

P21-311



Little Heath Solar Farm, Little Heath Lane, Hemel Hempstead

Archaeological Desk-Based Assessment

for Energi Generation

26/01/2022

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January 2022

Ver 1.3

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PROJECT TEAM:

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NON-TECHNICAL SUMMARY

This report was commissioned by ADAS Ltd and presents the results of an archaeological desk-based assessment (DBA) to support a planning application to construct a solar array (to be known as Little Heath Solar Farm) on land between Little Heath Lane and Pouchen End, to the north of Bourne End, Hemel Hempstead, Hertfordshire, nearest postcode HP4 2RY, centred on NGR 502070, 207016.

A Screening Opinion issued by Dacorum District Council (reference 21/04395/SCE) concluded that an Environmental Impact Assessment would not be required for the proposed development. A separate Built Heritage Statement for the proposed development concluded that it would not harm any designated heritage asset through changes to their setting.

There are no designated within the PDA boundary. There are 20 designated heritage assets within the wider Study Area. 17 of these are Grade II listed buildings of Post-Medieval or Modern date, one is a locally registered Post-Medieval garden, and two are Conservation Areas. These heritage assets derive their significance from their architectural and historical interest and are of Medium (Regional) importance.

There are 38 non-designated heritage assets within the Study Area. Three of these are of Iron Age date; three are of Romano-British date; two are of Medieval – Post-Medieval date; 25 are of Post-Medieval date; one is of Modern date; one is a multiperiod site; and three are of unknown but probable historic date. These heritage assets derive their significance from their archaeological and historical interest. They are of Negligible or Low (Local) importance.

Seven previously unrecorded non designated heritage assets have been identified within the PDA. These include a section of the Medieval and/or Post-Medieval parish boundary; elements of the Post-Medieval field system and built heritage landscape; a Post-Medieval linear feature which may relate to historic drainage systems and water sources; and a Modern field boundary.

The PDA also falls within one Area of Archaeological Sensitivity (AAS) and lies close to a second AAS. These heritage assets derive their significance from their archaeological and historical interest and are of Low (Local) importance. A probable lynchet was identified as abutting the PDA's boundary during the site visit, and numerous likely geomorphological features including a dry river valley, which may contain deposits of Holocene date, and several depressions were recorded.

A geophysical survey carried out by Headland Archaeology on the PDA in December 2021 found no evidence of settlement activity or extensive archaeological remains, with the majority of identified anomalies being geological in nature. It did identify the below-ground remains of a section of the Northchurch and Hemel Hempstead parish boundary.

There is deemed to be low potential for Palaeolithic remains to be encountered within the PDA; negligible potential for Mesolithic remains to be encountered within the PDA; low potential for Neolithic – Modern; and medium potential for palaeoenvironmental remains to be encountered within the PDA.

The nature of the known heritage assets within the PDA and wider Study Area suggest that any unknown heritage assets present within the PDA are likely to take the form of findspots or isolated archaeological features most probably dating to the Early Medieval – Modern periods. Potential heritage assets within the PDA are likely to derive their significance from their archaeological and historical interest and most probably be of Negligible or Low (Local) importance.

Groundworks associated with the proposed development could impact upon known and unknown archaeological remains within the PDA. The settings of known non-designated heritage assets will not be impacted by the proposed development and therefore no further settings assessment is thought to be required. It is possible that the local authority may require archaeological investigation of the site. This could be secured as a condition of consent. Depending upon the results of such an investigation, mitigation measures may be required.

On the basis of the extant information, there are not considered to be likely impacts on the historic environment of such significance that they should prevent development of the site, although there may be a requirement for investigations and mitigation measures.

Any such works should be conducted by a suitably qualified archaeological organisation in accordance with a written specification (WSI) agreed in advance with the Local Planning Authority.

1. INTRODUCTION

1.1. PLANNING BACKGROUND

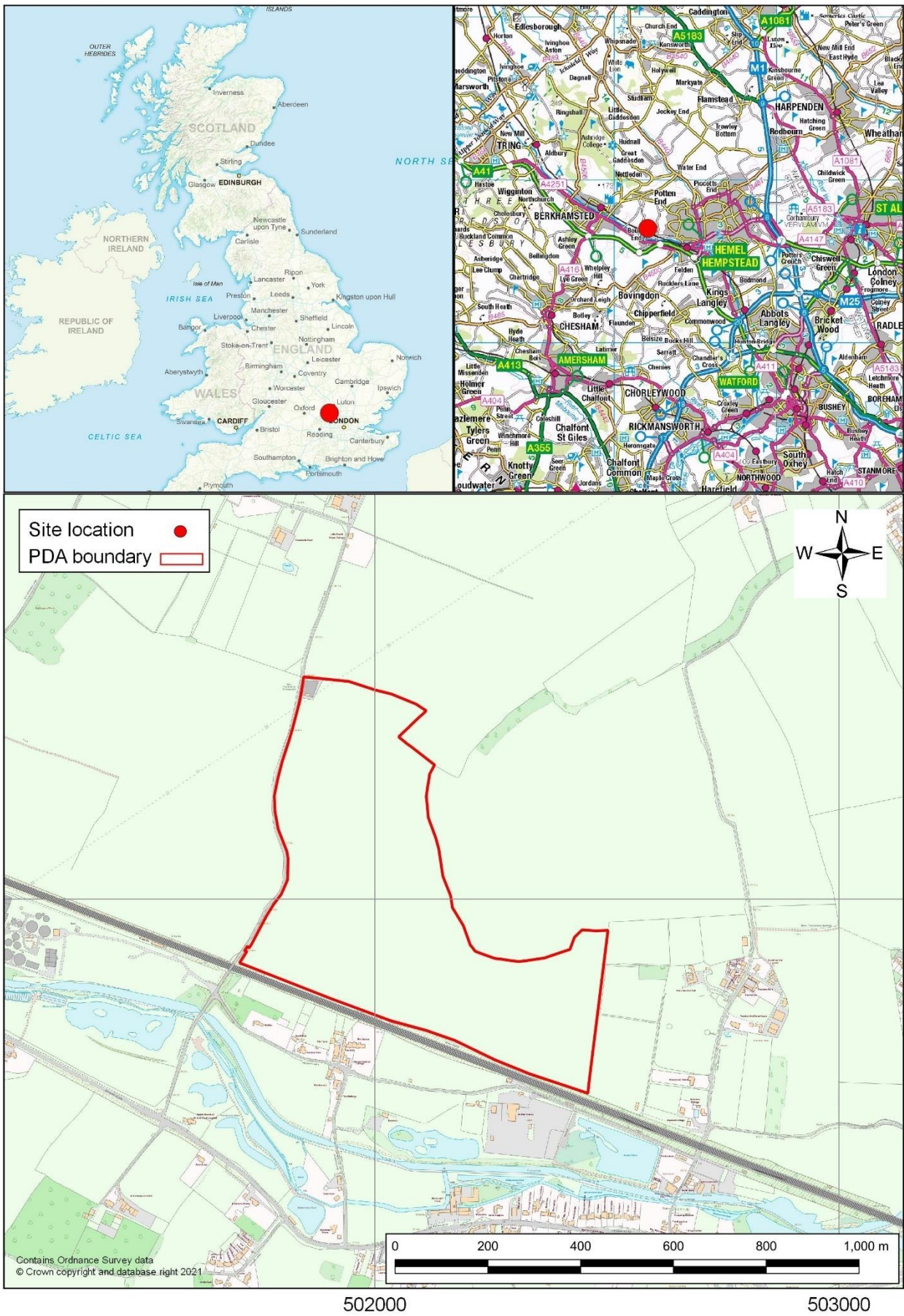
- 1.1.1. This report was commissioned by ADAS Ltd and presents the results of an archaeological desk-based assessment (DBA) to support a planning application to construct a solar array (to be known as Little Heath Solar Farm) on land between Little Heath Lane and Pouchen End, to the north of Bourne End, Hemel Hempstead, Hertfordshire, nearest postcode HP4 2RY, centred on NGR 502070, 207016 (Illus 1).
- 1.1.2. This report describes and assesses the significance of known heritage assets and potential archaeological remains within the Proposed Development Area (PDA) and provides an assessment of the likely impact of the proposed development on the significance of non-designated heritage assets, and the contribution made by their setting, in order to identify potential historic environment planning constraints.
- 1.1.3. An assessment of the likely impact of the proposed development on the significance of designated built heritage assets beyond the PDA boundary, and the contribution made by their setting, forms the basis of a separate document (see below)¹.
- 1.1.4. This approach is consistent with the requirements of national and local planning policies on the historic environment in the planning process (see Section 2).

1.2. CONSULTATION

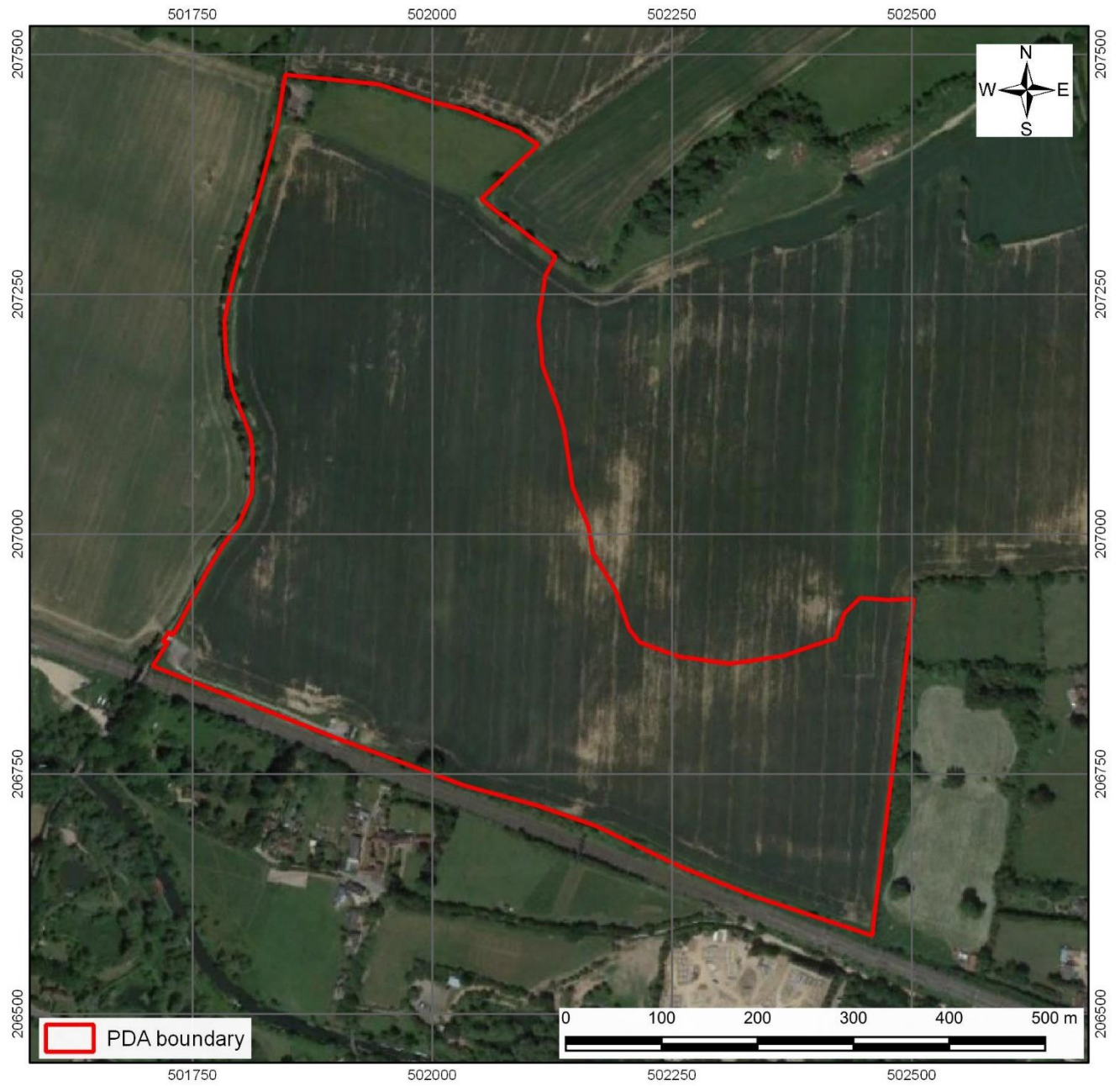
- 1.2.1. A Screening Opinion has been issued from Dacorum District Council (reference 21/04395/SCE) which concluded that an Environmental Impact Assessment would not be required for the proposed development. Regarding potential impact on the historic environment, it stated:
- The siting of the array in the dip adjacent to the railway line will help mitigate its impact on the landscape...
A Built Heritage Assessment to be submitted with any application will ensure any impacts can be properly considered at application stage. However, due to distances, it is not considered that there will be any material harm to built heritage settings.
The site lies within an area of potential archaeological significance, and as part of any application an archaeological desk based assessment will be required which will include an assessment of the potential physical impact of the development and make recommendations for further evaluation and/or mitigation, if required. Through careful design, the Solar PV array can be constructed to ensure there is limited ground disturbance and minimal impacts.*
- 1.2.2. A Built Heritage Statement assessing the impact of the proposed development on the settings of the built heritage (including Conservation Areas) within a 2.5 km radius of the PDA was carried out by Pegasus Group in December 2021². This concluded:
- An examination of historical sources, a zone of theoretical visibility and a site visit confirms that the site does not contribute to the significance of any built heritage asset and as such solar development at the site will not harm any heritage asset through any change to their setting.*
- 1.2.3. Additional guidance regarding the heritage constraints of the PDA and suitable mitigation strategies was sought from Dacorum Borough Council's Senior Historic Environment Advisor during November and December 2021, but at the time of the completion of this DBA no definitive response had been received.
- 1.2.4. This is version 1.3 of this report and is the first version to be issued.

¹ Pegasus Group 2021

² Pegasus Group 2021



Illus 1. Site Location and Proposed Development Area (PDA)



Illus 2. Modern Aerial Image depicting the PDA

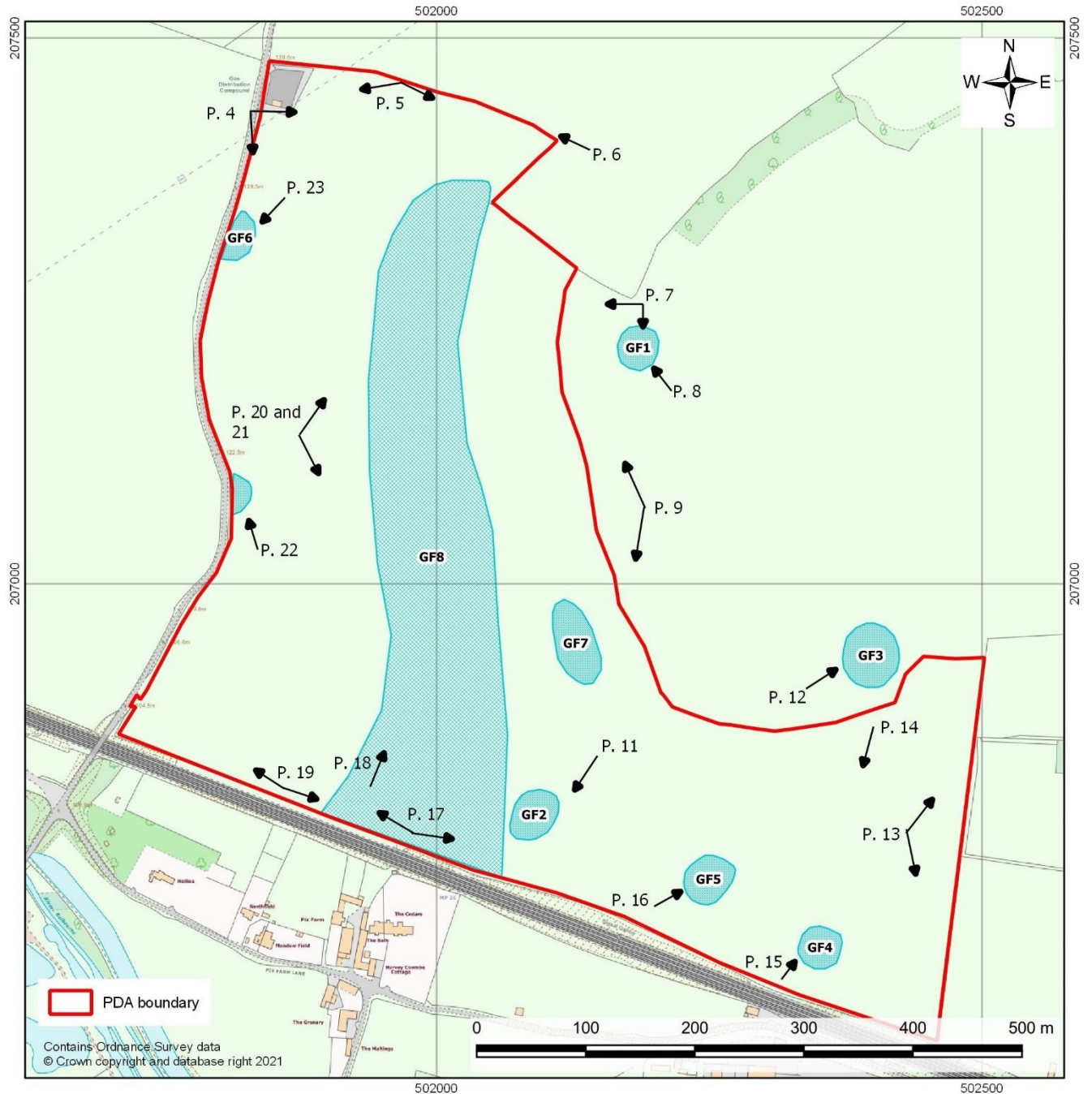
1.3. SITE DESCRIPTION

- 1.3.1. The Proposed Development Area (hereafter 'PDA') is located to the north of Bourne End, Hemel Hempstead, Hertfordshire, nearest postcode HP4 2RY. It encompasses an area of farmland just over 32 ha. in size which is situated between Little Heath Lane and Pouchen End. The PDA is centred on NGR 502070, 207016 and is irregular in shape, extending further north on its western side than on its eastern side. It lies 370 m to the north of Bourne End village centre, 3 km to the west of Hemel Hempstead town centre and 2.8 km to the west of Berkhamsted town centre. It falls under the jurisdiction of Dacorum District Council (Illus. 1).
- 1.3.2. The boundary between the parishes of Hemel Hempstead and Berkhamsted runs roughly north to south through the PDA, with the western side of the PDA being in Berkhamsted parish and the eastern half being in Hemel Hempstead parish. Historically, the western side of the PDA formed part of Northchurch parish. Although Northchurch remains a parish, its lands within and around the PDA were ceded to Berkhamsted parish during the 20th century.
- 1.3.3. The PDA is abutted to its north by farmed fields, to its east by the private land of Pouchen End Farm, Kingswood Lodge, Primrose Cottage and Bluebell Cottage, to its south by the London and Western railway line, and to its west by Little Heath Lane. Further to the north of the PDA lies open fields, the hamlet of Little Heath and the village of Frithsden; further to its east lies open fields, the hamlet of Pouchen End and the suburb of Chaulden; further to its south lies the River Bulbourne and the village of Bourne End; and further to its west lies open fields. The PDA can be accessed from Little Heath Lane through a farm gate in the PDA's south-western corner.
- 1.3.4. The PDA is currently in arable use and encompasses the southern, western and north-western parts of a larger field (Illus. 2).
- 1.3.5. A dry valley (GF³8) orientated roughly north to south lies within its western half, observed as a linear depression.
- 1.3.6. The PDA's topography is variable. Along the PDA's western edge (the western side of the dry valley) the ground level fluctuates between 110 m – 112 m AOD (at its southern end) and 121 m – 122 m AOD (at its northern end); at the base of the dry valley it fluctuates between 96 m – 97 m AOD (at its southern end) and 106 m – 107 m AOD (at its northern end); and along the dry valley's eastern edge, it fluctuates between 117 m – 118 m AOD (at its northern end) and 120 m – 122 m AOD (at its southern end). The eastern side of the PDA slopes roughly north to south, lying at between approximately 125 m – 126 m AOD along its northern edge and falling to between 96 m – 108 m AOD at its southern edge.
- 1.3.7. A gas distribution compound lies in the PDA's extreme north-western corner and a small compound related to the railway line also sits within its south-western corner. There are no footpaths within the PDA and no copses or concentrations of shrubs or vegetation were observed apart from a small cluster of trees surrounded by modern rubble and waste on the southern edge of the PDA.
- 1.3.8. Several distinct depressions (GF1 – GF6) were seen within and just outside of the PDA during the site visit, particularly along the eastern ridge of the dry valley and within the south-eastern edge and north-eastern corner of the PDA (Illus. 3). These depressions can also be seen on aerial photographs and LiDAR imagery (see paragraph 5.6.115). All the depressions had smoothly sloping sides on a gentle to sloping gradient and there were no indications of ground disturbance, spoil heaps or boggy ground within them or their vicinity. They may be naturally occurring depressions, as suggested by the 'small coombs' identified during an evaluation to the east of the PDA (see paragraph 5.6.98); however, it is possible that they relate to pre-Post-Medieval chalk or gravel extraction. Depression GF2 may relate to the 1840 – 1841 tithe plot 13, 'Spring in White Hill'.
- 1.3.9. On the western edge of the PDA, a seventh shallow depression which is likely the remains of a building platform associated with HA3 HA16, the site of a now-demolished 19th century building, was recorded.
- 1.3.10. It was noted during the site visit that the land within the north-western corner of the PDA lies at much lower levels than the fields to its north; which lie around 2 m higher. It is probable that this represents a historic field lynchet.
- 1.3.11. The PDA appeared to have been recently ploughed at the time of the site visit and it was remarked during the site visit that, in the central and eastern parts of the PDA (including the base of the dry valley), there were very high concentrations of small – medium sized chert or flint, pebbles and gravel visible on the surface.
- 1.3.12. The PDA is traversed on its western wide by telegraph poles orientated south-west to north-east. These may cause constraints to archaeological investigations. A gas pipe marker was seen in the far north of the PDA,

³ GF: 'Geomorphological Feature'

likely related within the gas distribution compound; at least one probable gas pipe was identified during a recent geophysical survey as running roughly east-west through the north-western corner of the PDA. The course of a gas pipe was also identified during the geophysical survey as running north-north-east to south-south-west through the centre of the PDA. No watercourses were identified during the site visit.

1.3.13. A selection of the photographs taken during the site visit are presented below in Illus. 4 – 23 and their locations shown in Illus. 3.



Illus. 3. Location of photographs reproduced below, and location of dry valley GF8, depressions GF1 – GF6 and depression GF7 (seen on LiDAR imagery only)



Illus 4. General view of PDA's western side from its north-western corner, looking east to south. The gas distribution compound is to the left of the frame



Illus 5. General view of PDA's western side from the northern boundary of its western side, looking south-east to south-west. The base of dry valley GF8 is in the centre of the frame and the gas distribution compound is to the far right of the frame



Illus 6. Bank of earth between PDA's northern boundary and fields to north in PDA's north-western corner, representing a probable field lynchet, looking west-north-west. The gas distribution compound is to the left of the frame.



Illus 7. General view of PDA's western side from the northern corner of GF8's eastern ridge, looking south to west. GF1 can be seen in the left of the frame



Illus 8. GF1, looking north-west. Orange arrows indicate its approximate extent



Illus 9. General view of PDA's western side from the approximate centre of GF8's eastern ridge, looking south to north



Illus 10. Chert or flint, pebble and gravel debris on the ground surface of the PDA's western side



Illus 11. GF2, looking south-west



Illus 12. GF3, looking north-east



Illus 13. View of PDA's eastern boundary looking north to south towards Pouchen End. The railway line can be seen in the right of the frame



Illus 14. View of PDA's eastern side, looking south to south-west. The railway line runs left to right through the background of the image



Illus 15. GF4, looking north-east. Orange arrows indicate its approximate extent



Illus 16. GF5, looking east-north-east. Orange arrows indicate its approximate extent



Illus 17. General view of PDA from the southern end of the eastern ridge of GF8, looking west to east.



Illus 18. View through base of GF8, looking north-north-east



Illus 19. General view of PDA's western side from the base of GF8, looking west to east. The railway compound can be seen in the left of the frame and the cluster of trees in the right of the frame



Illus 20. General view of PDA's western side from the approximate centre of GF8's western ridge, looking north to south



Illus 21. GF1 (left of frame) and GF2 (right of frame) from the approximate centre of GF8's western ridge, looking north-east to south-east. Orange arrows indicate depression locations



Illus 22. Depression of probable building platform associated with HA3, looking north-north-west



Illus 23. GF6, looking south-west

1.4. GEOLOGY AND GEOMORPHOLOGY

- 1.4.1. There is varying underlying solid geology within the PDA. Throughout most of the PDA, this geology is Lewes Nodular Chalk Formation and Seaford Chalk Formation (undifferentiated). This is defined by the BGS as:

Chalk. Sedimentary Bedrock formed approximately 84 to 94 million years ago in the Cretaceous Period. Local environment previously dominated by warm chalk seas.⁴

- 1.4.2. A thin band of Chalk Rock Member follows the contours of the valley in which the PDA sits. This is described by the BGS as

Igneous Bedrock formed approximately 252 to 299 million years ago in the Permian Period. Local environment previously dominated by intrusions of silica-rich magma⁵.

- 1.4.3. A superficial geological deposit of Clay-with-flints Formation - Clay, Silt, Sand and Gravel is recorded on the BGS to the immediate north-east of the PDA, possibly encroaching into the PDA itself. This is described by the BGS as:

Superficial Deposits formed up to 23 million years ago in the Quaternary and Neogene Periods. Local environment previously dominated by weathering processes. A residual deposit formed from the dissolution, decalcification and cryoturbation of bedrock strata of the Chalk Group and Palaeogene formations and, in the extreme west of the outcrop, the Upper Greensand Formation. It is unbedded and heterogenous. The dominant lithology is orange-brown and red-brown sandy clay with abundant nodules and rounded pebbles of flint. Angular flints are derived from the Chalk, and rounded flints, sand and clay from Palaeogene formations. There is commonly a discontinuous basal layer up to 10 cm thick, with dark brown to black matrix, stiff, waxy and fissured, with relatively fresh flint nodules stained black or dark green with manganese or glauconite. The deposit locally includes bodies of yellow fine- to medium- grained sand, reddish brown clayey silt, and sandy clay with beds of well-rounded flint pebbles, derived from Palaeogene formations.⁶

- 1.4.4. No borehole surveys are recorded on the BGS within the PDA. However, the infilling and decommissioning of three wells to south of the PDA, at Pix Farm Lane⁷, the Hollies⁸ and Button House⁹ (all of which lie 70 m – 100 m to the south of the PDA) in 1973 and 1981 respectively are recorded on the BGS. Although offering little geological information, the well records for The Hollies and Button House notes the presence of ‘alluvium and younger coombe deposits’ within the first 6 m of the well.

- 1.4.5. Coombe deposits are a type of colluvial deposit described by the BGS as:

Superficial deposit of chalk dry valleys, composed of fine-grained weathered chalky silt and clay matrix with clasts of chalk and flint and some erratic pebbles. Variable lithology. Scree and solifluction [soil flow] deposits in some chalk valleys.

Although solifluction deposits were typically formed during the Pleistocene period (2.6 million to 11,700 years ago) as a result of periglacial conditions, Coombe deposits are ‘typically a Holocene (c. 9,500BCE to present) deposit and [are] strongly linked to accelerated soil erosion resulting from vegetation clearance, human habitation and tillage associated with arable agriculture.’¹⁰ Younger Coombe deposits were formed during the latter part of the Holocene period¹¹. These colluvial deposits often exhibit ‘standstill episodes’, during which no deposition has occurred, represented by old land surfaces¹².

⁴https://mapapps.bgs.ac.uk/geologyofbritain/home.html?&_ga=2.222473307.154759861.1640079931-1257383353.1615202207, [accessed 23.12.2021]

⁵ <https://webapps.bgs.ac.uk/lexicon/lexicon.cfm?pub=CKR>, [accessed 23.12.2021]

⁶ <https://webapps.bgs.ac.uk/lexicon/lexicon.cfm?pub=CWF>, [accessed 23.12.2021]

⁷ BGS ID: 521176: BGS Reference: TL00NW109 (http://scans.bgs.ac.uk/sobi_scans/boreholes/521176/images/18933921.html) [accessed 23.12.2021]

⁸ BGS ID: 521091: BGS Reference: TL00NW24, http://scans.bgs.ac.uk/sobi_scans/boreholes/521091/images/14892277.html [accessed 23.12.2021]

⁹ BGS ID: 521090: BGS Reference: TL00NW23, http://scans.bgs.ac.uk/sobi_scans/boreholes/521090/images/14892043.html [accessed 23.12.2021]

¹⁰ Historic England 2015, 2 and 3

¹¹ <https://webapps.bgs.ac.uk/lexicon/lexicon.cfm?pub=COD> and <https://webapps.bgs.ac.uk/lexicon/lexicon.cfm?pub=YCOD>, [accessed 23.12.2021]

¹² Historic England 2015, 4

- 1.4.6. Therefore, later colluvial deposition may preserve earlier land surfaces or obscure underlying deposits of archaeological interest.
- 1.4.7. Modern aerial photographic and LiDAR imagery strongly indicate that a dry valley, GF8, exists within the PDA, orientated roughly north to south. It may contain or be overlain with Holocene Coombe deposits, discussed above, which can be several metres thick at the base of dry valleys¹³. Such colluvial deposits can mask archaeological deposits from many periods, especially if the deposits are subject to 'standstill episodes', as discussed above. Therefore, although a natural feature, GF8 may hold archaeological interest, especially if it was infilled during a period contemporary human occupation in the area or became a focus for human activity before or after its infilling.
- 1.4.8. It is probable that the surface concentrations of flint, pebbles and gravel seen during the site visit relate to Coombe or Younger Coombe deposits, although earlier solifluction deposits may also be present (see Illus. 10).

