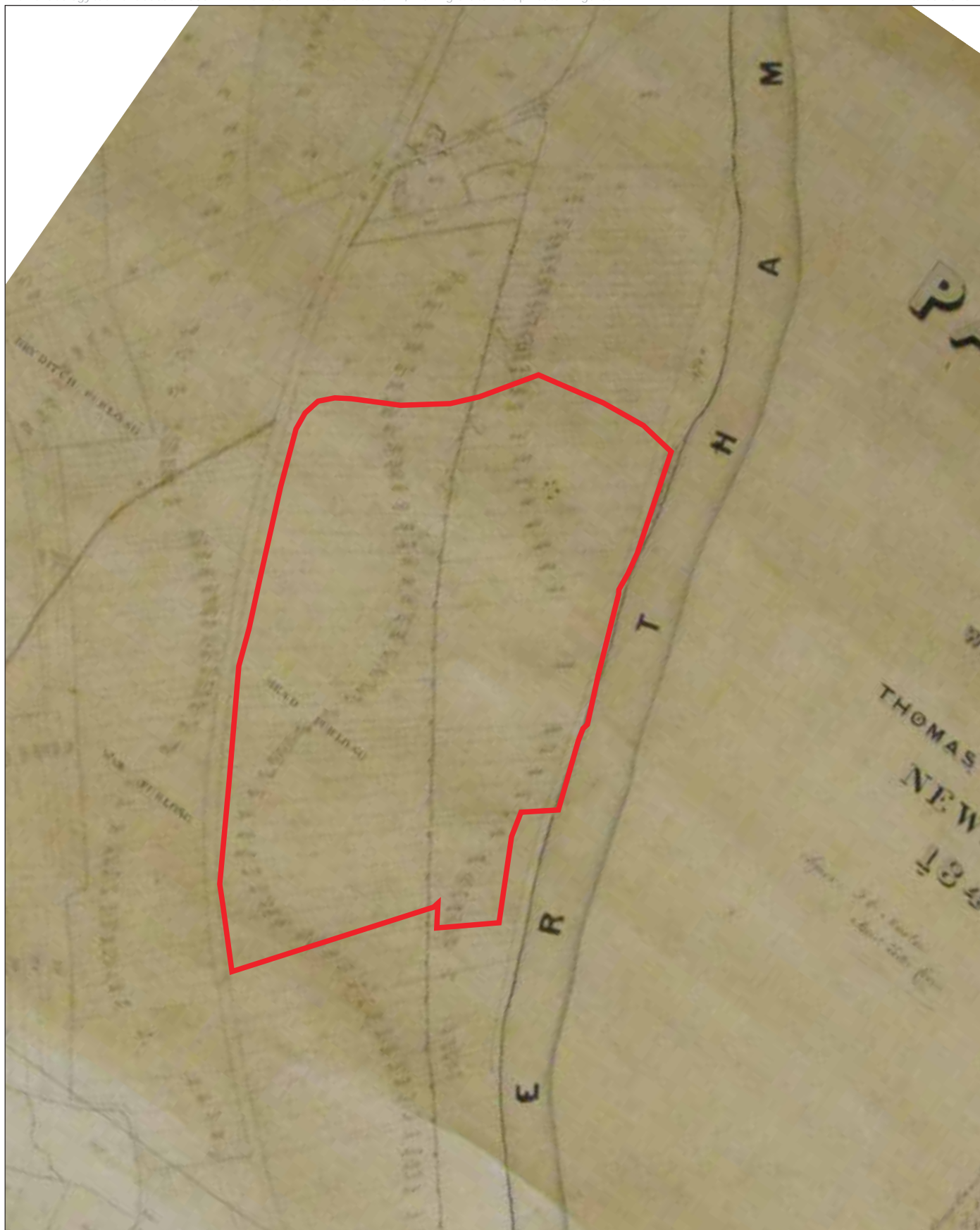
— Site Location



Not to Scale:
Illustrative Only

White Cross Farm,
Wallingford

Figure 2:
1761 Roques Map of
Berkshire

**Legend**

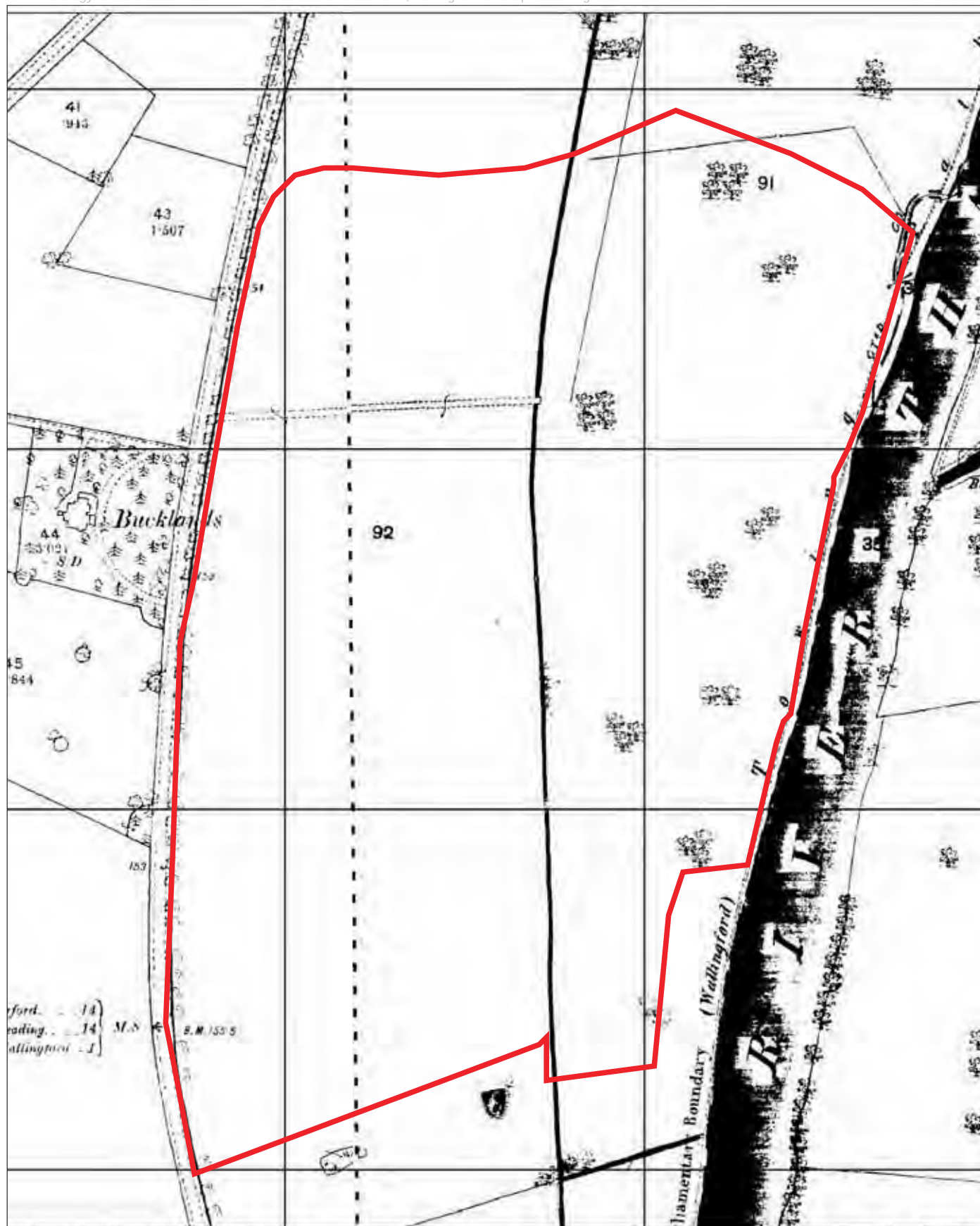
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Not to Scale:
Illustrative Only

