

Land North of Barton Road, Cambridge

Desk Based Assessment



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SOUTH WEST CAMBRIDGE: LAND NORTH OF BARTON ROAD

Desk Based Assessment

commissioned by the North Barton Road
Landowners Group (North BRLOG)

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LIST OF FIGURES	3
1. INTRODUCTION	4
2. LOCATION, TOPOGRAPHY AND GEOLOGY	4
3. PAST AND CURRENT LAND USE	5
4. SOURCES CONSULTED	5
Topography.....	5
Cambridgeshire Historic Environment Record	5
Historic mapping and records	5
Previous desk-based assessments	5
Aerial photographs.....	5
5. ARCHAEOLOGICAL BASELINE.....	6
Archaeological excavations and surveys	6
Scheduled Ancient Monuments	6
Listed Buildings.....	6
6. AERIAL PHOTOGRAPHS AND LIDAR.....	7
7. CARTOGRAPHIC AND HISTORIC EVIDENCE.....	7
Corpus Terrier (mid-14th century).....	7
Historic maps	8
1666 <i>Grantchester (Figure 8)</i>	8
1789 <i>West Fields (Figure 9)</i>	8
1795 <i>Walford survey of Grantchester (Figure 10)</i>	8
1802 <i>Inclosure Map of Coton and Grantchester (Figure 11)</i>	9
1830 <i>Hawkes' Map (Figure 12)</i>	9
<i>Ordnance survey (1888, 1903, 1927) (Figures 13–15)</i>	9
Place name evidence	9
8. HISTORIC HEDGEROWS	11
9. ARCHAEOLOGY BY PERIOD	11
Prehistoric (to AD 43)	11
Romano-British (AD 43–410).....	12
Anglo-Saxon (AD 410–1066).....	14
Medieval (AD 1066–1539).....	15
Post-medieval and modern (1540 to present).....	16
Undated features	18
10. SUMMARY OF THE MAIN ARCHAEOLOGICAL ELEMENTS.....	18
11. SURVIVAL AND SIGNIFICANCE	19
Survival.....	19
Importance.....	19
12. POTENTIAL DEVELOPMENT IMPACTS	20
Nature of impacts.....	20
Severity of the impact	21
13. MITIGATION.....	21

Evaluation	22
<i>Aerial photographs</i>	22
<i>Fieldwalking</i>	22
<i>Geophysical survey</i>	22
<i>Trial trenching</i>	22
Potential for preservation and heritage enhancement	22
14. CONCLUSION.....	23
REFERENCES	24
APPENDIX 1: PLANNING POLICY	26
Ancient Monuments and Archaeological Areas Act 1979	26
National Planning Policy	26
Local Planning Policy.....	26
APPENDIX 2: LIST OF HERITAGE ASSETS IN THE CAMBRIDGESHIRE HISTORIC ENVIRONMENT RECORD.....	30
APPENDIX 3: ARCHAEOLOGICAL WORK WITHIN THE PDA.....	32

LIST OF FIGURES

- Figure 1 Location of the Proposed Development Area (PDA) along with the Search Area.
- Figure 2 Elevation map of the PDA and surrounding area with 5-metre contours. (Base map: EPA lidar data)
- Figure 3 Cropmarks and soilmarks visible in aerial photographs, showing the Roman road, medieval ridge-and-furrow ploughing, and other features.
- Figure 4 Location of archaeological works within the Search Area (Source: Cambridgeshire Historic Environment Record)
- Figure 5 Location of listed buildings within the Search Area (Source: Cambridgeshire Historic Environment Record)
- Figure 6 Lidar hillslope model of the PDA and surrounding area (Source: EPA Lidar data)
- Figure 7 Reconstructed map of the Cambridge West Fields (Source: Hall and Ravensdale 1976)
- Figure 8 Reprojected extract of the 1666 map of Grantchester (Reproduced with the permission of Kings College Cambridge)
- Figure 9 Reprojected extract from the 1789 map of the Cambridge West Fields (Reproduced with permission of Corpus Christi College)
- Figure 10 Reprojected extract from Walford's 1795 plan of Grantchester Parish (Source: Cambridge University Library)
- Figure 11 Extract from the 1802 Inclosure map for Grantchester and Coton (Source: Cambridge University Library)
- Figure 12 Hawkes' 1830 map of the Cambridge West Field.
- Figure 13 Ordnance Survey Map 1888
- Figure 14 Ordnance Survey Map 1903
- Figure 15 Ordnance Survey Map 1927
- Figure 16 Location of prehistoric entries in the Cambridgeshire Historic Environment Record
- Figure 17 Location of Roman-era entries in the Cambridgeshire Historic Environment Record
- Figure 18 Location of Anglo-Saxon era entries in the Cambridgeshire Historic Environment Record
- Figure 19 Location of medieval entries in the Cambridgeshire Historic Environment Record
- Figure 20 Location of post-medieval and modern entries in the Cambridgeshire Historic Environment Record
- Figure 21 Map of areas of higher archaeological potential in the PDA

1. INTRODUCTION

The Cambridge Archaeological Unit (CAU) has been commissioned by the North Barton Road Landowners Group (North BRLOG) to prepare an archaeological desk-based assessment for land being promoted for development through the Greater Cambridge Local Plan. The site forms South West Cambridge: Land North of Barton Road (Figure 1). The Proposed Development Area (PDA) covers approximately 155 hectares.