¹³ Historic England 2015, 2

2. LEGISLATION, POLICY AND GUIDANCE

2.1. STATUTORY PROTECTION

2.1.1. The relevant heritage legislation in the context of the present site is described in the table below.

Table 1. Historic Environment Statutory Legislation

Legislation	Key Issues
Ancient Monuments and Archaeological Areas Act 1979	It is a criminal offence to carry out any works on or near to a Scheduled Monument without Scheduled Monument Consent. Development must preserve in-situ protected archaeological remains and landscapes of acknowledged significance and protect their settings.
Planning (Listed Buildings and Conservation Areas) Act (1990)	<p>The 1990 Act is amended by the Enterprise and Regulatory Reform Act 2013 to introduce additional controls for works to listed buildings.</p> <p>Section 1 of the Act requires the Secretary of State to compile and maintain lists of buildings of special architectural or historic interest. The principal statutory duty under the Act is to preserve the special character of these heritage assets, including their setting.</p> <p>Buildings on the list are assessed and graded against the criteria of architectural and historic interest. Buildings listed at Grade I are defined as those considered to be of exceptional interest. Grade II* listed buildings are particularly important buildings of more than special interest, while Grade II listed buildings are of special interest.¹⁴ This may include the extent to which the exterior of a building contributes to the interest of a group of buildings, i.e. 'group value'.</p>
Treasure Act (1996)	The 1996 Act defines 'Treasure' as any object that is at least 10% gold or silver, associated with coins or groups of coins which are over 300 years old, objects formerly classed as 'treasure trove' (i.e. deliberately deposited items with a high content of gold or silver) and any objects found in association with the above. Any find of 'Treasure' must be reported to the local Coroner.
Burial Act (1857)	Under Section 25 of the 1857 Act, it is generally a criminal offence to remove human remains from any place of burial without an appropriate licence issued by the Ministry of Justice (MoJ), although recent legislative changes indicate that some cases are exempt from this requirement.
Hedgerow Regulations (1997)	<p>A local authority can prohibit the removal of an 'important' hedgerow. Hedgerows can be considered important on grounds of historical or archaeological value or association in line with following criteria:</p> <ul style="list-style-type: none"> ○ Marks a pre-1850 parish boundary (Criterion 1) ○ Physically incorporates or is part of a known and listed heritage asset; where the hedgerow is a contemporaneous or related to part of that heritage asset (Criterion 2 & 3) ○ Marks the boundary of, or is associated with, a pre-1600 estate or manor (Criterion 4) <p>Is part of a pre-Parliamentary Inclosure field system (i.e. pre-dates the Inclosure Act 1796 – it may be recorded as "old enclosure" on the tithe/enclosure map or may be recorded on an earlier estate map) (Criterion 5)</p>

¹⁴ <https://historicengland.org.uk/listing/what-is-designation/listed-buildings/>

Legislation	Key Issues
Historic Buildings and Ancient Monuments Act (1953)	The 1983 Act created the Historic Buildings and Monuments Commission (HBMC) – now Historic England, a non-departmental public body, given the broad remit of managing the historic built environment of England. The Historic Buildings and Ancient Monuments Act 1953 authorises Historic England to compile a register of “gardens and other land” situated in England that appear to be of special historic interest.
National Heritage Act (1980, amended 1983 & 1997)	Registered Parks and Gardens The Register was established in 1984 and there are currently over 1,600 sites included. Sites are graded I, II*, or II along the same lines as listed buildings. A registered park or garden is not protected by a separate consent regime, but applications for planning permission will give great weight to their conservation. The NPPF defines them as designated heritage assets and as such their conservation should be an objective of all sustainable development. Substantial harm to or total loss of a Grade II registered park or garden should be exceptional and for a Grade II* or I registered park or garden such loss or harm should be wholly exceptional. The Register of Historic Battlefields Historic England maintains a Register of Historic Battlefields. Battlefields are not graded. Like registered parks and gardens, registered battlefields are not subject to a separate consent regime, but they are considered designated heritage assets under the NPPF and therefore, as with parks and gardens, great weight should be given to their conservation and substantial harm or total loss of a registered battlefield should be wholly exceptional.

2.2. NATIONAL PLANNING POLICY FRAMEWORK

2.2.1. The National Planning Policy Framework (NPPF, 2021¹⁵) confirms that the historic environment, including archaeological remains, constitutes a material consideration in planning decisions, requiring applicants to describe the significance of heritage assets potentially affected by the development, including any contribution made by their setting.

2.2.2. Heritage and conservation forms one of the core planning principles of NPPF:

(189) *“[Planning should conserve heritage assets] in a manner appropriate to their significance, so that they can be enjoyed for their contribution to the quality of life for this and future generations.”*

2.2.3. This report contributes to meeting the following Policies on the historic environment contained in the document (paragraph numbers in bold text)¹⁶.

(194) *“In determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the assets’ importance and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum the relevant historic environment record should have been consulted and the heritage assets assessed using appropriate expertise where necessary. Where a site on which development is proposed includes, or has the potential to include, heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation.”*

(200) *Any harm to, or loss of, the significance of a designated heritage asset (from its alteration or destruction, or from development within its setting), should require clear and convincing justification. Substantial harm to or loss of:*

¹⁵

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1004408/NPPF_JULY_2021.pdf

¹⁶ Government guidance on the application of the policies contained within the NPPF is available at <https://www.gov.uk/government/publications/national-planning-policy-framework--2>

a) grade II listed buildings, or grade II registered parks or gardens, should be exceptional;

b) assets of the highest significance, notably scheduled monuments, protected wreck sites, registered battlefields, grade I and II listed buildings, grade I and II* registered parks and gardens, and World Heritage Sites, should be wholly exceptional.*

(footnote 68) [Non-designated heritage assets of archaeological interest, which are demonstrably of equivalent significance to scheduled monuments, should be considered subject to the policies for designated heritage assets.]

(202) 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, where appropriate, securing its optimum viable use.

(203) 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 directly or indirectly affect 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 asset.

(206) Local planning authorities should require developers to record and advance understanding of the significance of any heritage assets to be lost (wholly or in part) in a manner proportionate to their importance and the impact, and to make this evidence (and any archive generated) publicly accessible.

2.3. LOCAL PLANNING POLICY

2.3.1. A new Local Plan is currently in production and so the Dacorum Borough Local Plan 1991 - 2011, adopted April 2004, remains the overarching planning policy document for the area¹⁷. A Policy Advice Note issued in 2017¹⁸ identifies which of the 2004 policies align with current NPPF standards and will therefore remain in force when the new Local Plan is issued.

2.3.2. Policies which fulfil this criterion include Policy 118 of the 2004 Local Plan, entitled 'Important Archaeological Remains', which states:

Planning permission will not be granted for development which would adversely affect scheduled ancient monuments or other nationally important sites and monuments, or their settings. [Historic England] will be consulted on all planning applications affecting Scheduled Ancient Monuments.

On archaeological sites or monuments of more local importance and their settings, physical preservation in situ will be the preferred option and applications may be refused. The County Archaeological Group will be consulted on all planning applications affecting areas of archaeological significance and archaeological potential.

Where advice indicates that a proposed development will affect remains of archaeological significance or areas of archaeological potential, developers will be expected to provide the results of an archaeological evaluation as part of their planning application.

Where the Council considers that physical preservation of archaeological remains in situ is not merited, planning permission will be subject to satisfactory provision being made for excavation and recording. Conditions and/or agreements will be used to secure the following work, depending on the nature of the site:

(a) an adequate archaeological excavation of the site prior to the commencement of the works; and/or

(b) the observation of archaeological experts of the site works as they progress; and/or

(c) the recording of remains by archaeological experts and the publication of the results; and/or

(d) the provision of facilities, including access over an agreed period of time; and/or

(e) such other measures as may be necessary to protect the archaeological integrity of the site.

Where appropriate the Council will encourage the enhancement of archaeological remains and their settings.

2.3.3. Policy 119 and 120 of the Local Plan discuss the Council's position on development physically affecting listed buildings (such as extension or demolition) and developments occurring within Conservation Areas. These policies do not indicate the Council's position regarding the impact of a development on the wider setting of a listed building or Conservation Area, as discussed in NPPF paragraph 200 (reproduced above). The 2017 Policy Advice Note issued by the Council recognises that these two policies are therefore only partially

¹⁷ Available online at <https://www.dacorum.gov.uk/home/planning-development/planning-strategic-planning/local-plan-1991-2011>

¹⁸ Available online at <https://www.dacorum.gov.uk/home/planning-development/planning-strategic-planning/local-plan-1991-2011>

consistent with the NPPF and states that detailed advice should be sought from Conservation Officers as appropriate.

2.3.4. The Dacorum District Council's Core Strategy, adopted September 2013, lays out the Council's position on heritage in chapter 17, 'Conserving the Historic Environment'¹⁹. This states:

All heritage assets are important and should be conserved. The weight given to the specific form of protection or conservation will vary according to the importance of that asset.

Within this document, policy regarding the conservation and regarding of heritage asset is laid out in Policy CS27:

All development will favour the conservation of heritage assets. The integrity, setting and distinctiveness of designated and undesignated heritage assets will be protected, conserved and if appropriate enhanced.

Development will positively conserve and enhance the appearance and character of conservation areas. Negative features and problems identified in conservation area appraisals will be ameliorated or removed.

Features of known or potential archaeological interest will be surveyed, recorded and wherever possible retained.

2.3.5. The PDA falls within Landscape Character Area 118, Lower Bulbourne Valley, for which a Supplementary Planning document, Lower Bulbourne Valley Landscape Character Assessment, has been produced²⁰. Historic landscape elements which are identified as contributing to the landscape character include Post-Medieval field patterns, transport patterns (particularly those historically following the course of the River Bulbourne), and settlements and built form. The document offers strategies and guidance for managing change within the area. Those which may be of relevance to the heritage of the area include:

- develop a strategy to limit built development within the area and mitigate the impact of existing development either within or adjacent to the area on the edges of Berkhamsted and Hemel Hempstead.
- encourage the retention of the existing pattern of hedges and create new features to further enhance landscape and ecological links between woodlands and within the arable landscapes to the valley sides. Use the line of old field boundaries and/or rights of way where possible.
- conserve and enhance the distinctive character of rural settings by promoting the conservation of important buildings and high standards of new building or alterations to existing properties.
- promote the retention of the character of local minor roads by the management of hedgerows and sunken lanes up the valley sides.

2.4. GUIDANCE

2.4.1. This DBA has been prepared with reference to the ClfA's *Standard and Guidance for Historic Environment Desk-Based Assessment* (2014, revised 2017 and 2020²¹) and *Code of Conduct* (2014, revised 2019²²), in addition to *The Setting of Heritage Assets* (Historic England's Historic Environment Good Practice Advice in Planning GPA3, 2017²³).

2.4.2. *Statements of Heritage Significance: Analysing Significance in Heritage Assets* (Historic England Advice Note 12, 2019²⁴) contains guidance on the assessment of heritage significance through consideration of the component heritage values of an asset, and further guidance on the assessment of significance as part of the planning application process is contained in *Managing Significance in Decision-Taking in the Historic Environment* (Historic England's Historic Environment Good Practice Advice in Planning GPA2, 2015²⁵).

¹⁹ Available online at <https://www.dacorum.gov.uk/home/planning-development/planning-strategic-planning/local-planning-framework/core-strategy>

²⁰ Available online at [https://www.dacorum.gov.uk/home/planning-development/planning-strategic-planning/supplementary-planning-documents-\(spds\)](https://www.dacorum.gov.uk/home/planning-development/planning-strategic-planning/supplementary-planning-documents-(spds))

²¹ https://www.archaeologists.net/sites/default/files/ClfA5%26GDBA_4.pdf

²² https://www.archaeologists.net/sites/default/files/Code%20of%20conduct%20revOct2019_0.pdf

²³ <https://historicengland.org.uk/images-books/publications/gpa3-setting-of-heritage-assets/heag180-gpa3-setting-heritage-assets/>

²⁴ <https://historicengland.org.uk/images-books/publications/statements-heritage-significance-advice-note-12/heag279-statements-heritage-significance/>

²⁵ <https://historicengland.org.uk/images-books/publications/gpa2-managing-significance-in-decision-taking/gpa2/>

- 2.4.3. This DBA has also been prepared with reference to IEMA, IHBC and ClfA's July 2021 publication *Principles of Cultural Heritage Impact Assessment in the UK*²⁶. This document presents the principles of and suggests good practice for assessment of the impact of a development proposal on cultural heritage assets.

2.5. PROFESSIONAL STANDARDS AND ACKNOWLEDGEMENTS

- 2.5.1. Headland Archaeology (UK) is a Registered Organisation with the Chartered Institute for Archaeologists (CIfA), an audited status which confirms that all work is carried out in accordance with the highest professional standards in the historic environment.
- 2.5.2. Headland Archaeology (UK), as part of the RSK Group, is recognised by the Institute of Historic Building Conservation (IHBC) under their 'Historic Environment Service Provider Recognition' scheme. This quality assurance standard acknowledges that RSK works to the conservation standards of the IHBC, the UK's lead body for built and historic environment practitioners and specialists.
- 2.5.3. Headland Archaeology (UK) operates a quality management system to help ensure all projects are managed in a professional and transparent manner, which enables it to qualify for ISO 9001.
- 2.5.4. Ordnance Survey data is produced under © Crown copyright and database rights Licence 100065113.
- 2.5.5. LiDAR data is reproduced © Environment Agency copyright and/or database rights 2021. All rights reserved.

²⁶ https://www.archaeologists.net/sites/default/files/j30361_iema_principlesofchia_v8.pdf

3. AIMS AND OBJECTIVES

- 3.1.1. The aim of this DBA is to inform determination of a planning application for the redevelopment of the PDA in relation to its likely impact on the historic environment. The assessment aims to identify all known heritage assets potentially affected by the proposed development, and the potential for the presence of currently unknown heritage assets.
- 3.1.2. Assessment of the contribution made by the settings of the identified designated heritage assets to their significance and the impact of the proposed development on these settings has been presented in a separate document and therefore is not assessed here²⁷. However, this DBA will analyse the contribution made by the settings of the identified non-designated heritage assets to their significance and the impact of the proposed development on these settings.
- 3.1.3. The purpose is to gain an understanding of the historic environment resource in order to formulate an assessment of the potential for heritage assets to survive within the PDA, their significance, and strategies for further evaluation, mitigation or management as appropriate.
- 3.1.4. The ClfA's *Standard and Guidance for Historic Environment Desk-Based Assessment (2017²⁸)* defines a DBA as '*...a programme of study of the historic environment within a specified area or site on land, the inter-tidal zone or underwater that addresses agreed research and/or conservation objectives. It consists of an analysis of existing written, graphic, photographic and electronic information in order to identify the likely heritage assets, their interests and significance and the character of the Study Area, including appropriate consideration of the settings of heritage assets and, in England, the nature, extent and quality of the known or potential archaeological, historic, architectural and artistic interest. Significance is to be judged in a local, regional, national or international context as appropriate.*'
- 3.1.5. GPA²⁹, para 12.3 requires that a DBA will determine, as far as is reasonably possible from existing records, the nature, extent and significance of the historic environment within a specified area, and the impact of the proposed development on the significance of the historic environment, or will identify the need for further evaluation to do so.
- 3.1.6. The objectives are therefore to:
- Collate all available written, graphic, photographic and electronic information relevant to the PDA;
 - Describe the nature, extent and significance and importance of the historic environment within the area potentially affected by the development, identifying any uncertainties in existing knowledge;
 - Determine the potential for previously unknown archaeological remains;
 - Determine the likely impact of the proposed development;
 - Identify non-designated heritage assets within and beyond the PDA that may be affected by development within their setting, to describe their significance and the contribution made by their setting, and make an assessment of how this significance may be affected by the proposed development; and
 - Identify any requirements for further investigation that may be necessary to understand the impacts of the proposed development on the historic environment.

²⁷ Pegasus Group 2021

²⁸ https://www.archaeologists.net/sites/default/files/ClfAS%26GDBA_4.pdf

²⁹ <https://historicengland.org.uk/images-books/publications/gpa2-managing-significance-in-decision-taking/gpa2/>

4. METHODOLOGY

4.1. TERMINOLOGY – ‘SIGNIFICANCE’ AND ‘IMPORTANCE’

- 4.1.1. Heritage assets are assessed in this report in terms of their significance and importance, following the requirement in NPPF paragraph 194 and HEAN12, and taking account of Historic England’s guidance in *Managing Significance in Decision-Taking in the Historic Environment* (GPA2³⁰).
- 4.1.2. Impact assessment is concerned with effects on significance, the value or interest that applies to all heritage assets and relating to the ways in which the historic environment is valued both by specialists and the public.
- 4.1.3. The significance of a heritage asset will derive from factors including fabric, setting, rarity, completeness, historic and cultural associations, community, research and place-making potential. Significance is assessed in relation to the criteria in HEAN12³¹ (i.e. in *archaeological, architectural, artistic, or historic* terms), which are intended primarily to inform decisions regarding heritage designations, but may also be applied more generally in identifying the ‘special characteristics’ of a heritage asset, which contribute to its significance and should be protected, conserved and enhanced according to the NPPF.
- 4.1.4. This use of the word ‘significance’, referring to the range of values or interest attached to an asset, should not be confused with the unrelated usage in EIA where the ‘significance of an effect’ reflects the weight that should be attached to it in a planning decision.
- 4.1.5. Relative importance of each identified heritage asset potentially affected by the proposed development has been determined to provide a framework for comparison between different heritage assets and to inform subsequent stages of archaeological assessment and the development of any appropriate mitigation which may be required (see Table 2 below).
- 4.1.6. For further terminology and definitions, see the Glossary.

4.2. IDENTIFICATION OF HERITAGE ASSETS THAT MAY BE AFFECTED

STUDY AREA

- 4.2.1. The Study Area for this assessment comprises a 1km buffer surrounding the PDA, within which the archaeological and historical development of the site and surrounding area has been considered.

DATA SOURCES

- 4.2.2. The assessment has been based on a study of all readily available documentary sources, following the ClfA Standards and Guidance. The following sources of information were referred to:
- Designation data from the National Heritage List for England, downloaded from the Historic England website³² on the 6th December 2021 and descriptions of designated heritage assets viewed on the Historic England website;
 - Archaeological and architectural records from the National Record of the Historic Environment, viewed through the Heritage Gateway website³³;
 - Aerial photographs available through Google Earth Pro and Historic England’s Aerial Archaeology Mapping Explorer;
 - Archaeological records and aerial photographs held by Hertfordshire HER (received on the 29th November 2021)
 - Historic Landscape Characterisation (received from Hertfordshire HER on the 29th November 2021);

³⁰ <https://historicengland.org.uk/images-books/publications/gpa2-managing-significance-in-decision-taking/gpa2/>

³¹ <https://historicengland.org.uk/images-books/publications/statements-heritage-significance-advice-note-12/heag279-statements-heritage-significance/>

³² <https://historicengland.org.uk/listing/the-list/data-downloads/>

³³ www.heritagegateway.org.uk

- Historic maps and plans held in the Hertfordshire archive and local history library;
- Environment Agency Lidar data³⁴;
- Geological data available online from the British Geological Survey³⁵;
- The results of a geophysical survey of the site carried out by Headland Archaeology in December 2021;
- The results of the Built Heritage Statement for the site produced by Pegasus Group in December 2021;
- Portable Antiquities Scheme data;
- Relevant internet sources including the British Library Georeferencer, The Genealogist, and the Archaeology Data Service;
- Readily available published sources and unpublished archaeological reports, including the East of England Archaeological Research Framework.

4.2.3. Heritage assets within the Study Area are shown in Illus 24 - 30, with detailed descriptions compiled in a Gazetteer which can be found in Appendix 1.

4.2.4. Designated heritage assets are referenced in this report by National Heritage List for England list entry number. Undesignated assets are referenced by HER Preferred Reference or the National Record of the Historic Environment reference. Additional heritage assets identified during the course of research for this DBA have been assigned a Headland Archaeology ('HA') number. A single asset number can refer to a group of related features, which may be recorded separately in the HER and other data sources.

4.2.5. Although previously unidentified heritage assets depicted on historic mapping and aerial photographic and LiDAR imagery within the wider Study Area have been acknowledged and considered within this report, only those noted during the site visit and geophysical survey (and therefore are within or abutting the PDA) have been assigned HA numbers.

SITE VISIT

4.2.6. A site visit was undertaken on the 15th December 2021, during which notes were made regarding site characteristics, any visible archaeology and geographical/geological features which may have a bearing on previous land use and archaeological survival, as well as those which may constrain subsequent archaeological investigation.

4.2.7. Records were made regarding extant archaeological features, such as earthworks or structural remains, any negative features, local topography and aspect, exposed geology, soils, watercourses, health and safety considerations, surface finds, and any other relevant information.

HISTORIC MAP REGRESSION

4.2.8. The historic Ordnance Survey (OS) mapping sequence corresponding with the PDA was consulted to collect information on former land use and development throughout the later historic periods.

4.2.9. Parish tithe mapping and associated apportionment documents were consulted to identify annotated structures and record any field name evidence indicative of archaeological potential.

LIDAR

4.2.10. Light Detection and Ranging (LiDAR) is an airborne mapping technique, which uses a laser to measure the distance between the aircraft and the ground. Up to 500,000 measurements per second are made of the ground, allowing highly detailed terrain models to be generated in which it is possible to identify shallow or otherwise imperceptible topographic features.

4.2.11. A Composite Digital Terrain Model (DTM) has been produced by removing objects from the Digital Surface Model (DSM) which is available at 1 m resolution for the Site. Composite data breaks down by spatial resolution

³⁴ <https://environment.data.gov.uk/>

³⁵ <http://mapapps.bgs.ac.uk/geologyofbritain/home.html>

i.e. 2 m, 1 m, 50 cm and 25 cm and is made up from a combination of the full EA dataset which has been merged and re-sampled to give the best possible coverage. This means that a 1m resolution tile may contain decimated 50 cm data as well as native captured 1m data. It is not possible using only the composite to know which part of a given tile was surveyed at which resolution.

- 4.2.12. Analysis was undertaken by a professional archaeologist using QGIS imaging and geo-referencing/mapping software.

4.3. LIMITATIONS OF BASELINE DATA

DATA SOURCES

- 4.3.1. Information held by public data sources is generally considered to be reliable; however, the following general points are noted:
- Documentary sources are rare before the medieval period;
 - Whilst it is accepted that historic documents may be biased depending on the author, with content seen through the lens of context, wherever such documentary sources are used in assessing archaeological potential professional judgment is used in their interpretation in that the functionality of the document is considered;
 - HER records can be limited because opportunities for research, fieldwork and discovery depend on the situation of commercial development and occasional research projects, rather than the result of a more structured research framework. A lack of data within the HER records does not necessarily equal an absence of archaeology;
 - Where archaeological sites have been identified solely from aerial imagery without confirmation from archaeological excavation or supporting evidence in the form of find-spots for example, it is possible the interpretation may be revised in the light of further investigation.
 - The significance of sites can be difficult to identify from HER records, depending on the accuracy and reliability of the original source; and
 - There can often be a lack of dating evidence for archaeological sites.

SITE VISIT

- 4.3.2. Any archaeological site visit has inherent limitations, primarily because archaeological remains below ground level may have no surface indicators.

4.4. IMPACT ASSESSMENT

ASSESSMENT OF IMPORTANCE

- 4.4.1. The importance of a heritage asset is the overall value assigned to it reflecting its statutory designation or, in the case of undesignated assets, the professional judgement of the assessor (Table 2). Historic England guidance also refers to an asset's 'level of significance' (GPA2³⁶, paragraph 10), which in this usage has the same meaning as importance.
- 4.4.2. Any feature which does not merit consideration in planning decisions due to its significance may be said to have negligible importance. It is the role of the professional judgements made by the assessor to identify any historic remains within the PDA that are considered to be of negligible importance, to justify no further works.
- 4.4.3. The importance of heritage assets that may be affected by the proposed development is identified in the impact assessment and summarised in the Appendix.

³⁶ <https://historicengland.org.uk/images-books/publications/gpa2-managing-significance-in-decision-taking/gpa2/>

Table 2. Criteria for Assessing the Importance of Heritage Assets

Importance of the asset	Criteria
Very High (International)	World Heritage Sites and other assets of equal international importance, that contribute to international research objectives
High (National)	Grade I and II* Registered Parks and Gardens, Scheduled Monuments, Protected Wreck Sites, Registered Battlefields, Grade I and II* Listed Buildings, and undesignated heritage assets of equivalent importance that contribute to national research objectives. Also Conservation Areas, Grade II Registered Parks and Gardens and Grade II Listed Buildings which have particular characteristics that merit a high level of importance.
Medium (National or Regional)	Conservation Areas, Grade II Registered Parks and Gardens, Grade II Listed Buildings except where their particular characteristics merit a higher level of importance, heritage assets on local lists and undesignated assets that contribute to Regional research objectives
Low (Local)	Locally listed heritage assets, except where their particular characteristics merit a higher level of importance, undesignated heritage assets of Local importance, including assets that may already be partially damaged
Negligible	Identified historic remains of no importance in planning considerations, or heritage assets and findspots that have already been removed or destroyed (i.e. 'site of')
Unknown / Uncertain	Heritage assets for which a level of importance cannot be defined on current information

ASSESSMENT OF POTENTIAL FOR UNKNOWN HERITAGE ASSETS

4.4.4. Archaeological features are often impossible to identify through desk-based assessment. The likelihood that significant undiscovered heritage assets may be present within the Proposed Development Area is referred to as *archaeological potential*. Overall levels of potential can be assigned to different landscape zones, following the criteria in Table 3, while recognising that the archaeological potential of any zone will relate to particular historical periods and types of evidence. The following factors are considered in assessing archaeological potential:

- The distribution and character of known archaeological remains in the vicinity, based principally on an appraisal of data in the Hertfordshire HER;
- The history of archaeological fieldwork and research in the surrounding area, which may give an indication of the reliability and completeness of existing records;
- Environmental factors such as geology, topography and soil quality, which would have influenced land-use in the past and can therefore be used to predict the distribution of archaeological remains;
- Land-use factors affecting the survival of archaeological remains, such as ploughing or quarrying; and
- Factors affecting the visibility of archaeological remains, which may relate to both environment and land-use, such as soils and geology (which may be more or less conducive to formation of cropmarks), arable cultivation (which has potential to show cropmarks and create surface artefact scatters), vegetation, which can conceal upstanding features, and superficial deposits such as peat and alluvium which can mask archaeological features.

Table 3. Archaeological potential

Potential	Definition
High	Undiscovered heritage assets of high or medium importance are likely to be present.
Medium	Undiscovered heritage assets of low importance are likely to be present; and it is possible, though unlikely, that assets of high or medium importance may also be present.
Low	The study area may contain undiscovered heritage assets, but these are unlikely to be numerous and are highly unlikely to include assets of high or medium importance.
Negligible	The study area is highly unlikely to contain undiscovered heritage assets of any level of importance.
Nil	There is no possibility of undiscovered heritage assets existing within the study area.

IMPACT ASSESSMENT

- 4.4.5. Impact assessment considers the effects of the proposed development on the significance of the identified heritage assets, or its assessed archaeological potential, including both positive ('beneficial') and adverse ('harm') impacts.
- 4.4.6. The assessment of physical impacts considers the extent or degree of harm proposed relative to the importance of the physical remains.
- 4.4.7. The level of harm predicted is stated in accordance with the criteria contained in Paragraphs 200-203 of the NPPF (2021).

SETTING IMPACTS

- 4.4.8. Assessment of the contribution made by the settings of the identified designated heritage assets to their significance and the impact of the proposed development on these settings has been presented in a separate document and therefore is not assessed here³⁷.
- 4.4.9. However, an assessment of the contribution made by the settings of the identified non-designated heritage assets to their significance and the impact of the proposed development on these settings has been undertaken.
- 4.4.10. The scope of this DBA is limited to identifying where no substantial setting impacts are anticipated requiring no further works, or where substantial setting impacts are anticipated, to identify which heritage assets are considered likely to be affected, and to make recommendations for proportionate further detailed assessments.

MINIMISING HARM

- 4.4.11. Where appropriate, measures for further assessment of, or mitigation of identified impacts are recommended.
- 4.4.12. A summary is presented of the measures to remove, reduce or mitigate harm to heritage assets through careful design and consideration within the development proposals.

³⁷ Pegasus Group 2021

5. RESULTS

5.1. OVERVIEW OF THE HISTORIC ENVIRONMENT

- 5.1.1. The full list of known heritage assets is presented in the Gazetteer, which can be found in Appendix 1, and the location of each is shown on Illus 24 – 30.
- 5.1.2. The significance of these assets is discussed by period in the Assessment of Heritage Significance section below.
- 5.1.3. There are no World Heritage Sites, Scheduled Monuments or locally listed buildings within the PDA or wider Study Area.
- 5.1.4. There are no designated heritage assets within the site boundary. There are 20 designated heritage assets within the wider Study Area. 17 of these are Grade II listed buildings of Post-Medieval or Modern date, one is a Post-Medieval locally registered garden, and two are Conservation Areas.
- 5.1.5. The PDA falls within an Area of Archaeological Significance of Late Iron Age to Medieval date. There are no non-designated heritage assets recorded in the HER within the PDA: seven previously unidentified non-designated heritage assets or potential assets have been identified within the PDA from historic mapping, aerial photographic and LiDAR imagery, geophysical survey, and site walkovers. These include elements of a Medieval and/or Post-Medieval parish boundary, Post-Medieval and Modern field boundaries, a possible Medieval or Post-Medieval drainage ditch, and the site of a Post-Medieval building.
- 5.1.6. There are 38 non-designated heritage assets within the wider Study Area. Three of these are of Iron Age date; three are of Romano-British date; two are of Medieval – Post-Medieval date; 25 are of Post-Medieval date; one is of Modern date; one is a multiperiod site; and three are of unknown but probable historic date.

5.2. 'AREAS OF ARCHAEOLOGICAL SIGNIFICANCE'

- 5.2.1. An Area of Archaeological Significance (AAS) is a defined area where, according to existing information, there is significant known archaeological interest or high potential for new discoveries. AASs are a local designation of Dacorum District Council and are listed in Dacorum's Local Plan. Their designation is based on evidence from known heritage assets (buildings, sites, features and finds) held by the Hertfordshire HER.
- 5.2.2. The PDA falls within one AAS, DAC_57 (illus 24 below), defined as 'cropmarks of occupation and finds of Roman and Medieval date'. A second AAS lies 460 m to the PDA's south-south-west, DAC_53, defined as 'Late pre-Roman Iron Age & Roman settlement activity found'.
- 5.2.3. No further information regarding AAS DAC_53 or DAC_57 could be found in local planning documents or the Dacorum Borough Council website, and were not provided with the HER search. No indications of these cropmarks could be seen through aerial photography or LiDAR imagery reviewed in this study.