White Cross Farm,
Wallingford

Figure 3:
1842 Cholsey Tithe Map



Legend

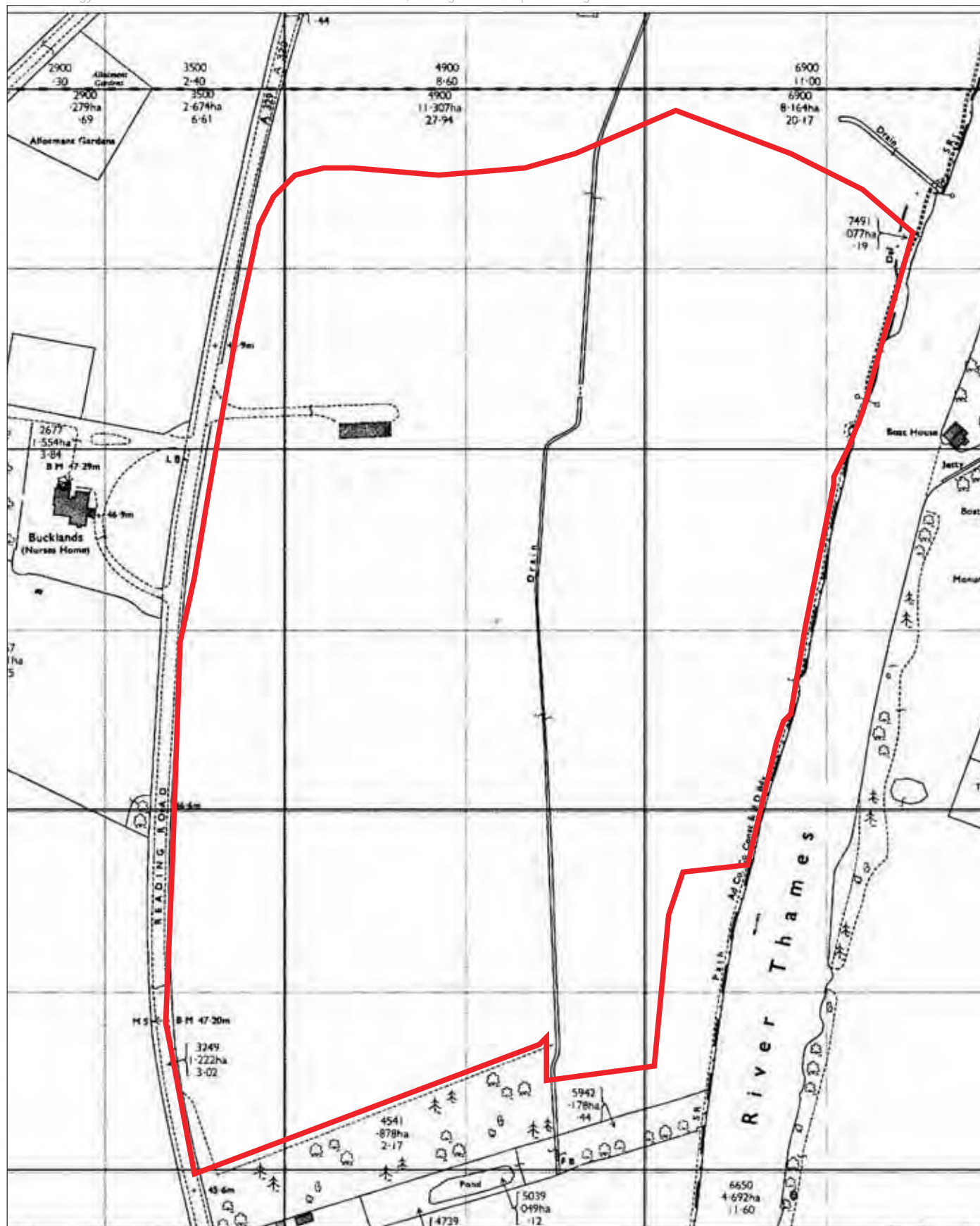
— Site Boundary



Not to Scale:
Illustrative Only

White Cross Farm,
Wallingford

Figure 4:
1877 Ordnance Survey
Map



Legend

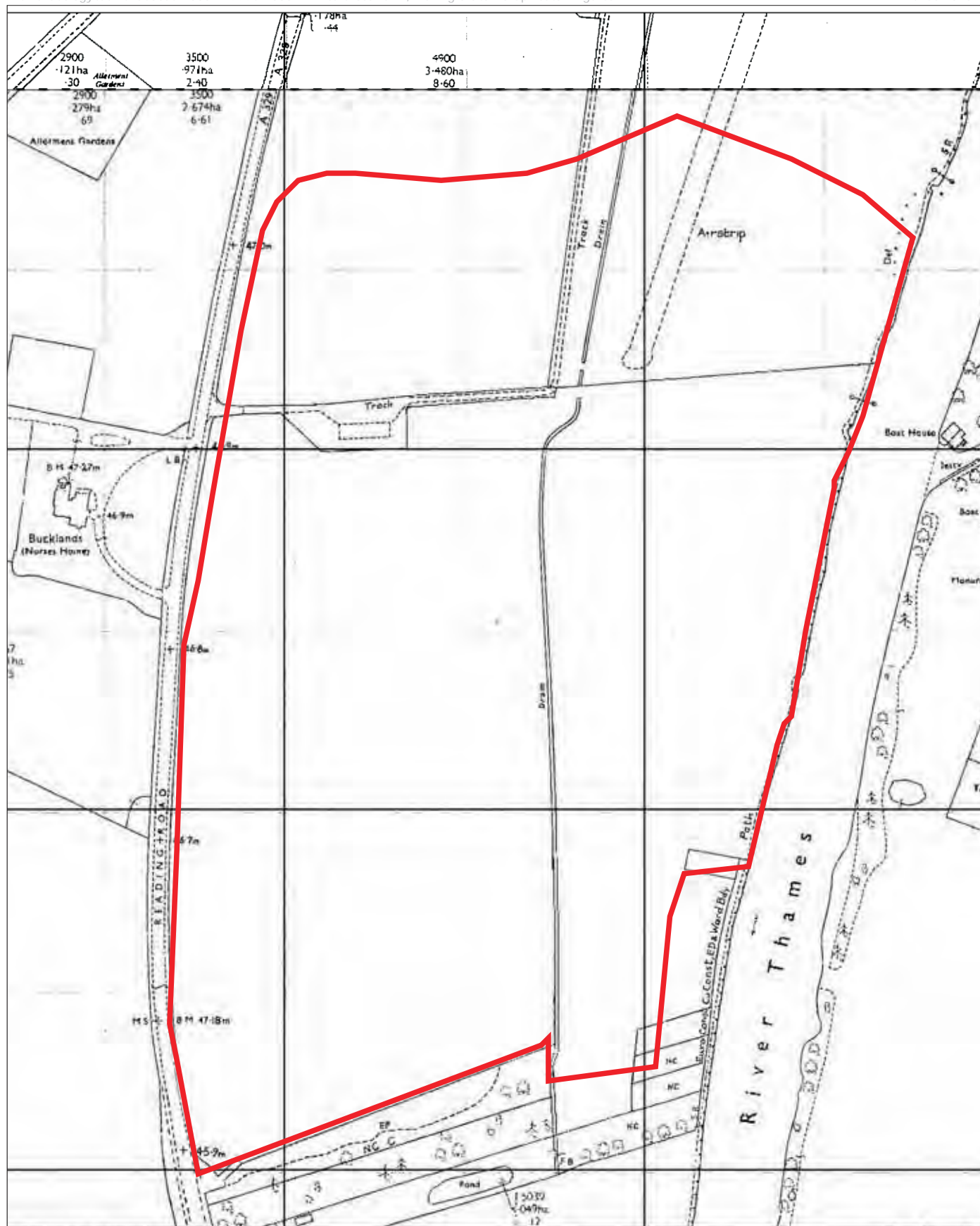
— Site Boundary



Not to Scale:
Illustrative Only

White Cross Farm,
Wallingford

Figure 5:
1968-1970 Ordnance
Survey Map



Legend

— Site Boundary



Not to Scale:
Illustrative Only

White Cross Farm,
Wallingford

Figure 6:
1990 Ordnance Survey
Map





Legend

— Site Boundary



Not to Scale:
Illustrative Only

White Cross Farm,
Wallingford

Figure 8:
2006 Ordnance Survey
Map



Plate 1: Looking south across the arable field in the western half of the study site



Plate 2: To the south of the barn, looking west towards Bucklands



Plate 3: Barn located off the access track, situated in the north-west of the study site



Plate 4: To the north of the barn, looking north across the north-west corner of the study site



Plate 5: To the east of the barn, looking east along the access track



Plate 6: In the south-east corner of the north-west field, looking north-west



Plate 7: In the north-east corner of the western field, looking south-west



Plate 8: In the north-west corner of the south-east field, looking east towards Mongewell



Plate 9: In the central eastern part of the study site, looking north towards Wallingford bypass



Plate 10: In the eastern part of the study site, looking east towards Mongewell



Plate 11: At the southern end of the study site, looking north



Plate 12: At the southern end of the study site, looking north-east towards Mongewell

Appendix 1: HER and HEA Data and Maps

Designated Heritage Assets

Scheduled Monuments

ListEntry	Name	NGR
1006368	Grim's Ditch; portion from Mongewell Park Lodge to S of Nuffield church	SU 64492 87417

Listed Buildings

ListEntry	Name	Grade	NGR
1059256	BARN AT NEW BARN FARM (NOT INCLUDED)	II	SU 59794 87633
1059259	WINTERBROOK CLOSE	II	SU 60562 88596
1059260	COX'S FARMHOUSE	II	SU 59429 88208
1059290	WHITE CROSS HOUSE	II	SU 60469 88143
1059580	FORMER CHURCH OF ST JOHN THE BAPTIST	II	SU 60842 87836
1059581	NEWNHAM FARM COTTAGE	II	SU 61014 88516
1059587	BARN APPROXIMATELY 5 METRES NORTH OF MONGEWELL FARMHOUSE	II	SU 61584 87594
	MERTON LODGE		
1182503	SANDFORD LODGE	II	SU 60636 88850
1193746	MILESTONE AT SU 6033 8748	II	SU 60328 87483
1193813	THE LAWNS	II	SU 60517 88407
1194085	NEWNHAM FARMHOUSE	II	SU 61034 88514
1194125	MONGEWELL FARMHOUSE	II	SU 61582 87564
1258010	THE LODGE, GATE PIERS AND FLANKING WALLS, CARMEL COLLEGE	II	SU 61653 87919
1285860	CHURCH OF ST MARY	II*	SU 61037 88488
1286007	STABLES APPROXIMATELY 15 METRES NORTH OF WINTERBROOK HOUSE	II	SU 60580 88468
1286054	TAYLORS BARN	II	SU5957987152
1368479	HIGH TREES	II	SU 60640 88876
1369096	WINTERBROOK HOUSE	II	SU 60567 88457
1369097	WINTERBROOK LODGE AND ATTACHED BARN	II	SU 60517 88455
1379942	JULIUS GOTTLIEB GALLERY AND BOTHOUSE AT CARMEL COLLEGE	II*	SU 60814 87754
1379943	JEWISH SYNAGOGUE AT CARMEL COLLEGE	II	SU 60953 87764
1379944	AMPHITHEATRE AT CARMEL COLLEGE	II	SU 60985 87733

Oxfordshire Historic Environment Data

Monument

MONUID	MONRECORD	PERIOD	MONTYPES
MOX11247	Monument	Early Neolithic to Late Bronze Age	PIT
MOX12227	Monument	Early Bronze Age to Medieval	BOUNDARY, CORD RIG, ARD MARKS, STRUCTURE, BREWHOUSE?
MOX12228	Monument	Late Bronze Age to Roman	SETTLEMENT, FIELD SYSTEM, PIT

MOX12720	Monument	Early Medieval/Dark Age	GRUBENHAUS, DITCH
MOX12721	Monument	Early Neolithic to Early Medieval/Dark Age	PIT, DITCH, DITCH
MOX16059	Building	Post Medieval to Modern	TIMBER FRAMED HOUSE, HOUSE, SITE
MOX16218	Building	Post Medieval	FARMHOUSE, HOUSE, FARMHOUSE, SITE
MOX16817	Building	Modern	BOAT HOUSE, EXHIBITION HALL, SITE
MOX17488	Building	Post Medieval	HOUSE, SITE
MOX17577	Building	Post Medieval	HOUSE, HOUSE, SITE
MOX17682	Building	Post Medieval	STABLE, SITE
MOX17683	Building	Post Medieval	TIMBER FRAMED BARN, AISLED BARN, SITE
MOX17727	Building	Post Medieval	LODGE, HOUSE, TIMBER FRAMED BARN, SITE
MOX17816	Building	Modern	AMPHITHEATRE, SITE
MOX17882	Building	Post Medieval	PLAQUE, HOUSE, HOUSE, SITE
MOX18112	Building	Post Medieval	HOUSE, SITE
MOX18192	Building	Post Medieval	AISLED BARN, TIMBER FRAMED BARN, SITE
MOX18462	Building	Modern	SYNAGOGUE, SITE
MOX23535	Find Spot	Late Bronze Age	ARTEFACT SCATTER
MOX23766	Monument	Middle Bronze Age to Medieval	SETTLEMENT, ROUND HOUSE (DOMESTIC), POST HOLE, PIT, DITCH
MOX23815	Monument	Bronze Age	BARROW
MOX23823	Element	Undated	PIT
MOX23824	Monument	Early Bronze Age to Early Medieval/Dark Age	SETTLEMENT, INHUMATION, INHUMATION, CREMATION, PIT, LINEAR FEATURE
MOX23825	Element	Medieval	DITCH
MOX24499	Element	Medieval to Modern	DITCH, DITCH, PIT
MOX26595	Monument	Bronze Age	RING DITCH
MOX26596	Monument	Unknown	PIT?, DITCH?, HEARTH?, GRUBENHAUS?, ENCLOSURE?, RING DITCH?, RECTILINEAR ENCLOSURE, RIDGE AND FURROW
MOX26772	Monument	Undated	FIELD BOUNDARY?, LINEAR FEATURE
MOX26856	Element	Later Prehistoric	DITCH
MOX499	Find Spot	Early Bronze Age to Medieval	FINDSPOT, FINDSPOT
MOX509	Find Spot	Early Medieval/Dark Age	FINDSPOT
MOX523	Element	Unknown	LINEAR FEATURE
MOX6483	Building	Post Medieval	WATERMILL
MOX6487	Monument	Medieval	DESERTED SETTLEMENT
MOX6498	Building	Medieval to Post Medieval	CHURCH
MOX6499	Find Spot	Neolithic	FINDSPOT
MOX6500	Building	Medieval to Post Medieval	CHURCH
MOX6508	Find Spot	Neolithic	FINDSPOT
MOX6509	Find Spot	Neolithic	FINDSPOT

MOX6510	Find Spot	Early Medieval/Dark Age	FINDSPOT
MOX6512	Monument	Late Neolithic to Early Iron Age	SETTLEMENT?, REVETMENT, BRIDGE
MOX6518	Monument	Medieval	DESERTED SETTLEMENT
MOX6519	Monument	Early Bronze Age to Roman	INHUMATION, INHUMATION
MOX6521	Monument	Bronze Age	RING DITCH?
MOX6523	Monument	Iron Age	OCCUPATION SITE, FINDSPOT
MOX6535	Monument	Roman	INHUMATION, FINDSPOT
MOX6537	Monument	Neolithic	HENGES ENCLOSURE?, PIT ALIGNMENT, HENGIFORM MONUMENT?
MOX6538	Find Spot	Early Medieval/Dark Age	FINDSPOT
MOX6541	Monument	Post Medieval	FISHPOND, MILL
MOX6543	Find Spot	Early Neolithic to Early Medieval/Dark Age	FINDSPOT, FINDSPOT
MOX6546	Monument	Bronze Age	RING DITCH?
MOX6557	Find Spot	Medieval	FINDSPOT
MOX6562	Find Spot	Roman	FINDSPOT
MOX6571	Building	Post Medieval	MILESTONE
MOX6615	Monument	Neolithic	LITHIC SCATTER
MOX6624	Monument	Early Prehistoric	LITHIC SCATTER
MOX6662	Monument	Neolithic	LITHIC SCATTER
MOX6664	Find Spot	Neolithic	FINDSPOT
MOX6674	Find Spot	Neolithic	FINDSPOT
MOX6689	Building	Modern	PILLBOX
MOX6690	Building	Modern	PILLBOX
MOX6691	Building	Modern	PILLBOX
MOX6692	Building	Modern	PILLBOX
MOX6805	Linear	Later Prehistoric	TRACKWAY
MOX12227	Monument	Early Bronze Age to Medieval	BOUNDARY, CORD RIG, ARD MARKS, STRUCTURE, BREWHOUSE?
MOX6805	Linear	Later Prehistoric	TRACKWAY