The purpose of this desk-based assessment is to assess:

- the archaeological potential of the PDA
- the likely impact of previous land use on the survival of any archaeological remains, and
- the potential for impacts on the surviving archaeological resource.

For the purposes of this report, archaeological and historical records were consulted for a rectangular search area covering 1,250 hectares, extending approximately 500m from the site boundaries. The sources consulted are outlined in Section 3, and a detailed list of individual assets in Appendices 2 and 3.

2. LOCATION, TOPOGRAPHY AND GEOLOGY

The PDA lies approximately 2.5 kilometres southwest of the historic core of Cambridge, and extends north from the Cambridge–Barton Road. Administratively, the northern half of the site lies within the City of Cambridge (Newnham Ward); the southern half in South Cambridgeshire District Council (Coton Parish and Grantchester Parish).

The PDA comprises most of the agricultural land bounded by Barton Road to the south, the M11 to the west, West Cambridge to the north, and residential properties on the western edge of Cambridge. (Three large fields measuring c.29.5 hectares along the M11 are not included in the PDA).

All of the PDA drains into the Bin Brook to the east, as most of the fields within the PDA are bounded by ditches which drain into the Brook.

The ground surface lies between 19m OD in the northwestern corner of the PDA and 7m OD along the Bin Brook in the east of the PDA. Two very slight lines of higher ground run east–west along the north of the site and through the middle of the PDA (Figure 2).

The bedrock beneath the PDA comprises mudstone of the Gault Formation, which is underlain by grey chalk of the West Marlbury Formation, with chalk outcrops forming higher ground immediately to the west of the M11. To the east of the PDA, along the floodplain of the Cam River corridor, are areas of 1st and 2nd River Terrace gravels, which the eastern parts of the PDA intersect. There is also a small patch of 2nd River Terrace gravels on the western edge of the PDA, by the M11.

The PDA's soils belong to a large area of lime-rich loamy and clayey soils with impeded drainage (Soilscapes website) which are derived from glacial tills capping the hills the east, and incorporate material from the underlying chalk. These soils are very fertile but prone to sheet erosion. Boreholes taken along the line of the M11 suggest a layer of clayey colluvium in lower areas (BGS website).

Cropmarks indicate coprolite mining in areas immediately south of Barton Road around TL 435 571, but there does not appear to be any mining-related ground disturbance within the PDA itself.

3. PAST AND CURRENT LAND USE

Almost all of the land within the PDA is currently used for agriculture, and has been for a considerable period of time. Aerial photographs show that much of the area was covered in medieval ridge and furrow (Figure 3). The PDA lies within the 'West Fields' of Cambridge, also referred to as the Blackmoor Fields (Hall and Ravensdale 1976): one of the town's three agricultural zones during the Middle Ages.

4. SOURCES CONSULTED

Topography

The topography of the site and wider area was derived from lidar data generated by the Environment Agency (Environment Agency 2019). A relief map with contours of the site is shown in Figure 2.

Cambridgeshire Historic Environment Record

The Cambridgeshire Historic Environment Record (CHER) supplied the data of known heritage assets and archaeological events within the PDA and surrounding Study Area. All of the heritage assets within the Study Area are listed in the gazetteer in Appendix 2. The location of archaeological works recorded in the CHER is shown in Figure 4. The locations of individual HER entries are shown in Figures 16–20 (organized by archaeological periods).

Historic mapping and records

Historic maps and records were sourced from the Cambridge University Library, Kings College Library, Corpus Christi College Library, the Ordnance Survey, and the CAU's own copies of historic maps. Figures 7–15 show extracts from key historic maps covering the Study Area.

Previous desk-based assessments

The CAU has prepared three previous desk-based assessments for parts of the PDA (Redfern 2001, Dickens 2011, Appleby 2015). The findings of which have been incorporated into this report.

Aerial photographs

An assessment of aerial photographs covering the parts of the search area was conducted in 2001 (Palmer 2001a, b), the results of which were combined with data provided to the Cambridgeshire HER in 2011, to create the plot in Figure 3. More recent photographs of the area have become

available since. A scan of photographs in Google Earth (1945, 1999, 2000, 2002, 2003, 2006, 2007, 2012, 2008, 2015, 2017) suggested that no additional features of archaeological significance were apparent, consequently no new assessment was commissioned.