5.3. CONSERVATION AREAS

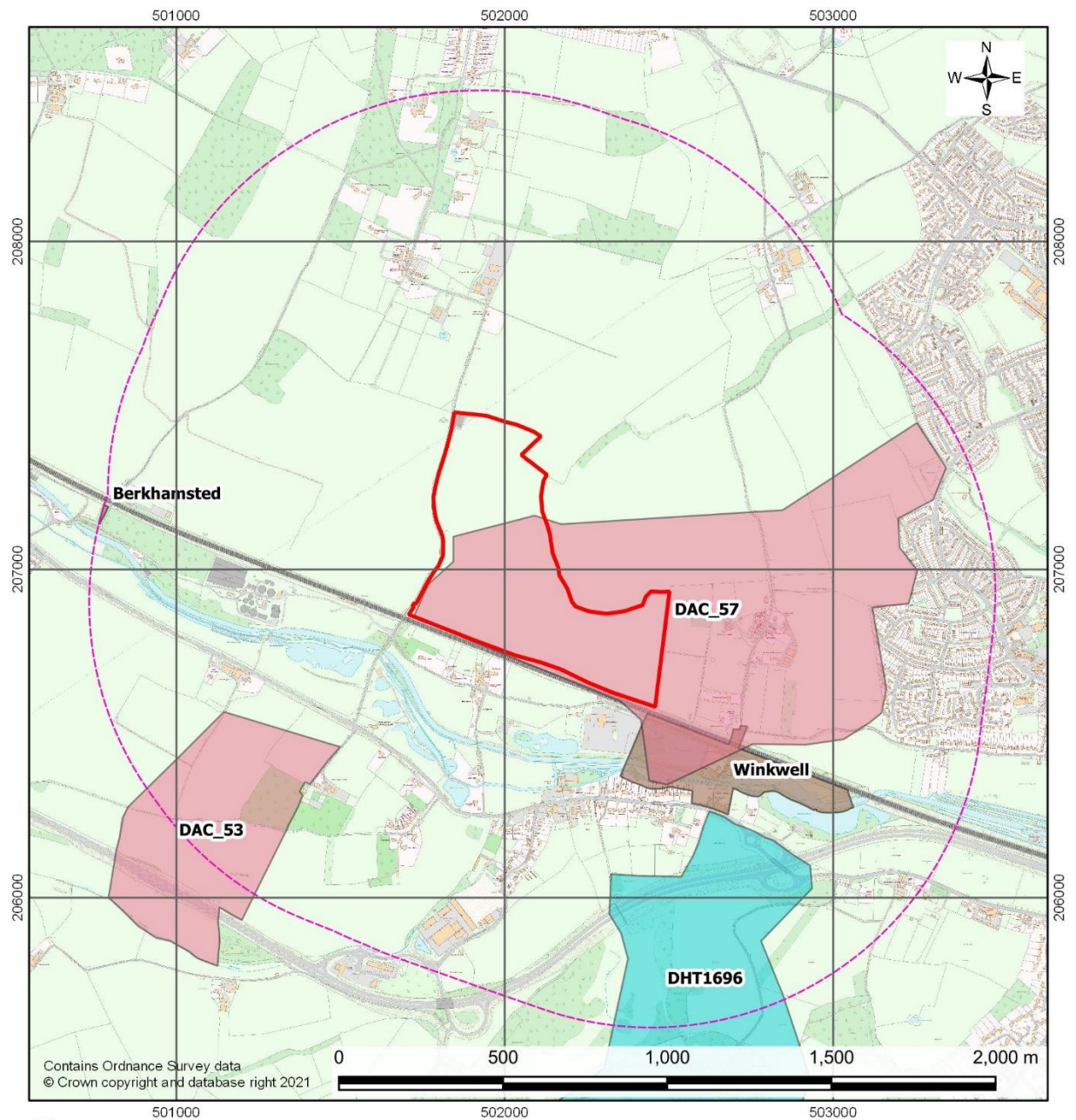
- 5.3.1. There are no Conservation Areas (CAs) in the PDA and two CAs within the wider Study Area. These are Winkwell, to the immediate south-east of the PDA, and Berkhamsted, whose western extent encroaches into the western edge of the Study Area. Because so little of the Berkhamsted CA lies within the Study Area, further discussion of it is not deemed relevant to this DBA.
- 5.3.2. No character appraisal has been carried out for Winkwell CA³⁸.

5.4. HISTORIC LANDSCAPE CHARACTER (HLC)

- 5.4.1. The PDA falls within the Historic Landscape Character of HHT2865. This is defined as 'Post-1950 boundary loss', in farmland in which fields have been amalgamated to facilitate modern farming practice.
- 5.4.2. To its north, the PDA is abutted by HLC HHT7283, 'irregular sinuous enclosure' and HHT7291, 'piecemeal enclosure'; to its east the PDA is abutted by HHT7295, '20th century enclosure'; to its south, the PDA is abutted

³⁸ <http://www.dacorum.gov.uk/home/planning-development/planning-cons-design/conservation-areas>, accessed 22nd December 2021

by HHT7300, 'motorway/railway' and HHT6721, 'industrial'; and to its west, the PDA is abutted by further 20th century enclosure and boundary loss HLC areas.



Key

- 1km Study Area
- Conservation Areas
- Areas of Archaeological Significance
- PDA boundary
- Local Registered Gardens

Illus 24. Conservation Areas, locally registered gardens and AAS's within the Study Area

5.5. PREVIOUS INVESTIGATIONS

5.5.1. Two archaeological events have taken place within the PDA as part of the application for Little Heath Solar Farm and four archaeological events have taken place within the Study Area.

5.5.2. In 1992, an evaluation was undertaken at the Broadway Farm extraction site (EHT4486, 420m to the south-west of the PDA). 13 trenches were excavated, five of which were devoid of archaeological remains. The remaining trenches containing archaeological features were concentrated in the south-western corner of the site.

5.5.3. In 2013, a geophysical survey following an archaeological desk-based carried out by CgMS Consulting³⁹ was undertaken on c.55 ha of farmland between Chaulden and Pouchen End (EHT8115, 320 m – 600 m to the east of the PDA). Possible archaeological features were identified throughout the area, with some concentrations.

5.5.4. Subsequent to the geophysical survey described above, an evaluation of 116 trenches was carried out on the same area of land in 2016 (EHT8173, 320 m – 600 m to the east of the PDA). The fieldwork's report summary states:

The evaluation identified a concentration of archaeological remains within the northern and central parts of the site, with a lower density of archaeological remains across the remainder of the site. Where archaeological features were encountered during the current trenching there was a variable correlation with the results of the geophysical survey, with many of the identified anomalies relating to changes in the underlying geology.

The earliest identified features included ditches, pits and postholes containing pottery of broadly Iron Age date. The evidence suggests a dispersed domestic settlement within the Iron Age, concentrated in the northern part of the site, located along the edge of a ridge of higher ground.

Evidence for Roman activity was concentrated in the central part of site, situated on a small headland. The artefactual evidence suggests small-scale occupation associated with agricultural activity focused on a trapezoidal enclosure.

The evaluation identified a number of predominantly undated, but probable post-medieval/ modern ditches. These broadly correspond within the general alignment of the surrounding field systems as depicted on historic and current Ordnance Survey mapping. The ditches are likely to represent boundary and/or drainage features. Six large undated pits were identified across the northern half of site which could not be confidently attributed to any of the identified periods of activity⁴⁰.

Deep colluvial deposits within the several 'coombs' were also recorded across the site.

The location of the identified archaeological features is shown in Illus 25.

5.5.5. In 2019, an evaluation was carried out at Button House, Pix Farm Lane (EHT8720, 80 m to the south of the PDA). The HER contains no details of the results of this fieldwork and no report can be found on the ADS (accessed 20th December 2021).

5.5.6. A Built Heritage Statement assessing the impact of the proposed development on the settings of the built heritage (including Conservation Areas) within a 2.5 km radius of the PDA was carried out by Pegasus Group in December 2021⁴¹. This concluded that the proposed development would not impact on the settings of the built heritage. As this work is so recent, it has not yet been entered into the HER database and is therefore not shown on Illus. 25.

5.5.7. A geophysical (magnetometer) survey was carried out by Headland Archaeology on the PDA in December 2021⁴² to support this application (see Appendix 2 below) Although anomalies were seen throughout the PDA, the majority of these were highly likely to be geological in nature, with only possible field boundaries (HA4 and HA5) identified as likely archaeological features. Only HA5 can be positively identified on historic mapping, and forms part of the parish boundary between Northchurch and Hemel Hempstead; it therefore is likely to be of Early Medieval origin and in use through the Early Medieval – Post-Medieval periods. Two of the depressions seen during the site visit, GF4 and GF5, were also recorded and a further three depressions of likely geological nature identified. The data does not indicate settlement activity (although, as indicated above, any colluvial deposits within the PDA may be masking archaeological features) and the results of the survey suggest that the archaeological potential of the PDA is low.

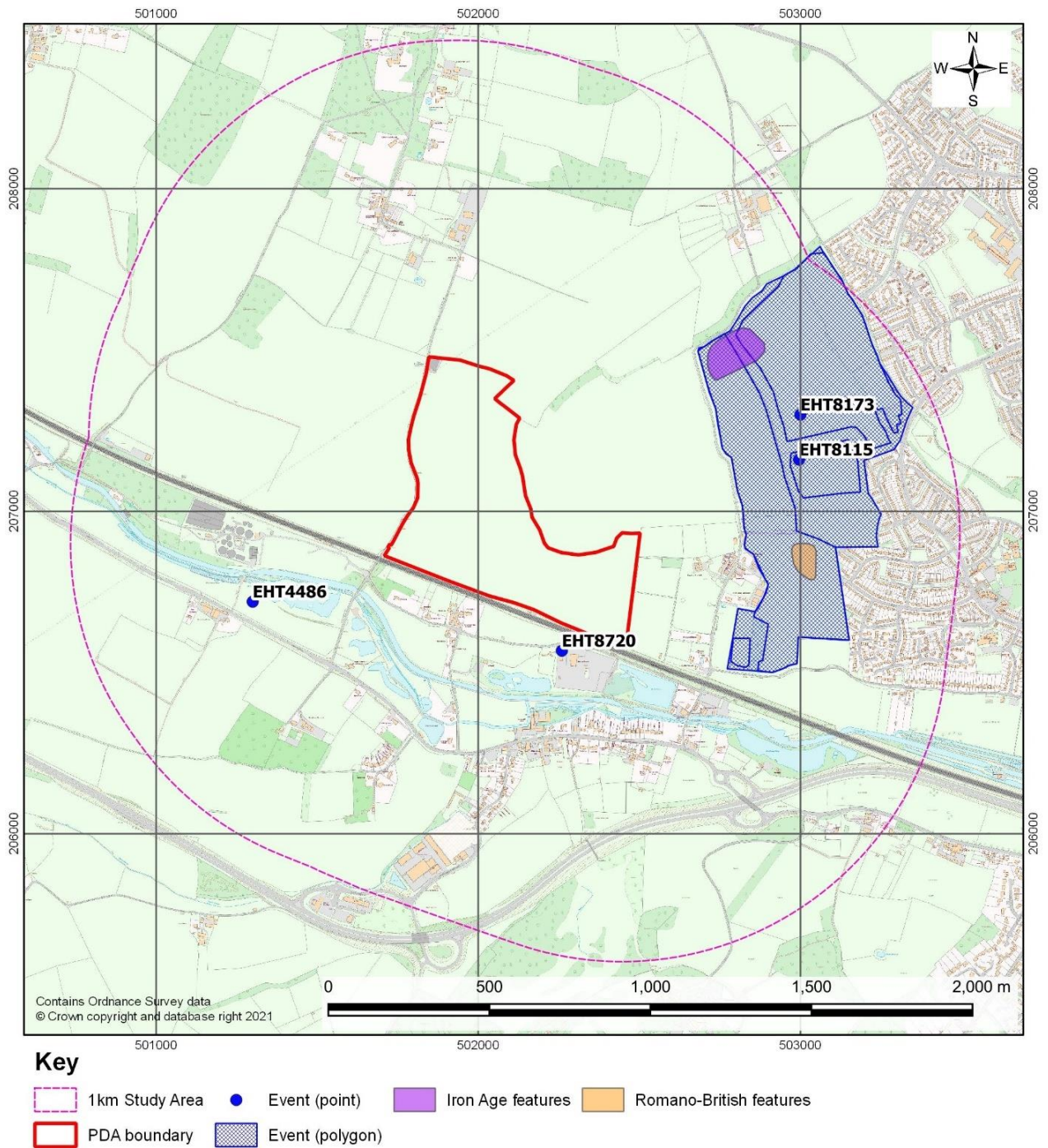
³⁹ Mayo 2012

⁴⁰ Brown 2016

⁴¹ Pegasus Group 2021

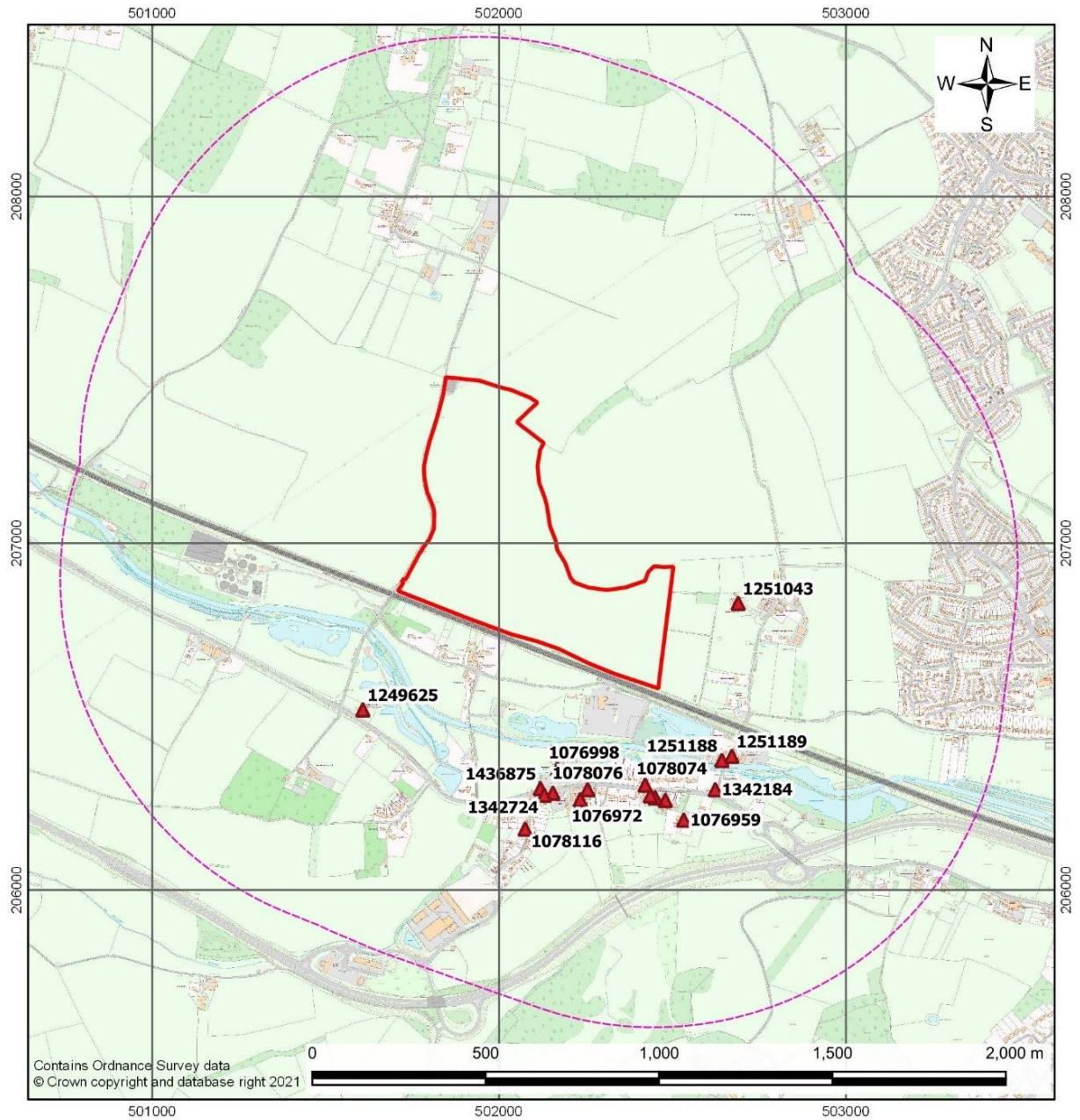
⁴² Headland Archaeology 2022

5.5.8. The geophysical survey's final report (including plans and illustrations of the results) is reproduced in Appendix 2. As this work is so recent, it has not yet been entered into the HER database and is therefore not shown on Illus. 25.

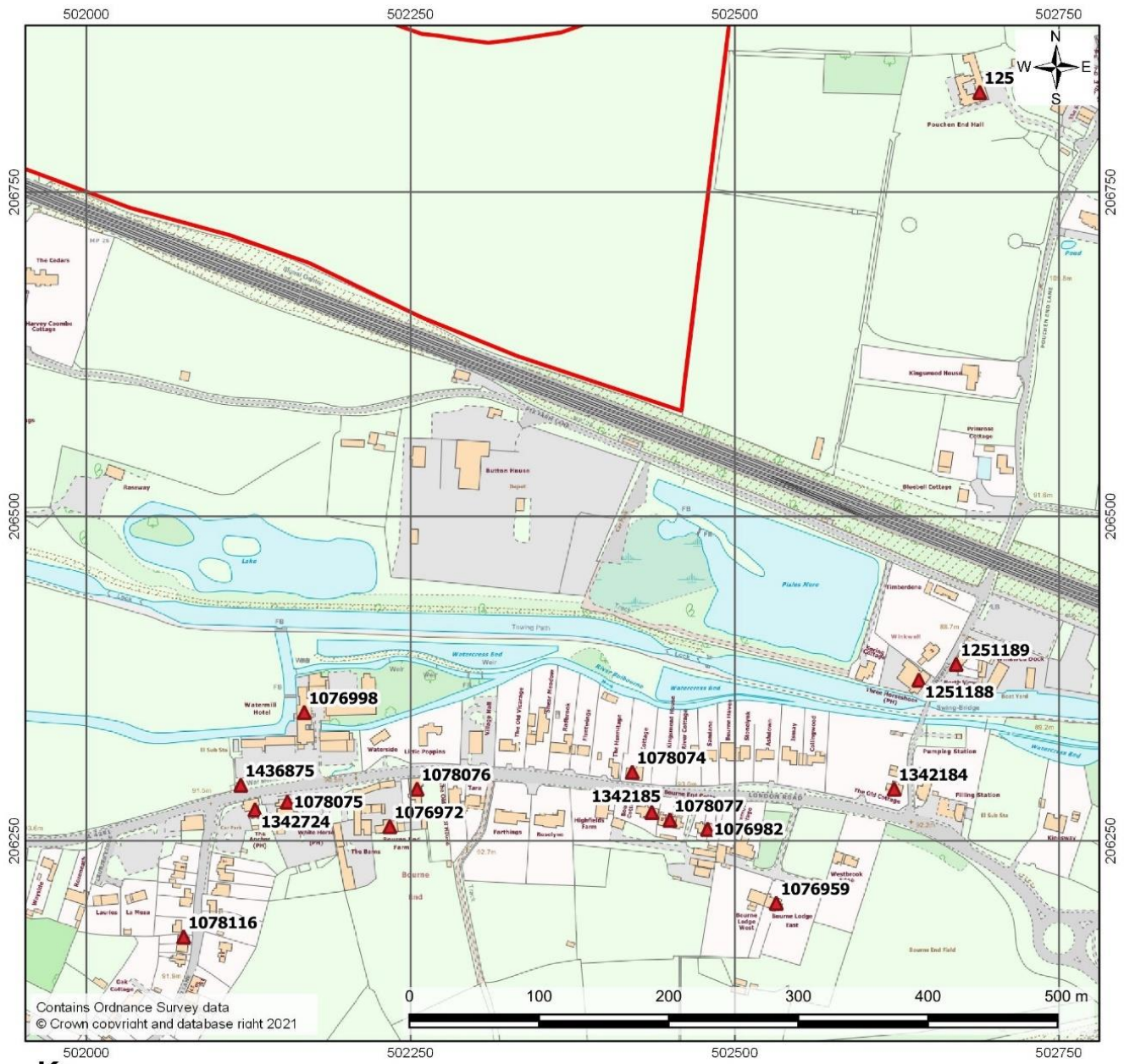


Illus 25. Results of HER search: Events

5.6. ARCHAEOLOGICAL AND HISTORICAL NARRATIVE



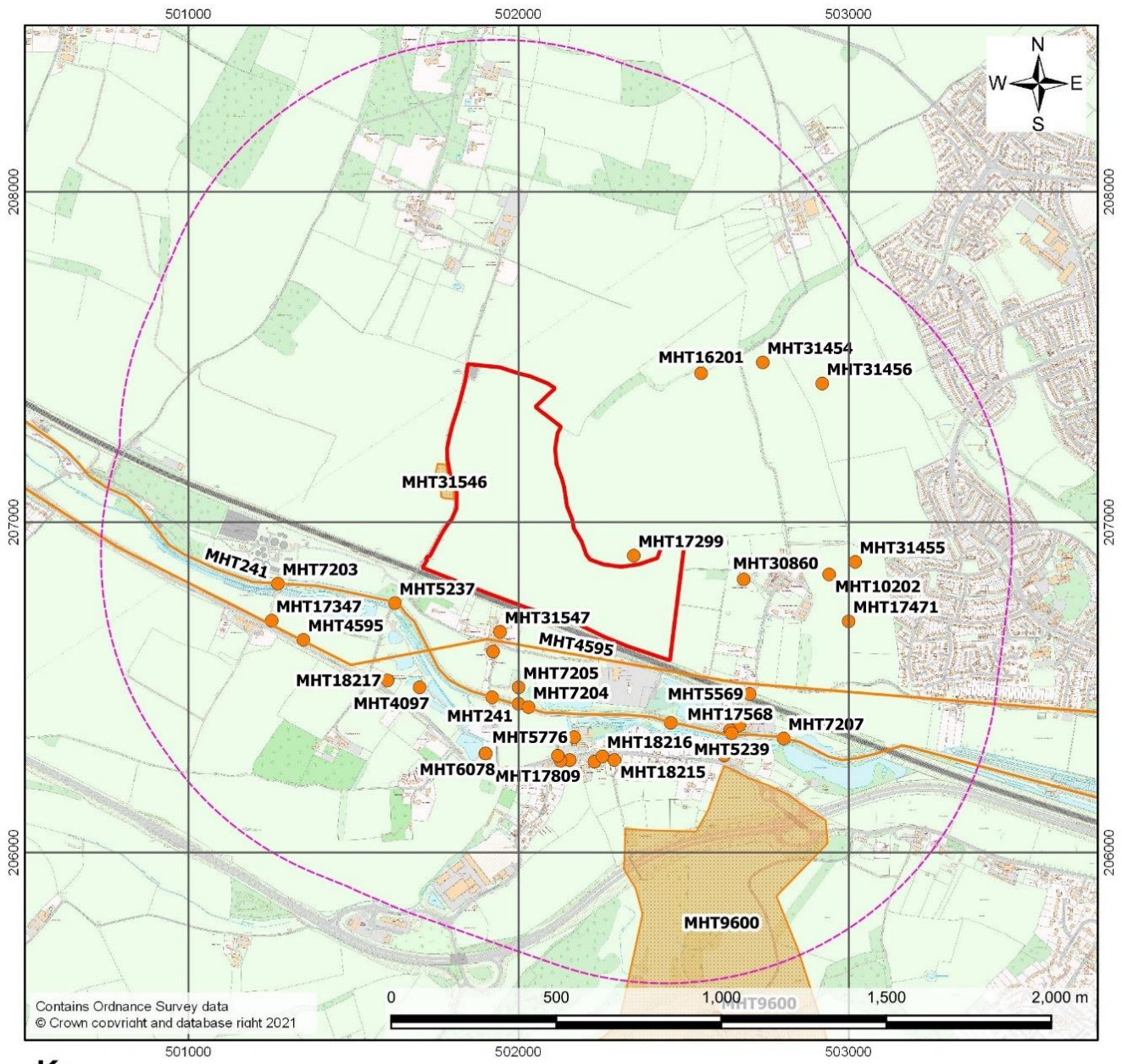
Illus 26. Listed Buildings within the Study Area



Key

- 1km Study Area
- PDA boundary
- ▲ Listed Buildings

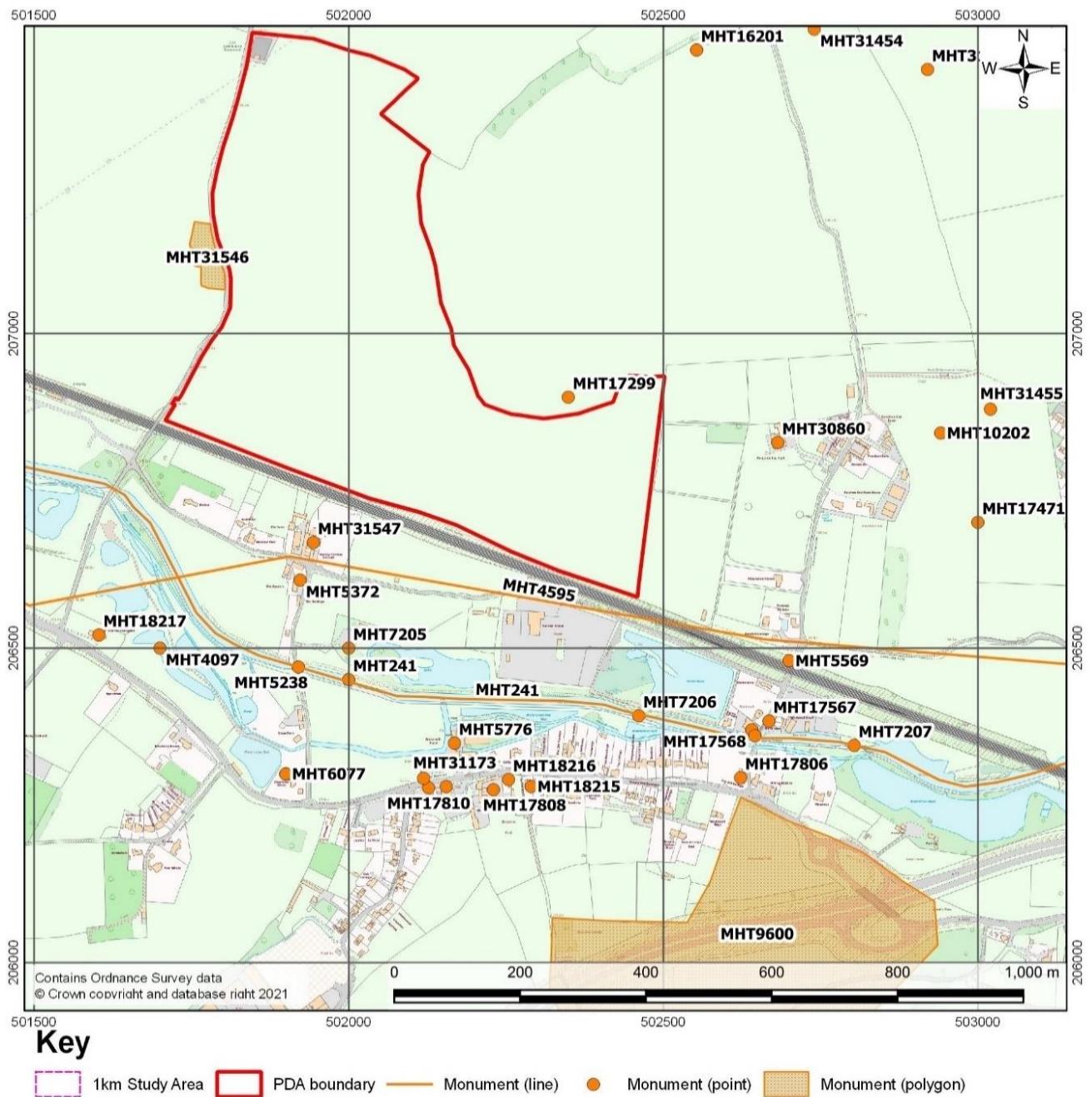
Illus 27. Detail of Listed Buildings to the south-east of the PDA



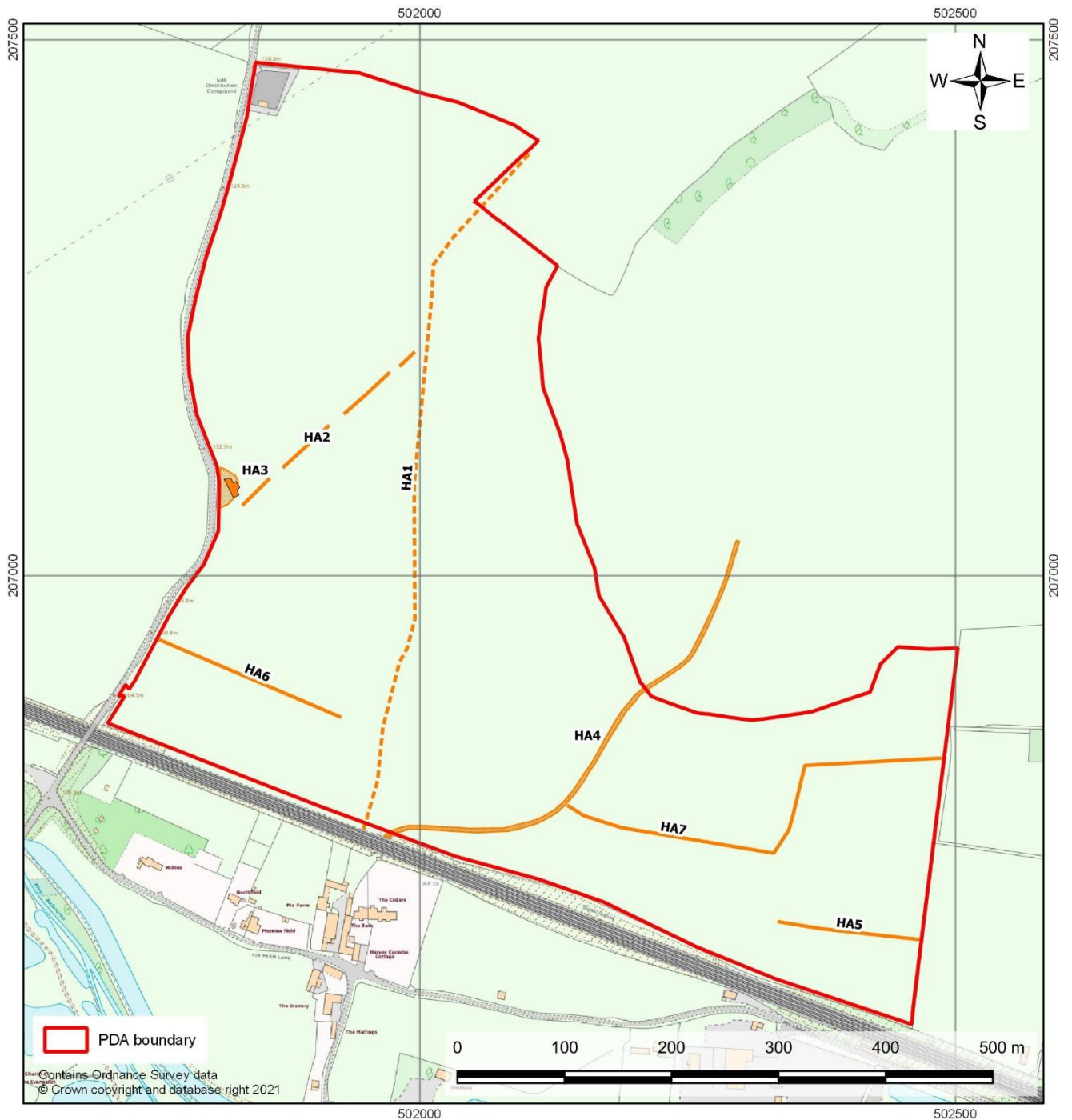
Key

- 1km Study Area
- PDA boundary
- Monument (line)
- Monument (point)
- Monument (polygon)

Illus 28. Results of HER search: Non-designated heritage assets outside the PDA



Illus 29. Detail of non-designated heritage assets to south and south-east of PDA



Illus 30. Newly-identified heritage assets within or close to the PDA recorded during the site visit, geophysical survey, historic mapping and aerial photographic and LiDAR imagery

PREHISTORIC PERIODS

PALAEOLITHIC (800,000 – 8500 BCE)

- 5.6.1. Archaeology from this period is normally represented by chance findspots rather than more substantial remains of in-situ activity such as settlements or burials⁴³. However, a handful of occupation sites have been discovered and studied within the East of England, especially in East Anglia⁴⁴. Material from the Lower and Middle Palaeolithic is rare on a national scale.
- 5.6.2. There are no known heritage assets recorded in the HER or Portable Antiquities Scheme database relating to this period within the PDA or wider Study Area.
- 5.6.3. The closest known heritage asset of Palaeolithic date to the PDA is the site of a findspot of a Lower Palaeolithic handaxe (SMR 541), which lies approximately 5 km to the PDA's east⁴⁵.
- 5.6.4. Modern aerial photographic and LiDAR imagery strongly indicate that a dry valley, GF8, exists within the PDA, orientated roughly north to south. It may contain or be overlain with Holocene Coombe deposits. Therefore, although a natural feature, GF8 may hold archaeological interest if it was infilled during a period contemporary human occupation in the area or became a focus for human activity before or after its infilling.
- 5.6.5. There is assessed to be a low potential for previously unknown heritage assets of this period to be encountered within the PDA.