Event

EvUID	EventName	RecordType	Organisation
EOX326	Cedar Court, Brookfield Close	WB	Oxford Archaeology
EOX806	White Cross	WB	John Moore Heritage Services
EOX875	The Wallingford Bypass	EX	Oxford Archaeological Unit
EOX926	Revised Research Design for Wallingford Bypass	PEA	Oxford Archaeological Unit
EOX1164	Land north of Winterbrook Lane, Wallingford	EV	Foundations Archaeology
EOX1542	Land at Carmel College, Wallingford, South Oxfordshire: Archaeological Desk-Based Assessment	DBA	Trust for Wessex Archaeology
EOX1543	Land at Carmel College, Wallingford, South Oxfordshire: Archaeological Evaluation	EV	Trust for Wessex Archaeology
EOX1544	Wallingford Rowing Club, Mongewell, Oxfordshire: Archaeological Evaluation Report	EV	Oxford Archaeological Unit
EOX1545	Wallingford Rowing Club, Mongewell, Oxfordshire:	EV	Oxford Archaeological Unit

	Archaeological Evaluation Report -- Phase 2		
EOX2214	Winterbrook, Wallingford Fieldwalking	FWS	Birmingham University Field Archaeology Unit
EOX2215	Winterbrook, Wallingford	GS	Countryside Planning & Management
EOX2600	Winterbrook	GS	Stratascan
EOX2624	Land West of Reading Road, Winterbrook	EV	Wessex Archaeology
EOX2626	Carmel College	EV	Cotswold Archaeology
EOX2697	Mongewell Grims Ditch	EV	Oxford Archaeological Unit
EOX2827	Land at Winterbrook Lane	EV	Thames Valley Archaeological Services
EOX2828	Land at Winterbrook	DBA	Thames Valley Archaeological Services
EOX2829	Land at Winterbrook	EV	Thames Valley Archaeological Services
EOX2830	Land at Winterbrook, Wallingford, Oxfordshire, Proposed Access Road Corridor	EV	Thames Valley Archaeological Services
EOX2875	Grim's Ditch, Mongewell	EV	Oxford Archaeological Unit
EOX3274	23 Winterbrook Lane	WB	Thames Valley Archaeological Services
EOX3382	The Wall House	WB	Thames Valley Archaeological Services
EOX5507	The Wall House, Mongewell	WB	Thames Valley Archaeological Services
EOX5524	Geophysical Surveys for Communities Against Gravel Extraction	GS	Abingdon Archaeological Geophysics
EOX5735	CABI Headquarters Development	EV	Network Archaeology Ltd
EOX5898	Archaeological Evaluation at Cholsey	EV	John Moore Heritage Services

Historic England Archive

Monuments

HOB_UID	NAME	DESCRIPTION
625291	GRIMS DITCH	(Mongewell or South Oxfordshire Grims Ditch) runs from Mongewell to Henley. It probably marks the territorial boundary of Cuthwulf's conquest of 571, securing the roads and fords over the Thames.
1341177	RIVER THAMES NAVIGATION	River navigation between Lechlade and Teddington. The Lechlade-Oxford section is 30 miles long with 11 locks. The Oxford-Wallingford section is 23 miles long with 8 locks. The Wallingford-Reading section is 17 miles long with 5 locks.
241871		Saxon-Viking iron spearhead was dredged from the River Thames above Bow Bridge, Cholsey.
241804		Two Romano-British inhumation burials
241868		Late Saxon scramasax was dredged from the River Thames above Bow Bridge, Cholsey.
241766		Iron Age artefacts or possibly Bronze Age artefacts as well as a Roman coin were found on the bank of the Thames at Cholsey. Animal and human remains were also found.

241780		Three Neolithic, Peterborough ware bowls dredged up from the River Thames.
1426217	BOAT HOUSE	Boat house defended during World War II. Boat House, Carmel College, River Thames.
1426216		World War II type 28a concrete anti-tank gun emplacement. Carmel College Farm, River Thames.
241828		Fragment of polished stone axe-head found near the river Thames at Cholsey in 1931.
241697	ST MARY THE MORES CHURCH	Medieval church, with tower of circa 1653. The church was almost completely rebuilt in 1854.
241807		A circle cropmark found in a field west of Moulsoford.
241840		Two possible Bronze Age round barrows are visible as cropmarks on air photographs. Both are defined by circular ditches. The more northerly of the two is 30 metres in diameter and appears to contain an inner, concentric ring ditch circa 10 metres in diameter
1126259	HMYOI HUNTERCOMBE	Huntercombe is one of a large number of prisons located on former military sites which opened in the years immediately after 1945. It was a military prison during World War II and opened as an open borstal for boys in September 1946.
904011		Pebble macehead with hour-glass perforations found at Chalmore Lock.
1201138		Possible ditch of unknown date seen as a cropmark.
904017		Two Mesolithic adzes found.
1567020		Former watermill of 1817 on a stream joining the River Thames from a lake in Mongewell Park. It is a brick building of 3 storeys built across the stream. Now converted to flats for the residents of Carmel College.
1201136		Two parallel ditches of unknown date seen as cropmarks.
1201144		Possible bank of unknown date seen as an earthwork.
241843		Palaeolithic flint implement found in gravel near the Thames at Cholsey.
241832		A Neolithic polished axe from the Thames at Cholsey, opposite Mongewell is in the Smith Collection in Reading Museum (Accession Number 119:85).
241791	MONGEWELL	Deserted Medieval village, recorded in 1279 and 1428, but depopulation began in the early 14th century. Whole area now covered by Carmel College.
1201139		Possible ditch of unknown date seen as a cropmark.
1201140		Possible trackway of unknown date seen as cropmarks.
241781	ST MARYS CHURCH	Church. 12th century with 13th century alterations, restoration of 1849. Flint with stone dressings; plain tile roof. Nave and chancel plan with south aisle and porch to north.
1426218		Type 22 shell-proof pillbox.
241777	CHURCH OF ST JOHN THE BAPTIST	The ruin of the former church of St. John the Baptist. It was originally built in the 12th century but has had later restorations: it was remodelled in 1791 and restored in 1880.
1426219		Type 22 shell-proof pillbox.
1201146		Possible bank of unknown date seen as an earthwork.
241877		Bronze 3 of Postumus was found at Winterbrook in 1881.

Events

ACT_UID	NAME	ACTIVITY_T	DESCRIPTION
655578	WHITECROSS	EXC	

	FARM, WALLINGFORD BY-PASS		
1175243	GRIM'S DITCH, MONGEWELL	EVA	
642471	CAPS LANE	EXC	
1053716	WINTERBROOK	EXC	
1354516	LAND AT CEDAR COURT, BROOKFIELD CLOSE	WAT	
655951	WALLINGFORD BY-PASS, MONGEWELL	EVA	
1345778	LAND AT CARMEL COLLEGE	EVA	
1404236	WHITCROSS HOUSE, WINTERBROOK	WAT	
655580	GRIM'S DITCH, MONGEWELL	EVA	
1573424	LAND AT 23 WINTERBROOK LANE	WAT	Site code: WIL12. Monitoring of extension groundworks recorded an undated ditch. Accession no: OXCMS:2012.55. Information from OASIS Online Form.
1177511	WALLINGFORD ROWING CLUB, MONGEWELL	EVA	
1252510	WALLINGFORD ROWING CLUB PHASE 2	EXC	
1571363	THE WALL HOUSE, MONGEWELL	WAT	Site code: WHM12. Monitoring of groundworks recorded a suggested medieval ditch as well as later activity. Information from OASIS Online Form.
1053714	WINTERBROOK	EXC	
1586149	THE WALL HOUSE, MONGEWELL	WAT	Site code: WHM12. Monitoring of Phase 2 groundworks recorded no archaeological activity. Accession no: OXCMS:2013.6. Information from OASIS Online Form.
1590094	LAND NORTH OF WINTERBROOK LANE	EVA	Site code: W70781. Evaluation trenching following geophysical surveys revealed Middle Iron Age occupation features. Accession no: OXCMS:2009.5. Information from OASIS Online Form.
1595439	LAND AT WINTERBROOK	GEO	
1336316	ST MARY'S CHURCH, NEWHAM MURREN	WAT	
1469610	LAND NORTH OF WINTERBROOK	EVA	Five evaluation trenches were excavated in advance of proposed development. No archaeological remains were recorded.

	LANE, WALLINGFORD		
642476	WINTERBROOK	EXC	
1334702	WINTERBROOK, WALLINGFORD	SFC	
1530768	LAND AT WINTERBROOK LANE	EVA	Evaluation in advance of proposed development recorded two undated pits and two undated ditch termini. Information from OASIS Online Form.
1359707	WHITE CROSS HOUSE, READING ROAD, WINTERBROOK	WAT	
655696	GRIM'S DITCH, MONGEWELL PARK	WAT	



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- Site Boundary
- 1km Radius
- Listed Buildings
- Scheduled Monuments
- Wallingford Conservation Area
- Winterbrook Conservation Area



Scale at A3: 1:10,000
0 300 m

White Cross Farm,
Wallingford

Appendix 1:
Designated Assets



— Monuments
Polyline



A horizontal scale bar with alternating black and white segments. The number '0' is at the left end and '300' is at the right end, with a small 'm' for meters at the far right.

Appendix 1: HER Monument Data



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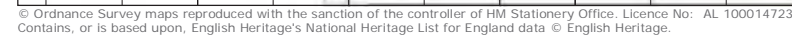
- Site Boundary
- 1km Radius
- Events Point



Scale at A3: 1:10,000
0 300 m

White Cross Farm,
Wallingford

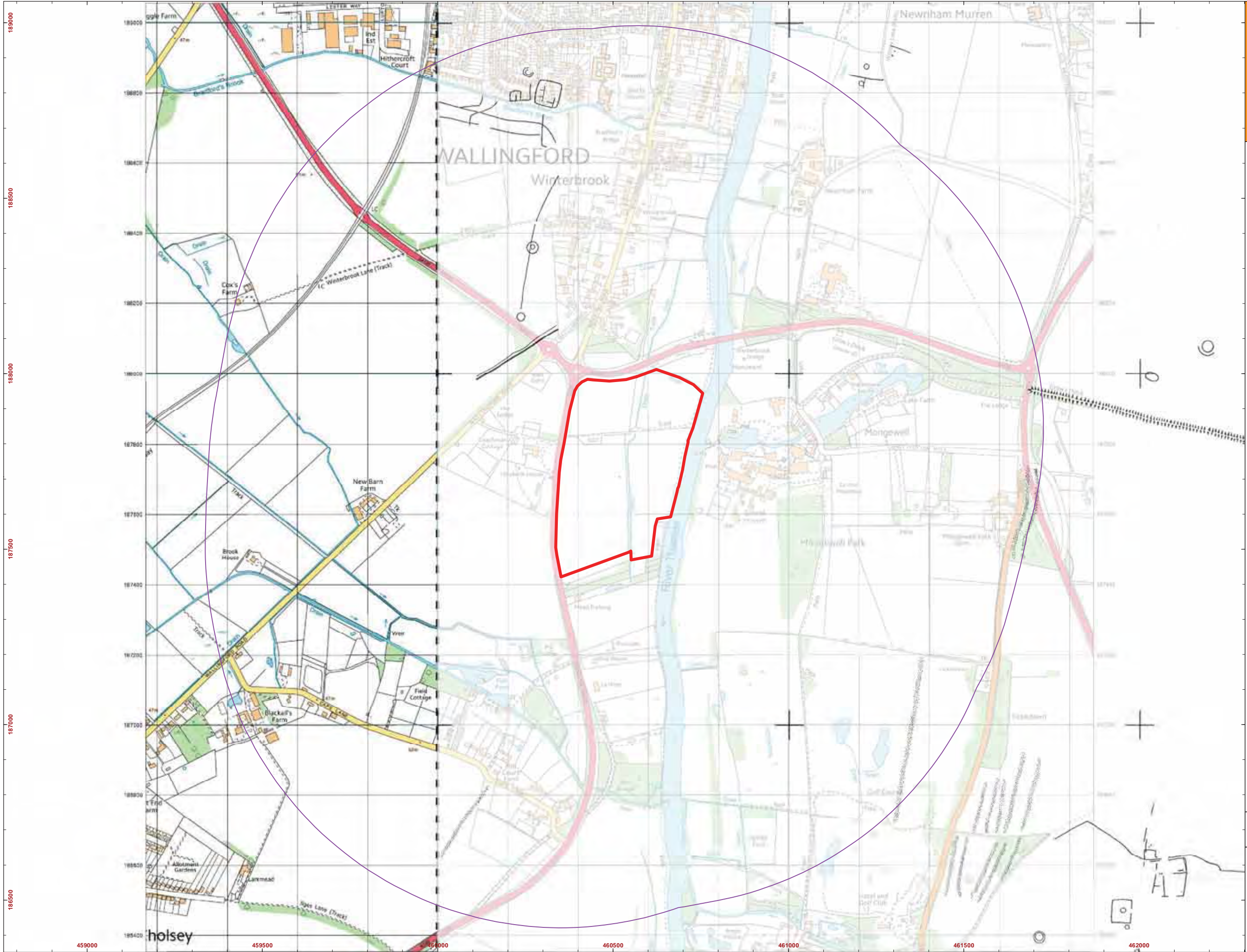
Appendix 1:
HER Event Data



- \pm

A scale bar consisting of a black line with two white rectangular segments in the middle. The number '300' is printed above the right end, and the letter 'm' is printed below the right end.