5. ARCHAEOLOGICAL BASELINE

Archaeological excavations and surveys

A total of 45 archaeological events within the Search Area are recorded in the Cambridgeshire Historic Environment Record. The location of all archaeological investigations is shown in Figure 4. A list of the events in in Appendix 3.

Scheduled Ancient Monuments

There are no scheduled ancient monuments within the PDA or the Search Area.

Listed Buildings

There are eight Grade II listed buildings and one Grade II* within the search area: all of them around the junction of Victoria Avenue and East Street. See Figure 5 for their locations.

<i>CHER ref.</i>	<i>Title</i>	<i>Grade</i>
DCB7480	Newnham College, Peile Hall (built 1910)	II*
DCB7201	Corpus Christi College, George Thomson Building, Leckhampton House (graduate residence on Grange Road built 1963–64)	II
DCB7432	1 Barton Road (Grey gault brick private residence built in the early-mid 19th century)	II
DCB7433	Gateway at Number 78 (stone gate piers with ball finials and cast iron gates)	II
DCB7510	9 Wilberforce Road (house built in 1937)	II
DCB7516	Elmside, 49 Grange Road (house built c.1885)	II
DCB7660	Five Gables, 4 Grange Road (built 1898)	II
DCB7685	Selwyn College Entrance Block (built 1882–89)	II
DCB7789	3 Clarkson Road (house built 1958)	II

Because of existing urban and university development on the west side of Cambridge, the PDA is not visible from the bulk of these listed buildings and structures, and its development would not impact their settings. The one potential exception, depending on how the PDA is developed, is Elmside (49 Grange Road), which stands close to the private entrance to the PDA off Grange Road at TL 43987 58239.

6. AERIAL PHOTOGRAPHS AND LIDAR

Figure 6

A one-kilometer section of the Roman road (Akeman Street/Barton Way) is visible as a cropmark in aerial photographs and the ager survives as a slight bank discernible in lidar images between TL 4338 5830 and TL 4630 5756. A c.200m section of the ager is also apparent on the opposite side of the M11 in lidar images between TL 4185 5678 and TL 4174 5667.

Medieval ridge and furrow is apparent across much of the area on aerial photographs (Figure 3). However, all of it has been ploughed flat, apart from three small areas to the west of the M11 at TL415582, TL417566 and TL416568.

Also discernible in the lidar images are three headlands still upstanding between ploughed fields:

- the former 'Sheepcote Way' or 'Coton Way' on the northern edge of the PDA
- a second headland c.200m running along the top of the ridge known as 'Aldermanne Hill'
- one identified as 'Clynt Way' in the Corpus Terrier, running east–west through the middle of the PDA

Large areas of restored coprolite mining are apparent in aerial photographs immediately south of Barton Road around TL 421 257, but there do not appear to be any areas of disturbance within the PDA.

Finally, two WWII gun emplacements are visible in aerial photographs on the southwest corner of the PDA. Both are now under the M11.

Lidar images show a low mound corresponding to the location of the former University rifle range's targets at TL 4384 5870.

7. CARTOGRAPHIC AND HISTORIC EVIDENCE

Corpus Terrier (mid-14th century)

Corpus Christi College holds a document referred to as the Corpus Terrier dating to c.1360 AD, which lists all of the arable land in the Cambridge West Field (also known as Blackmoor Field). The document appears to have been originally compiled for tithing. It lists each field, furlong by furlong. Combined with an eighteenth-century map of College lands in the West Field, Hall and Maitland (1976) were able to reconstruct a map of the West Field in the mid-fourteenth century. The result is shown in Figure 7.

There are several features of potential archaeological significance within the PDA. From north to south:

- Sheepcote Way or Coton Way, close to the PDA's northern boundary, and still apparent in lidar images

- Edwin's Ditch—now filled in, but visible on lidar and as a cropmark in aerial photographs
- Barton Way—a former Roman road, Akeman Street, which ran southeast from Castle Hill to Ermine Street
- Clynt Way, on the parish boundary between Cambridge and Grantchester, now marked by a hedge and visible in lidar as a raised bank.

There are clear continuities between the fourteenth century descriptions of the fields, and field layouts in the eighteenth century, highlighting the long-term stability of land organization in the later Middle Ages. The Terrier also provides place name evidence, discussed below.

Historic maps

1666 Grantchester (Figure 8)

The map shows all of the ancient furlongs and selions in Coton and Grantchester parishes. It covers roughly the southern third of the PDA. Within the PDA, there are no farms or structures indicated.