MESOLITHIC (8500-4000 BCE)

- 5.6.6. Evidence of Mesolithic activity tends to be represented by findspots of small flakes of flints known as microliths. Although some areas of the East of England appear to have a comparatively rich Mesolithic resource, very few Mesolithic remains have been found in Hertfordshire as a whole⁴⁶.
- 5.6.7. There are no known heritage assets recorded in the HER or by the Portable Antiquities Scheme relating to this period within the PDA or wider Study Area.
- 5.6.8. There are no known heritage assets of Mesolithic date within 5 km of the PDA.
- 5.6.9. Natural flint, a valuable resource during this period, is present within the PDA, although no worked material was identified during the site visit.
- 5.6.10. As the PDA may contain Coombe deposits of Holocene date (c.9,500 BCE – present), is possible that later colluvial deposition has preserved Mesolithic land surfaces within the red line boundary.
- 5.6.11. There is assessed to be a negligible potential for previously unknown heritage assets of this period to be encountered within the PDA.

NEOLITHIC (4000-2200 BCE)

- 5.6.12. The Neolithic period is characterised by a gradual transition towards permanent settlement associated with a shift towards agriculture; the introduction of ceramics; and the building of large landscape monuments such as enclosure, curses, and burial monuments. In Hertfordshire, the earliest type of Neolithic monument identified is causewayed enclosures. Pit clusters are an additional type of Neolithic feature found in the county⁴⁷. It has been noted that valley floors may preserve settlements of Late Neolithic date⁴⁸.
- 5.6.13. Several findspots of Neolithic tools and pottery have been recorded within Berkhamsted parish, to the west of the PDA, which Thompson asserts 'suggest fairly widespread use of the valley and its slopes'⁴⁹. However, no finds of certain Neolithic date have been found in Hemel Hempstead parish, to the east of the PDA⁵⁰.

⁴³ Austin 1997, 5

⁴⁴ Billington 2021

⁴⁵ Thompson 2005a, 2

⁴⁶ Austin 1997, 9; Billington 2021

⁴⁷ Brown and Murphy 1997; Last et al 2021

⁴⁸ Brown and Murphy 1997, 14

⁴⁹ Thompson 2005b, 2

⁵⁰ Thompson 2005a, 2

- 5.6.14. There are no known heritage assets recorded in the HER or the Portable Antiquities Scheme relating to this period within the PDA or wider Study Area.
- 5.6.15. The closest known heritage asset of Neolithic date to the PDA is the site of a findspot of Neolithic pottery (SMR 6368), which lies approximately 1.8 km to the north-west⁵¹.
- 5.6.16. Natural flint, a valuable resource during this period, is present within the PDA, although no worked material was identified during the site visit.
- 5.6.17. As the PDA may contain Coombe deposits of Holocene date (c.9,500 BCE – present), is possible that later colluvial deposition has preserved Neolithic land surfaces within the red line boundary.
- 5.6.18. Recent geophysical survey undertaken by Headland Archaeology and discussed above did not identify any anomalies consistent with archaeological remains of this date.
- 5.6.19. There is assessed to be a low potential for previously unknown heritage assets of this period to be encountered within the PDA.

BRONZE AGE (2200-800 BCE)

- 5.6.20. During this period people continued to establish permanent settlements based on an agricultural economy often with associated field systems and enclosures marked out with boundary ditches. Tools continued to be fashioned from flint as well as bronze. Funerary monuments shifted from a focus on the communal to the individual forms (i.e. barrows), and new pottery styles were introduced⁵². There is very limited evidence for Early and Middle Bronze Age settlement in Hertfordshire, but clear evidence for Late Bronze Age settlement, particularly along river valleys. Underlying geology played an important role in determining different land use patterns within the county⁵³.
- 5.6.21. The Bronze Age in Hemel Hempstead and Berkhamsted is primarily represented by findspots of lithics and metallic objects; roundhouses; barrows; and at least two settlements⁵⁴.
- 5.6.22. There are no known heritage assets recorded in the HER relating to this period within the PDA or wider Study Area.
- 5.6.23. The Portable Antiquities Scheme records the findspot of a copper Bronze Age chisel or awl, WAW-C4A5F5, within the parish of Berkhamsted (no detailed spatial data given).
- 5.6.24. The closest known heritage asset of Bronze Age date to the PDA is the site of a Bronze Age settlement (SMR 6368), which lies approximately 2.3 km to the PDA's north-east⁵⁵. Recorded features included pits, gullies, post-built structures, linear ditches and cremations. Dating of charcoal from the site suggests that it was in use between the 12th and 9th centuries BCE.
- 5.6.25. Natural flint, a valuable resource during this period, is present within the PDA, although no worked material was identified during the site visit.
- 5.6.26. As the PDA may contain Coombe deposits of Holocene date (c.9,500 BCE – present), is possible that later colluvial deposition has preserved Bronze Age land surfaces within the red line boundary.
- 5.6.27. Recent geophysical survey undertaken by Headland Archaeology and discussed above did not identify any anomalies consistent with archaeological remains of this date.
- 5.6.28. There is assessed to be a low potential for previously unknown heritage assets of this period to be encountered within the PDA.

⁵¹ Thompson 2005b, Fig. 1

⁵² Brown and Murphy 1997; Cooper 2021; Brudenell 2021

⁵³ Bryant 2015

⁵⁴ Thompson 2005a, 2; Thompson 2005b, 2

⁵⁵ Thompson 2005b, Fig. 1

IRON AGE (800 BCE- 43 CE)

- 5.6.29. The Iron Age is characterised by the introduction of iron and new pottery types; the construction of hillforts; the continuing expansion of settled communities; and the introduction of coinage at the latter end of the period. In Hertfordshire, Iron Age settlements were often unenclosed and exhibit great variety in form and layout⁵⁶.
- 5.6.30. The Iron Age in Berkhamsted is represented by a section of Grim's Ditch, recently dated to Middle Iron Age⁵⁷; several findspots of Late Iron Age coinage; and evidence for a Late Iron Age and Early Romano-British 'industrial ironworking complex' which may have been of regional or national importance. In contrast, the Iron Age is not well-represented in Hemel Hempstead⁵⁸.
- 5.6.31. There are no known heritage assets recorded in the HER relating to this period within the PDA.
- 5.6.32. There are three known heritage assets recorded in the HER relating to this period within the Study Area. These are MHT31454, a group of pits and ditches, 600 m to the north-north-east of the PDA; MHT6078, the findspot of a Late Iron Age coin, 485 m to the south of the PDA; and MHT4097, the findspot of an Iron Age sword fragment, 345 m to the south-west of the PDA. AAS DAC-53 lies 460 m to the PDA's south-south-west, defined as 'Late pre-Roman Iron Age & Roman settlement activity found'. No further information regarding AAS DAC_53 or DAC_57 could be found in local planning documents or the Dacorum Borough Council website and were not provided with the HER search. No indications of these cropmarks could be seen through aerial photography or LiDAR imagery.
- 5.6.33. The Portable Antiquities Scheme records the findspots of one Iron Age coin hoard, one brooch, and two Iron Age coins within the parish of Berkhamsted; the findspot of one Iron Age coin recorded as found 'near Bourne End', to the south of the PDA; and four findspots of Iron Age coins in the parish of Northchurch (no detailed spatial data given).
- 5.6.34. It is probable that Romano-British road 'Akeman Street', which runs roughly east – west to the south of PDA, had its antecedents in at least the Iron Age, if not earlier. Therefore, the southern edge of the PDA may contain a greater potential for Iron Age roadside remains. However, it is likely that the cutting for the Modern railway line which also runs east - west to the south of the PDA has disturbed any remains within the railway corridor.
- 5.6.35. Natural flint, a valuable resource during this period, is present within the PDA, although no worked material was identified during the site visit.
- 5.6.36. As the PDA may contain Coombe deposits of Holocene date (c.9,500 BCE – present), is possible that later colluvial deposition has preserved Iron Age land surfaces within the red line boundary.
- 5.6.37. The evaluation undertaken by Cotswold Archaeology, discussed in Section 5.5, demonstrated the existence of Iron Age remains 600 m to the north-east of the PDA. However, recent geophysical survey undertaken by Headland Archaeology and discussed above did not identify any anomalies that could relate to archaeological remains of this date.
- 5.6.38. Therefore, despite the PDA falling within an AAS containing remains of this date, there is assessed to be a low potential for previously unknown heritage assets of this period to be encountered within the PDA.

HISTORIC PERIODS

ROMAN/ROMANO-BRITISH PERIOD (43CE- 410CE)

- 5.6.39. The beginning of this period is generally taken to be the Claudian invasion of 43 BCE, although there is clear evidence that some British Iron Age communities had been in frequent contact with their Romanised counterparts in Gaul for much of the century prior to this date. It is after 43 BCE that the Roman army made its presence felt within Britain, expanding military operations as far north as the Antonine Wall and as far west as Wales, and establishing large urban centres, large-scale infrastructure, centralised administration, the use of Latin, and patterns of villa complexes with estates and Roman material culture⁵⁹.
- 5.6.40. The PDA lies approximately 11 km to the west of the Romano-British civitas capital of Verulamium, now known as St. Albans. Numerous Romano-British settlements and findspots are known within the parishes of Hemel

⁵⁶ Bryant 1997; Brudenell 2021

⁵⁷ Bryant 2015

⁵⁸ Thompson 2005a, 2; Thompson 2005b, 2 - 3

⁵⁹ Going 1997; Evans 2021

Hempstead and Berkhamstead, including villas, buildings, cremations, roads, and coinage. Not long after the Conquest, the valley road running parallel to the River Bourne, to the south of the PDA, appears to have been reengineered to become part of a major route from London to Chester. The ironworking activity that had been established in Berkhamstead parish in the Late Iron Age continued until the at least the 3rd century and possibly 4th century CE⁶⁰.

- 5.6.41. There are no known heritage assets recorded in the HER relating to this period within the PDA. However, the PDA does fall within AAS DAC_57, defined as 'cropmarks of occupation and finds of Roman and Medieval date'. A second AAS lies 460 m to the PDA's south-south-west, DAC_53, defined as 'Late pre-Roman Iron Age & Roman settlement activity found'. No further information regarding AAS DAC_53 or DAC_57 could be found in local planning documents or the Dacorum Borough Council website and were not provided with the HER search. No indications of these cropmarks could be seen through aerial photography or LiDAR imagery examined as part of this study.
- 5.6.42. There are four known heritage assets recorded in the HER relating to this period within the Study Area. These are MHT17471, the findspot of Romano-British coins and a brooch, 520 m to the east of the PDA; MHT6077, the findspot of a 2nd century coin hoard, 485 m to the south of the PDA; MHT31455, an enclosure containing ditches and pits seemingly in use throughout the period, 525 m to the east of the PDA; and MHT4595, the course of 'Akeman Street', one of the main routes from Verulamium, 30 m – 250 m to the south of the PDA. MHT17347, an undated wall footing and drain, 485 m to the south-west of the PDA, may also be of Romano-British date.
- 5.6.43. The Portable Antiquities Scheme records the findspots of a further 22 Romano-British artefacts in the vicinity of Berkhamsted and Hemel Hempstead (no detailed spatial data given).
- 5.6.44. The importance of 'Akeman Street' in the Romano-British period, the proven existence of roadside settlements (such as Berkhamsted) along its route, and the closeness of the PDA to the road may increase the likelihood of Romano-British remains being present within the PDA. However, it is likely that the cutting for the Modern railway line which also runs east - west to the south of the PDA has disturbed any remains within the railway corridor.
- 5.6.45. As the PDA may contain Coombe deposits of Holocene date (c.9,500 BCE – present), is possible that later colluvial deposition has preserved Romano-British land surfaces within the red line boundary.
- 5.6.46. The recent evaluation undertaken by Cotswold Archaeology, discussed in Section 5.5, demonstrated the existence of Romano-British remains 485 m to the north-east of the PDA. However, recent geophysical survey undertaken by Headland Archaeology and discussed above did not identify any anomalies that could be related to archaeological remains of this date.
- 5.6.47. Therefore, despite the PDA falling within an AAS containing remains of this date, there is assessed to be a low potential for previously unknown heritage assets of this period to be encountered within the PDA.

EARLY MEDIEVAL PERIOD (410-1066 CE)

- 5.6.48. The Early Medieval period was one of great and rapid change. It is traditionally taken to begin with the withdrawal of Roman troops to Rome in the early 5th century, but there is substantial evidence that the material culture and social structure which had been introduced into Britain were not abandoned overnight. The archaeological record indicates an economic and social change between the mid-5th century to early 6th century, when the Angles, Saxons and Jutes arrived on British shores. From the 6th century onwards, British material culture and society underwent seismic changes, including the cultural effects of Viking raiding and settlement during the late 7th – 10th centuries; the transition from paganism to Christianity; the development of kingdoms; the re-emergence of urban life; and the development of minsters, estates and manors. Many of these changes can still be glimpsed today, for example in the boundaries of modern counties and parishes, which often mirror that of the Anglo-Saxon kingdoms and estates⁶¹.
- 5.6.49. As elsewhere in the country, more archaeological evidence is coming to light within Hertfordshire of the continuity of human activity during the Romano-British/Early Medieval transitional period of the 5th and 6th centuries CE⁶². Much of Hertfordshire was annexed to the Danes during the 9th century, this annexed area later

⁶⁰ Thompson 2005a, 2; Thompson 2005b, 2 - 3

⁶¹ Wade 1997; Ayers 1997; Hills 2021; Hoggett and Davies 2021

⁶² Hills 2021

being known as Hundred of Dacorum. There are no etymological indications of Danish settlement within the hundred from the place names which survive in Early Medieval and later sources⁶³.

- 5.6.50. Documentary sources are not clear whether the PDA fell within the Manor of Berkhamsted or the Manor of Hemel Hempstead during the Early Medieval period⁶⁴. However, Post-Medieval mapping shows that the boundary between the parishes of Northchurch and Hemel Hempstead, HA4, ran roughly north to south through the PDA during the 19th century, on much the same alignment as it does today. It is highly likely that this parish boundary has its origins in the Early Medieval period and reflects the Early Medieval boundary between Berkhamsted and Hemel Hempstead Manors.
- 5.6.51. Both Hemel Hempstead and Berkhamsted have their origins in the Early Medieval period; Hemel Hempstead, at least, is known from Anglo-Saxon charters dating to the early 8th century CE⁶⁵. It is thought that the Early Medieval settlement of Hemel Hempstead was established in the Gade valley, to the north-east of the PDA.
- 5.6.52. At the end of the Early Medieval period, the Manor of Berkhamsted was held by Edmer, a thane of Early Harold⁶⁶. There is good archaeological evidence for the continued use of Akeman Street Roman road and the settlement surrounding it: the two watermills noted in the Medieval Domesday Survey may have had their origins in the 9th or 10th centuries CE. The original church of this manor is likely to have been situated within the later Medieval parish of Northchurch⁶⁷.
- 5.6.53. The Manor of Hemel Hempstead was held at the end of the Early Medieval period by two unnamed brothers whose overlord was Earl Leofwin⁶⁸.
- 5.6.54. As the PDA is highly likely to have spanned the boundary of two manors during the Early Medieval period, it was likely to have formed part of agricultural land beyond the focus of settlement at that time.
- 5.6.55. Place names within the Study Area provide some understanding of Early Medieval settlement patterns and land use. Modern place names within the Study Area which are likely to have their etymological origins in the Early Medieval period are as follows:
- Berkhamsted, either OE⁶⁹ *beorg + hām-stede* 'homestead on or near a hill' or OE *beorc + hām-stede* 'homestead where birch trees grow'⁷⁰;
 - Hemel Hempstead, OE *hamel + hām-stede*, 'homestead within an undulating landscape'⁷¹
- 5.6.56. There are no known heritage assets recorded in the HER relating to this period within the PDA or wider Study Area.
- 5.6.57. The Portable Antiquities Scheme records the findspots of two Early Medieval artefacts within the parishes of Northchurch (BH-334286, a glass bead) and Hemel Hempstead (BH-80F1C2, copper alloy tweezers) (no detailed spatial data given).
- 5.6.58. Although physical remains (such as banks, ditches and hedge rows) relating to parish boundary HA1, discussed above, are no longer extant within the PDA, an anomaly on HA1's alignment, likely the below-ground remains of a backfilled ditch, were identified during the recent geophysical survey of the PDA (Illus. 10 of Appendix 2). As the parish boundary was clearly an extant feature until the Post-Medieval period, the geophysical anomaly may not be of Early Medieval date. However, the anomaly does indicate that there is a potential for elements of the Early Medieval parish boundary to survive below-ground within the PDA.
- 5.6.59. There is assessed to be a low potential for previously unknown heritage assets of this period to be encountered within the PDA.

⁶³ Thompson 2005a, 3; Thompson 2005b, 5 – 6; Gover, Mawer and Stenton 1970, 25

⁶⁴ Compare Gover, Mawer and Stenton 1970, 25 – 26 and www.opendomesday.org

⁶⁵ Thompson 2005a, 3

⁶⁶ Morris 1976

⁶⁷ Thompson 2005b, 5 – 7; Page 1908, 163

⁶⁸ Morris 1976

⁶⁹ Old English

⁷⁰ Compare Gover, Mawer and Stenton 1970, 27 and 28 with Mills 2011, 53 and 53

⁷¹ Gover, Mawer and Stenton 1970, 40 and 41; Mills 2011, 235

MEDIEVAL PERIOD (1066CE- 1500CE)

- 5.6.60. The Medieval period began with the cultural and political shock of the Norman Conquest in 1066CE and is generally understood to end around the beginning of travel into and exploitation of the Americas and Africa at the beginning of the 16th century. Although material culture and agricultural practices appear to have changed little, Medieval society was subjected to the feudal system, and the building of castles and moated sites, particularly in the years immediately following the Conquest, was commonplace. The era is also characterised by the coming of the Black Death and the social and economic upheavals which followed⁷².
- 5.6.61. At the time of the Domesday Survey, the Manor of Berkhamsted lay in the hundred of Tring and the Manor of Hemel Hempstead lay in the Manor of Dacorum⁷³.
- 5.6.62. In 1086, the Manor of Berkhamsted was held by the Count of Mortain and contained 13 hides of land and 26 ploughlands, 37 households, a priest, two watermills, a large vineyard, meadow, pasture, and woodland⁷⁴. Within the manor were also 52 burgesses (although this large number may reflect a mistake made by the copyist), indicating that it held borough status⁷⁵. It is not known whether this status was conferred after the Norman Conquest or if it was received during the later Early Medieval period; if the latter, it might have been regarded as a borough by ancient right by the beginning of the Medieval period⁷⁶.
- 5.6.63. Very soon after the Conquest, a new manorial centre was built on the site of Berkhamsted Church. In 1156 Henry II gave official recognition to the town's rights and privileges, such as the right to hold market and a fair⁷⁷.
- 5.6.64. In 1086, the Manor of Hemel Hempstead was also held by the Count of Mortain and contained 10 hides of land and 30 ploughlands, 23 households, four mills, meadow and woodland⁷⁸.
- 5.6.65. Documentary sources suggest that during the late 11th or early 12th centuries the Early Medieval Manor of Berkhamsted was divided into two parishes (although remaining a single manor), the easterly portion becoming the parish of Berkhamsted St. Mary and the western, and greater, portion becoming the parish of Berkhamsted St. Peter's. Berkhamsted St. Mary became colloquially known as Northchurch from the 14th century onwards. It is within this later Medieval parish that the PDA sits⁷⁹. Berkhamsted St. Peter is now known merely as Berkhamsted.
- 5.6.66. The manor of Berkhamsted was held by the Crown for most of the Medieval period, regularly being let or granted to a variety of noblemen and members of the royal family⁸⁰.
- 5.6.67. As the PDA spanned the boundary of two manors and two parishes during the Medieval period, it was likely to have been located in agricultural land beyond the focus of settlement.
- 5.6.68. The names of several of the hamlets and villages surrounding the PDA are thought to derive from individuals who are known to have lived during the Later Medieval period, although the settlements themselves are not named in documentary sources until the early Post-Medieval period. These include:
- Haxter's End Farm, likely associated with the families of William Heckesalt (14th century)⁸¹;
 - Bourne End, probably the home of Emma de la Bourne (late 13th century)⁸²;
 - Pix Farm, likely associated with the families of Robert Pich (14th century)⁸³
- 5.6.69. There are no known heritage assets recorded in the HER relating to this period within the PDA. However, the PDA does fall within AAS DAC_57, defined as 'cropmarks of occupation and finds of Roman and Medieval date'. No further information regarding AAS DAC_57 could be found in local planning documents or the Dacorum

⁷² Wade 1997; Ayers 1997; Martin 2021; Antrobus and Ayers 2021

⁷³ Gover, Mawer and Stenton 1970, 25 – 26; www.opendomesday.org

⁷⁴ Morris 1976

⁷⁵ This status allowed a settlement to have a local government in the form of an annually elected bailiff (Thompson 2005a, 5)

⁷⁶ Thompson 2005b, 6

⁷⁷ Thompson 2005b, 6

⁷⁸ Morris 1976

⁷⁹ Page 1908, 245; Thompson 2005b, 7

⁸⁰ Page 1908, 165 – 166

⁸¹ Gover, Mawer and Stenton 1970, 28

⁸² Gover, Mawer and Stenton 1970, 29

⁸³ Gover, Mawer and Stenton 1970, 42

Borough Council website and were not provided with the HER search. No indications of these cropmarks could be seen through aerial photography or LiDAR imagery.

- 5.6.70. There are two known heritage assets recorded in the HER relating to this period within the Study Area. These are MHT5776, Bourne End Mill, 340m to the south of the PDA; MHT31456, a group of possible extraction pits and field boundaries, 650m to the north-east of the PDA; and MHT17471, the findspot Medieval finds, 520m to the east of the PDA. The western extent of the Berkhamsted Conservation Area lies at the western edge of the Study Area.
- 5.6.71. The Portable Antiquities Scheme records the findspots of a Medieval silver brooch, BUC-60ED32, in the 'Potten End area', to the north-east of the PDA, and the findspots of a copper alloy seal matrix (BUC-D695D1) and silver coin (BH-497CA4). There are at least an additional 20 findspots of Medieval material recorded in the parishes of Berkhamsted, Hemel Hempstead and Northchurch, including coins, buckles, strap fittings, a chafing dish, bells, horse pendants and silver finger rings.
- 5.6.72. As discussed above, parish boundary HA1, separating Northchurch from Hemel Hempstead, can be seen running roughly north-south through the PDA on Post-Medieval mapping. It is highly likely that HA4 followed the same alignment and was maintained during the Medieval period. Whilst subsequent maintenance of the boundary into the Post-Medieval period is likely to remove earlier evidence, there is a potential for traces of the Medieval boundary to survive as below-ground remains, as indicated by the results of the recent geophysical survey.
- 5.6.73. Therefore, despite the PDA falling within an AAS containing remains of this date, there is assessed to be a low potential for previously unknown heritage assets of this period to be encountered within the PDA.

POST-MEDIEVAL PERIOD (1500-1900CE)

- 5.6.74. The Post-Medieval period is characterised by the rise of market towns and cities; the social, political, and economic effects of the Industrial Revolution and capitalism; the movement of people from the countryside and into urban areas; and the fall of the feudal system and disintegration of medieval manorial estates. Much change also occurred within the religious sphere, with the monasteries being dissolved and their wealth distributed to the new Church of England and noble families by Henry VIII in 1540, and the rise of Protestantism in the 17th century. The political upheavals these events created contributed to the outbreak of civil war in 1642. During the latter two centuries of the Post-Medieval period, Britain profited greatly from the colonisation of the Americas and Africa, most notably through the enslavement of African people, and amassed a global and hugely wealthy empire⁸⁴. Due to the resultant increase in personal wealth, land ownership in rural areas changed as individuals sold and bought enclosures of land that had previously been in common ownership and facilitated the building of new estates with grand houses, parks, and gardens. It is almost that the PDA and Study Area felt the impact of these changes.
- 5.6.75. During the early 16th century, Berkhamsted was recorded by Leland as a flourishing market town⁸⁵. It received a charter of incorporation in 1618 which was ultimately short-lived, the Corporation failing by the 1670s due to the Civil War, the rising importance of Hemel Hempstead and decreasing royal favour⁸⁶. From the late 17th century until the early 19th century, it was an important staging post on the London to Aylesbury road⁸⁷. However, its involvement with the coaching industry ceased abruptly after the opening of the Grand Union Canal (MHT241) between 1798 and 1805; this canal runs east – west to the south of the PDA. Several decades later, the London to Birmingham railway line was constructed roughly parallel to the canal; again, the railway line runs east – west to the south of the PDA. The canal and the railway provided substantial economic stimulus for the area and led to notable population growth⁸⁸. One of the local industries which benefitted from the improved transport connections was the growing of watercress, which became an important part of the Berkhamsted and Bourne End economy during the later 19th and early 20th centuries⁸⁹.
- 5.6.76. Following the Dissolution of the Monasteries, the Manor of Hemel Hempstead reverted to the Crown. Around this date, the village was referred to by Leland only as 'a meeting of two rivers' (Buteux, 1998, 14), whose nearest

⁸⁴ Glazebrook et al 1997; Andrew 2021

⁸⁵ Thompson 2005a, 5

⁸⁶ Thompson 2005b, 13

⁸⁷ Thompson 2005b, 17

⁸⁸ Thompson 2005b, 22 and 23

⁸⁹ Thompson 2005b, 25

market was presumably that at Berkhamsted. Despite this, the settlement received a "Bailiwick Charter" from Henry VIII in 1539, which gave it borough status. The right to weekly market and annual fair was also granted⁹⁰.

- 5.6.77. Manorial surveys carried out in c.1600 indicate that early Post-Medieval Hemel Hempstead was a small town located to the east of modern Gadebridge Park and the River Gade, surrounding the modern road known as High Street. By the mid-17th century, Hemel Hempstead had become one of the most prosperous settlements in the area, for which the corn trade was an important industry. Like Berkhamsted, the arrival of the canal and the railway stimulated trade and allowed for population growth, so much so that by the end of the 19th century Hemel Hempstead had extended as far south as the modern suburb of Paradise⁹¹.
- 5.6.78. A manorial survey of Berkhamsted carried out by Dodderidge in 1607 states that the inhabitants of Berkhamsted and Northchurch used common land at the Fryth for 'herbage and pannage, bushes, furzes, stubbs and fern', as well as pasture⁹². The Fryth was located to the north of the settlement of Berkhamsted and was later known as Berkhamsted Common; it lies about 2.3 km to the north-east of the PDA. However, the place name Fryth is known from at least the 13th century and therefore was likely in use as common land in the Medieval as well as the Post-Medieval periods⁹³. The name derives from OE *fyrhð* 'scrubland'⁹⁴.
- 5.6.79. It is likely that the PDA remained in use as agricultural land located away from the main settlements in the area during this period. However, given its proximity to the canal and the railway, it may have experienced greater movement of people passing through than in earlier periods.
- 5.6.80. The earliest documentary sources identifying the hamlets and farmsteads surrounding the PDA (including Hackster's Farm, Little Heath Farm, Pouchen End, Broadway Farm and Winkwell) date to the turn of the 17th to the early 18th centuries⁹⁵.
- 5.6.81. Several of the settlements surrounding the PDA are shown on historic mapping dating to the 17th and 18th centuries, including Speed's 1676 map of Hertfordshire, Bowen's 1770 map entitled 'A New and Correct Map of the Countries Twenty Miles Round London', and Faden's 1788 map entitled 'The Country Twenty-Five Miles round London'. The latter has been reproduced in Illus. 31 despite apparent flaws in the surveying when compared to later maps. The map illustrates that, during the 18th century, a now-lost hamlet or estate named Slowhill End (MHT16201) existed to the north-east of Hackster's End Farm and north-west of Pouchen End. It also indicates that current dogleg in Little Heath Lane to the north of the PDA did not exist in the 18th century. The topography shown on the map indicates that the contours of the site have not notably changed between the end of the 18th century and today.