Appendix 1: HEA Data Plot



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- Site Boundary
- 1km Radius



Scale at A3: 1:10,000
0 300 m

White Cross Farm,
Wallingford

Appendix 1:
NMP Data

Appendix 2: Environment Agency Open Source Lidar Data (DSM)



Hillshade Settings
Direction: 224 degrees
Angle: 45 degrees

Vertical Exaggeration: 10x



Project title:
White Cross Farm, Wallingford, Oxford

Scale at A4: 1:5000
0 100 m

Date printed: Feb 22, 2016	Drawn by: HS Checked by: WB
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Appendix 3: Geophysical Survey Report

GEOPHYSICAL SURVEY REPORT

STRATASCAN™



Project name:
White Cross Farm, Wallingford, Oxfordshire

Client:
CgMs Consulting Ltd

Job ref:
J9580

April 2016

GEOPHYSICAL SURVEY REPORT

Project name: White Cross Farm, Wallingford, Oxfordshire Client: CgMs Consulting Ltd	Job ref: J9580
Survey date: 22nd-24th February, 3rd-4th & 25th March 2016	Report date: April 2016
Field team: Robert Knight BA (Hons) Lukasz Krawec BSc Christian Adams BA (Hons) Rosie Everett BA (Hons)	Project Manager: Simon Haddrell BEng(Hons) AMBCS PCIfA
Report written By: Thomas Richardson MSc ACIfA	Report approved by: David Elks MSc ACIfA
CAD illustrations by: Thomas Richardson MSc ACIfA	Site Director: Peter Barker C.Eng MICE MCIWEM MCIfA FCInstCES
Version number and issue date: V1	Amendments:
04/04/2016	



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1 SUMMARY OF RESULTS

A detailed gradiometry survey was conducted over approximately 17.4 hectares of mixed arable and grassland. The survey has detected areas of modern disturbance that may be associated with the remnants of WWII defensive features along the banks of the River Thames. Two pit features may relate to archaeological activity, however they could equally be natural in origin. The remaining anomalies are natural or modern relating to ploughing, 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 mineral extraction. This survey forms part of an archaeological investigation being undertaken by CgMs Consulting Ltd.

2.2 Site Details

NGR / Postcode	SU 604 878 OX10 9HA
Location	The site lies to the south of Nosworthy Way, Wallingford, Oxfordshire, on the western bank of the River Thames
HER	Oxfordshire Historic Environment Record
District	South Oxfordshire
Parish	Cholsey
Topography	The site is generally flat, with a slight slope towards the River Thames
Current Land Use	Pasture in the northern and eastern field, with arable land in the western field
Weather Conditions	Dry
Soils	The overlying soils are known as Thames, which are typical pelo-calcareous alluvial gley soils. These consist of stoneless calcareous clayey soils (Soil Survey of England and Wales, Sheet 6 South East England).
Geology	The underlying geology for the majority of the site is Glauconitic Marl Member – glauconitic sandstone, with an area of West Melbury Marly Chalk Formation – chalk in the south-west. The drift geology is Northmoor Sand and Gravel Member, Upper Facet – sand and gravel

	across the west of the site, with alluvial deposits of clay, silt, sand, and gravel in the east (British Geological Survey website).
Archaeology	<p>The Thames Valley area was clearly occupied and settled throughout the Prehistoric period and continued into the Roman period. The potential for such activity to be present within the survey area is therefore considered to be moderate. From the Anglo-Saxon period onwards, the survey area is sited beyond any known settlement focus and is likely to have remained an area agricultural land/riverside meadow up to present day. A low potential for significant archaeological activity for all other periods is identified (CgMs forthcoming).</p> <p>A previous gradiometer survey to the west of the site identified two ring ditches and an area of settlement activity including enclosure ditches, field boundaries, and trackways (Abingdon Archaeological Geophysics 2012).</p> <p>Archaeological Data Services' Defence of Britain Archive (2006) shows a number of pillboxes, gun emplacements, and anti-tank defences along both banks of the River Thames. Given the proximity of the site to the Thames it is possible that defences extend into the survey area.</p>
Survey Methods	Gradiometry
Study Area	17.4ha, however areas of overgrown vegetation have reduced the surveyable area to 13.4ha.

2.3 Aims and objectives

To locate and characterise any anomalies of possible archaeological interest within the study area.

3 METHODS, PROCESSING & PRESENTATION

3.1 Standards & Guidance

This report and all fieldwork have been conducted in accordance with the latest guidance documents issued by Historic England (2008) and the Chartered Institute for Archaeologists (2002 & 2014).

Stratascan Ltd are a Registered Organisation with the CIfA and are committed to upholding its policies and standards.

3.2 Survey methods

Given the potential for prehistoric and Roman activity, detailed magnetic survey was used as an efficient and effective method of locating archaeological anomalies.

More information regarding this technique is included in Appendix A.

3.3 Processing

The following schedule shows the basic processing carried out on the hand held collection data used in this report:

1. *Destripe*
2. *Destagger*

The following schedule is used for cart collected data:

1. *Destripe*
2. *Interpolation*

3.4 Presentation of results and interpretation

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

When interpreting the results several factors are taken into consideration, including the nature of archaeological features being investigated and the local conditions at the site (geology, pedology, topography etc.). Anomalies are categorised by their potential origin. Where responses can be related to very specific known features documented in other sources, this is done (for example: Abbey Wall, Roman Road). For the generic categories levels of confidence are indicated, for example: probable, or possible archaeology. The former is used for a confident interpretation, based on anomaly definition and/or other corroborative data such as cropmarks. Poor anomaly definition, a lack of clear patterns to the responses and an absence of other supporting data reduces confidence, hence the classification "possible".

4 RESULTS

The detailed magnetic gradiometer survey conducted at White Cross Farm has identified a number of anomalies that have been characterised as being either of a *probable* or *possible* archaeological origin. The following list of numbered anomalies refers to numerical labels on the interpretation plots.

4.1 *Probable Archaeology*

- 1 Eight areas of magnetically strong responses forming a north-south linear alignment across the west of the site. These are indicative of areas of modern disturbance or debris. WWII pill boxes, gun emplacements, and anti-tank defences are recorded along the banks of the River Thames (Archaeological Data Services 2006), and it is noted that the site is located on the opposite bank of the River Thames to Mongewell, utilised as the headquarters for Number 2 Group Bomber Command.
- 2 Two magnetically strong, parallel linear anomalies in the south-west of the site. These are likely to be modern debris, possibly related to WWII defensive infrastructure.

4.2 Possible Archaeology

- 3 Two small, discrete, positive anomalies in the south-east of the site. These are indicative of small former cut features, such as backfilled pits, and may be archaeological or natural in origin.

4.3 Medieval/Post-Medieval Agriculture

- 4 Two parallel linear anomalies in the centre of the site. Whilst these share an alignment with the possible WWII defensive features they are most likely related to modern agricultural activity.
- 5 An area of closely spaced, parallel linear anomalies in the west of the site. This is indicative of modern agricultural activity, such as ploughing.
- 6 A linear area of strong magnetic responses. This is related to a modern track.

4.4 Other Anomalies

- 7 Six short, positive liner anomalies across the site. These are of unknown origin, however their isolated nature suggests they are more likely to relate to modern agriculture than any archaeological features.
- 8 Areas of magnetic variation across the east of the site. These anomalies are related to alluvial deposits in the area.
- 9 Areas of scattered magnetic debris across the north of the site. These are likely to be modern in origin. Those nearby WWII defences may be debris from that time.
- 10 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.
- 11 A number of magnetic 'spikes' (strong focussed values with associated antipolar response) indicate ferrous metal objects. These are likely to be modern rubbish.

5 DATA APPRAISAL & CONFIDENCE ASSESSMENT

West Melbury chalk geologies, such as that seen across the west of the White Cross Farm site, generally give poor responses to magnetic survey. However, the success of a previous geophysical survey to the immediate west of the site, and within the wider area, suggests that the geology is conducive to magnetic survey and would have detected archaeological features were they present. The alluvial deposits identified across the eastern extent of the site have the potential to mask weaker archaeological features in this area. However, the majority of the survey area does not contain alluvial deposits of great depth that would potentially impede the identification of archaeological features (CgMs forthcoming).

6 CONCLUSION

The survey at White Cross Farm has detected a small number of probable and possible archaeological features primarily relating to possible remnants of WWII defensive features along the banks of the River Thames. No evidence for potential prehistoric or Roman activity, which is seen in the surrounding area, is identified within the survey area. Two discrete pits may relate to archaeological activity, however they could equally be natural in origin. The remaining anomalies are modern or natural in origin. The modern anomalies relate to ploughing, a track, scattered magnetic debris, ferrous objects, and fencing.

7 REFERENCES

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Appendix A - Technical Information: Magnetometer Survey Method

Grid Positioning

For hand held gradiometers the location of the survey grids has been plotted together with the referencing information. Grids were set out using a Trimble R8 Real Time Kinematic (RTK) VRS Now GNSS GPS system.

For cart collected data each data point had its position recorded using a Trimble R10 Real Time Kinematic (RTK) VRS Now GNSS GPS system. The geophysical survey area is georeferenced relative to the Ordnance Survey National Grid.

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. This results in an accuracy of around 0.01m.

Technique	Instrument	Traverse Interval	Sample Interval
Magnetometer	Bartington Grad 601-2	1m	0.25m
Magnetometer	Bartington cart system (Bartington Grad 601 sensors)	1m	0.25m

Instrumentation: Bartington Grad601-2

Bartington instruments operate in a gradiometer configuration which comprises fluxgate sensors mounted vertically, set 1.0m apart. The fluxgate gradiometer suppresses any diurnal or regional effects. The instruments are carried, or cart mounted, with the bottom sensor approximately 0.1-0.3m from the ground surface. At each survey station, the difference in the magnetic field between the two fluxgates is measured in nanoTesla (nT). The sensitivity of the instrument can be adjusted; for most archaeological surveys the most sensitive range (0.1nT) is used. Generally, features up to 1m deep may be detected by this method, though strongly magnetic objects may be visible at greater depths. The Bartington instrument can collect two lines of data per traverse with gradiometer units mounted laterally with a separation of 1.0m. The cart system has four gradiometer units mounted at 1m intervals across its frame – rather than working in grids, the cart uses an on-board survey grade GNSS for positioning. The cart system allows for the collection of topographic data in addition to the magnetic field measurements.

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.

Data Processing

Zero Mean Traverse Step Correction (Destagger)	This process sets the background mean of each traverse within each grid to zero. The operation removes striping effects and edge discontinuities over the whole of the data set. When gradiometer data are collected in 'zig-zag' fashion, stepping errors can sometimes arise. These occur because of a slight difference in the speed of walking on the forward and reverse traverses. The result is a staggered effect in the data, which is particularly noticeable on linear anomalies. This process corrects these errors.
Interpolation	When geophysical data are presented as a greyscale, each data point is represented as a small square. The resulting plot can sometimes have a 'blocky' appearance. The interpolation process calculates and inserts additional values between existing data points. The process can be carried out with points along a traverse (the x axis) and/or between traverses (the y axis) and results in a smoother greyscale image.

Display

Greyscale/ Colourscale Plot This format divides a given range of readings into a set number of classes. Each class is represented by a specific shade of grey, the intensity increasing with value. All values above the given range are allocated the same shade (maximum intensity); similarly all values below the given range are represented by the minimum intensity shade. Similar plots can be produced in colour, either using a wide range of colours or by selecting two or three colours to represent positive and negative values. The assigned range (plotting levels) can be adjusted to emphasise different anomalies in the data-set.

Interpretation Categories

In certain circumstances (usually when there is corroborative evidence from desk based or excavation data) very specific interpretations can be assigned to magnetic anomalies (for example, *Roman Road, Wall*, etc.) and where appropriate, such interpretations will be applied. The list below outlines the generic categories commonly used in the interpretation of the results.

Archaeology/Probable Archaeology This term is used when the form, nature and pattern of the response are clearly or very probably archaeological and /or if corroborative evidence is available. These anomalies, whilst considered anthropogenic, could be of any age.

Possible Archaeology These anomalies exhibit either weak signal strength and / or poor definition, or form incomplete archaeological patterns, thereby reducing the level of confidence in the interpretation. Although the archaeological interpretation is favoured, they may be the result of variable soil depth, plough damage or even aliasing as a result of data collection orientation.