Most of the land is given over to arable, but there are also indications of pasture in the flood-prone areas around Binn Brook ('Short Hay Furlong', 'Granchester Green', and an area to the south, whose name is unfortunately damaged). The names of several fields indicate they had been enclosed around this time—notably what subsequently became 'Yew Closes' in the southern field of the PDA.

The map also indicates that the former Roman road, Barton Way, now only reached as far south as the 'Granchester Green'. The route had become replaced by what is now Barton Road from Newnham, with a medieval drove slightly to the west. The Roman road was covered by selions in Dench Furlong, although at TL 4178 5674, the line of the road was preserved in c.175m of boundaries between selions (a short stretch still apparent in lidar images as a raised headland).

1789 West Fields (Figure 9)

The 1789 map shows the lands held by the University and various Colleges in Blackmoor Field. As this map only shows ownership, most of the parts which lay in the PDA (held chiefly by St John's and Kings Colleges), do not include details of the individual selions. Nonetheless, the map indicates that almost all of the northern half of the PDA was ploughland at this time.

Of note is the Roman road named 'Barton Way' running diagonally through Middle Field. Along the PDA's northern border ran 'Coton Way' (the 'Sheepcote' Way' of the Corpus Terrier). The map also shows an unnamed road (the former 'Clynt Way' of the Corpus Terrier) running along the parish boundary between Cambridge and Grantchester. Both are still apparent as raised earthworks in the lidar images.

1795 Walford survey of Grantchester (Figure 10)

Walford's plan of Grantchester parish shows a very similar layout to the 1666 map, with almost all of the furlong names unchanged, indicating the

continuing stability of land ownership. Within the PDA, the main change was the enclosure of open ground around the Binn Brook to create the 'Yew Closes' and 'Chanon's Croft furlong' (now the site of Laundry Farm).

1802 Inclosure Map of Coton and Grantchester (Figure 11)

Coton and Grantchester were enclosed by the same act of parliament in 1803 (VCH 1976: 193). The map prepared in 1802 shows that all of the ancient plough-strips to the south of Barton Road had been swept away by this time, along with most to the west, replaced with a few straight-bounded fields. The exceptions were the former 'Yew Closes', which had been enclosed earlier. Most of the land within and immediately around the PDA was the hands of the Cambridge Colleges. There are no structures shown on the map within the PDA.

Barton Way, which followed the route of the Roman Road had entirely disappeared by this time. Also of note was the meandering route of the Binn Brook, which had largely been straightened between the time of Walford's survey and the Inclosure map.

1830 Hawkes' Map (Figure 12)

Hawkes' Map of 1830 shows little detail within the fields. The Binn Brook is now shown only reaching the Barton Road—its upper reaches had by now been reduced to boundary ditches.

Farm buildings are shown for the first time at Barton Farm (now Laundry Farm) by Barton Road.

Ordnance survey (1888, 1903, 1927) (Figures 13–15)

The late nineteenth century Ordnance Survey maps show little change to the layout of the fields within the PDA, apart from the merging of fields within the former Yew Closes by Binn Brook. The course of the Binn Brook continued to be straightened. In the southwest corner of the PDA, buildings comprising Dumpling Farm had been established by 1888.

To the east of the PDA, housing and University colleges in Newnham expanded into the former agriculture fields. Also making an appearance by 1888 is the University Rifle Range, with a large mound at the western end behind the targets. Sports fields were established immediately south of Barton Road by 1927.

Place name evidence

There are no villages within the PDA or Search Area with historic names.

The Corpus Terrier does include several place names of historic note. Three are probably Danish in origin, and so presumably date from the Danish occupation of the area (c. AD 870–917). Running west off the Roman Road in the south of the PDA is 'Clynt way'. The 'Clint' has been identified as a low rise, immediately west of the M11 at c.TL 416 581. The term 'clint' derives from Old Danish *klint* or Old Swedish *klinter* 'hill'. Of potentially similar date are several names containing the element 'dale' including the large field referred to as *Dedale*, along with *Le Daleweie* ('the dale-way'). *Dale* in

northern England usually represents a Danish or Scandinavian influence (Old Norse *dalr*), but the term *dal* is also found in Old Saxon. Both terms have a sense of 'valley'. Also prominent is the name *Grithow*, as one of the major fieldnames, between Huntingdon Road and Madingley Road. It also appears in 'Grithow Weye' where Storey's Way now runs and *Grithowepath* off Madingley Road. Within this field, by Huntingdon Road, is *Howescroft*. *Grit* refers to the gravelly soils of the ridge (also preserved in *grit-ton* > Girton) The term *howe* derives from Old Norse *haughr*, 'hill, knoll, mound' and presumably refers to a barrow (most probably located around where the Astronomy Department now stands). Finally, immediately northwest of the PDA, now under the M11, the terrier mentions 'Thorpiscroft'. Although *thorpe* 'village' is found in Old English (*þorp*), its use in England is mostly from Old Norse.