⁹⁰ Thompson 2005a, 4 and 5

⁹¹ Thompson 2005a, 6 - 8

⁹² Dodderidge 1607, 74 and 75

⁹³ Gover, Mawer and Stenton 1970, 28

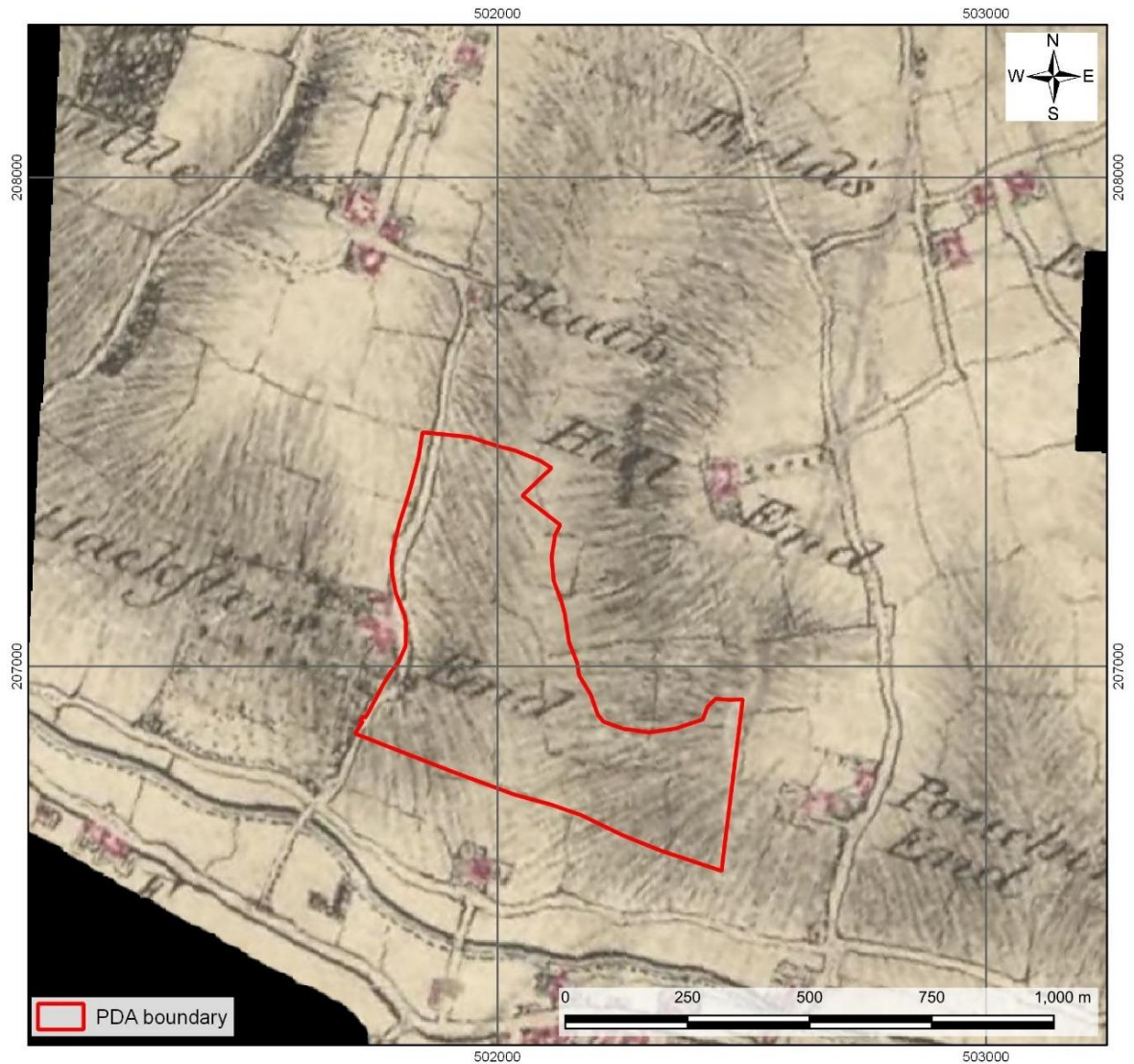
⁹⁴ Cavill 2018, 481

⁹⁵ Gover, Mawer and Stenton 1970, 43; Hastie and Spain 1997, 149; HRO AH306-307; HRO AH224; HRO AH150; HRO AH563; HRO AH305a



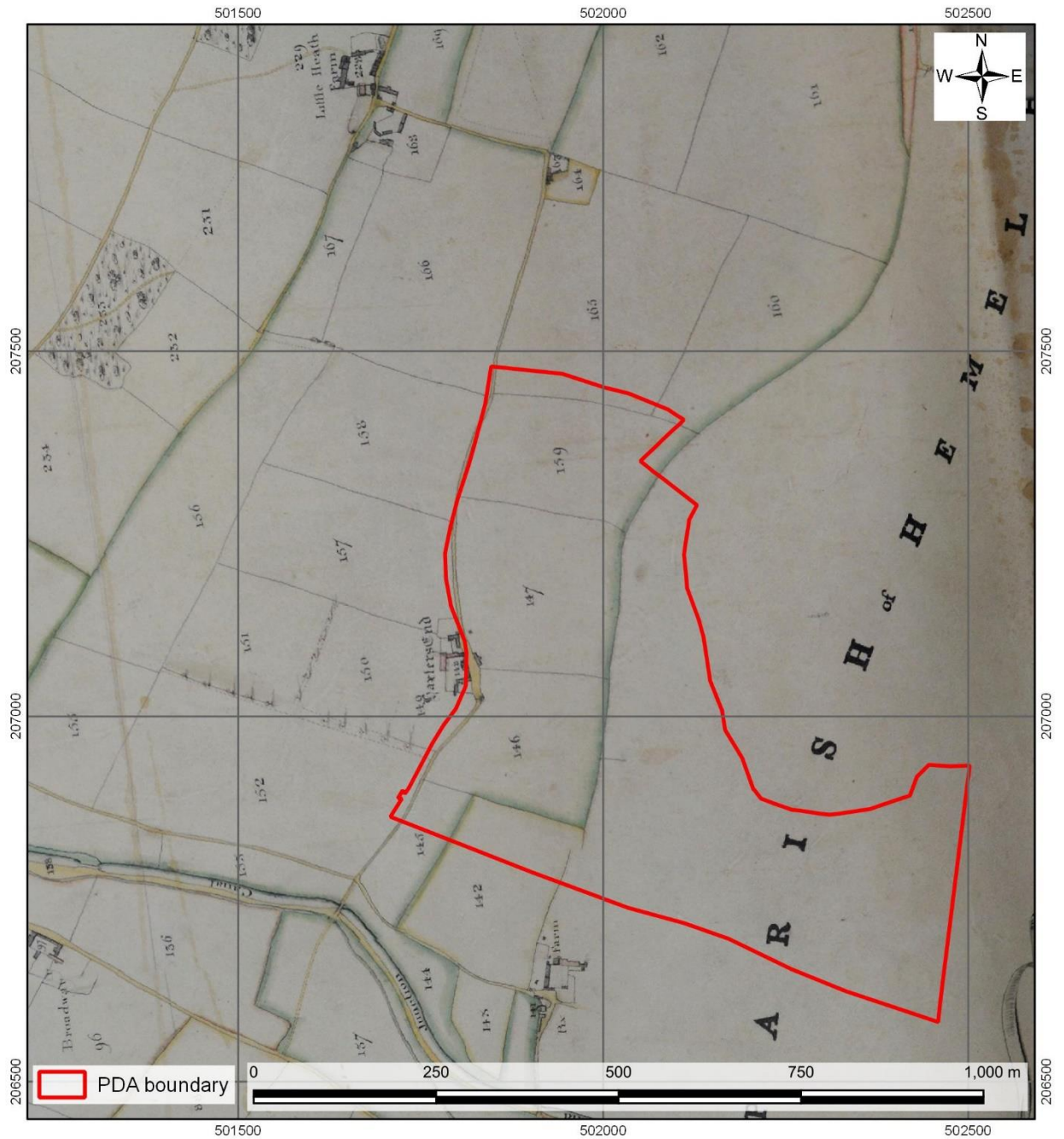
Illus 31. Faden's map. *The Country Twenty-Five Miles round London*, 1788

5.6.82. Hyett's map of Hertfordshire of 1806 (Illus. 32) gives more detail into the layout of the hamlets and estates surrounding the PDA, including the now-lost settlement of Slowhill End, here named Hill End; the map may suggest that its entranceway was lined with trees. On this map, the course of Little Heath Lane was shown as it is in the present day. Its distinct dogleg, not shown in 18th century mapping, is likely to have been created in response to the dwelling and enclosure shown in later tithe plots 594 and 593, which had presumably been constructed between 1788 and 1806. Field boundaries were shown, but it is thought that these are illustrative of the field pattern of the area rather than being fully representative of it. HA4 is not identified.



Illus 32. Hyett's Map of Hertfordshire, 1806

- 5.6.83. The earliest map showing the PDA and Study Area in fine detail is the 1826 'Plan of the Eastern Division of the Parish of Berkhamsted St Mary' (HRO DP/74/29/3). The map is shown in Illus. 33 and shows only the western half of the PDA. The map demonstrates that the PDA was divided into at least five enclosed fields at this date, the earliest cartographic source to do so. The parish boundary between Northchurch and Hemel Hempstead, HA4, was shown on the same alignment as that of later mapping and the present day. The plan also indicates that the layout of the buildings and dwellings associated with Hackster's Farm, Little Heath Farm and Pix Farm had been solidified by at least 1826. Within the PDA, a small building which formed part of the Haxter's End complex, HA3, was shown; above ground indications of a building platform associated with HA3 were recorded during the site visit.
- 5.6.84. The information contained in the 1826 plan's accompanying survey book given in Table 4.

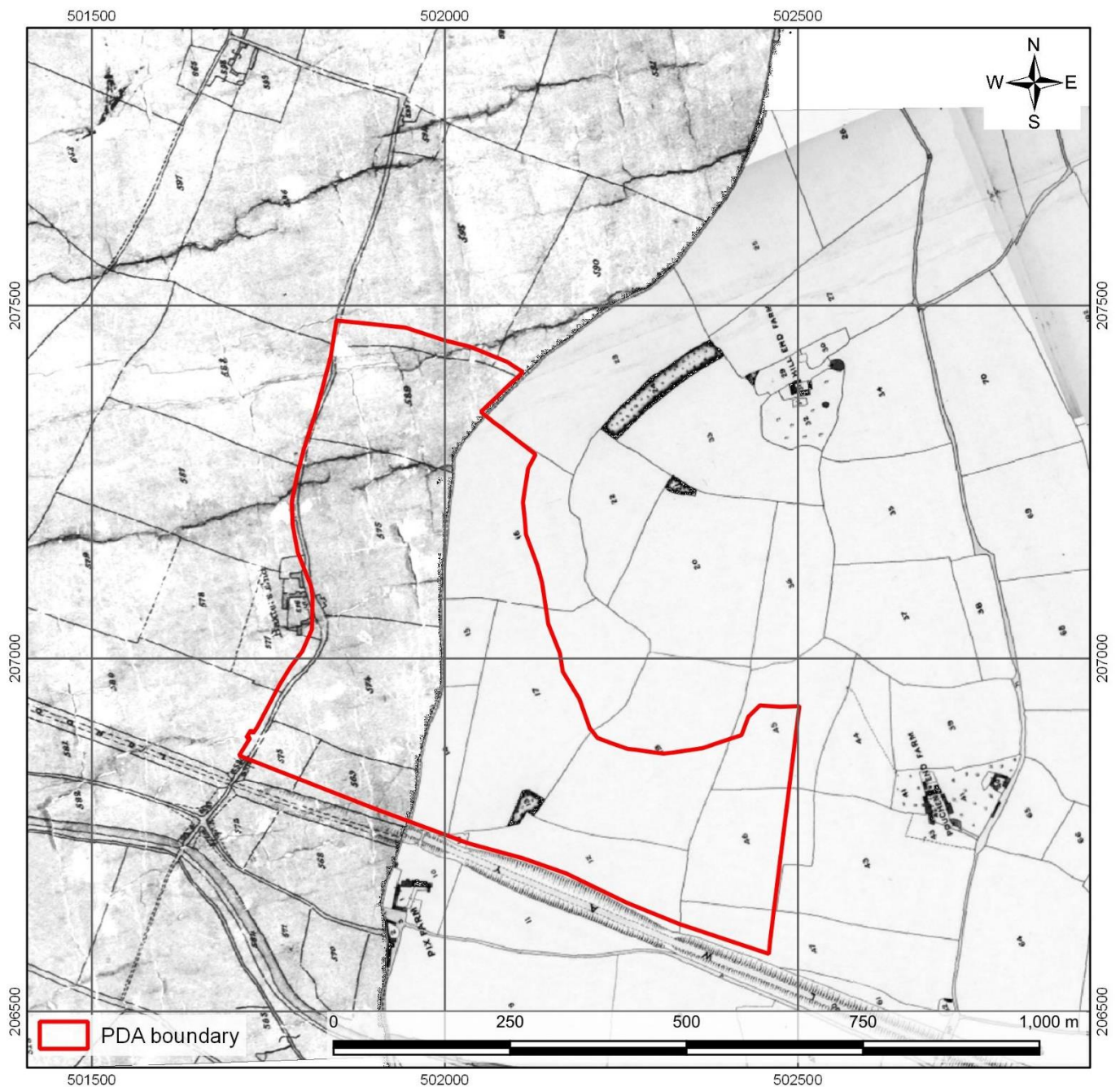


Illus 33. Plan of the Eastern Division of the District of Berkhamsted, 1826

Table 4: Extract from survey book HRO DP74/29/5 accompanying 1826 map

Owner	Occupier	Plot No.	Name	Land Use
John Field	James Field	142	Heath Field	Arable
George Meacher	Mrs Valiant	145	Little Heath Field	Arable
George Meacher	Mrs Valiant	146	Great Heath Field	Arable
George Meacher	Mrs Valiant	147	Great Ditch Field	Arable
George Meacher	Mrs Valiant	159	Little Ditch Field	Arable

- 5.6.85. The field names 'Great Ditch' and 'Little Ditch' may be of interest but, as they are also given in the later tithe maps of the area, are discussed below.
- 5.6.86. The PDA encompasses areas of the Northchurch and Hemel Hempstead tithe maps, produced in 1839 and 1840 – 1841 respectively (Illus. 34). These maps show very few changes compared to the 1826 map, with the construction of the railway line to the south of the PDA being the notable exception (the railway line is not recorded in the HER). Like the western half of the PDA, the eastern half of the PDA was also subdivided during the 19th century, containing eight fields (in whole or part).
- 5.6.87. HA5 and HA7, identified as cropmarks during analysis of LiDAR and aerial photographic imagery, correspond to the field boundaries separating tithe plots 12 and 19, 45 and 16, and 46 and 17 respectively. HA4, the course of a later Post-Medieval and Modern footpath, clearly follows the course of the field boundary between tithe plots 17 and 19. HA1 is shown on the same alignment as earlier and later mapping.
- 5.6.88. The information contained in the maps' accompanying apportionments is shown in Tables 5 and 6.



Illus 34. Hemel Hempstead and Berkhamsted tithe maps, produced between 1839 and 1841

Table 5: Extract from Hemel Hempstead tithe apportionment

Owner	Occupier	Plot No.	Name	Land Use
The executors of James Field, James Brown and Frank Moore	Philip Brown	12	Part of Lower Minces	Arable
The executors of James Field, James Brown and Frank Moore	Philip Brown	13	Spring in White Hill	Wood
The executors of James Field, James Brown and Frank Moore	Philip Brown	14	Long Orchard	Meadow
The executors of James Field, James Brown and Frank Moore	Philip Brown	15	Three Acres	Meadow
The Countess of Bridgewater	Thomas Friend	16	Hanging Field	Arable
The executors of James Field, James Brown and Frank Moore	Philip Brown	17	White Hill	Arable
The executors of James Field, James Brown and Frank Moore	Philip Brown	18	Orchard	Meadow
The executors of James Field, James Brown and Frank Moore	Philip Brown	19	Upper Minces	Arable
The executors of James Field, James Brown and Frank Moore	Philip Brown	45	Upper Hill Field	Arable
The executors of James Field, James Brown and Frank Moore	Philip Brown	46	Lower Hill Field	Arable
The executors of James Field, James Brown and Frank Moore	Philip Brown	47	Lower Broad Field	Arable

Table 6: Extract from Northchurch tithe apportionment

Owner	Occupier	Plot No.	Name	Land Use
James Field	Philip Brown	569	Upper Heath Field	Arable
The Countess of Bridgewater	Thomas Friend	573	Upper Lower Heath Field	Arable
The Countess of Bridgewater	Thomas Friend	574	Great Heath Field	Arable
The Countess of Bridgewater	Thomas Friend	575	Great Ditch Field	Arable
The Countess of Bridgewater	Thomas Friend	589	Little Ditch Field	Arable

5.6.89. Most of the field names given are topographical in nature, including Hanging Field⁹⁶, or describe contemporary or historic land use within the field.

5.6.90. Of possible interest, however, may be Great Ditch and Little Ditch Field, plots 575 and 589 of the Northchurch tithe map. The recent geophysical survey of the PDA identified a discontinuous linear feature, HA2 (see illus. 30 and Illus. 10 of Appendix 2), orientated north-east to south-west within tithe plot 575 (Great Ditch Field). Although interpreted as a possible field boundary of unknown date, this anomaly may be the remains of a

⁹⁶ OE hangende 'land on a steep slope' (Cavill 2013, 191)

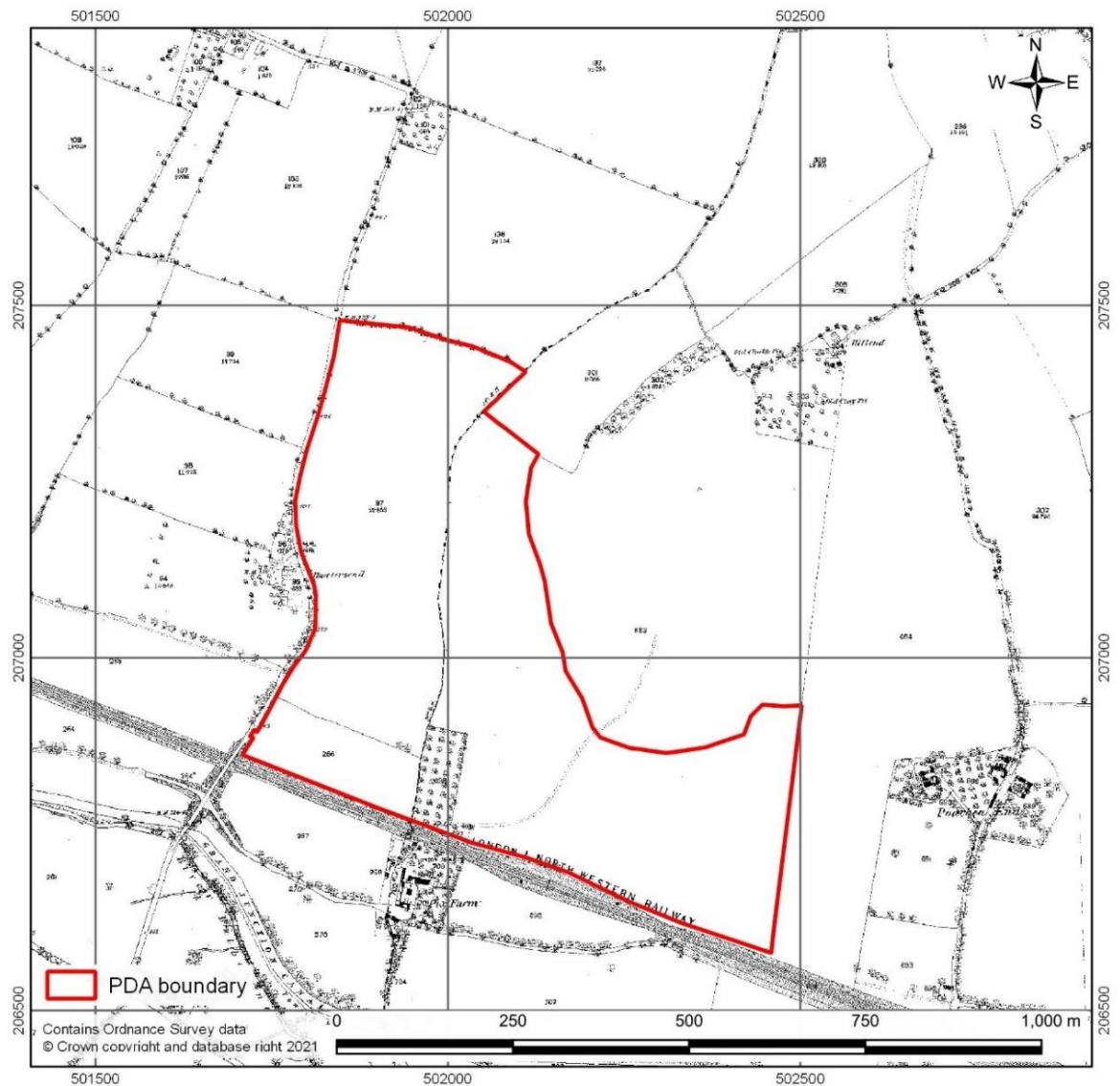
ditch. Therefore, the names of tithe plots 575 and 589 may refer to a manmade ditch or drain which bounded or traversed the fields⁹⁷.

- 5.6.91. These fields are not named in Dodderidge's survey of 1607 (although many parcels of land were recorded but not named in this document), which may imply that the ditch or drain they refer to was constructed after this date. However, if the course of HA5 does represent the ditch which the field was named after, then it is most likely to predate the construction of HA3, a small building shown on 19th century mapping and situated within 10m of HA2⁹⁸.
- 5.6.92. The etymology of Upper Mincees, Hemel Hempstead tithe plot 19, likely derives from OE *mynccen* 'nun', referring to land owned or occupied by nuns⁹⁹.
- 5.6.93. It may be significant that Hemel Hempstead tithe plot 13 refers to a spring, as this is the approximate location of GF2, a depression seen during the site visit and on LiDAR imagery, and would perhaps account for the depression's existence. If this spring was used as a local water source during the Post-Medieval and possibly earlier periods, there may be a concentration of dropped or discarded artefacts within its immediate vicinity.
- 5.6.94. The 1883 1:10 560 County Series 1st Edition OS map and the 1888 1:2500 County Series 1st Edition OS maps show the same landscape in and around the PDA but only the 1888 map has been reproduced here, as it is more clearly illustrated (Illus. 35).
- 5.6.95. By 1883, HA3, the site of a small building related to Haxter's End, had been demolished. There had clearly been extensive field amalgamation within PDA between the time of the tithe and 1883, such that the PDA only consisted of two fields rather than 13. This level of field amalgamation had clearly also occurred to fields to the east of the PDA, but the fields to north and south of the PDA had only experienced minor field amalgamation and the area to the west of the PDA had experienced none at all. Within the PDA, a footpath (HA4) was shown as leading from Pix Farm to the middle of the PDA, following the boundary of the by then abandoned Hemel Hempstead tithe plot 17. An orchard was shown in the south of the PDA.

⁹⁷ Cavill 2018, 113; note that Cavill identifies the field name element *dic* as being of Old English date

⁹⁸ It is thought that 10m distance between a field drainage system and a dwelling would be too close to be viable (in case of flooding, etc.), in addition to which historic mapping of early – mid 19th century date is often not as accurate as later OS mapping, and therefore HA3 and HA2 may have been less than 10m distant.

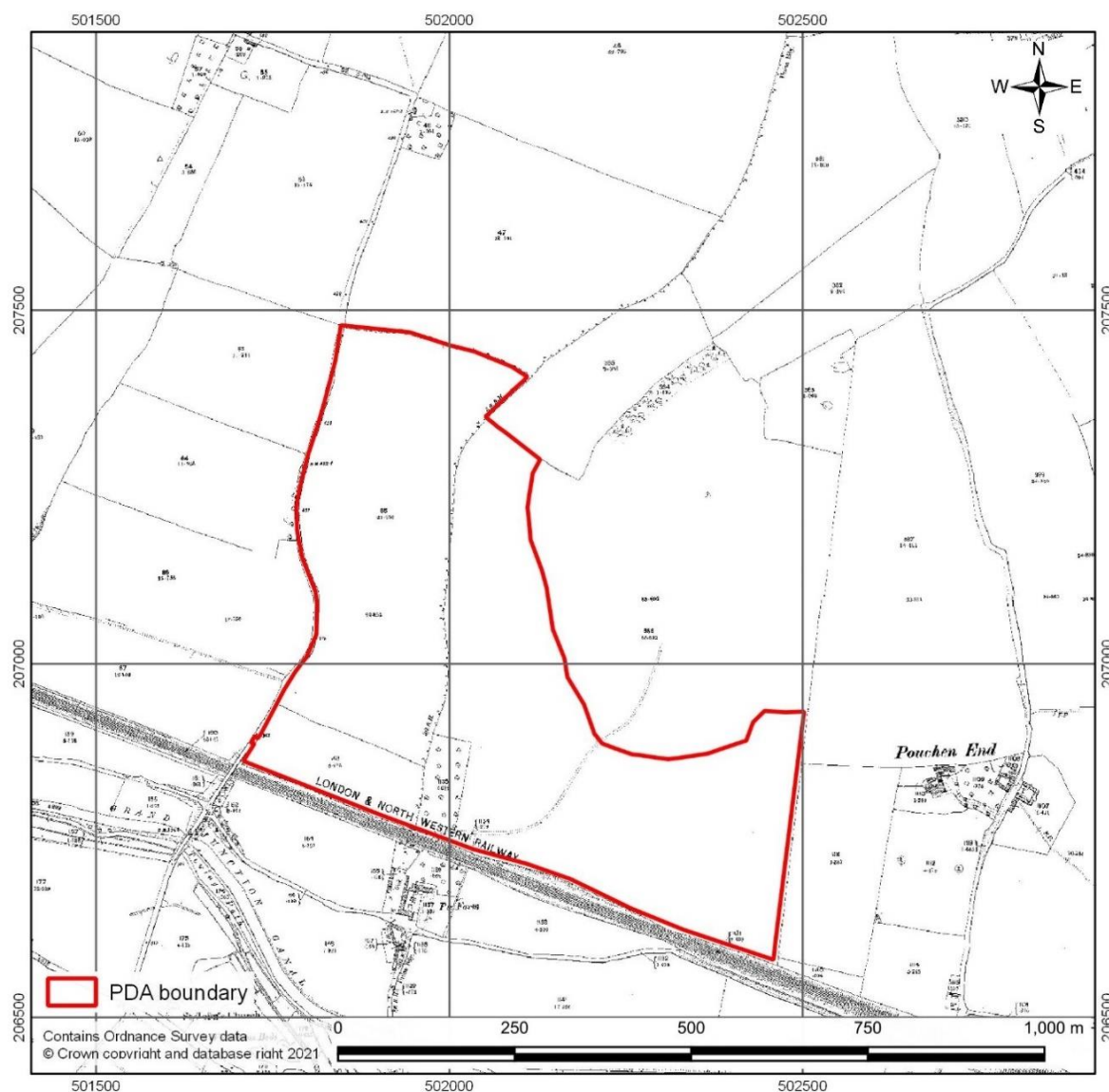
⁹⁹ Cavill 2018, 281



Illus 35. 1888 1:2500 County Series 1st Edition OS map

- 5.6.96. Very few changes were shown on the 1898 1:2 500 County Series 1st Revision OS map (Illus. 36), the most notable of which is that the buildings at Haxter's End were no longer shown, and so must have been demolished between 1888 and 1898. Hastie and Spain note that the road connecting Haxters End with Little Heath was renamed Little Heath Lane (previously being known as Haxters End Lane) when Haxter's End was demolished¹⁰⁰. Several field boundary changes were shown to the west and east of the PDA.

¹⁰⁰ Hastie and Spain 1996, 148



Illus 36. 1898 1:2500 County Series 1st Revision OS map

- 5.6.97. There are no known heritage assets recorded in the HER relating to this period within the PDA.
- 5.6.98. Six heritage assets of probable Post-Medieval date have been identified within the PDA during the course of research for this DBA. These are discussed more fully in previous sections but consist, in summary, of:
- HA1, the below-ground remains of the Early Medieval - Post-Medieval Northchurch and Hemel Hempstead parish boundary;
 - HA2, a discontinuous linear feature identified through geophysical survey which may represent historic drainage systems
 - HA3, the site of one small building of at least 19th century date with an associated probable house depression;
 - HA4, a Post-Medieval footpath which follows the line of an earlier field boundary; and
 - HA5 and HA7, two Post-Medieval field boundaries visible on LiDAR imagery.
- 5.6.99. There are 45 known heritage assets recorded in the HER relating to this period within the wider Study Area. Several of these assets are identified both in the National List for England and the Hertfordshire HER, although given distinct ID numbers.
- 5.6.100. Listed buildings of Post-Medieval date within the Study Area are exclusively Grade II listed and consist of urban and rural dwellings, public houses, local industry, and religious and educational buildings.

- 5.6.101. Listed urban dwellings include NHLE 1078116, the 18th century 12 and 14 Bourne End Lane; 550 m to the south of the PDA; NHLE 1078074, the late 17th – early 18th century dwelling called The Cottage, 290 m to the south of the PDA; NHLE 1076982, the 19th century terraced row called The Cottages, 325 m to the south of the PDA; NHLE 1076959, the 18th century Bourne End Lodge East and Bourne End Lodge West, 385 m to the south-south-east of the PDA; NHLE 1342184/MHT17806, the 16th or early 17th century dwelling called The Old Cottage, 340 m to the south-east of the PDA; NHLE 1342185, the 19th century Bourne Cottage, 305 m to the south of the PDA; NHLE 1251189/MHT17567, the 16th or 17th century dwelling called Winkwell, 285 m to the south-east of the PDA; and NHLE 1078077, the 19th century terraced row called The Cottages, 320 m to the south of the PDA.
- 5.6.102. Listed rural dwellings consist of NHLE 1076972/MHT17808, the 17th century Bourne End Farmhouse, 400 m to the south of the PDA and NHLE 1251043/MHT30860, the 16th or early 17th century Pouchen End, 200 m to the east of the PDA.
- 5.6.103. Listed public houses consist of NHLE 1078075/MHT17809, the 17th century White Horse Public House, 415 m to the south of the PDA; NHLE 1342724/ MHT17810, the 16th or 17th century The Anchor Public House, 435 m to the south of the PDA; and NHLE 1251188/MHT17568, the 17th century Three Horseshoes Public House, 280 m to the south-east of the PDA.
- 5.6.104. Listed buildings relating to local industry are NHLE 1076998/MHT5776, the early 19th century former Bourne End Mill, 354 m to the south of the PDA.
- 5.6.105. Listed religious and educational buildings consist of NHLE 1078076/MHT18216, the 19th century Old School House, 360 m to the south of the PDA and NHLE 1249625/ MHT18217, the 19th century Church of St John the Evangelist, 350 m to the south of the PDA.
- 5.6.106. There is also one Locally Registered Park of Post-Medieval date within the Study Area, Westbrook Hay (DHT1696 and MHT9600), 365 m to the south-east of the PDA.
- 5.6.107. Undesignated built heritage within the Study Area includes MHT16201, the site of two clay and chalk pit worker's cottages at Hillend (now demolished) 545 m to the north-east of the PDA; MHT17567, a Post-medieval timber-framed house, 285 m to the south-east of the PDA; MHT18215, the site of a 19th century church and school, 360 m to the south of the PDA; MHT241, MHT31546, the site of Hackster's End, 10m to the west of the PDA; MHT31547, Pix Farm, 90m to the south of the PDA; and MHT5372, a 19th century partially demolished brick building, 165m to the south of the PDA.
- 5.6.108. Undesignated heritage assets within the Study Area relating to trade and transport comprises MHT241, the Grand Union Canal, 115 m to the south of the PDA; MHT5237, a 19th century bridge over the canal, 115 m to the south-west of the PDA; MHT5238, a 19th century bridge over the canal, 300 m to the south of the PDA; MHT5239, a 19th century swing bridge over the canal, 290 m to the south-east of the PDA; MHT5569, a 19th century railway bridge, 260 m to the south-east of the PDA; MHT7203, Sewer Lock, 430 m to the south-west of the PDA; MHT7204, Pix's Lock, 290 m to the south of the PDA; MHT7205, a 19th century milepost, 250 m to the south of the PDA; MHT7206, Bourne End Lock, 180m to the south of the PDA; and MHT7207, Winkwell Lock, 410 m to the south-east of the PDA
- 5.6.109. Undesignated heritage assets consisting of archaeological remains within the Study Area are MHT17471, the findspot of Post-Medieval copper alloy objects, 520 m to the east of the PDA and MHT31456, six large probable extraction pits of probable Medieval or Post-Medieval date, 810 m to the east of the PDA.
- 5.6.110. The HER entries illustrate the Post-Medieval urban and industrial development which occurred within the Study Area during this period. This is in sharp contrast to the PDA, which appears to have remained agricultural in nature.
- 5.6.111. The Portable Antiquities Scheme records 45 findspots of Post-Medieval material in the parishes of Berkhamsted, Hemel Hempstead, Northchurch and Bourne End, including coins, tokens, toys, mounts, strap fittings and jettons.
- 5.6.112. Recent geophysical survey undertaken by Headland Archaeology and discussed above identified the below-ground remains of a section of the Northchurch/Hemel Hempstead parish boundary within the PDA (HA1). Historic mapping shows that this was maintained during the Post-Medieval period and therefore any below-ground remains of HA1 are likely to contain physical elements that are of Post-Medieval date.
- 5.6.113. An extant probable lynchet was identified along the PDA's northern boundary during the site visit (see Section 1.3). This is likely to be at least Post-Medieval in date, if not earlier.