Industrial / Burnt-Fired Strong magnetic anomalies that, due to their shape and form or the context in which they are found, suggest the presence of kilns, ovens, corn dryers, metal- working areas or hearths. It should be noted that in many instances modern ferrous material can produce similar magnetic anomalies.

Former Field Boundary (probable & possible) Anomalies that correspond to former boundaries indicated on historic mapping, or which are clearly a continuation of existing land divisions. Possible denotes less confidence where the anomaly may not be shown on historic mapping but nevertheless the anomaly displays all the characteristics of a field boundary.

Ridge & Furrow Parallel linear anomalies whose broad spacing suggests ridge and furrow cultivation. In some cases the response may be the result of more recent agricultural activity.

Agriculture (ploughing) Parallel linear anomalies or trends with a narrower spacing, sometimes aligned with existing boundaries, indicating more recent cultivation regimes.

Land Drain Weakly magnetic linear anomalies, quite often appearing in series forming parallel and herringbone patterns. Smaller drains will often lead and empty into larger diameter pipes and which in turn usually lead to local streams and ponds. These are indicative of clay fired land drains.

Natural These responses form clear patterns in geographical zones where natural variations are known to produce significant magnetic distortions.

Magnetic Disturbance Broad zones of strong dipolar anomalies, commonly found in places where modern ferrous or fired materials (e.g. brick rubble) are present. They are presumed to be modern.

Service Magnetically strong anomalies usually forming linear features indicative of ferrous pipes/cables. Sometimes other materials (e.g. pvc) cause weaker magnetic responses and can be identified from their uniform linearity crossing large expanses.

Ferrous This type of response is associated with ferrous material and may result from small items in the topsoil, larger buried objects such as pipes, or above ground features such as fence lines or pylons. Ferrous responses are usually regarded as modern. Individual burnt

stones, fired bricks or igneous rocks can produce responses similar to ferrous material.

Uncertain Origin

Anomalies which stand out from the background magnetic variation, yet whose form and lack of patterning gives little clue as to their origin. Often the characteristics and distribution of the responses straddle the categories of *Possible Archaeology* and *Possible Natural* or (in the case of linear responses) *Possible Archaeology* and *Possible Agriculture*; occasionally they are simply of an unusual form.

Where appropriate some anomalies will be further classified according to their form (positive or negative) and relative strength and coherence (trend: weak and poorly defined).

Appendix B - Technical Information: Magnetic Theory

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. 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.

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.

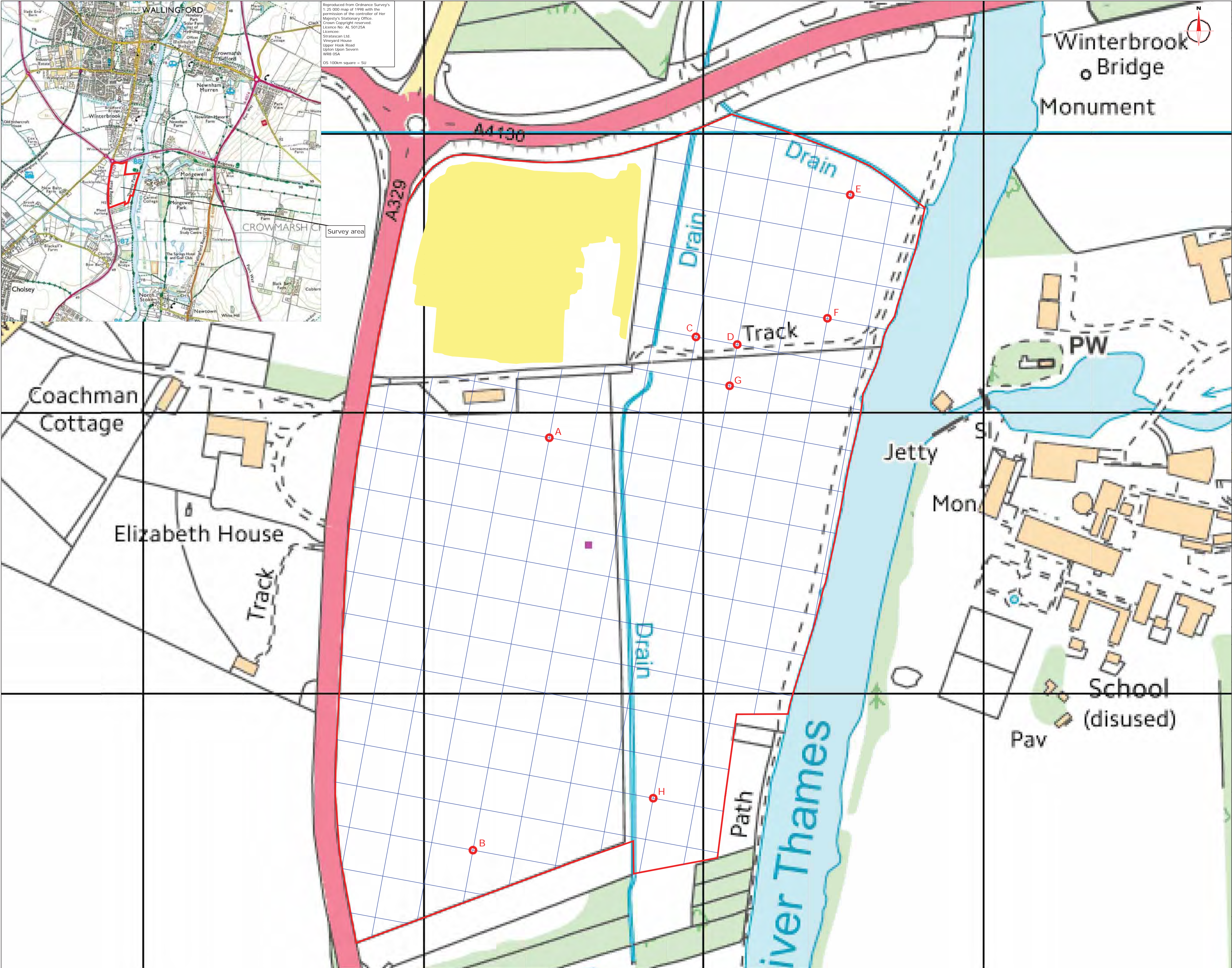
Magnetic survey is carried out using a fluxgate gradiometer which is a passive instrument consisting of two sensors mounted vertically 1m apart. The instrument is carried about 30cm above the ground surface and the top sensor measures the Earth's magnetic field whilst the lower sensor measures the same 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.



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Survey area



Amendments

Issue No.	Date	Description
-	-	-
-	-	-
-	-	-

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Site centred on NGR SU 604 878

KEY

	Hand held collection
	Cart collection

OS REFERENCING INFORMATION

A	460489.65, 187781.17
B	460435.04, 187486.19
C	460594.53, 187853.29
D	460624.03, 187847.83
E	460704.87, 187954.90
F	460688.53, 187866.61
G	460618.57, 187818.33
H	460563.96, 187523.34

Job No.	J9580	Survey Date	FEB 16
Client	CgMs CONSULTING LTD		
Project Title	WHITE CROSS FARM, WALLINGFORD, OXFORDSHIRE		
Subject	SITE LOCATION, SURVEY AREA & REFERENCING		

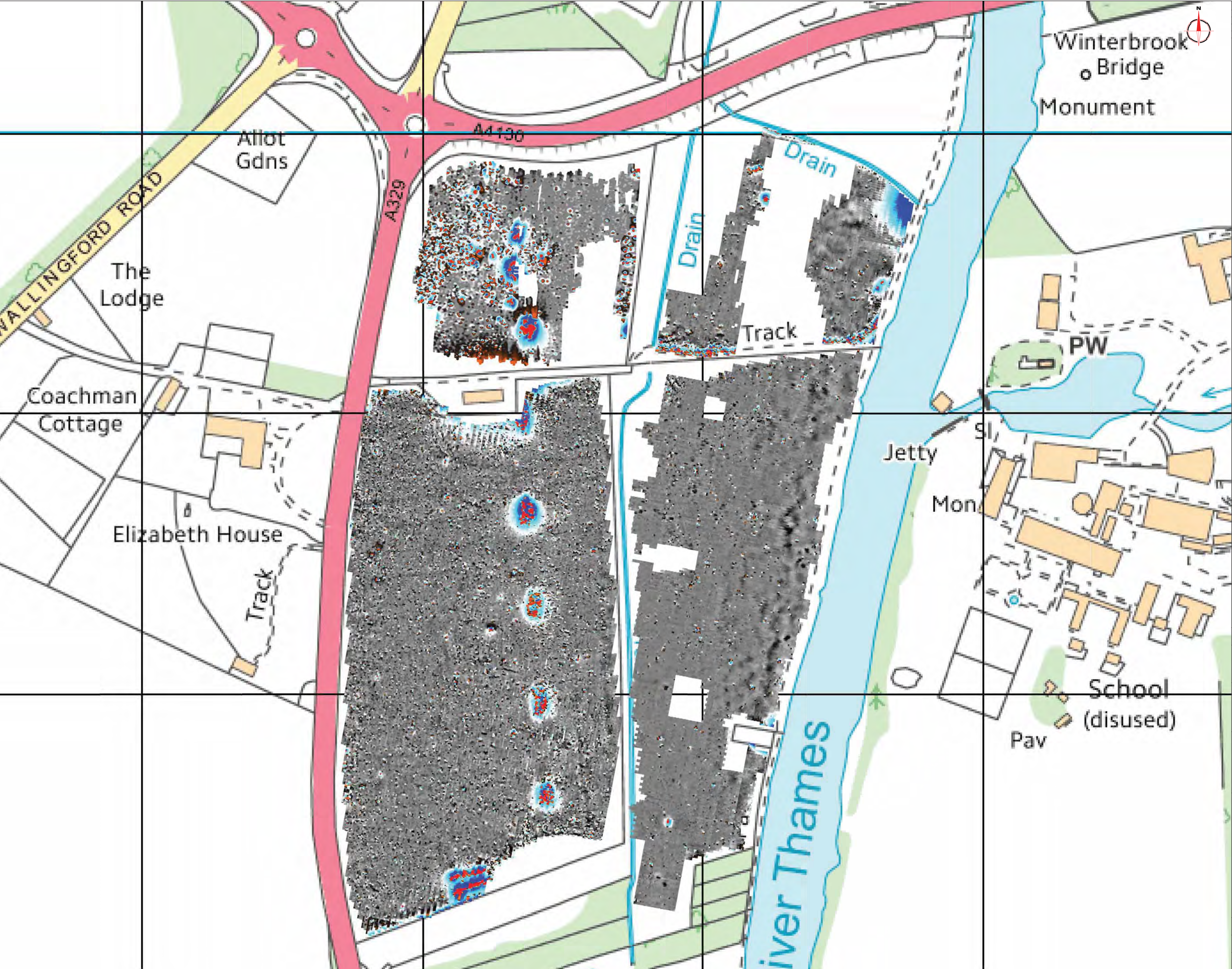
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Scale

1: 1250

0m 10 20 30 40 50 60 70 80m

Plot	A1	Checked by	DGE	Issue No.	01
Date	APR 16	Drawn by	TR	Figure No.	01



Amendments

Issue No.	Date	Description
-	-	-
-	-	-
-	-	-

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Plotting parameters

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

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

Job No.
J9580

Survey Date
FEB 16

Client

CgMs CONSULTING LTD

Project Title

WHITE CROSS FARM,
WALLINGFORD,
OXFORDSHIRE

Subject

COLOUR PLOT OF
GRADIOMETER DATA
SHOWING EXTREME VALUES

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SUMO GROUP MEMBER

IMS 150 years certified

IMS 150 years certified

IMS 150 years certified

Scale

1:1250

0m 10 20 30 40 50 60 70 80m

Plot

A1

Checked by

DGE

Issue No.