Another potentially ancient name in the Terrier is 'Aldermanne Hill', for the low ridge of land along the northern edge of the PDA. The term *alderman* goes back to the Anglo-Saxon *ealdorman*, although its present sense of 'town magistrate' postdates 1200 AD. Hall and Ravensdale (1976: 152) note that the name is applied to a field in a charter of an earlier date than the Terrier, and that the term *alderman* is not used in Cambridge before c.1288. This suggests an Anglo-Saxon origin for the name. This does, however, need to be set against the names of fields and furlongs which bear the names of other town-based officials: *Tunmannisaker* (townsman's acre), *Gyldenaker* (guild's acre), and *Sheriffsdole* (Sheriff's 'dole' or portion). This would suggest the name might date from rather later: around the early fourteenth century.

Parts of the PDA to the east of the Bin Brook lie in 'Carm Field', a reference to the Carmelite order which established a house in Newnham in 1249.

The name Bin Brook has no historic significance. The origin of the term *binbroc* means 'within the brook' i.e. the fields on the Cambridge side of the brook (later renamed to the Carm Field). It contrasts with a small plot named *Butebroc* meaning 'beyond the brook' (not shown in Figure 6). The name Bin Brook is a backformation.

Most of the remaining names in the Corpus Terrier are prosaic and refer to:

- their owner, e.g. *Edwin's Ditch*, *Barkersakre*, *Godwinsrode*, *Erlsdole*
- function e.g. *moor* for grazing
- the soil *blakaker* 'black acre', *Le Clay*, *peperdole* 'pebble dole', *Grithow* 'grit howe'
- the size or shape of the fields.

8. HISTORIC HEDGEROWS

The Hedgerow Regulations 1997 defines hedgerows as historically significant if they have existed for at least thirty years, and meet one of the following criteria:

- The hedgerow marks the boundary (or part of a boundary) of at least one historic parish or township which existed before 1850
- The hedgerow incorporated or is associated with an archaeological feature in the list of Scheduled Monuments
- The hedgerow marks the boundary of a pre-1600 estate or manor recorded at the relevant date in a Sites and Monuments Record or in a document held at that date at a Record Office
- The hedgerow is integral to a part of a field system pre-dating the Inclosure Acts.

There appears to be only one hedgerow within the PDA which meets any of these criteria: the boundary between Grantchester and Coton parishes in the southern field of the PDA.

9. ARCHAEOLOGY BY PERIOD

The following section summarizes entries in the Cambridgeshire Historic Environment Record, organised by period. The full list of entries in in Appendix 2.

Prehistoric (to AD 43)

Figure 16

There is limited evidence for prehistoric activity within the Search Area.

Two worked flints were found during fieldwalking on the line of the M11 in the 1970s (Browne 1972) (shown as R in Fig 16). These comprise a heavily retouched nodule and a scraper, and probably date to the Late Neolithic.

During excavation of a gas pipeline in 1985, south of the PDA, worked flint was recovered in several locations (CHER 8691).

A stone object, attributed to prehistory, was found in 1914 at Bredon House on Grange Road, east of the PDA (CHER 4398A).

The Cambridge University Museum of Archaeology and Anthropology holds a poorly provenanced Bronze Age chisel and scabbard chape (Dickens 2012: 3; not in the CHER). These may have come from the general area of the PDA.

A cluster of Middle Bronze Age pits was excavated at Wilberforce Road in 2018, immediately to the north of the PDA (Brittain & Evans 2018, CHER MCB27197). The same excavation also produced two Early Iron Age pits.

An evaluation at High Cross in 2001 recovered worked flint and Late Bronze Age pottery from later features (CHER 13017). Immediately to the south, evaluation trenching and open area excavation uncovered Early and Middle

Iron Age pits, as well as a substantial Early Iron Age ditch. Saddlequern fragments and burnt stone in some of the pits suggests hearths and possibly dwellings nearby (Timberlake 2009, MCB 15913).

An evaluation at Crofts Gardens, Barton Road, on the eastern edge of the Search Area, uncovered three undated postholes and a pit containing a single fragment of Early Iron Age pottery (CHER MCB24146).

Evaluation trenching immediately south of the PDA on Barton Road (CB15026) uncovered evidence for an Iron Age settlement (MacKay 2002). It appears to have begun in the Early Iron Age, and expanded to the north in the Late Iron Age, creating a substantial Iron Age settlement. Field boundaries dating to the Late Iron Age and Roman period were also found in the evaluation trenches.