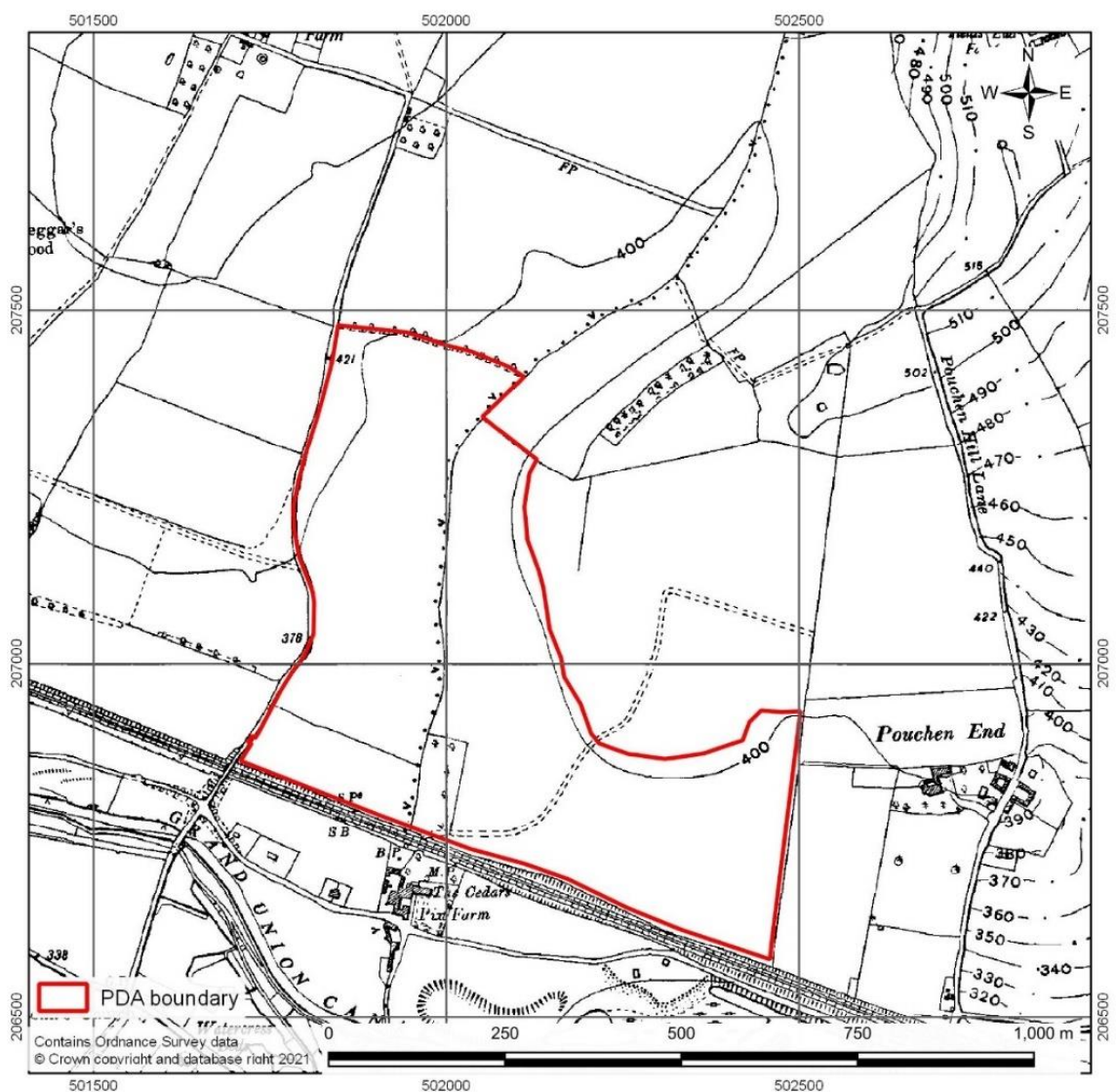
5.6.114. There is assessed to be a low potential previously unknown heritage assets of this period to be encountered within the PDA.

MODERN (1900CE - PRESENT)

5.6.115. The Modern period is taken to begin in 1900CE and is characterised by, among other things, modern technology, the two world wars, the emancipation of women, and space travel.

5.6.116. The towns of Hemel Hempstead and Berkhamsted were subject to large-scale urban expansion during the 20th century. In Berkhamsted, much of the development was for social housing, which was mostly constructed within old estate lands¹⁰¹. Hemel Hempstead, meanwhile, was one of the towns earmarked by the government after WWII to accommodate relocated communities from the overcrowded capital. The expansion included several new suburbs with associated infrastructure¹⁰².

5.6.117. No changes are shown on historic mapping for the PDA until the 1960 National Grid 1:10 560 1st Imperial Edition map (Illus. 37). On this map, a lake and related groundworks were shown to the south of the PDA between Pix Farm and Winkwell. There had also been some minor development within Bourne End. Footpath HA4 had clearly been extended to meet a field boundary to the north-west by this date.



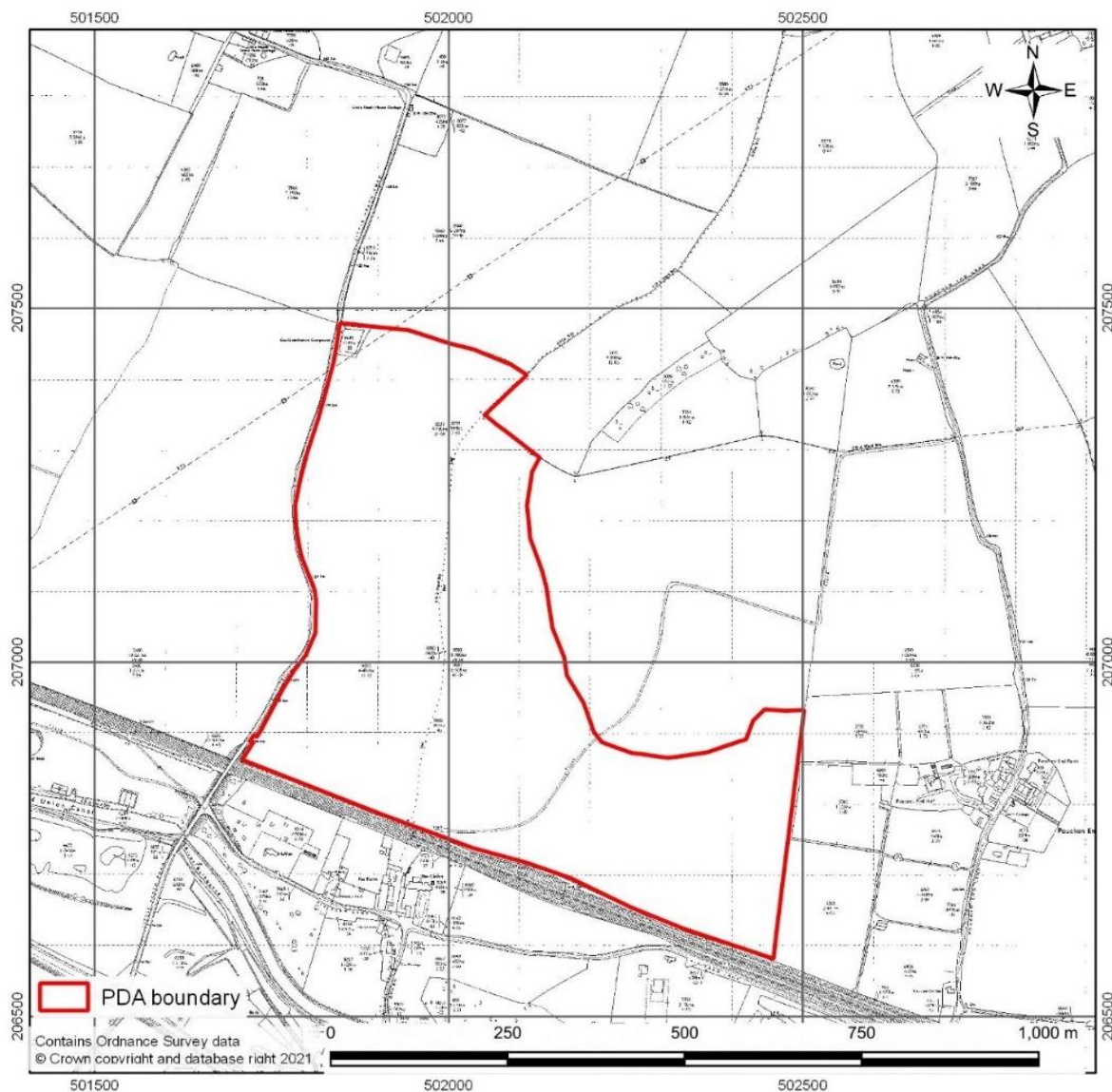
Illus. 37. 1960 National Grid 1:10 560 1st Imperial Edition

¹⁰¹ Thompson 2005b, 32

¹⁰² Thompson 2005a, 21

5.6.118. The modern gas distribution compound within the far north-eastern corner of the PDA is shown on the 1976 National Grid 1:2500 1st Edition map (Illus. 38). Within the PDA, the final small field in its south-west corner had been amalgamated into the much larger field that made up the PDA by this date, and the small area of orchard had been abandoned. To the immediate east of the PDA, there had been some field subdivision around Pouchen End and to the south of the PDA Bourne End had undergone some expansion.

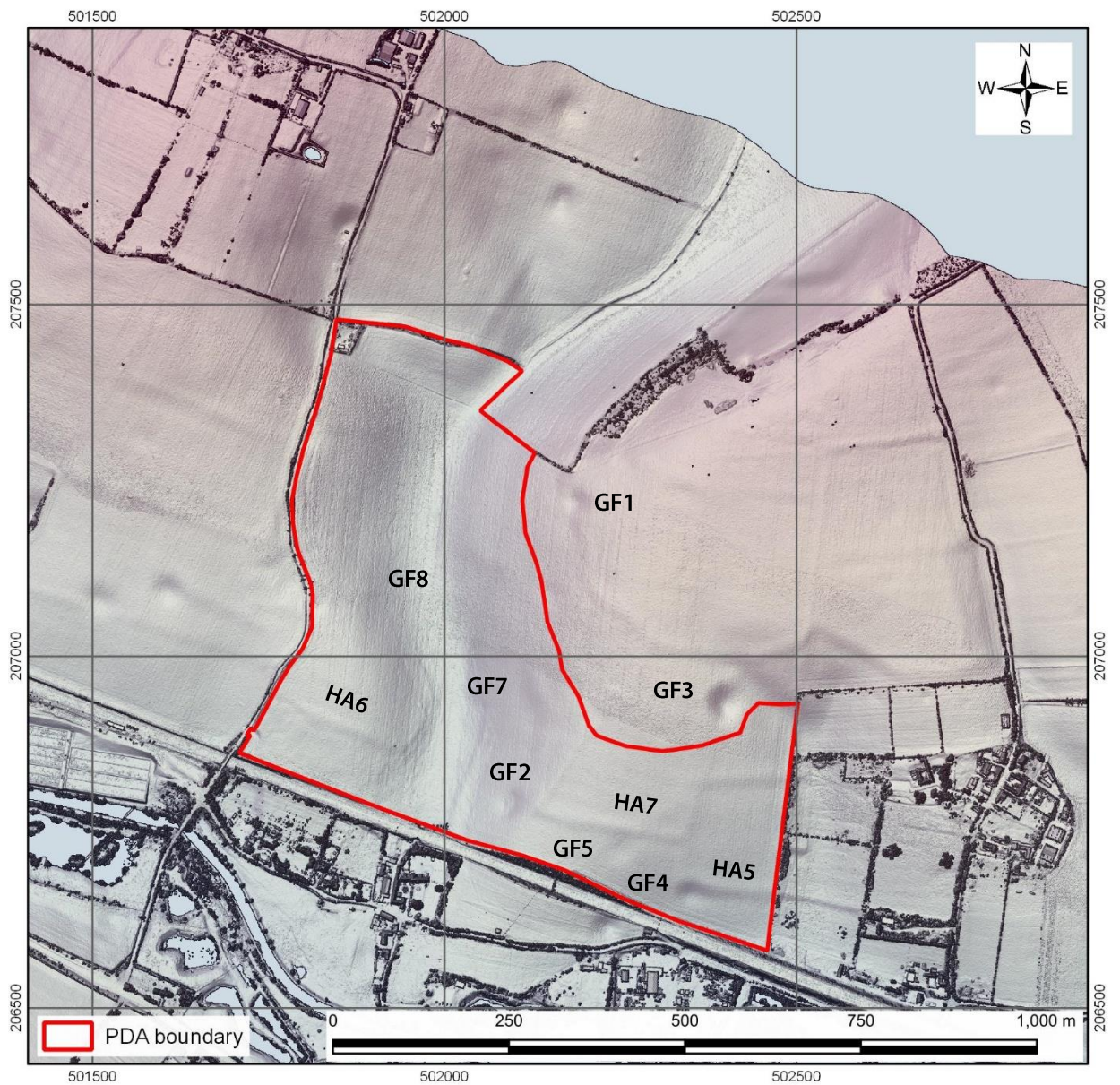
5.6.119. The only change on the 1996 National Grid 1:10 000 map was the apparent demolition of Little Heath House Cottage to the north of the PDA. As this change is minor, this map has not been reproduced here.



Illus. 38. 1976 National Grid 1:2500 1st Edition map

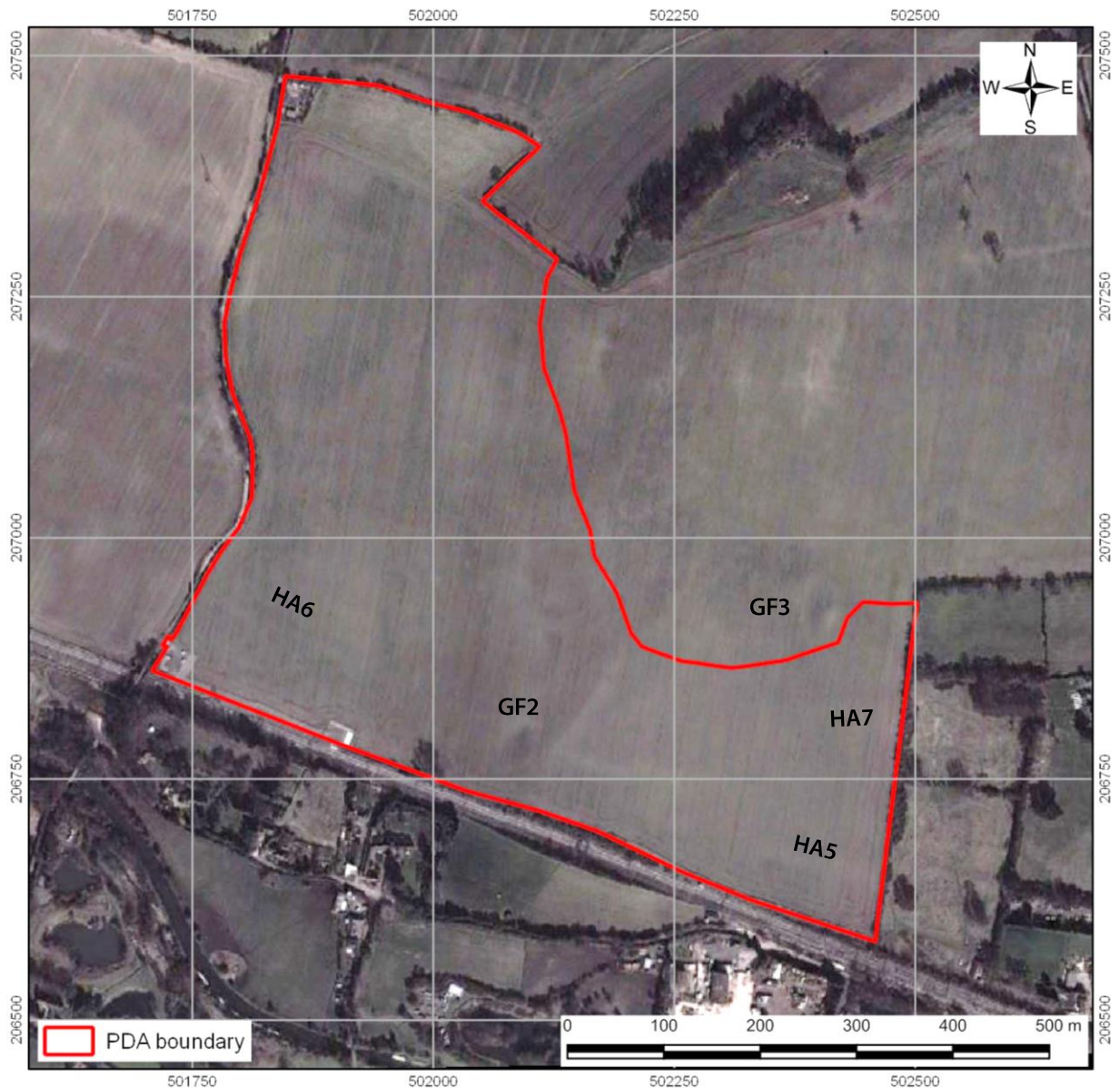
- 5.6.120. There are no known heritage assets recorded in the HER relating to this period within the PDA.
- 5.6.121. However, the remains of Modern field boundary HA6 in the south-west of the site, shown on historic mapping to have been abandoned by 1976, was identified on aerial photographic and LiDAR imagery of the PDA.
- 5.6.122. There is one known heritage asset recorded in the HER relating to this period within the wider Study Area. This is Bourne End war memorial, a Grade II listed structure (NHLE 1436875) entered in the HER under number MHT31173. It is located 420 m to the south of the PDA.
- 5.6.123. There are no heritage assets of this date recorded on the Portable Antiquities Scheme database.
- 5.6.124. Analysis of modern LiDAR imagery (see Illus. 39) clearly defines dry valley GF8 which runs north to south through the PDA. Depressions GF1 – GF6 noted during the site visit and through geophysical survey can also be seen; an additional depression of probable geomorphological origin recorded during geophysical survey, GF7, was also identified through LiDAR imagery. Linear features relating to Post-Medieval field boundaries HA5 and HA7 and Modern field boundary HA6, indicating the presence of their below-ground survival, are clearly

visible. Several of these features can also be seen on aerial photographs available through Google Earth¹⁰³ (Illus. 40).



Illus 39. LiDAR DSM 50cm (2017), processed with colour ramp, hillshade, slop and TRI

¹⁰³ No aerial photographic data was received as part of the HER search and aerial photographic data for the Study Area is not available on Historic England's Aerial Archaeology Mapping Explorer (accessed 23rd December 2021)



Illus. 40. Google Earth Pro image dated April 2013, showing Depressions 2 and 3 and the cropmarks of several field boundaries

5.6.125. Therefore, there is assessed to be a low potential for previously unknown heritage assets of this period to be encountered within the PDA.

UNKNOWN

5.6.126. There are a further three heritage assets within the wider Study Area which are undated but probably of historic date. These are MHT10202, soilmarks around Pouchen End, 440 m to the east of the PDA; MHT17299, cropmarks of possible cut features near Pouchen End, 25 m to the north of the PDA; and MHT17347, a wall footing that is likely of Romano-British date, 480 m to the south-west of the PDA.

6. SETTING OF NON-DESIGNATED HERITAGE ASSETS

- 6.1.1. A Built Heritage Statement assessing the impact of the proposed development on the settings of the designated heritage assets (including built heritage and Conservation Areas) within a 2.5 km radius of the PDA was carried out by Pegasus Group in December 2021¹⁰⁴. This concluded:
- An examination of historical sources, a zone of theoretical visibility and a site visit confirms that the site does not contribute to the significance of any built heritage asset and as such solar development at the site will not harm any heritage asset through any change to their setting.*
- 6.1.2. A screening exercise was carried out prior to the site visit to ascertain the level to which the settings of the identified non-designated heritage asset contribute to their significance and whether these settings are at risk of impact by the proposed development.
- 6.1.3. The identified non-designated heritage assets take the form of findspots; archaeological features such as ditches and field boundaries, pits and enclosures; sites of and extant farm buildings; and transport networks of roads, railways, and canals with associated infrastructure.
- 6.1.4. As the findspots, 'sites of' and some of the archaeological remains no longer exist within their original setting, their settings cannot contribute to their significance. Similarly, archaeological remains which remain in situ but have been built or covered over do not have settings which can be appreciated from above ground. Therefore, the proposed development does not impact upon their settings.
- 6.1.5. The only extant historic building recognised as a non-designated heritage asset is Pix Farm (MHT31547). Although this farmhouse could be seen from the PDA and vice versa, its rural setting on its northern side (i.e. encroaching into the PDA) has arguably already been lost due to the installation of the 20th century railway line. Therefore, it is not thought that the proposed development will cause notable additional harm to this asset through any change to its setting.
- 6.1.6. The radius of the settings which contribute to significance of the structures related to travel and transport (specifically bridges and guideposts) is limited. These assets are most fully appreciated and understood within a road or watercourse setting, such as being viewed in relation to a canal, river, trackway, or thoroughfare, and/or in relation to the settlements which they connect. During the site visit, the River Bulbourne, Grand Junction Canal (including its locks and bridges) and route of Akeman Street could not be seen from the PDA, and the PDA could not be seen from them. Therefore, the proposed development will not harm these assets through any change to their setting.

¹⁰⁴ Pegasus Group 2021

7. STATEMENT OF SIGNIFICANCE AND IMPORTANCE

7.1.1. The significance and importance of the identified heritage assets has been assessed using the criteria given in Table 2 and paragraph 4.4.4 of this document. An importance rating is indicated in the gazetteer (Appendix A below).

7.2. KNOWN HERITAGE ASSETS WITHIN THE PDA

7.2.1. A total of seven newly-identified heritage assets - one of Early Medieval – Post-Medieval date, five of Post-Medieval date and one of Modern date - have been identified within the PDA through geophysical survey, historic mapping, aerial photographic and LiDAR imagery, and a site visit. There are seven assets are:

- HA1, the below-ground remains of the Early Medieval - Post-Medieval Northchurch and Hemel Hempstead parish boundary;
- HA2, a discontinuous linear feature identified through geophysical survey which may represent historic drainage systems
- HA3, the site of one small building of at least 19th century date with an associated probable house depression;
- HA4, a Post-Medieval footpath which follows the line of an earlier field boundary; and
- HA5 – HA7, three Post-Medieval or Modern field boundaries;

7.2.2. The PDA also falls within one Area of Archaeological Sensitivity (AAS), DAC_57, defined as 'cropmarks of occupation and finds of Roman and Medieval date'. A second AAS lies 460m to the PDA's south-south-west, DAC_53, defined as 'Late pre-Roman Iron Age & Roman settlement activity found'. No further information regarding AAS DAC_53 or DAC_57 could be found in local planning documents or the Dacorum Borough Council website and were not provided with the HER search. No indications of these cropmarks could be seen through aerial photography or LiDAR imagery examined here.

7.2.3. The AAS and newly-identified heritage assets derive their significance from their archaeological and historical interest and are of Low (Local) importance.

7.3. KNOWN HERITAGE ASSETS WITHIN THE WIDER STUDY AREA

7.3.1. There are 20 designated heritage assets within the wider Study Area. 17 of these are Grade II listed buildings of Post-Medieval or Modern date, one is a Post-Medieval locally registered garden, and two are Conservation Areas.

7.3.2. These heritage assets derive their significance from their architectural and historical interest and are of Medium (Regional) importance.

7.3.3. There are 38 non-designated heritage assets within the Study Area. Three of these are of Iron Age date; three are of Romano-British date; two are of Medieval – Post-Medieval date; 25 are of Post-Medieval date; one is of Modern date; one is a multiperiod site; and three are of unknown but probable historic date. They take the form of findspots; archaeological features such as ditches and field boundaries, pits and enclosures; sites of and extant farm buildings; and transport networks of roads, railways, and canals with associated infrastructure.

7.3.4. These heritage assets derive their significance from their archaeological and historical interest. Assets referring to findspots and sites of buildings are of Negligible importance whilst the remainder of the assets are of Low (Local) importance.

7.4. POTENTIAL HERITAGE ASSETS WITHIN THE PDA

7.4.1. Although the PDA falls within AAS DAC_57, containing remains of Iron Age – Medieval date, no evidence for this has been found for this report in aerial photography and LiDAR imagery, geophysical survey or within the records provided by Hertfordshire HER.

7.4.2. The nature of the heritage assets identified within the PDA and Study Area suggest that any additional heritage assets present within the PDA are likely to take the form of findspots or archaeological features such as ditches and field boundaries, pits and enclosures. These are most likely to be of Early Medieval - Modern date.

- 7.4.3. Potential heritage asserts within the PDA are likely to derive their significance from their archaeological and historical interest and be of Negligible or Low (Local) importance.

8. STATEMENT OF POTENTIAL

- 8.1.1. This assessment has been made in reference to Table 4 and consideration of the information discussed in the Archaeological and Historical Background.

8.2. ARCHAEOLOGICAL POTENTIAL

- 8.2.1. The PDA is a green field and not been subject to industrial development. Although Post-Medieval ploughing and possible localised quarrying may have partially truncated archaeological remains within the PDA, the potential for archaeological preservation is generally good.
- 8.2.2. The PDA is partially covered by an AAS: however, there is no data in the HER or from geophysical survey and aerial photographic or LiDAR imagery to suggest the presence of archaeological remains dating to the Iron Age, Romano-British and Medieval periods.
- 8.2.3. There is deemed to be low potential for Palaeolithic remains to be encountered within the PDA; negligible potential for Mesolithic remains to be encountered within the PDA; and low potential for Neolithic – Modern remains to be encountered within the PDA.
- 8.2.4. The nature of the heritage assets within the PDA and Study Area suggest that any additional heritage assets present within the PDA are likely to take the form of findspots or archaeological features such as ditches and field boundaries, pits and enclosures. These are most likely to be of Early Medieval – Modern date.
- 8.2.5. Potential heritage assets within the PDA are likely to derive their significance from their archaeological and historical interest and be of Negligible or Low (Local) importance.

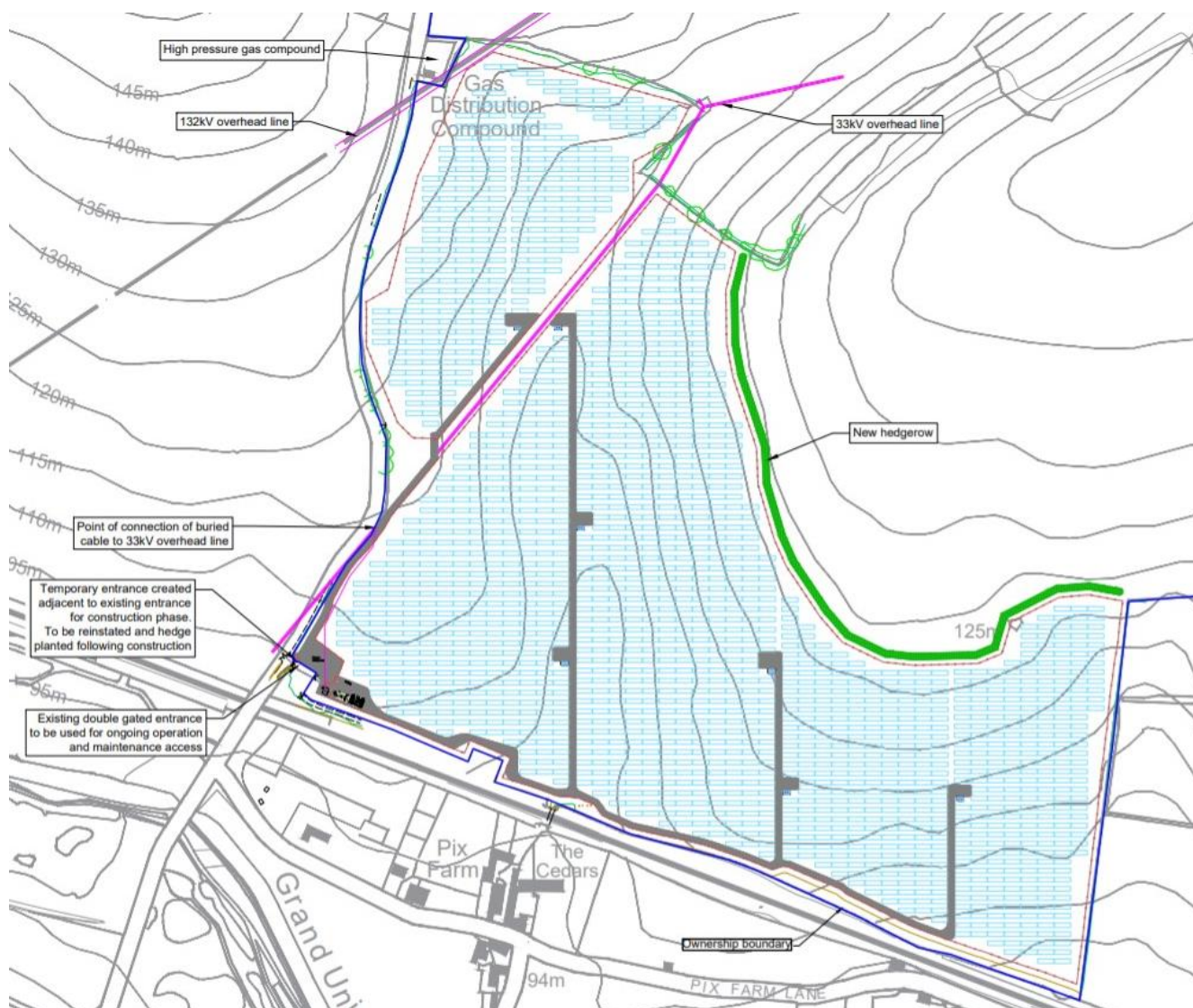
8.3. PALAEOENVIRONMENTAL POTENTIAL

- 8.3.1. LiDAR and aerial photographic imagery strongly suggest that a dry valley, GF8, runs north – south through the western side of the PDA. If so, this part of the PDA may contain Prehistoric surfaces beneath later alluvial, subsoil and topsoil strata.
- 8.3.2. A well record made at Button House in 1981 (BGS ID 521090; BGS Reference: TL00NW23), 70m to the south of the PDA, noted the presence of alluvial and Younger Coombe deposits within the first 6 m of strata. Younger Coombe deposits were formed during the latter part of the Holocene era (c. 5,000BCE to present). Deep colluvial deposits within the several 'coombs' were also noted to the east of the PDA during a recent evaluation in the area (see paragraph 5.5.4). Given the proximity of the PDA to these events and the seven depressions and surface concentrations of flint, pebbles and gravel noted during the site visit, it is possible that such colluvial deposits are also present within the PDA.
- 8.3.3. According to Historic England, colluvial deposits sometimes contain the remains of land snails, which can be used to analyse the past environment of a site and any impacts of climatic change¹⁰⁵. It is also possible that recurrent episodes of colluvial deposition have preserved earlier land surfaces within the PDA.
- 8.3.4. The Post-Medieval field names Great Ditch and Little Ditch Field (HA12 and HA13), lying within the western side of the PDA, may refer to historic drainage systems. If so, there is the potential for this part of the PDA to contain historic waterlogged environmental material (such as peat, pollen and insects) within the vicinity of this drainage system.
- 8.3.5. Therefore, there is assessed to be a medium potential for the presence of palaeoenvironmental remains within the PDA.