01

Date

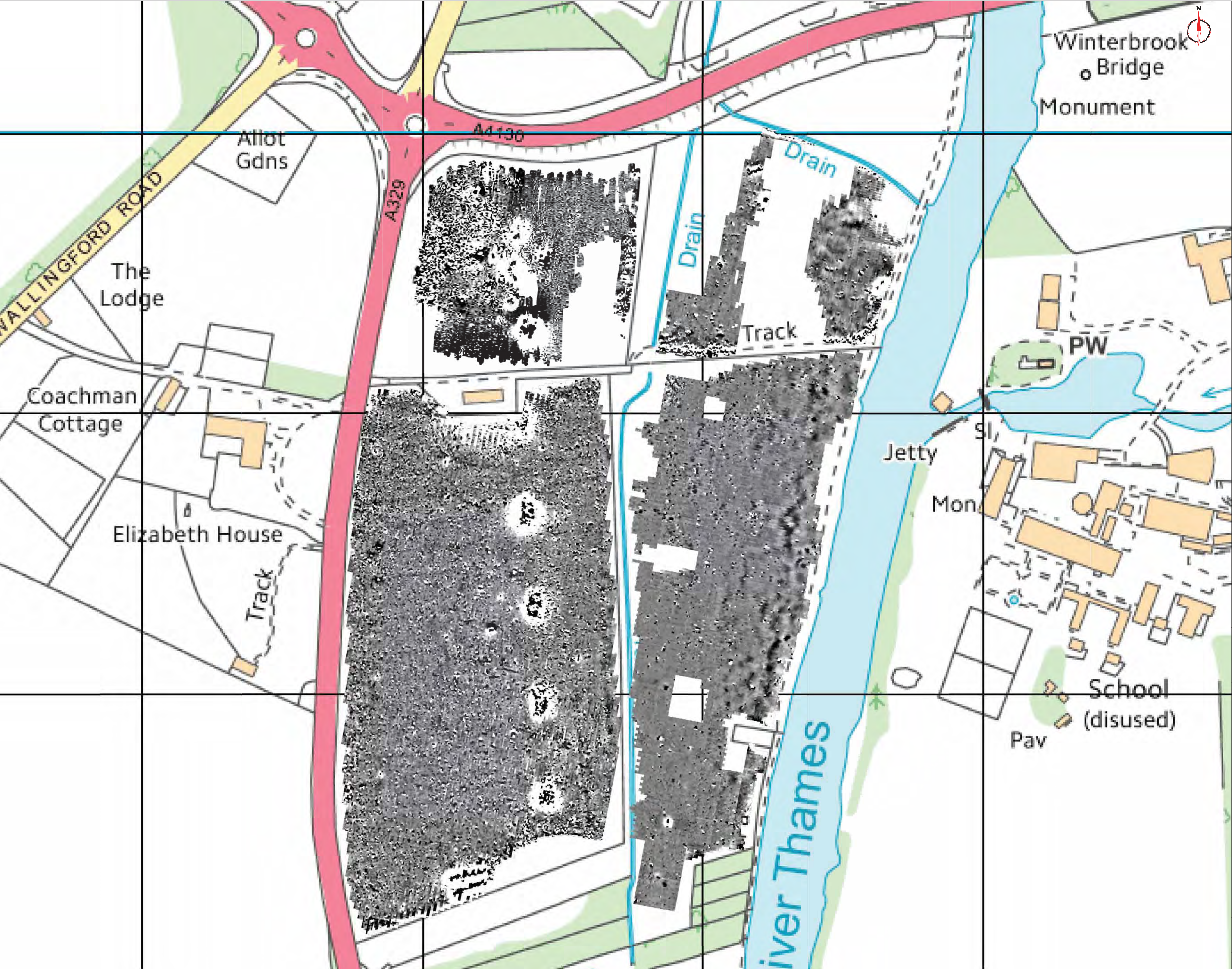
APR 16

Drawn by

TR

Figure No.

02



Amendments		
Issue No.	Date	Description
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-	-	-
-	-	-

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Plotting parameters

Maximum +2nT (black)
Minimum -2nT (white)

Zero Mean

-2nT +2nT

+2nT

-2nT

Job No.	J9580	Survey Date	FEB 16
Client			
CgMs CONSULTING LTD			
Project Title			
WHITE CROSS FARM, WALLINGFORD, OXFORDSHIRE			
Subject			
PLOT OF MINIMALLY PROCESSED GRADIOMETER DATA			

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GPR ASSOCIATION

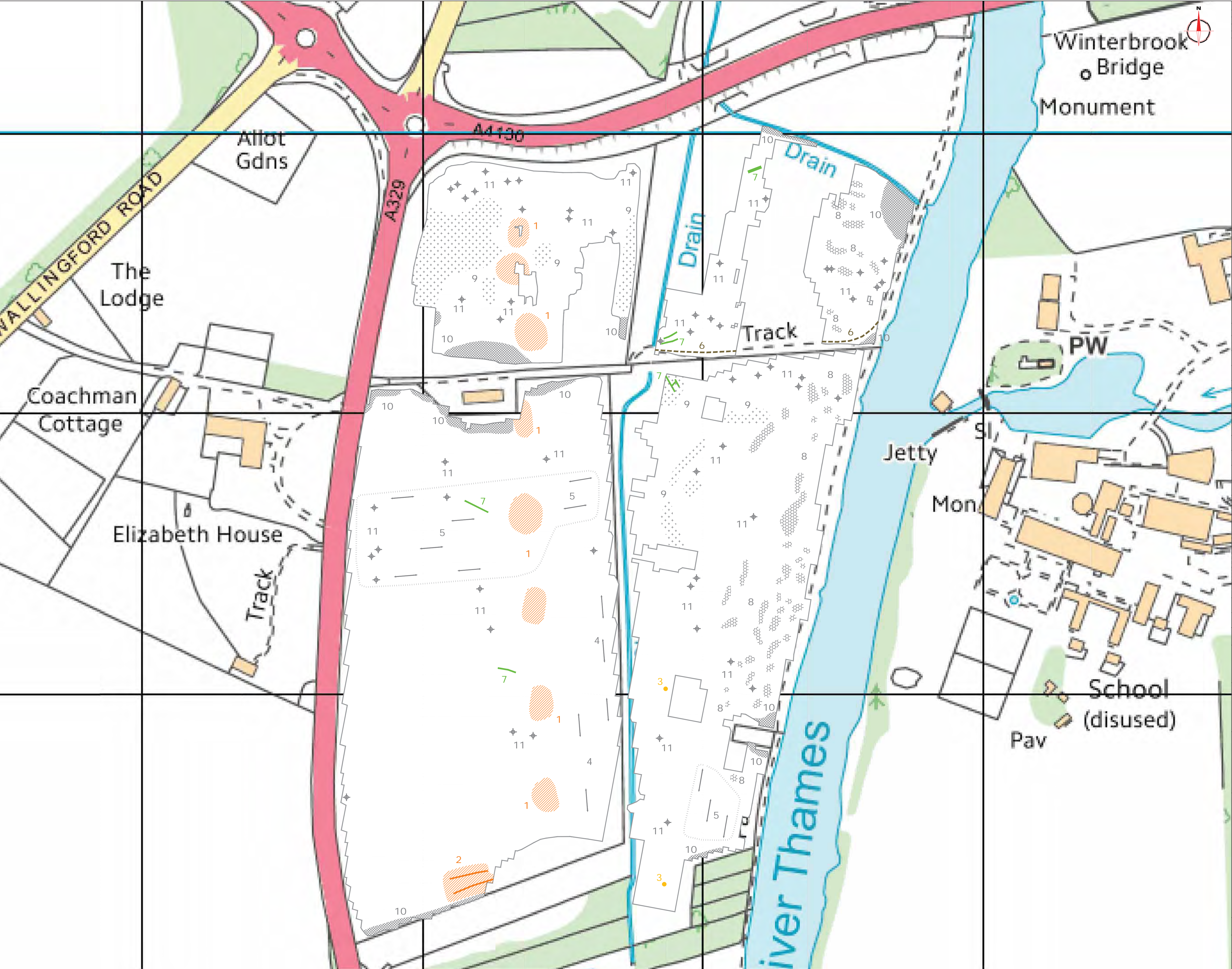
SUMO
SUMO GROUP MEMBER

IMS 150 years certified
IMS 150 years certified
IMS 150 years certified

Scale
1:1250

0m 10 20 30 40 50 60 70 80m

Plot	Checked by	Issue No.
A1	DGE	01
Date	Drawn by	Figure No.
APR 16	TR	03



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

Probable WWII defence infrastructure

POSSIBLE ARCHAEOLOGY

Positive anomaly / weak positive anomaly - possible cut feature of archaeological origin

MEDIEVAL/POST-MEDIEVAL AGRICULTURE

Widely spaced curving parallel linear anomalies - probably related to ridge-and-furrow

OTHER ANOMALIES

Linear anomaly - probably related to pipe, cable or other modern service

Job No.

J9580

Survey Date

FEB 16

Client

CgMs CONSULTING LTD

Project Title

WHITE CROSS FARM,
WALLINGFORD,
OXFORDSHIRE

Subject

ABSTRACTION AND
INTERPRETATION OF
GRADIOMETER ANOMALIES

STRATASCAN™

GEOPHYSICS FOR ARCHAEOLOGY
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GPS

ASSOCIATION

SUMO

150 years
certified

SUMO

GROUP
MEMBER

IMS

50 years
certified

IMS

50 years
certified

Scale

1: 1250

0m 10 20 30 40 50 60 70 80m

Plot

A1

Checked by

DGE

Issue No.

01

Date

APR 16

Drawn by

TR

Figure No.

04



Land at White Cross Farm

Wallingford, Oxfordshire

Archaeological Evaluation

Date: June 2016

By: Callum Allsop

Client: for CgMs Consulting

Project Code: WCFW16

Land at White Cross Farm

Wallingford, Oxfordshire

Archaeological Evaluation

Client	For CgMs Consulting
Project Code	WCFW16
Prepared By	Callum Allsop/Mark Collard
Illustrated By	Jonathan Millar

Rev Number	Description	Undertaken	Approved	Date
1.0	Final	CA	MC	27 June 2016
2.0	Revised after CgMs review	MC	MC	29 June 2016

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1. SUMMARY OF RESULTS

Project Name:	Land at White Cross Farm
Location:	Wallingford, Oxfordshire
NGR:	SU 60500 87689
Type:	Evaluation
Date:	6-10 June 2016
Location of Archive:	To be deposited with Oxfordshire Museum Service
Site Code:	WCFW16

An archaeological evaluation was undertaken at land at White Cross Farm, Wallingford, by Rubicon Heritage Services UK Ltd for CgMs Consulting.

Sixteen trenches were excavated. One trench at the northern end of the site contained undated postholes, presumed to be associated with recorded nearby prehistoric settlement activity. A small amount of abraded prehistoric pottery and a single struck flint flake were recovered from the surface of an alluvial deposit at the base of another trench. No other archaeological features or artefacts were recorded.

2. INTRODUCTION

2.1 Project background

- 2.1.1 This report details the results of an archaeological evaluation, conducted between 6 and 10 June 2016, on land at White Cross Farm, Wallingford, Oxfordshire (Figure 1). The work was undertaken by Rubicon Heritage Services Ltd for CgMs Consulting.
- 2.1.2 The evaluation was required in relation to consideration of the site for mineral extraction and subsequent use of the site as a marina. Following consultation by CgMs Consulting with Hugh Coddington, Archaeologist for Oxfordshire County Council, archaeological advisor to the mineral planning authority (Oxfordshire County Council), it was recommended that a programme of trial trench evaluation of the site be carried out. This report details the results of that evaluation, which was carried out in accordance with a detailed *Written Scheme of Investigation* (WSI) for archaeological evaluation prepared by Rubicon Heritage and approved in advance of the works by Mr Coddington (Rubicon Heritage 2016).
- 2.1.3 The fieldwork also followed the *Standard and Guidance for Archaeological Field Evaluation* (CIfA 2014), the *Management of Archaeological Projects 2* (English Heritage 1991) and the *Management of Research Projects in the Historic Environment (MORPHE): Project Manager's Guide* (Historic England 2015). It was monitored by Mr Coddington, during a site visit on the 8 June 2016.

2.2 Site Location & Description

- 2.2.1 The proposed development site comprises agricultural land measuring 17.5ha in area, located to the south of the town of Wallingford to the west of the River Thames, with the A4310 and the A329 forming the northern and western site boundaries. The site is predominantly flat and lies at c. 44m AOD, with a slight rise towards the north-western corner to c. 47m AOD.

2.3 Archaeological Background

- 2.3.1 An Archaeological Desk-based Assessment has been prepared by CgMs Consulting in connection with the application for planning consent, and reference should be made to that report for the full archaeological background (CgMs Consulting 2016) and it is not considered necessary to reprise the detail of that report here. In summary, while there are no previously recorded heritage assets within the site there is potential for previously unrecorded buried archaeological remains to exist. The site lies in the Thames Valley which has good archaeological evidence for human activity from early prehistory onwards through the Roman and into the medieval period in the wider area.
- 2.3.2 A geophysical survey of the site, carried out in 2016 by Stratascan (2016) did not identify any anomalies which were considered to be significant archaeological features.