In 1999, human remains were uncovered on Corpus Christi sports field, immediately to the east of the PDA's eastern boundary (MCB 15811). All of the bones appeared to belong to one individual: possibly a 16–17-year-old female. The burial posture suggested a contracted inhumation, with the skeleton lying on its left side and the knees flexed. This was interpreted as either Bronze Age or Iron Age in date.

At Tyndale House on Grange Road, east of the PDA, an evaluation in 2003 uncovered a Late Iron Age or Early Roman ditch, aligned NW–SE. It was interpreted as a field boundary, presumed to be associated with an unknown settlement close by (CB 15629).

Within the PDA, on the line of the Roman road, a bronze pin in the shape of a crozier was found in 1910 (CHER 05105). It is of late Celtic workmanship, and was dated to the Late Iron Age.

Excavations in 2001 on the Cavendish site, north of the PDA, uncovered an Iron Age ditch (CHER MCB15890).

To the south of the Search Area, approximately 700m south of the PDA boundary, are cropmarks of rectangular enclosures (CHER 9606). These are undated, but their form suggests part may date to the later Iron Age, although some may also be Roman. The site has been truncated by coprolite quarrying, and would certainly have extended further north and south.

Romano-British (AD 43–410)

Figure 17

As noted above, a Roman road running NE–SW through the PDA is apparent on historic maps, aerial photographs and lidar data. Together, a continuous line can be traced from the northeast corner of the PDA by Binn Brook at TL 4340 5829 to the southeast corner of the PDA at TL 4200 5697. This is a section of Akeman Street, which ran from the Roman settlement on Castle Hill southwest to Ermine Street. The route was first traced by Walker (1912). Walker records the farm labourers "saying they always knew when they ploughed over the road by the hardness of the ground." He also noted that "all

across the fields from St. John's Farm to [Barton Farm], I have picked up bits of Roman pots and fragments of bronze." (point T on Figure 17: Walker 1912: 7). Close to the line of the Roman road, the Cambridgeshire HER reports finds of Roman pottery sherds (CHER 4405), two Roman vessels and a metal cylinder (probably a knife handle) (CHER 5105, 5105A).

There are a number of other finds along the line of the road to the northeast of the PDA. Roman, Saxon and undated burials were found where the road crossed Grange Road. At 69 Grange Road, six Roman and Saxon burials were excavated in 1912 (CHER 04928), all aligned to the Roman road. One included small scale of Roman armour and an iron spear. Quantities of Roman pottery were also found. Another grave contained a young female Saxon, with an amber and glass bead necklace and bone comb. Two Saxon cremations were also identified. More Roman burials were found 50 metres to the north (04927A) and an undated skeleton revealed 15m away (CHER 05111B). (Saxon burials and a Saxon brooch were also found at the same location—which are described below: CHER 05049B, 5111A). Closer to the PDA, but also on the line of the road, another undated inhumation was found in 2001 at 17 Adams Road (MCB 22989).

Several Roman settlements are known from within the Search Area. Within the PDA itself, a geophysical survey in 2018 identified a site covering c.3 ha. comprising ditched enclosures and trackways (CHER 26827). It lies on the ridge of higher ground in the north of the PDA known as Aldermanne Hill. The edge of another potential site was also identified in the same survey, c.550m to the east, within the easternmost portion of the PDA, beside the Binn Brook (CHER MCB26828).

Just outside the PDA's northern boundary on the University Sports Ground site, Wilberforce Road, Roman and post-medieval features were excavated (Brittain & Evans 2018, CHER MCB27197). The excavation uncovered the eastern edge of a 1st–2nd century settlement, and a larger substantial trackway running north–south. This trackway would certainly continue into the PDA.

Excavation at High Cross, north of the PDA, uncovered a field system on the south-facing slope. Three fields, each measuring c.0.6 ha, were defined by slight field ditches. A small enclosure was also found, possibly on the fringes of a settlement to the west (Timberlake 2009, CHER 13016).

The remaining Roman-era features and finds in the Search Area are comparatively minor.

- In the northwest corner of the PDA, toward Coton, a Roman brooch and a single sherd of Roman pottery were found (CHER MCB17753)
- On the southeast edge of the PDA, by Barton Road, three mid-to-late third century Roman coins (Gallienus, Tetricus I and Carausius) were found to the east of the PDA at the former stone bridge, along with sherds of Roman pottery and bronzes (CHER 5019).
- An evaluation east of the PDA at 5 Spens Avenue, excavated a pit and gully dated to the early Roman period (CHER MCB19584).

- Also to the east of the PDA, an evaluation at Croft Gardens, Barton Road, uncovered two parallel Roman ditches containing a small quantity of abraded Roman pottery (CHER MCB24146).
- Roman pottery found close by at three locations on Barton Road, east of the PDA (CHER 04997A, 05097, 05113A), as well as 200 to the north on Grange Road (CHER 04421).
- Fieldwalking on the route of the M11 in the 1970s recovered Roman coarseware sherds (site S, Brown 1972, Haigh 1975). Smaller quantities of Roman and probable Roman pottery were recovered further south (location R).