¹⁰⁵ Historic England 2015, 4

9. PROPOSED DEVELOPMENT

- 9.1.1. The proposed development is for a solar array likely of a two leg design, i.e. each panel will be supported by rows of front and back legs rather than a single row of central legs.
- 9.1.2. The legs will be mini piles driven into the ground by a small, tracked piling rig; although the precise dimensions of the mini piles are not yet known, mini piles are not available in dimensions greater than 600mm. These piles will reach typical depths of 1.4 – 1.6m for the front legs and up to 1.8m for the rear legs, depending upon the ground conditions.
- 9.1.3. Initial 'pull out tests' of posts will also be carried out as part of the detailed design following planning consent¹⁰⁶.
- 9.1.4. A length of below-ground cabling is proposed to traverse the PDA's western side on a south-west to north-east alignment, and a temporary compound and new substation will be built within the south-western corner of the PDA. Five intersecting internal access roads will also be established. It is likely that these works will involve topsoil stripping and/or ground reduction (Illus. 41).



Illus. 41. Proposed development layout, showing area of solar array (light blue), access tracks (grey), new substation (grey, south-west corner of the PDA), buried and overhead cables (pink), and new hedge row (green)

¹⁰⁶ Roger Dickinson of Energi Generation pers. comm., 21st December 2021

10. PREDICTED IMPACTS OF THE PROPOSED DEVELOPMENT

10.1. DIRECT IMPACTS

ARCHAEOLOGICAL REMAINS

- 10.1.1. The assessment presented in this report has considered the known archaeological and heritage resource within and surrounding the application site in order to establish the potential constraints and implications for construction of a residential development.
- 10.1.2. Groundwork activities within the site as described above have the potential to truncate or remove buried archaeological remains, resulting in a direct impact on these assets.
- 10.1.3. A length of below-ground cabling is proposed to traverse the PDA's western side on a south-west to north-east alignment, and a temporary compound and new substation will be built within the south-western corner of the PDA. Five intersecting internal access roads will also be established. It is likely that these works and associated activities (such as construction enabling works, cut and fill, bulk excavation and landscaping) will involve topsoil stripping and/or ground reduction and therefore cause direct physical impact on unknown heritage assets within the PDA.
- 10.1.4. There are seven newly-identified heritage assets within the PDA that would be affected by the proposed development. These include:
- HA1, the below-ground remains of the Early Medieval - Post-Medieval Northchurch and Hemel Hempstead parish boundary;
 - HA2, a discontinuous linear feature identified through geophysical survey which may represent historic drainage systems
 - HA3, the site of one small building of at least 19th century date with an associated probable house depression;
 - HA4, a Post-Medieval footpath which follows the line of an earlier field boundary; and
 - HA5 – HA7, three Post-Medieval or Modern field boundaries;
- The PDA also lies within one and close to a second Area of Archaeological Sensitivity, both of Iron Age, Romano-British and/or Medieval date.
- 10.1.5. It is highlighted that one of the internal access tracks shown on Illus. 41 partially follows the line of the parish boundary, HA1, and will therefore any groundworks associated with the laying of the track is highly likely to disturb any below-ground remains of HA1 that survive in situ.
- 10.1.6. However, it is worth noting that most solar farm developments cause only partial (c.5 – 10%) rather than total truncation of below-ground assets and therefore are likely to present less harm to unknown heritage assets than other forms of development.
- 10.1.7. Moreover, the installation of the solar array will prevent ploughing within the field for the lifespan of the facility and thereby prevent ongoing degradation of any remains.

PALAEOENVIRONMENTAL POTENTIAL

- 10.1.8. Coombe and/or Younger Coombe deposits with palaeoenvironmental potential may be present within the PDA. Any deep excavations have the potential to disturb this resource and repository of potential valuable environmental information.
- 10.1.9. Given the proposed depths of the mini piles to be used during development groundworks, it is possible that Younger Coombe geological deposits (roughly dating to 5,000BCE to present) will be disturbed¹⁰⁷. However,

¹⁰⁷ Although the depth of topsoil and subsoil (i.e. historic soil deposits) within the PDA is not yet known, these stratigraphic layers generally exhibit thicknesses of between 0.2m and 0.4m in England. Therefore, it is thought unlikely, particularly within the base of the palaeochannel and southern side of the PDA, for Coombe deposits predating 5,000BCE to be present at depths of 1.4m – 1.8m below ground level.

this would impact upon only a very small proportion of the overall resource and is therefore not thought to comprise significant harm to the asset.

IMPORTANT HEDGEROWS

- 10.1.10. The hedgerow bounding the PDA on its western side, abutting Little Heath Lane, is shown on historic mapping pre-dating 1850. Therefore, it is important under the 1997 Hedgerow Regulations.
- 10.1.11. Two small sections of this hedgerow, in the south-western corner and middle of the western side of the PDA (see Illus. 41) may be physically impacted by the proposed development. However, these sections of hedgerow will be reinstated and encompass only a very small percentage of the overall boundary. Therefore, disturbance of these sections of hedgerow is not thought to amount to significant harm to the asset.

PARISH BOUNDARIES

- 10.1.12. Recent geophysical survey undertaken by Headland Archaeology and discussed above identified the below-ground remains of a small section of the Northchurch/Hemel Hempstead parish boundary within the PDA (HA1). This is likely to be of Early Medieval to Post-Medieval date and is of Low (Local) importance.
- 10.1.13. Although the boundary is shown on historic mapping, no further indications of associated above ground remains were recorded during the site visit or can be seen on aerial photographic or LiDAR imagery.
- 10.1.14. Notwithstanding the above, any below-ground remains of this heritage asset are likely to be directly impact by the proposed development, in particular groundworks associated within the installation of internal access tracks.

10.2. SETTING IMPACTS

- 10.2.1. No heritage assets sensitive to visual change have been identified within the visual envelope of the proposed development have been identified through a screening exercise presented in this DBA. Any change introduced by the likely nature of the proposed development, and the receiving environment, means that setting impacts are unlikely to be significant.

10.3. HISTORIC LANDSCAPE CHARACTER

- 10.3.1. The PDA falls within the Historic Landscape Character of HHT2865. This is defined as 'Post-1950 boundary loss'. It is a green field site in agricultural use.
- 10.3.2. The proposed development constitutes a distinct change to the landscape character and land use within the PDA, and is therefore likely to impact upon the HLC in a manner in which the changes cannot be absorbed.

11. HERITAGE RISK

11.1. POTENTIAL DIRECT IMPACTS

- 11.1.1. Based on the likelihood of buried archaeological remains being present within the site (low) and their importance (negligible – low), the potential direct impacts upon known and unknown heritage assets arising from the proposed development are not considered to be sufficiently significant to represent a likely constraint on development consent.
- 11.1.2. Groundworks associated with the proposed development, particularly those required for the installation of internal access tracks, are thought likely to directly impact upon known and unknown archaeological remains within the PDA. Therefore, it is possible that the local authority may require investigations at the site. This could be secured as a condition of consent. Depending upon the results of such investigation, mitigation measures might be required. Such works should be proportionate to the importance of the remains and significance of the impacts, and in accordance with the requirements of the NPPF.
- 11.1.3. Further investigations which may be required is as follows:
- Trial trenching to confirm the presences/absence and condition of any buried archaeological remains at the site (including the historic parish boundary and the AAS area)
 - Depending upon the results of the trial trenching, mitigation measures such as adjustment to the scheme design to minimise impacts or advance excavation of some areas of the site.
- 11.1.4. Any such works should be conducted by a suitably qualified archaeological organisation in accordance with a written specification agreed in advance with the Local Planning Authority.

11.2. POTENTIAL SETTING IMPACTS

- 11.2.1. No likely significant setting impacts upon non-designated heritage assets have been identified as a result of the proposed development. No site-specific mitigation is recommended, and it is anticipated that no further detailed setting assessment would be necessary in support of the planning application.

12. DISCUSSION AND CONCLUSIONS

12.1. DISCUSSION

- 12.1.1. Archaeological evidence suggests that the PDA and Study Area were very sparsely populated, if at all, during the Palaeolithic – Neolithic periods. The area saw a marked increase in human activity during the Bronze Age and Iron Age, and by the late Iron Age, lay close to or within an industrial ironworking complex that persisted throughout the Romano-British period. It is highly likely that the Bulbourne Valley, running west – east to the immediate south of the PDA, was an important regional routeway by at least the Iron Age period, if not earlier. During the Romano-British period, Akeman Street was constructed and became the main transport artery for the area.
- 12.1.2. From the Early Medieval period, the PDA probably lay within the manors of Berkhamsted and Hemel Hempstead and was likely in use as agricultural land. The settlements and farmsteads of Bourne End, Pix Farm and Haxter's End Farm, to the south and west of the PDA, were probably established during the Medieval period; Little Heath, Pouchen End and Winkwell, to the north-west, east and south of the PDA respectively, appear to be of at least early Post-Medieval date.
- 12.1.3. During the Post-Medieval period, the settlements of Berkhamsted and Hemel Hempstead saw substantial expansion and population growth, in part due to the construction of the Grand Union Canal and railway line which run west – east to the immediate south of the PDA. Additional urban growth occurred in Hemel Hempstead during the 20th century, when the town was chosen as a relocation settlement for the inhabitants of overcrowded London. It is highly likely that the PDA remained agricultural land during these periods.
- 12.1.4. Although few events have taken place within the Study Area, a recent evaluation to the north-east and east of the PDA has identified possible settlement remains of Iron Age and Romano-British date. However, recent geophysical survey undertaken by Headland Archaeology has not identified anomalies relating to archaeological remains of this date within the PDA.
- 12.1.5. A geophysical survey carried out by Headland Archaeology on the PDA in December 2021 does not indicate settlement activity or extensive archaeological remains, with the majority of anomalies identified being geological in nature. However, it is possible that Holocene-era colluvial deposits associated with a dry valley which runs through the western side of the PDA has masked archaeological remains.
- 12.1.6. There are seven newly-identified heritage assets within the PDA that would be affected by the proposed development. These include an Early Medieval - Post-Medieval parish boundary; three Post-Medieval or Modern field boundaries; a Post-Medieval footpath; the site of one small building of at least 19th century date with a probable associated building platform; and a discontinuous linear feature within a field known in the 19th century as 'Great Ditch Field', therefore possibly relating to historic drainage systems. These heritage assets derive their significance from their archaeological and historical interest and are of Negligible or Low (Local) importance. Any additional heritage assets present within the PDA are likely to take the form of findspots or archaeological features such as ditches and field boundaries, pits and enclosures.
- 12.1.7. The PDA is partially covered by an AAS: however, there is no data in the HER or from geophysical survey and aerial photographic or LiDAR imagery to suggest the presence of previously unknown archaeological remains dating to the Iron Age, Romano-British and Medieval periods.
- 12.1.8. There are 20 designated heritage assets within the Study Area. 17 of these are Grade II listed buildings of Post-Medieval or Modern date, one is a Post-Medieval locally registered garden, and two are Conservation Areas. These heritage assets derive their significance from their architectural and historical interest and are of Medium (Regional) importance.
- 12.1.9. There are 38 non-designated heritage assets within the Study Area. Three of these are of Iron Age date; three are of Romano-British date; two are of Medieval – Post-Medieval date; 25 are of Post-Medieval date; one is of Modern date; one is a multiperiod site; and three are of unknown but probable historic date. They take the form of findspots, archaeological features, sites of and extant farm buildings, and transport networks with associated infrastructure. An additional two previously unidentified heritage assets, HA1 and HA3, have been recorded within the Study Area from historic mapping, aerial photographic and LiDAR imagery, geophysical survey, and site walkovers. These are thought to relate to Post-Medieval extraction activities. These heritage assets derive their significance from their archaeological and historical interest. Assets referring to findspots and sites of buildings are of Negligible importance whilst the remainder of the assets are of Low (Local) importance.

- 12.1.10. The PDA is currently a green field site and not been subject to industrial development. Although Post-Medieval ploughing and possible localised quarrying may have partially truncated archaeological remains within the PDA, the potential for archaeological preservation is generally good.

12.2. CONCLUSIONS

- 12.2.1. There is deemed to be low potential for Palaeolithic remains to be encountered within the PDA; negligible potential for Mesolithic remains to be encountered within the PDA; low potential for Neolithic – Modern remains to be encountered in the PDA; and medium potential for palaeoenvironmental remains to be encountered within the PDA.
- 12.2.2. Potential heritage assets within the PDA are likely to be of Early Medieval - Modern date and take the form of isolated findspots or discrete archaeological features such as ditches and pits. They are likely to derive their significance from their archaeological and historical interest and be of Negligible or Low (Local) importance.

POTENTIAL DIRECT IMPACTS

- 12.2.3. The proposed development has the potential to directly impact known and unknown heritage assets within the PDA, especially any in situ below-ground remains of the Early Medieval – Post-Medieval parish boundary HA1. It may also directly impact any palaeoenvironmental deposits that are present within the PDA.

POTENTIAL SETTING IMPACTS

- 12.2.4. Assessment of the impact of the proposed development on the setting and significance of non-designated heritage assets in the surrounding landscape has identified no adverse impacts, and no further detailed setting assessment is considered likely to be necessary in support of an application to develop the PDA.

FURTHER MITIGATION

- 12.2.5. In light of the archaeological potential of the proposed development site, the nature of the proposed development's intrusive groundworks, and the advice issued by Dacorum District Council Local Plan in their screening opinion, it is possible that the local authority may require site investigations, likely as a condition of consent (although NPPF allows for pre-determination evaluation work). Such works should be proportionate to the importance of the remains and significance of the impacts, and in accordance with the requirements of the NPPF.
- 12.2.6. Investigations which may be required include:
- Trial trenching to confirm the presences/absence and condition of any buried archaeological remains at the site (including the historic parish boundary and the AAS area)
 - Depending upon the results of the trial trenching, mitigation measures such as adjustment to the scheme design to minimise impacts or advance excavation of some areas of the site.
- 12.2.7. Any such works should be conducted by a suitably qualified archaeological organisation in accordance with a written specification (WSI) agreed in advance with the Local Planning Authority.

POLICY TESTS

NPPF

- 12.2.8. The NPPF (2021) states:
- (194) "In determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum the relevant historic environment record should have been consulted and the heritage assets assessed using appropriate expertise where necessary. Where a site on which development is proposed includes, or has the potential to include, heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation."*
- (203) 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 directly or indirectly affect 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 asset.

(206) Local planning authorities should require developers to record and advance understanding of the significance of any heritage assets to be lost (wholly or in part) in a manner proportionate to their importance and the impact, and to make this evidence (and any archive generated) publicly accessible.

12.2.9. This DBA has described the significance of identified designated and non-designated heritage assets. For non-designated heritage assets, this has included describing and assessing contributions to significance made by their setting. The historic environment record has been consulted and this report forms 'an appropriate desk-based assessment' for the nature of the PDA and the proposed development.

12.2.10. The further mitigation suggested in this DBA will entail the recording of any heritage assets to be lost and will entail public dissemination of the information in the form of grey literature.

12.2.11. Therefore, this DBA fulfils the relevant requirements of the NPPF.

Local Planning Policy

12.2.12. Policy 118 of the Dacorum District Council's Local Plan states:

On archaeological sites or monuments of more local importance and their settings, physical preservation in situ will be the preferred option and applications may be refused. The County Archaeological Group will be consulted on all planning applications affecting areas of archaeological significance and archaeological potential.

Where advice indicates that a proposed development will affect remains of archaeological significance or areas of archaeological potential, developers will be expected to provide the results of an archaeological evaluation as part of their planning application.

Where the Council considers that physical preservation of archaeological remains in situ is not merited, planning permission will be subject to satisfactory provision being made for excavation and recording. Conditions and/or agreements will be used to secure the following work, depending on the nature of the site:

(a) an adequate archaeological excavation of the site prior to the commencement of the works; and/or

(b) the observation of archaeological experts of the site works as they progress; and/or

(c) the recording of remains by archaeological experts and the publication of the results; and/or

(d) the provision of facilities, including access over an agreed period of time; and/or

(e) such other measures as may be necessary to protect the archaeological integrity of the site.

Where appropriate the Council will encourage the enhancement of archaeological remains and their settings.

12.2.13. Policy CS27 of the Dacorum District Council's Core Strategy, adopted September 2013, states:

All development will favour the conservation of heritage assets. The integrity, setting and distinctiveness of designated and undesignated heritage assets will be protected, conserved and if appropriate enhanced.

Features of known or potential archaeological interest will be surveyed, recorded and wherever possible retained.

12.2.14. The Supplementary Planning document *Lower Bulbourne Valley Landscape Character Assessment* lays out the following strategies and guidance for managing change within the landscape area:

- encourage the retention of the existing pattern of hedges and create new features to further enhance landscape and ecological links between woodlands and within the arable landscapes to the valley sides.
- promote the retention of the character of local minor roads by the management of hedgerows and sunken lanes up the valley sides.

12.2.15. Consultation with the County Archaeologist has been sought during the production of this DBA and takes into account the advice given in the council's screening opinion for the proposed development.

12.2.16. This DBA has described the significance of identified designated and non-designated heritage assets. For non-designated heritage assets, this has included describing and assessing contributions to significance made by their setting.

12.2.17. The impact of the proposed development on important hedgerows within and bounding the PDA has been considered as part of this DBA.

12.2.18. The further mitigation suggested in this DBA will entail the recording of any heritage assets to be lost and will entail public dissemination of the information in the form of grey literature.

12.2.19. Therefore, this DBA fulfils the relevant requirements of Dacorum District Council's local planning policy.

REFERENCES

BIBLIOGRAPHIC REFERENCES

- Andrew, D. 2021. Post-medieval Resource Assessment. East of England Research Framework. Available online at <https://researchframeworks.org/eoe/resource-assessments/post-medieval/>
- Antrobus, A. and Ayers, B. 2021. Medieval: Urban Resource Assessment. East of England Research Framework. Available online at <https://researchframeworks.org/eoe/resource-assessments/medieval-urban/>
- Archaeology Data Service. <https://archaeologydataservice.ac.uk/> [accessed 20.12.2021]
- Austin, L. 1997. Palaeolithic and Mesolithic. In Glazebrook, J. (ed.) 1997. *Research and Archaeology: A Framework for the Eastern Counties, 1. Resource Assessment*. East Anglian Archaeology Occasional Paper No. 3, pp. 5 - 11
- Ayers, B. 1997. Anglo-Saxon, Medieval and Post-Medieval Urban. In Glazebrook, J. (ed.) 1997. *Research and Archaeology: A Framework for the Eastern Counties, 1. Resource Assessment*. East Anglian Archaeology Occasional Paper No. 3, pp. 59 – 66
- Billington, L. 2021. *Palaeolithic to Mesolithic Resource Assessment*. East of England Research Framework Available online at <https://researchframeworks.org/eoe/resource-assessments/palaeolithic-and-mesolithic/>
- British Geological Society. <http://mapapps.bgs.ac.uk/geologyofbritain/home.html> [accessed 22.12.2021]
- Brown, N. and Murphy, P. 1997. Neolithic and Bronze Age. In Glazebrook, J. (ed.) 1997. *Research and Archaeology: A Framework for the Eastern Counties, 1. Resource Assessment*. East Anglian Archaeology Occasional Paper No. 3, pp. 12 – 22
- Brown, R. (2016). *Land West of Hemel Hempstead: Archaeological Evaluation*. Cotswold Archaeology
- Brudenell, M. 2021. Late Bronze Age to Middle Iron Age Resource Assessment. East of England Research Framework Available online at <https://researchframeworks.org/eoe/resource-assessments/late-bronze-age-to-middle-iron-age/>
- Bryant, S. 1997. Iron Age. In Glazebrook, J. (ed.) 1997. *Research and Archaeology: A Framework for the Eastern Counties, 1. Resource Assessment*. East Anglian Archaeology Occasional Paper No. 3, pp. 23 – 34
- Bryant, S. 2015. A nice place to live: settlement and landscape in Hertfordshire from 1550BC to 300BC. In Lockyear, K. (ed.). 2015. *Archaeology in Hertfordshire: Recent Research*. University of Hertfordshire Press
- Cahill, P. 2018. *A New Dictionary of British Field Names*. EPNS
- CIfA 2020. Standard and Guidance for historic environment desk-based assessment. https://www.archaeologists.net/sites/default/files/CIfAS%26GDBA_4.pdf
- Cooper, A. 2021 Early & Middle Bronze Age Resource Assessment. East of England Research Framework. Available online at <https://researchframeworks.org/eoe/resource-assessments/early-and-middle-bronze-age/>
- Dodderidge, J. 1607. *Survey of the Honour and Manor of Berkhamsted in the County of Hertford*
- Evans, C. 2021. Late Iron Age & Roman Resource Assessment. East of England Research Framework. Available online at <https://researchframeworks.org/eoe/resource-assessments/late-iron-age-and-roman/>
- Glazebrook, J et al. 1997. Post-Medieval and later. In Glazebrook, J. (ed.) 1997. *Research and Archaeology: A Framework for the Eastern Counties, 1. Resource Assessment*. East Anglian Archaeology Occasional Paper No. 3, pp. 67 – 80
- Gover, J.E.B., Mawer, A. and Stenton, F.M. 1970. *The Place Names of Hertfordshire*. EPNS
- Going, C. Roman. In Glazebrook, J. (ed.) 1997. *Research and Archaeology: A Framework for the Eastern Counties, 1. Resource Assessment*. East Anglian Archaeology Occasional Paper No. 3, pp. 35 – 46
- Hastie, S. and Spain, D. 1996. *A Hertfordshire Valley*. The Alpine Press Ltd
- Headland Archaeology 2022. *Little Heath Solar Farm, Little Heath Lane, Hemel Hempstead, Hertfordshire. Geophysical Survey Report*
- Hertfordshire Gardens Trust. (2009). *Local List: Dacorum. Westbrook Hay*
- Hills, C. 2021. Early Anglo-Saxon Resource Assessment. East of England Research Framework. Available online at <https://researchframeworks.org/eoe/resource-assessments/early-anglo-saxon/>

- Historic England 2015. *Geoarchaeology: Using Earth Sciences to Understand the Archaeological Record*
- Hoggett, R. and Davies, G. 2021. Middle to Late Anglo-Saxon Resource Assessment. East of England Research Framework. Available online at <https://researchframeworks.org/eoe/resource-assessments/middle-and-late-anglo-saxon/>
- Last, J et al. 2021. Neolithic Resource Assessment. East of England Research Framework. Available online at <https://researchframeworks.org/eoe/resource-assessments/neolithic/>
- Martin, E. 2021. Medieval: Rural Resource Assessment. East of England Research Framework. Available online at <https://researchframeworks.org/eoe/resource-assessments/medieval-rural/>
- Mayo, L. (2012). *Land West of Hemel Hempstead, Hertfordshire*. CgMs Consulting
- Mills, A. D. 2011. *A Dictionary of British Place Names*. OUP
- Morris, J. (ed.). 1976. *The Domesday Book: Hertfordshire*. Phillimore
- Open Domesday. <https://opendomesday.org/> [accessed 21.12.2021]
- Page, W (ed.). 1908. *A History of the County of Hertford: Volume 2*. Victoria County History
- Pegasus Group. (2021). *Built Heritage Statement: Land at East of Little Heath Lane, Bourne End, Hertfordshire*
- Portable Antiquities Scheme. <https://finds.org.uk/> [accessed 20.12.2021]
- Thompson, I. 2005a. *Hemel Hempstead Extensive Urban Survey*. Hertfordshire County Council
- Thompson, I. 2005b. *Berkhamsted Extensive Urban Survey*. Hertfordshire County Council
- Wade, K. 1997. Anglo-Saxon and Medieval Rural. In Glazebrook, J. (ed.) 1997. *Research and Archaeology: A Framework for the Eastern Counties, 1. Resource Assessment*. East Anglian Archaeology Occasional Paper No. 3, pp. 47 – 58

HISTORIC MAPS

- 1788 Faden's map of 'The County Twenty-Five Miles Round London'
- 1806 Hyett's Map of Hertfordshire
- 1826 Plan of the Eastern Division of the Parish of Berkhamstead St Mary otherwise Northchurch, Herts.
- 1839 Berkhamsted tithe map
- 1840 – 1841 Hemel Hempstead tithe map
- 1883 1:10 560 County Series 1st Edition
- 1888 1:2500 County Series 1st Edition
- 1898 1:2 500 County Series 1st Revision
- 1900 1:10 560 County Series 1st Revision
- 1925 1:2 500 County Series 2nd Revision
- 1926 1:10 560 County Series 2nd Revision
- 1947 1:10 560 County Series 3rd Revision
- 1960 National Grid 1:10 560 1st Imperial Edition
- 1976 National Grid 1:2500 1st Edition
- 1996 National Grid 1:10 000 1st Metric Edition

HERTFORDSHIRE RECORD OFFICE

- AH306-307. Mortgage and Bond. James Fenn of Haxters End, yeoman, to Jane Sibley of Greate Gaddesden, widow. Close called Overshinglefeild, 8a. in Northchurch, abutting West on Shingle-grove, and West on land of Seamer, also 8a. wood, part of shinglegrove abutting on West side of Overshinglefeild and South-East on Uppersouthfeild, lying near Broadway. Witnesses - Robert Sawcer Edmund Sibley of Gaddesden Hall Rebecca Sawcer of Hemelhemsted Signature - James Fenn. 28 Feb 1678
- AH224. Covenant to levy fine. (18 Jun 1674)

AH150. Copy of Court Roll. (22 a 23 May 1722)

AH563. Copy of Court Roll. (19 Oct 1736)

AH305a. Conveyance (Feoffment). (8 Jul 1614)

19932. Probate of the will. Of George Harding of Pouchen End, Hemel Hempstead, yeoman, dated 28 Feb 1733-4. Seal of Archdeaconry of Huntingdon. 28 Jun 1735

DP/74/29/3. Plan of the Eastern Division of the Parish of Berkhamstead St Mary otherwise Northchurch, Herts. 1826.

DP74/29/5. Survey book for DP/74/29/3. 1826

GLOSSARY

DEFINITIONS

Term	Definition
Designated Heritage Asset	Assets registered on the National Heritage List for England. These may be protected by primary legislation (e.g. listed buildings, conservation areas, scheduled monuments) or have a non-statutory designation (e.g. World Heritage Sites, registered battlefields, registered parks and gardens, designated wrecks)
Heritage Asset NPPF (Annex 2)	<p>“A building, monument, site, place, area or landscape identified as having a degree of significance meriting consideration in planning decisions, because of its heritage interest.”</p> <p>Some heritage assets are designated as Scheduled Monuments, Listed Buildings, World Heritage Sites, Conservation Areas, Registered Parks and Gardens, Registered Battlefields, or locally designated through policies in the Local Plan. Undesignated assets may be recorded in Historic Environment Records, while many other assets are currently unrecorded.</p> <p>Information contained in HERs and SMRs is not definitive, since they may include features which, for instance, have been entirely removed, or are of uncertain location, dubious identification, or negligible importance. The identification of undesignated heritage assets is therefore to some extent a matter of professional judgement.</p> <p>Both discrete features, and extensive landscapes defined by a specific historic event, process or theme, can be defined as heritage assets; and assets may overlap or be nested within one another.</p>
Listed Building	A building or structure which is considered to be of ‘special architectural or historic interest’
Non-Designated Heritage Asset	Assets identified by the local planning authority or national registers for the historic environment which have no formal designation but are considered to have a degree of significance meriting consideration in planning decisions. These can include locally listed buildings, information on sites held by the relevant Historic Environment Record and National Record of the Historic Environment
Archaeological Site (also ‘Monuments’)	Heritage assets which may consist of surface and/or sub-surface remains, features, deposits and/or material relating to past human activity with a degree of significance meriting consideration in planning decisions.
Significance: NPPF	“the value of a heritage asset to this and future generations because of its heritage interest. That interest may be archaeological, architectural, artistic or historic. Significance derives not only from a heritage asset’s physical presence, but also from its setting”
Significance: GAPN 2	“The significance of a heritage asset is the sum of its archaeological, architectural, historic, and artistic interest. A variety of terms are used in designation criteria (for example, outstanding universal value for World Heritage Sites, national importance for scheduled monuments and special interest for listed buildings and conservation areas), but all of these refer to a heritage asset’s significance.”

Term	Definition
Significance: NPPF (PPG para 6) and Historic England guidance Statement of Heritage Significance: Analysing Significance in Heritage Assets (2019, HEAN 12)	<p>Cultural values in the historic environment that people want to enjoy and sustain for the benefit of present and future generations.</p> <p>Archaeological - There will be archaeological interest in a heritage asset if it holds, or potentially holds, evidence of past human activity worthy of expert investigation at some point;</p> <p>Architectural - These are interests in the design and general aesthetics of a place. They can arise from conscious design or fortuitously from the way the heritage asset has evolved. More specifically, architectural interest is an interest in the art or science of the design, construction, craftsmanship and decoration of buildings and structures of all types;</p> <p>Artistic - Artistic interest is an interest in other human creative skills, like sculpture;</p> <p>Historic - An interest in past lives and events (including pre-historic). Heritage assets can illustrate or be associated with them. Heritage assets with historic interest not only provide a material record of our nation's history, but can also provide meaning for communities derived from their collective experience of a place and can symbolise wider values such as faith and cultural identity.</p>
Setting: NPPF	<p>"The surroundings in which a heritage asset is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve. Elements of a setting may make a positive or negative contribution to the significance of an asset, may affect the ability to appreciate the significance or may be neutral" (an extended consideration of Setting is contained in GAPN 3)</p>

TERMS

Term	Definition
Artefact	An item of archaeological interest
Baseline	'Baseline conditions' are the environmental conditions in existence just before the occurrence of an impact – i.e. they are the conditions that would be affected.
Bronze Age	The period of human activity between 2,500 BCE and 700 BCE
Early Medieval	The period of human activity between 410 CE and 1066 CE
Environmental Impact Assessment (EIA)	An assessment of certain types of major project of the significant effects that the project could have on the environment. The applicant is required to carry out the assessment by law, in this case under the Infrastructure Planning (Environmental Impact Assessment) Regulations, 2017.
Geology	Geology is the study of solid earth, the material of which it is composed (principally rocks) and the processes by which they evolve.
Geophysical survey	Method of non-intrusive investigation involving the use of magnetometers to identify fluctuations in the earth's magnetic field which might indicate the presence of archaeological remains. Burnt remains and metals are best identified through this method of survey.