3. AIMS & METHODOLOGY

3.1 The aims and objectives of the evaluation

3.1.1 In accordance with *Standard and guidance: Archaeological field evaluation* (CIfA 2014), the evaluation was designed to be minimally intrusive and minimally destructive to archaeological remains. The information gathered will enable the local planning authority to identify and assess the particular significance of any heritage asset, consider the impact of the proposed development upon it, and to avoid or minimise conflict between the heritage asset's conservation and any aspect of the development proposal, in line with the *National Planning Policy Framework* (Department of Communities and Local Government 2012). The objectives of the evaluation were to establish the character, quality, date and extent of any archaeological remains or deposits surviving within the site. This information will assist Oxfordshire County Council in making an informed judgement on the significance of the archaeological resource, and the likely impact upon it of the proposed development. The aims of the evaluation were to;

- Establish the archaeological significance or otherwise of anomalies highlighted on the geophysical survey.
- Determine the extent, condition, nature, character, date and significance of any archaeological remains encountered
- Establish the nature of the activity on the site.
- Identify any artefacts relating to the occupation or use of the site.
- Provide further information on the archaeology of the site from any archaeological remains encountered.
- These results will be used to inform any potential need for further archaeological evaluation or mitigation works.

These aims were to be achieved through pursuit of the following specific objectives:

- To define and identify the nature of archaeological deposits on site, and date these where possible;
- To attempt to characterise the nature and preservation of the archaeological sequence and recover as much information as possible about the spatial patterning and extent of features present on the site;
- To recover a well dated stratigraphic sequence which will attempt to determine the complexity of the horizontal and vertical stratigraphy present, and to recover coherent artefact, ecofact and environmental samples;

- To determine the potential of the site to provide palaeoenvironmental and/or economic evidence and the forms in which such evidence may be present;
- To define any research priorities that may be relevant should further field investigation be required; and
- To establish the significance of the archaeology encountered on site. The objectives of the evaluation are to provide information about the archaeological resource within the site, including its presence/absence, character, extent, date, integrity, state of preservation and quality.

3.2 Methodology

- 3.2.1 The archaeological fieldwork was undertaken by Rubicon Heritage Ltd between 6 and 10 June 2016. A total of sixteen trenches measuring 30m long x 1.8m wide were excavated at the locations shown on the attached plan (Fig. 2).
- 3.2.2 The trenches were set out on OS National Grid (NGR) co-ordinates using a Trimble R6 GPS unit (Figure 2). All information identified in the course of the site works was recorded stratigraphically, with sufficient pictorial record (plans, sections and photographs) to identify and illustrate individual features.
- 3.2.3 All trenches were excavated by an 8 tonne excavator equipped with a flat-bladed grading bucket. All trenches were excavated under constant archaeological supervision. Non-significant overburden was removed in shallow spits until the first archaeological horizon or undisturbed geological substrate were exposed. Thereafter any identified deposits were cleaned and investigated by hand to define their extent, nature, form and, where possible, date.
- 3.2.4 All archaeological deposits and features were subjected to appropriate levels of investigation. The investigative work was carried out in such a way as to not comprise the integrity of the feature with regards to future study.
- 3.2.5 All identified deposits were assessed for their palaeoenvironmental potential in accordance with: *Environmental Archaeology: a guide to the theory and practice of methods from sampling and recording to post-excavation*, 2nd Edition (English Heritage). No deposits were identified during the evaluation that required sampling.
- 3.2.6 The artefact collection policy was concerned with the provision of adequate samples for meeting the objectives of the work. Rubicon Heritage treats all retained finds in accordance with the English Heritage guidance document: *A Strategy for the Care and Investigation of Finds* (English Heritage, 1995) and the UKIC's document *Guidelines for the Preparation of Excavation Archives for Long Term Storage* (UKIC, 1990). The artefacts identified during the evaluation originated from modern activity, comprising red brick fragments, modern domestic and horticultural ceramics and window glass. This material was not retained.

- 3.2.7 The archive from the evaluation is currently held by Rubicon Heritage Services UK Ltd at their offices in Tewkesbury. A summary of information from this project, set out within Appendix 2, will be entered onto the OASIS online database of archaeological projects in Britain and a summary report published in South Midlands Archaeology.

4. THE EVALUATION RESULTS

4.1 Geology

- 4.1.1 The underlying geology for the study site is primarily mapped as Glauconitic Marl Member, comprising glauconitic sandstone. A small area of the south-western extent of the study site is mapped as chalk of the West Melbury Marly Chalk Formation. Overlying sand and gravel deposits of the Northmoor Sand and Gravel Member are mapped across the study site. Alluvium deposits associated with the adjacent River Thames are also recorded across the eastern extent of the study site. A series of boreholes conducted across the study site has recorded Thames Terrace Sand and Gravel between 0.5m – 4.4m in thickness, varying in depth between c.0.7m in the west to over 2m deep across the eastern part of the site. Alluvial deposits of over 1.5m in depth were encountered across the eastern extent of the study site only (Greenfield Associates 2014 and 2015 borehole logs). The evaluation confirmed the nature of the Superficial deposits but demonstrated that there were also extensive areas of silty clay within the surface deposits of the sands and gravels, with evidence for shallow infilled palaeochannels. It is likely that the site was less well-drained than may normally be expected on sands and gravels.

4.2 Trench Records

- 4.2.1 Archaeological features were only found in Trench 3, at the northern end of the site. The remaining trenches contained a consistent sequence of topsoil over subsoil and, where present, alluvium. A small amount of prehistoric pottery and a struck flint flake were recovered from the base of the subsoil at its interface with the alluvium in Trench 16 but there were no associated features, and the finds were abraded, suggesting they had possibly been waterborne and deposited during an episode of alluviation. In Trenches 1 and 14, large cut features filled more than half of each trench, filled with modern debris including tarmac, concrete and wire; these corresponded to large anomalies on the preceding geophysical survey, part of a linear series of anomalies running north-south across the site. They may be infilled small borrow pits for sand and gravel.

Trench 3. Figure 3

- 4.2.2 A group of nine postholes were excavated at the western end of the trench (3003, 3005, 3007, 3009, 3011, 3013, 3015, 3017 and 3019). They did not form any recognisable pattern within the

narrow trench, and were of different sizes and surviving depths, though broadly fell into two groups – those which survived to 0.5m deep and a shallower group to 0.1m deep. They measured between 0.18m and 0.5m in diameter. No finds were recovered from the features.

4.3 The Finds Evidence

Prehistoric pottery by C Jane Evans, Worcestershire Archaeology

- 4.3.1 All the finds came from one context, from the base of the subsoil above the alluvium in Trench 16. The finds were fragmentary and abraded and only broad dating was possible.

Period	object specific type	count	weight (g)
Prehistoric	pot	5	23
Mesolithic/Bronze Age	flint	1	1.1

The five sherds were in a range of fabrics, classified on the basis of main inclusions. They divided into flint-tempered wares and sand-tempered wares. The flint tempered wares were particularly fragmentary, with average weights of 2g. The temper and firing, with a dark grey core and oxidised surfaces, suggest an earlier date, perhaps Bronze Age. Detailed analysis of the fabrics, in relation to other assemblages in the vicinity, might help refine the dating. The fine sandy ware sherds had similar firing. The other sandy sherd was an abraded rim, fired very dark grey throughout, and the heavy abrasion of the rim made it difficult to determine its angle, whether in-turned rim from a barrel-shaped jar, or the more upright and from a bowl.

fabric group	count	weight	average weight
flint	1	2	2
fine flint	1	2	2
fine sand	2	6	3
sand	1	13	13
total	5	23	4.6

Prehistoric pottery by fabric

The flint by Rob Hedge Worcestershire Archaeology

- 4.3.2 A single 1.1g flake on medium-grained translucent brown-grey flint was broadly datable from the Mesolithic to the Bronze Age, though a date in the earlier part of that range seems more likely. The pronounced bulb of percussion and distal step fracture suggest hard-hammer percussion, more commonly associated with later prehistoric flintworking. However, the signs of platform abrasion are indicative of an earlier (ie Mesolithic to Neolithic) date. The latter is

supported by the presence of dorsal cortex, indicating an early stage in the reduction sequence during which hard hammers are known to be used in Mesolithic and Neolithic flintworking (Butler 2005, 86).

5. DISCUSSION

- 5.1 The results of the trenching corroborate the results of the preceding geophysical survey and the only archaeological remains within the site are the small group of undated postholes in Trench 3. These are most likely to be of later prehistoric or Roman date, given the presence of settlement of those periods to the north and west of the site. The small group of artefacts in Trench 16 were abraded and it seems likely that they were deposited downstream from nearby known prehistoric settlements during episodes of flooding and alluviation, and may derive from deposits from the known Bronze Age settlement on the eyot at Whitecross Farm excavated by Oxford Archaeology ahead of the Wallingford bypass construction.
- 5.2 The absence of evidence for any previous activity on the site may be related to the fact that the site was alluvial on its eastern side and within the main body of the site the presence within the underlying geological of sticky fine-grained silty clays and palaeochannels rather than uninterrupted free-draining sands and gravels suggests this may have been marginal land previously, not suited to permanent settlement, except where the ground rises slightly at the northern end of the site, which is where the postholes were found.

6. REFERENCES

- Barclay A. and Lambrick, G. 2006 *Late Bronze Age Ritual and Habitation on a Thames Eyot at Whitecross Farm, Wallingford: The Archaeology of the Wallingford Bypass, 1986-92*. Oxford University School of Archaeology for Oxford Archaeology
- CgMs Consulting 2016 *White Cross Farm, Wallingford, Oxfordshire. Archaeological Desk-based Assessment*. CgMs report **HS/21535**
- Rubicon Heritage 2016 *Land at White Cross Farm, Wallingford, Oxfordshire. Written Scheme of Investigation for Archaeological Evaluation*
- Stratascan 2016 *White Cross Farm, Wallingford, Oxfordshire. Geophysical Survey Report*. Report ref. **J9580**

ARCHIVE STATEMENT

The site archive is comprised of the following materials:

Item	Quantity
Trenching and field recording sheets	18
GPS Plans	1 Digital
Field Drawings	2 sheets
Digital Photographs	63
Registers (Context, finds, drawing, photo)	4
Samples	N/A

The archive material is contained within one box.

The archive is currently stored in the offices of Rubicon Heritage Services UK Ltd and will be deposited with Oxfordshire Museum Service.

APPENDIX 1 CONTEXT REGISTER

Context no.	Trench No.	Type	Length (m)	Width (m)	Depth (m)	Description
	1 to 16	Deposit	-	-	0.2 - 0.3	Topsoil
	1 to 16	Deposit	-	-	0.12 - 0.5	Subsoil
	1 to 16	Deposit	-	-	-	Natural
3003	3	Cut	0.32	0.26	0.11	Post-hole cut
3004	3	Fill	0.32	0.26	0.11	Post-hole fill
3005	3	Cut	0.32	0.3	0.24	Post-hole cut
3006	3	Fill	0.32	0.3	0.24	Post-hole fill
3007	3	Cut	0.6	0.5	0.42	Post-hole cut
3008	3	Fill	0.6	0.5	0.42	Post-hole fill
3009	3	Cut	0.44	0.42	0.5	Post-hole cut
3010	3	Fill	0.44	0.42	0.5	Post-hole fill
3011	3	Cut	0.5	0.4	0.5	Post-hole cut
3012	3	Fill	0.5	0.4	0.5	Post-hole fill
3013	3	Cut	0.18	0.2	0.1	Post-hole cut
3014	3	Fill	0.18	0.2	0.1	Post-hole fill
3015	3	Cut	0.2	0.4	0.5	Post-hole cut
3016	3	Fill	0.2	0.4	0.5	Post-hole fill
3017	3	Cut	0.18	0.14	0.1	Post-hole cut
3018	3	Fill	0.18	0.14	0.1	Post-hole fill
3019	3	Cut	0.3	0.3	0.1	Post-hole cut

3020	3	Fill	0.3	0.3	0.1	Post-hole fill
3021	3	Cut	0.24	0.2	0.1	Post-hole cut
3022	3	Fill	0.24	0.2	0.1	Post-hole fill