Anglo-Saxon (AD 410–1066)

Figure 18

There are no confirmed finds dating to the Anglo-Saxon period within the PDA itself, although a group of four inhumations (CHER 5053), probably Anglo-Saxon in date, uncovered in 1911 may have been found in the PDA, but are more likely to have been buried further east, around Grange Road.

In the wider search area, Anglo-Saxon inhumations were found to the east of the PDA in 1893 at Newnham Croft (CHER 4997). The CHER also reports other “burials found at the south end of Grange Road, and both sides of Barton Road”. As well as inhumations, cinerary urns have also been recorded in the area. One inhumation with ‘other items’ was uncovered at 24 Barton Road in 1892 (CHER 5097A, 5098). Other Anglo-Saxon burials have been found just to the east of the Search Area on St John’s Playing Fields and 24 inhumations at King’s College Garden Hostel (Whittaker 1999, Dodwell 2001). As noted in the Roman section, Anglo-Saxon and undated burials were excavated at 69 Grange Road, where it crossed the line of the Roman road from the southwest (CHER 04928, 05111A, 05049B).

An Early Saxon settlement was excavated just to the east of the Search Area during construction of the Criminology Building in Newnham (Armour *et al.* 2003). Findings included an earth-fast post-built timber building measuring 10 × 5m, and two Sunken Feature Buildings. Two other post alignments—potentially other post-built structures—were also excavated, along with a number of pits.

Immediately east of the PDA, excavations in 2011 uncovered the entrance to a sub-circular enclosure. The ditch fills contained Middle Saxon pottery (CHER 19989).

Anglo-Saxon spears and a chisel were found on Barton Road, by the southeastern edge of the PDA (although the location was recorded only broadly, and appears further to the southeast in Figure 18) (CHER 5114).

As noted above, analysis of place names suggest a Danish or Norse presence in the area, but no material evidence for their presence has been found within the Search Area.

Medieval (AD 1066–1539)

Figure 19

Medieval Cambridge was centred on Castle Hill and east of the River Cam, with a smaller settlement around the mill at Newnham. Throughout this period, the fields in the PDA and Search Area appear to have been given over to agriculture.

As noted in the analysis of aerial photographs, ridge and furrow ploughing is apparent across large parts of the PDA and wider Search Area (Figure 3). Ridge and furrow is also reported at numerous locations in the Cambridgeshire HER (e.g. CHER 09609 and 09619 in the PDA, and CHER 04399, 04406, 09604A, 09623, 09625, 09626 in the wider Search Area). There is no upstanding ridge and furrow within the PDA, although there are small areas at the edge of the Search Area (at TL 4155 5825 and TL 4165 5686). Excavations at High Cross, Wilberforce Road and Vicar's Farm, to the north of the PDA, all recorded remains of field boundaries and ridge and furrow on the south-facing slopes (Timberlake 2009, CHER MCB15915, MCB21896, MCB27197). To the west of the PDA, medieval field boundaries are visible in aerial photographs (CHER MCB 25688). To the northeast of the PDA, an evaluation on Clarkson Road recorded agricultural activity, with evidence for field manuring in the 13–14th centuries, increasing in the 14–15th centuries and also in the 17–18th centuries (CHER CB15344). Three hundred metres to the south, undated plough marks were found during an evaluation at 18 Adams Road (CHER 25913).

Oosthuizen (2006: 91–113, particular the map on 92–93) has argued that there is a coherent layout in the headlands and furlongs extending through the parishes of Toft, Comberton, Barton and Grantchester to the east of the PDA. She argues that these four parishes in the Bourn Valley and upper Cam formed part of one large estate in the eighth and ninth centuries (Oosthuizen 2006: 106–107). The furlongs themselves appear to have been created for the use of arable cultivation. The PDA lies one kilometre north of the closest evidence for these furlongs, and might have fallen within this estate.

The excavations at High Cross uncovered a trackway bounded by two flanking ditches (Timberlake 2009). This was identified at the Sheepcote/Coton Way of the Corpus Terrier. The excavation also uncovered traces of adjoining field boundaries, plus abutting plough furrows.

Only a few stray medieval finds have been reported in the Search Area:

- a possible axe found at Barton Road (CHER 5114A)
- pottery found in sewer works on Grange Road (CHER 5113)
- medieval pottery at Barton Close (CHER 05072)
- pottery found digging a soakaway at 32 Barton Road (MCB16929)
- a finger ring found at Leckhampton House in 1952 (CHER 4400)
- medieval bronze and a coin found in 1911 at 71 Grange Road (CHER 05049C).