Term	Definition
Heritage asset	An item of heritage interest, for example an historic building or an archaeological find.
Historic Environment Records (HER)	A database maintained by individual counties or local authorities, containing records of archaeological sites, historic buildings and other aspects.
Historic landscape character types (HLCT)	Historic landscape character types are distinctive and repeated combinations of components defining generic historic landscapes such as 'ancient woodland' or 'parliamentary enclosure'. The types used in this study were defined based on evidence from historic maps and other sources.
Iron Age	The period of human activity between 700 BCE and 43 CE
Medieval	The period of human activity between 1066 CE and 1550 CE
Mesolithic	Middle Stone Age. The period of human activity between 10,000 BCE and 4,500 BCE.
Mitigation	Measures which have the purpose of avoiding, reducing or compensating for adverse environmental impacts. It may also include measures to create environmental benefits.
Modern	The period of human activity from 1900 to the present day
Neolithic	New Stone Age. The period of human activity between 4,500 BCE and 2,500 BCE
Ordnance Datum (AOD)	The standard measure of sea level in the UK, from which all heights are measured for mapping purposes.
Palaeolithic	Old Stone Age. The period of human and pre-human activity before around 10,000 BCE
Post-Medieval	The period of human activity between 1550 CE and 1900 CE
Prehistoric	The period before the year 43 CE
Requirement	A requirement listed as a condition of planning permission
Romano-British	The period of human activity between 43 CE and the mid-5 th century CE

ABBREVIATIONS AND ACRONYMS

AOD	Above Ordnance Datum (above sea-level)
AP	Aerial Photograph
AAS	Area of Archaeological Sensitivity
BCE	Before Common Era
BGS	British Geological Survey

c.	Circa
CA	Conservation Area
CE	Common Era
CIfA	Chartered Institute for Archaeologists
DBA	Desk-based Assessment
HER	Historic Environment Record
HLC	Historic Landscape Character(isation)
LPA	Local Planning Authority
LiDAR	Light Detection and Ranging
NGR	National Grid Reference
NHLE	National Heritage List for England
OS	Ordnance Survey
RO	Registered Organisation (with CIfA)
WSI	Written Scheme of Investigation (project design or method statement)

APPENDIX 1: RESULTS OF HER SEARCH

Table 7: Known heritage assets within the study area

HER / NHLE Ref	Name	Description	Easting	Northing	Period	Status	Importance
1078116	12 AND 14, BOURNE END LANE	C18 front. Red brick, some grey headers, tiled roof. 2 storeys, 5 flush casement windows with glazing bars under flat arches.	502075	206176	Post-Medieval	Listed Building (Grade II)	Medium
1078075 and MHT17809	THE WHITE HORSE PUBLIC HOUSE	C17. Colour washed roughcast over timber framing, old tiled roof with gabled dormer, cross gable on left. 2 storeys on left, 1 storey and attics on right. 2 C18 sash windows to ground floor, 2 casement windows to 1st floor. Plain doors. Later 2 storey whitewashed brick back wing. Interior: exposed timber framework including chimney bressummer.	502152	206276	Post-Medieval	Listed Building (Grade II)	Medium
1078076 and MHT18216	THE OLD SCHOOL HOUSE	C19. Whitewashed pebbledash, patterned tiled roof with 2 gabled dormers. 1 storey and attics, ground floor casement window, bay window on left. Included for group value.	502255	206290	Post-Medieval	Listed Building (Grade II)	Medium
1076998 and MHT5776	FORMER BOURNE END MILL AT WATERMILL MOTEL	Early C19 on site of mill dating back to 1289. Red brick, mansard slated roof with coped gable ends. 2 storeys with 3 storey gabled and weatherboarded central block. 7 casement windows with glazing bars under cambered arches. Extensive modern additions towards road.	502168	206349	Post-Medieval	Listed Building (Grade II)	Medium
1078074	THE COTTAGE	Late C17 or early C18 house. Colour washed plaster, old tiled roof with eaves cornice, plain central stack. 2 storeys and attics, front of 1st floor refaced with wooden tile hanging. 3 casement windows. 6 fielded panelled door in surround of pilasters, frieze and cornice. East side gable has attic lattice casement window.	502421	206303	Post-Medieval	Listed Building (Grade II)	Medium
1076972 and MHT17808	BOURNE END FARMHOUSE	C17. Colour washed roughcast, old tiled roof with 3 diagonally set shafts to chimneystack. Timber frame visible in 2 east gables. 2 storeys, modern casement windows. Cross gable to road.	502234	206261	Post-Medieval	Listed Building (Grade II)	Medium
1076982	THE COTTAGES	Mid C19 row, 1 of 2, in "cottage orne" style. Whitewashed brick, patterned fish scale shaped tiles to roof with 2 large gabled brick dormers, tall chimneystacks. 1 storey and attics, 4 casement windows with glazing bars under drip moulds. 3 gabled rustic wooden porches, central one double width. Bourne Cottage and Nos 1 to 8 (consec), The Cottages, form a group	502479	206259	Post-Medieval	Listed Building (Grade II)	Medium

HER / NHLE Ref	Name	Description	Easting	Northing	Period	Status	Importance
1436875 and MHT31173	BOURNE END WAR MEMORIAL	First World War memorial. Erected c1920. Reasons for Designation: Bourne End First World War Memorial, erected c1920, is listed at Grade II for the following principal reasons: * Historic interest: as an eloquent witness to the tragic impact of world events on the local community, and the sacrifice it made in the conflicts of the C20; * Design: a well-crafted memorial formed of a Celtic cross and tapering shaft enriched by carved interlace and knotwork; * Group value: with the adjacent Grade II-listed C17 Anchor Public House and C17 White Horse Public House. History: The aftermath of the First World War saw a huge wave of public commemoration with tens of thousands of memorials erected across the country. One such memorial was erected in circa 1920 to commemorate 14 residents of Bourne End who died during the conflict. DESCRIPTION: the war memorial stands on London Road, near the centre of Bourne End, adjacent to The Anchor, a Grade II-listed public house. It is situated within a railed enclosure and rests on a paved stone foundation. The memorial comprises a limestone cross with Celtic head and a tapering shaft that rises from a moulded and chamfered plinth, which rests on a three-tier octagonal stone base. The cross is enriched by carved interlace and knotwork. On the front (S) face of the shaft is an inscription in black lettering: 1914/1919. The plinth is inscribed: TO / THE GLORY OF GOD / AND TO THE / MEMORY / OF THE MEN / OF THIS VILLAGE / WHO FELL IN / THE GREAT WAR / NAMES. On the top tier of the base are the words: THEIR NAME LIVETH FOR EVERMORE.	502119	206292	Modern	Listed Building (Grade II)	Medium
1076959	BOURNE END LODGE EAST AND BOURNE END LODGE WEST	House now divided into 2 dwellings. C18 and later. Whitewashed roughcast and brick, hipped Welsh slated roof. 2 storeys. 5 sash windows with glazing bars, 2 window wings to right and left. Central closed porch. Alterations to ground floor.	502524	206204	Post-Medieval	Listed Building (Grade II)	Medium
1342724 and MHT17810	THE ANCHOR PUBLIC HOUSE	C16 or C17. Timber frame, colour washed brick nogging and brick ground floor front wall Old tiled roof with 2 small gabled dormers. 2 storeys and attics. 1st floor has 3 modern 4 light oak mullioned leaded casement windows, 3 similar ground floor windows and 3 oak doors.	502130	206274	Post-Medieval	Listed Building (Grade II)	Medium
1342184 and MHT17806	THE OLD COTTAGE	Late C16 or early C17. Red brick, whitewashed, old tiled roof with 2 restored end chimneystacks. 2 diagonal shafts on left. 2 storeys, 2 flush 3 light wood casement windows with glazing bars. Modern additions to north and west.	502623	206290	Post-Medieval	Listed Building (Grade II)	Medium
1342185	BOURNE COTTAGE	C19. Whitewashed brick, old tiled roof. 2 storeys. 1 sash window, 2 casement windows with glazing bars. Gabled wooden porch. Included for group value. Bourne Cottage and Nos 1 to 8 (consec), The Cottages, form a group.	502436	206272	Post-Medieval	Listed Building (Grade II)	Medium
1251188 and MHT17568	THREE HORSE SHOES PUBLIC HOUSE	C17, much altered. Whitewashed plaster, gabled old tiled roof with plain early red brick chimneystack. 2 storeys, small casement windows. Cut bracketted C18 or early C19 doorhood. Later C19 verandah.	502642	206371	Post-Medieval	Listed Building (Grade II)	Medium

HER / NHLE Ref	Name	Description	Easting	Northing	Period	Status	Importance
1251189 and MHT17567	WINKWELL	C16 or C17, formerly a blacksmith's house. Forge, now demolished, adjoined house on north side. Timber frame, front wall rebuilt in red brick. 2 storeys, 3 casement windows with glazing bars. Many timbers visible inside.	502651	206396	Post-Medieval	Listed Building (Grade II)	Medium
1249625 and MHT18217	CHURCH OF ST JOHN THE EVANGELIST (CHURCH OF ENGLAND)	Parish Church. 1854 by G G Scott for Cannon Sir John Hobart Culme Seymour as a chapel of ease. (Separate parish 1909). Uncoursed knapped flint with limestone dressings. Steep pitched roofs of scalloped red tiles. Timber framed S porch on flint and stone sills. A small Gothic Revival Dec church of nave and polygonal ended chancel under one roof, gabled S porch balanced by gabled vestry on N side of nave. Slender square shingled fleche set diagonally over the E end of the nave. Wrought iron crosses on fleche, porch and chancel. Stone W gable parapet with cross gabled apex stone. Tall 2-light W window with top light and hood mould. 3 trefoil-headed lancets on S wall of nave, 2-light Dec windows with quatrefoil in head on each facet of chancel. Large buttresses mark start of chancel with battered plinth and chamfered string courses at sill and eaves. Steep roofed 2-bay arch-braces wooden porch with open arcaded sides and trefoil headed entrance under moulded wavy bargeboard. 2-centred arched stone S doorway in 2 continuous chamfered orders. Double doors with large foliate wrought iron hinge plates. Large copper lamp on iron bracket on front of porch. Apse windows by Alfred Bell (his first windows) made by Powells in 1854 (Pevsner (1977)107). Scissor-rafter open timbered nave roof with ashlar pieces. Chancel marked by low screen with lectern attached, having octagonal wooden base and pierced tracery under a heavy arch-braced collar truss with king post, carried on EE attached stone wall shafts. Similar ringed marble shafts at sacristy angles with oak altar rail on bracketed brass supports. Chancel and sacristy walls and roofs have polychrome fresco painted decoration designed by Charles Rew architect of Berkhamsted and executed by David Bell of Davidson and Bell dated 1891. Semi-dome in apse has Christ in majesty. Roof of chancel ceiled between scissor braces with painted motif decoration between and on rafters, on walls and window mullions. Large carved wooden altar and tall tabernacle work reredos with figures of Christ in a vesica, Mary his mother, and St. John. Choir stalls and pews appear to be part of original design. Narrow pointed doorway with roll moulding and coffered door leads to small vestry with gothic corner fireplace, 2-light E window and scissor-braced rafter open timber roof with ashlar pieces. Unusual bowl shaped stone font with foliate base and octagonal step. 4 small roundels of evangelists in a high relief around bowl with sunk lettering around rim, and wooden cover.	501607	206520	Post-Medieval	Listed Building (Grade II)	Medium

HER / NHLE Ref	Name	Description	Easting	Northing	Period	Status	Importance
1251043 and MHT30860	POUCHEN END	C16 or early C17. Marked on 1648 map as Punchin End. Remodelled 1864 (date on chimneystack) from 3 timber framed cottages. Stucco faced in Tudor style with 4 gables, 2 foliated roundels, mullioned casement windows, moulded terracotta chimney pots Some windows have transoms, chamfered rusticated surrounds. Welsh slated roof. Ornate wooden gabled porch Interior retains some early exposed ceiling beams.	502689	206827	Post-Medieval	Listed Building (Grade II)	Medium
1078077	THE COTTAGES	Mid C19 row, 1 of 2, in "cottage orne" style. Whitewashed brick, fish scale patterned tiled roof with 2 large brick gabled dormers, tall chimneystacks. 1 storey and attics. 4 casement windows with glazing bars under drip moulds. 3 gabled rustic wooden porches, central one of double width. Bourne Cottage and Nos 1 to 8 (consec), The Cottages, form a group.	502450	206266	Post-Medieval	Listed Building (Grade II)	Medium
DHT1696	Westbrook Hay	A small gentleman's estate lying between Boxmoor and Bovingdon. Although the site of a manorial complex, first noted in 1199, the present estate was put together in the later 17 th century by Joshua Lomax of Childwickbury for his younger son, the lawyer Thomas. It passed by marriage into the Ryder family in the mid 18th century and was inherited by Granville Dudley Ryder in 1831. He was a local benefactor, rebuilding Bovingdon Church and building the West Herts Infirmary (see entry for Heath Lane Cemetery). It was used by RAF in 2nd World War, then by the Hemel Hempstead New Town Commission. It became a school 1963 and various additions, such as a new Sports Hall opened in 1995 have filled the walled garden and other parts of the site. Its significant ornamental gardens were first depicted in 1766, and became in turn Victorian and Edwardian in style with balustrades, urns, verandahs and flower beds in lawns. Today the layout is simpler and has reverted to the formal style of the early 18th century. A formal 18th century wilderness to the east was divided by straight rides into separate blocks	502600	205500	Post-Medieval	Locally Registered Park	Medium

HER / NHLE Ref	Name	Description	Easting	Northing	Period	Status	Importance
	Berkhamsted	The historical development of Berkhamsted has been influenced by the natural valley landscape and the River Bulbourne, together with the impact of human development by way of Berkhamsted Castle, the Grand Union Canal and the railway line. The plan of Berkhamsted town centre is typical of a medieval market settlement; the linear High Street forms the spine of the town (roughly aligned east-west), from which extend medieval burgage plots (to the north and south). At the centre stands the Parish Church (the thirteenth century Church of St. Peter) along with the triangular market-place (the old Market Place, recorded as Le Shopperowe in 1357). The majority of High Street buildings date to between the sixteenth and nineteenth centuries and are mostly commercial premises (such as shops, restaurants, banks, offices, public houses), places of worship and public buildings with a smaller number of residential properties. Later streets were laid out on the valley sides away from the High Street according to need (a growing population), and were influenced by the existing plots / field systems and the landscape topography. These streets were mainly built during the nineteenth century and predominantly lay to the southwest of the High Street, with some lying close to the areas occupied by the Grand Union Canal and the railway line.	499169	207901	Medieval - Post-Medieval	Conservation Area	Medium
	Winkwell		502707	206407	Post-Medieval	Conservation Area	Medium
MHT10202	SOILMARKS AROUND POUCHEN END, WEST OF HEMEL HEMPSTEAD	Soilmarks of linear features, probably former field boundaries and tracks, and maculae around Pouchen End	502940	206840	Historic: period uncertain	Non-designated heritage asset	Low
MHT16201	SITE OF HILLEND, POUCHEN END LANE, HEMEL HEMPSTEAD	A pair of worker's cottages, each with a shed or privy behind, is shown here on the 1st edition 1:2500 OS map, at the end of a track leading west from Pouchen End Lane. They stood at the NE corner of a field containing trees, and two pits, marked Old Chalk Pit (50m WSW) and Old Clay Pit (80m SSW). In 2000 the site was empty and disturbed	502553	207451	Post Medieval	Non-designated heritage asset	Negligible
MHT17299	CROPMARKS OF POSSIBLE CUT FEATURES, POUCHEN END, CHAULDEN	Anomalies in the crops here suggest the presence of possible buried cut features.	502349	206899	Unknown	Non-designated heritage asset	Low
MHT17347	UNDATED WALL FOOTING, BROADWAY FARM, BERKHAMSTED	Evaluation of an area between Akeman Street and the river Bulbourne uncovered a wall footing of randomly coursed rough chalk blocks, and a drain, capped with chalk. There was no dating, and the materials could have been re-used. Scatters of Roman tile in the topsoil (see [17346]), and their position beside the Roman road, suggest that the structures could be Roman	501252	206702	Unknown	Non-designated heritage asset	Low

HER / NHLE Ref	Name	Description	Easting	Northing	Period	Status	Importance
MHT17471	ROMAN, MEDIEVAL AND LATER FINDS, EAST OF POUCHEN END, HEMEL HEMPSTEAD	Metal detecting over some seasons across the entire field retrieved three Roman coins (Claudius II barbarous radiate; antoninianus of Allectus; and Constantine I) and a 1st century copper alloy brooch, a 'lion brooch derivative'. Later finds included half of a possible pair of Anglo-Saxon tweezers (6th to 9th century); a buckle, part of a sword belt hanger, the figurine from a small crucifix, a sexfoil mount, and a penannular brooch, all medieval and copper alloy; two 16th century Nuremberg jettons, a silver half groat of Elizabeth, a token halfpenny of William Clifton, scrivener, of Hemel Hempstead, struck in 1669, and half of a pair of 17th century silver cufflinks. There were also many post-medieval buttons in part of the field, suggesting the practice of ploughing shoddy bales (old clothes) into the soil to improve its quality	503000	206700	Early Roman to Post Medieval	Non-designated heritage asset	Negligible
MHT31454	IRON AGE FEATURES, POUCHEN END LANE, HEMEL HEMPSTEAD	Six ditches, a pit, three small pits or postholes, and two possible elongated pits or ditches were found clustered here on the edge of a ridge of high ground. Associated pottery appears to be earlier Iron Age in date and flint-tempered, with some quartz-tempered middle Iron Age. Two pits contained some charred plant remains, largely emmer wheat and hazelnut shells. There were also charcoal, some fired clay, and a few iron nails	502740	207484	Earlier Iron Age to Middle Iron Age	Non-designated heritage asset	Low
MHT31455	ROMAN ENCLOSURE AND OTHER FEATURES, POUCHEN END, HEMEL HEMPSTEAD	"Six ditches and four pits found in evaluation trenches confirmed the presence of a trapezoidal enclosure identified in geophysics. This was a group of features with associated pottery dating from the later 1st century AD to perhaps the 4th century, over a relatively small area on a headland overlooking the Bulbourne valley to the south. The pottery was in good condition, and included some 1st century grog-tempered ware of late Iron Age type, but largely hard-fired and dating no earlier than the later 1st century. Most of the assemblage dates to the later 1st and 2nd centuries, with few imported wares. Other finds include some Roman tile, fired clay, iron nails, a possible knife blade and some ironworking debris. Several features produced charcoal and charred plant remains. These included hulled wheat, possible barley, hazelnut shells, and seeds of dock, oatgrass, clover, and meadow grass which are all weed species typical of grassland or arable. Roman material [17471] has been found scattered across the entire field to the south, but the evaluation did not identify any further features of Roman date."	503020	206880	Romano-British	Non-designated heritage asset	Low

HER / NHLE Ref	Name	Description	Easting	Northing	Period	Status	Importance
MHT31456	UNDATED PITS & DITCHES, POUCHEN END, HEMEL HEMPSTEAD	Six very large pits scattered at wide intervals across high ground east of Pouchen End Lane may have been extraction pits for clay or chalk. They ranged from more than 2m to more than 9m across, but contained nothing in their fills other than a few pieces of undated ceramic building material, and the occasional iron nail or sherd of 20th century pottery. No extraction pits are shown in the area on the 1878-88 OS mapping other than a chalk pit north of Long Chaulden, which was not one of these six pits. Other undated smaller pits and ditches were also found. At least some of the ditch fragments were probable historic field boundaries and all these undated features are probably historic, either medieval or later	502920	207420	Medieval to Post Medieval	Non-designated heritage asset	Low
MHT31546	SITE OF HAXTERS END, LITTLE HEATH LANE, NORTHCHURCH	Haxters End is shown on the 1766 and 1822 maps as Hacksters End, at the edge of high ground looking south over the Bulbourne valley. The 1839 tithe map names it Haxters End and shows it as a substantial farmstead with ranges of buildings around three sides of a yard on the west side of the road, with the house at the south end, a possible coach house next to it, a further L-plan range north of the farm buildings, and another barn on the east side of the road. By 1888 many of the buildings had gone, leaving little more than the west range. To the north was a kitchen garden, and a possible orchard. By 1898 the farmstead had been demolished and the site cleared, leaving only part of the kitchen garden boundary. In the 20th century the whole area became part of a large arable field. The farmstead had medieval origins. In 1565 it was Haksaltsende; William Heckesalt is documented in 1314, and Roger de Hakkesalt in 1323	501775	207124	Post Medieval	Non-designated heritage asset	Negligible
MHT31547	PIX FARM, PIX FARM LANE, BOURNE END, HEMEL HEMPSTEAD	Pix Farm is shown on the 1766 map as Pinks, and on the 1839 tithe map as Pix Farm. It then had barns and other ranges partly surrounding a yard, in more or less the same layout as shown on the 1888 OS map. The yard was compartmented, with a pump, but without buildings on the eastern side which appears to have been ealled. The house, at the NE corner, was surrounded on three sides by shrubberies and walks, with a trackway leading into the fields north of the railway line through a tunnel. Immediately north of the line was an orchard. The main entrance to the farmstead was from Pix Farm Lane , which widened here. Just to the south was a maltings [5372] which appears to be related to the farmstead. Much of this layout survives, converted to domestic properties. Pix Farm has medieval origins, being associated with Robert Pich, documented in 1304	501944	206668	Post Medieval	Non-designated heritage asset	Low
MHT4097	IRON AGE SWORD FRAGMENT, NEAR BOURNE END, NORTHCHURCH	A fragment of an iron sword blade in a bronze sheath (dated to the early Iron Age) was found c.1867 in a watercress ditch at Broadway, near Bourne End, Northchurch, and is now in the British Museum. The scabbard is similar to the one from the River Thames at Battersea which is classed by Dechelette as La Tene III on the Continent. The NGR is imprecise, but in an area of watercress beds along the valley bottom.	501700	206500	Earlier Iron Age to Late Iron Age	Non-designated heritage asset	Negligible

HER / NHLE Ref	Name	Description	Easting	Northing	Period	Status	Importance
MHT4595	ROMAN ROAD, 'AKEMAN STREET'	Akeman Street (the Viatores' road 16A), from Verulamium to the county boundary west of Tring, roughly follows the old A41. It may be assumed that where it runs through the narrow Bulbourne valley, the Roman road was an engineered version of an existing route from the late Iron Age (and Roman) iron-ore producing sites at Cow Roast, where it shows up well in geophysics. Its course is unknown through Hemel Hempstead and how it approached Verulamium is unclear. The line between Hemel Hempstead and Verulamium proposed by the Viatores [4581, 4582] has not been confirmed by excavation (and is unlikely, as the Viatores had it heading SE down the valley to Nash Mills and there turning through a right angle to head uphill). It may have entered Verulamium on the SW side, or run into a known short length of Roman road through Gorhambury outside the Chester Gate. How the road crossed the river Bulbourne west of Hemel Hempstead is uncertain, and it is only assumed to be followed by Chaulden Lane. But the Roman course of the road is unlikely to have deviated far from the present course, the old A41. Roman roads often changed course to cross rivers as directly as possible, and this is likely here. To the west, a 1961 air photo shows the street grid at the Roman settlement at Cow Roast [1874], with Akeman Street approaching and leaving; it makes a straight line along the Bulbourne valley. The Viatores claimed to trace several lengths of surviving agger along here, although these are not dated	596860	208920	Romano-British	Non-designated heritage asset	Low
MHT5237	HACKSTERS END BRIDGE, BOURNE END	Road bridge over Grand Union Canal. Brick arch. Width 18ft. The bridge has been largely rebuilt in modern red brick, but to the original design	501625	206755	Post Medieval	Non-designated heritage asset	Low
MHT5238	PIX'S BRIDGE, SHARPES LANE, BOURNE END	Road bridge over Grand Union Canal. Five cast iron girders marked G Deeley, Bilston. Jack arches. Width 14ft. Listed in 1893 register in the British Waterways Museum at Stoke Bruerne with brick abutments and wings, cast iron girders, jack arches and wooden rail	501920	206470	Post Medieval	Non-designated heritage asset	Low
MHT5239	BRIDGE OVER GRAND UNION CANAL, WINKWELL, HEMEL HEMPSTEAD	Road bridge over the Grand Union Canal. Swing bridge. Iron girder and timber deck. Width 10ft. 2-ton sign. Handoperated. Listed in 1893 register in British Waterways Museum at Stoke Bruerne as swing bridge with brick wings. Remains as at Johnson survey except that it is no longer hand-operated	502646	206361	Post Medieval	Non-designated heritage asset	Low

HER / NHLE Ref	Name	Description	Easting	Northing	Period	Status	Importance
MHT5372	MALTING, SHARPES LANE, BOURNE END, HEMEL HEMPSTEAD	Former malting of red brick with two floors, three bays of 12ft and slate roof. Kiln and malt store at SW end converted to a small house with two floors and a slate roof. Malting probably dated to mid 19th century. By 1966 the building was disused, in poor condition and in danger of being demolished. The building has been largely demolished, apart from the small house which has been extended. The bricks have been reused to make a private residence which is similar in style to the old building. The 1888 OS map <4> shows the maltings, long ranges of buildings around a trapezoidal yard beside the lane, with a long additional building running south along the roadside. The same arrangement is shown on the 1839 tithe map as well as the 1898 OS map. The maltings were just south of Pix Farm [31547] and may have been associated.	501923	206608	Post Medieval	Non-designated heritage asset	Low
MHT5569	RAILWAY BRIDGE, WINKWELL, HEMEL HEMPSTEAD	Railway bridge. Brick arch, wing walls and parapet, stone stringcourse, single semicircular arch, height approx. 20ft.	502700	206480	Post Medieval	Non-designated heritage asset	Low
MHT18215	SITE OF CHURCH AND SCHOOL, LONDON ROAD, BOURNE END	The 1888 OS map shows two buildings in the plot on the south side of London Road, marked 'Church & School (Boys & Girls)'. Both were rectangular and orientated north-south; one was quite plain in plan, but the other had a church plan with transepts and buttressed tower at the south end. Between the church and the road was the 'Play Ground'. By 1898 the two buildings had been linked into one, although labelled separately 'Church' and 'School'. By 1925, however, the school occupied the whole complex. These may have been the Independent chapel and industrial school recorded in Bourne End in 1872. By 1976 the school had gone, although part of the original building may survive in one of the two houses built on the site. See also the adjacent Old School House	502290	206280	Post Medieval	Non-designated heritage asset	Negligible
MHT6077	ROMAN COIN HOARD, CRESS FARM, BOURNE END, HEMEL HEMPSTEAD	Forty coins were recovered from a small area of about 25 square feet (c.7.5m) in a river near Bourne End' in 1976. They were 'very worn by the river'. The coins are bronze, mostly sestertii, ranging from Claudius I to Claudius II. 'The composition of the group and the relative wear of the coins makes it clear that the find represents a hoard', evidently complete (the site was searched) and largely 2nd century. There was one intruder, a coin of Magnentius, which was found 30m from the others	501900	206300	Roman	Non-designated heritage asset	Negligible
MHT241	GRAND UNION CANAL	Originally named the Grand Junction Canal, it runs from Braunston in Northants to the Thames at Brentford for 93.5 miles, linking London, Oxford, Birmingham and the Midlands. Engineered by W Jessop, and completed in 1805, with a total of 101 locks, it is the longest wide gauge 'barge' canal in Britain. The highest point is at Tring where the cutting is 30ft deep. There are 37 locks in Hertfordshire; metal locks are replacing the original oak ones	500380	202300	Post Medieval	Non-designated heritage asset	Low

HER / NHLE Ref	Name	Description	Easting	Northing	Period	Status	Importance
MHT6078	LATE IRON AGE COIN, CRESS FARM, BOURNE END	Early British uninscribed gold stater, Westerham type, dated to the mid 1st century BC, found 1976 by metal detector'. It was in the watercress beds at Cress Farm	501900	206300	Late Iron Age	Non-designated heritage asset	Negligible
MHT7203	SEWER LOCK, GRAND UNION CANAL, BERKHAMSTED	Canal lock, E gate dated 1883, W gate dated 1869. The lock is immediately south of the sewage works, hence the name.	501271	206814	Post Medieval	Non-designated heritage asset	Low
MHT7204	PIX'S LOCK, GRAND UNION CANAL, BOURNE END	Canal lock, with no dates displayed	502030	206440	Post Medieval	Non-designated heritage asset	Low
MHT7205	GRAND UNION CANAL MILEPOST, PIX'S LOCK, NORTHCHURCH	A milepost, erected in 1893 by Thomas Milner. Not cleaned, it is inscribed Braunston 63 miles. This may be the milepost marked on current 1:10,000 maps at TL 01840 06485, c.150m to the west.	502000	206500	Post Medieval	Non-designated heritage asset	Low
MHT7206	BOURNE END LOCK, GRAND UNION CANAL, HEMEL HEMPSTEAD	Canal lock; the E gate was replaced in 1993	502461	206392	Post Medieval	Non-designated heritage asset	Low
MHT7207	WINKWELL LOCK, GRAND UNION CANAL, HEMEL HEMPSTEAD	Canal lock, both gates dated 1885	502803	206345	Post Medieval	Non-designated heritage asset	Low
HA1	Parish boundary	Section of the Northchurch/Hemel Hempstead parish boundary. Seen on geophysical survey and historic mapping	502005	207266	Early Medieval - Post-Medieval -	Newly-identified heritage asset	Low
HA5	Possible ditch	Discontinuous linear feature orientated north-east to south-west in tithe plot Great Ditch Field, seen during geophysical survey. May therefore represent the remains of a historic drainage system. Likely predates HA16, which lies at a maximum of 10m to its north.	501885	207114	Post-Medieval?	Newly-identified heritage asset	Negligible
HA2	Site of demolished Building (Haxter's End)	Site of a small building on the western edge of the PDA shown on historic mapping dated to at least 1826. Almost certainly part of the Haxter's End complex. Demolished by 1883. Depression probable representing an associated building platform seen during the sit visit	501825	207082	Post-Medieval	Newly-identified heritage asset	Low
HA4	Footpath	Footpath shown on mapping dated to 1888 onwards, which appears to follow the course of a previous field boundary	502188	206864	Post-Medieval - Modern	Newly-identified heritage asset	Low
HA5	Field boundary	Post-Medieval field boundary abandoned by 1883. Seen on historic mapping and aerial photographic/LiDAR imagery	502348	206775	Post-Medieval	Newly-identified heritage asset	Low

HER / NHLE Ref	Name	Description	Easting	Northing	Period	Status	Importance
HA6	Field boundary	Post-Medieval/Modern field boundary abandoned by 1976. Seen on historic mapping and aerial photographic/LiDAR imagery	501838	206904	Post-Medieval – Modern	Newly-identified heritage asset	Low
HA7	Field boundary	Post-Medieval field boundary abandoned by 1883. Seen on historic mapping and aerial photographic/LiDAR imagery	502394	206668	Post-Medieval	Newly-identified heritage asset	Low

APPENDIX 2: GEOPHYSICAL SURVEY REPORT (HEADLAND ARCHAEOLOGY 2022)