APPENDIX 2 OASIS REPORT FORM

PROJECT DETAILS		
Project Name	Land at White Cross Farm, Wallingford, Oxfordshire	
Short description	<p>An archaeological evaluation was undertaken at land at White Cross Farm, Wallingford, by Rubicon Heritage Services UK Ltd for CgMs Consulting.</p> <p>Sixteen trenches were excavated. One trench at the northern end of the site contained undated postholes, presumed to be associated with recorded nearby prehistoric settlement activity. A small amount of abraded prehistoric pottery and a single struck flint flake were recovered from the surface of an alluvial deposit at the base of another trench. No other archaeological features or artefacts were recorded.</p>	
Project dates	6 to 10 June 2016	
Project type	Field Evaluation	
Previous work	Desk-based assessment; geophysical survey	
Future work	Unknown	
PROJECT LOCATION		
Site Location	Land at White Cross Farm, Wallingford, Oxfordshire	
Study area (M2/ha)	17.5ha	
Site co-ordinates	NGR SU 60500 87689	
PROJECT CREATORS		
Name of organisation	Rubicon Heritage Services UK Ltd	
Project Brief originator	Oxfordshire County Council	
Project Design (WSI) Originator	Mark Collard	
Project Manager	Mark Collard	
Project Officer	Simon Roper	
MONUMENT TYPE	None	
SIGNIFICANT FINDS	None	
PROJECT ARCHIVES	Intended final location of archive (Museum/ Accession no.)	Content
Physical	Oxfordshire County Museum	Pottery and flint
Paper	Oxfordshire County Museum	Registers, trench recording sheets, context sheets, survey sheets. Plans and sections
Digital	Oxfordshire County Museum	Digital photographs
BIBLIOGRAPHY		
Rubicon Heritage 2016 <i>Land at White Cross Farm, Wallingford, Oxfordshire: Archaeological Evaluation. Typescript report</i>		

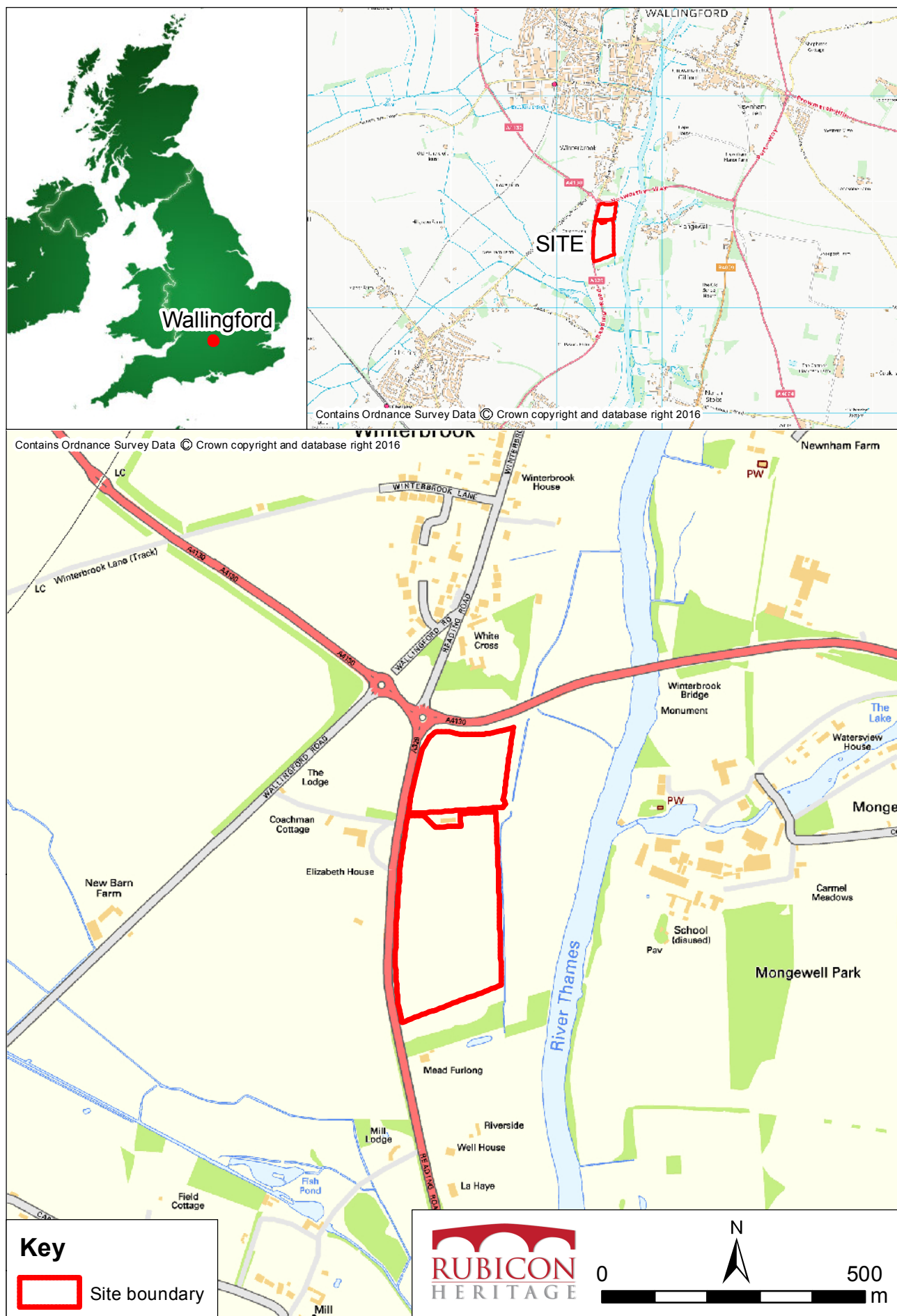


Figure 1 - Wallingford, Oxfordshire: Site location.

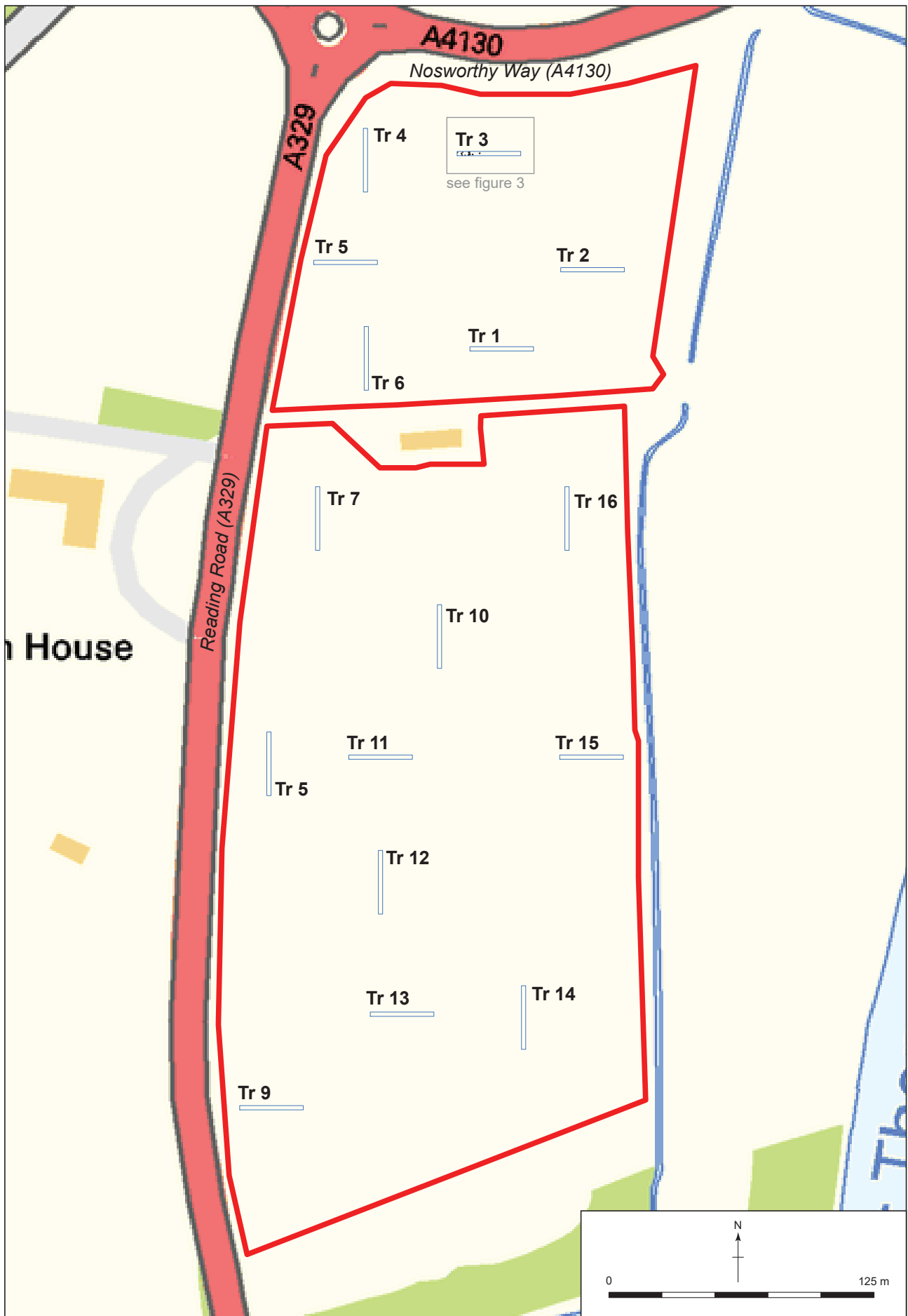
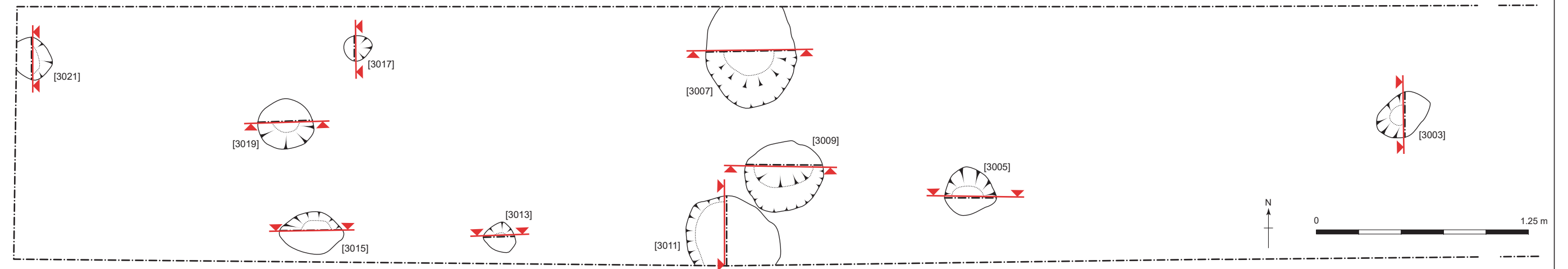


Figure 2 - Wallingford, Oxfordshire: Trench location.

Trench 3 plan (1:25)



Trench 3 sections (1:20)

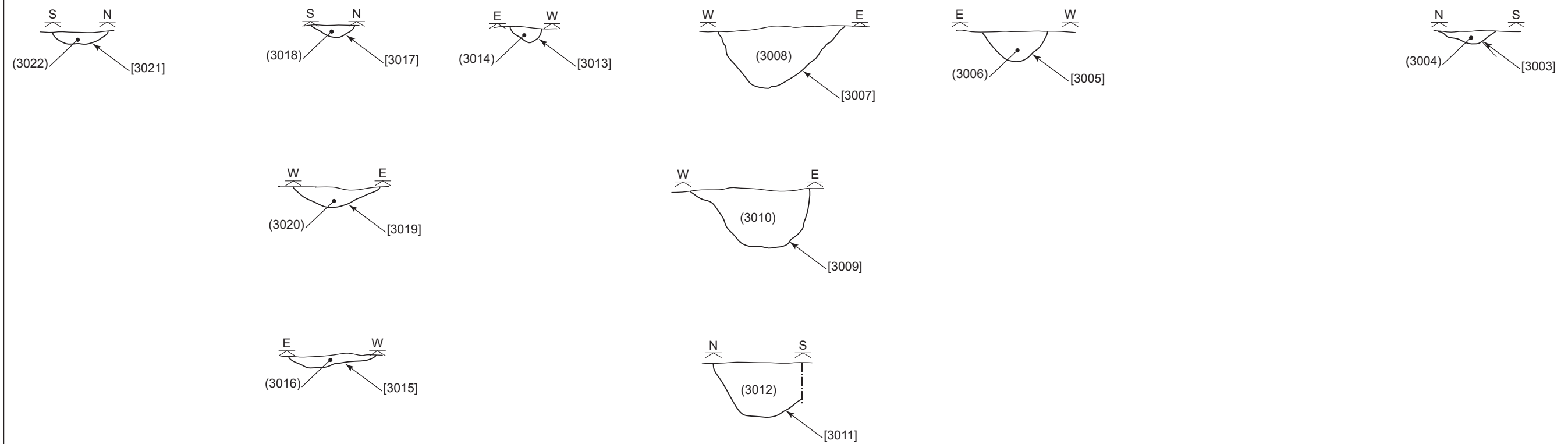


Figure 3 - Wallingford, Oxfordshire: Trench 3 plan and section details.

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