The paucity of finds, along with the widespread evidence for ploughing and field boundaries points to the agricultural character of the entire area throughout the Middle Ages and well into the post-medieval period.

The one significant non-agricultural feature in the Search Area is the medieval Trinity Conduit (CHER MCB23312), to the north of the PDA. It was constructed in the 14th century to supply a Franciscan Monastery in Cambridge with fresh water (at the monastery's dissolution in 1539, the rights to the conduit passed to Trinity College). The conduit ran from Conduit Head, just west of the University's observatory, downhill to Madingley Road, then in a near-straight line across the fields to Cambridge. The conduit was constructed of lead pipes.

Post-medieval and modern (1540 to present)

Figure 20

As noted in the section on historic maps, the PDA remained in continuous agricultural use until Cambridge expanded into the West Field in the later nineteenth and twentieth centuries. The areas of ridge and furrow assigned to the Middle Ages would have continued in agricultural use until enclosure in the nineteenth century fundamentally altered the pattern of agriculture in the West Field.

All of the land in the PDA was enclosed in the first decade of the nineteenth century (Grantchester and Coton in 1803, St Giles Parish Cambridge in 1805). Virtually all of it was in the hands of the University's Colleges, which did not grant building licenses until the 1870s (Guillebaud 2006). Consequently, the PDA remained undeveloped. The exception were farm buildings, which we built in the newly consolidated land. Two are shown within the PDA on 19th century maps, both still present: Barton Farm (now Laundry Farm) and Dumpling Farm. Just to the northwest of the PDA stood the former Grange Farm, now completely demolished (CHER 20863). To the southwest is Haggis Farm (CHER 27158).

Another consequence of Enclosure was that many fields closer to the town were converted from arable to pasture, in order to provide meat and dairy for the town's growing population (Guillebaud 2006: 4, and Fig. 5). A few orchards were also established. This change mostly affected lands to the east of the PDA: all of the land within the PDA itself appears to have remained arable in 1831 when the parish map of St Giles was drawn (figure 12).

During the later medieval and post-medieval periods, a number of stone and later wooden crosses were erected at points where roads or boundaries met (Hall and Ravendale 1976: 36–37). Within the PDA these include 'Colys Cross' or 'Barton Cross' (CHER 4382) where the Roman road/Barton Way intersected Clint Way. The CHER also records two parish boundary stones, which might also have been crosses, in the southwest of the PDA (CHER 04380, 04381). In the wider search area, Hill and Ravendale's reconstructed map of the West Field shows 'Hunnell's Cross' stood where Barton Way crossed Sheepcote Way, just west of Grange Road.

Other post-medieval finds within the Search Area are minor:

- An evaluation on the corner of Cranmer Road and Grange Road uncovered several post-medieval pits (CHER 27198), and a small amount of post-medieval pottery was recovered north of the PDA during the laying of a gas pipeline (CJHER 08713).
- A collection of fifty 17th century tobacco pipe bowls as well as fragments from Bellarmine jugs were found in 1914–16 on the Wolfson College site, east of the PDA (CHER 04398).

Development in the West Field began in 1858, when the Universities and College Estates Act was passed, allowing the university to issue 99-year building leases (Guillebaud 2006: 7). Initial development in the west field comprised cricket pitches to the northeast of the PDA: St John's playing fields in 1858 and Trinity College Cricket Ground (CHER MCB 22323) in 1860. Emmanuel, Pembroke and Peterhouse built fields together in 1873; Magdalene in 1878, Christ's and Sidney in 1884, and Trinity Hall in 1892. All lay to the east of the PDA. Immediately to the north was a circular bicycle track, now dismantled (CHER 20635). In the northern part of the PDA was the University's rifle range (CHER MCB20898). It operated from 1859 to 1939. It is shown in Ordnance Survey maps dating to 1888, 1903 and 1939, with a large earth mound at its western end, behind the targets. The ploughed out mound remains visible in the lidar images at TL 4384 5870. The site was subsequently used for the University's first radio telescope. The telescope closed in 1956, replaced by the University's Mullard Array at Lord's Bridge (Evans *forthcoming* 2019: 490).

Because of the influence of the Colleges, there was little building development in the Search Area until the 1860s. Before then, there were a small number of houses and orchards built around the junction of West Road and Grange Road, as well as along Madingley Road (Guillebaud 2006: 11). Housing development only began in earnest at the end of the 19th century, with rapid growth until the start of WWI. This resulted in the establishment of several new colleges and other university-associated buildings (e.g. Newnham College, Ridley Hall, Selwyn College CHER 05108), along with many private dwellings (e.g. CHER 22324, CHER20354). To support the 19th century building works in west Cambridge, a brickworks was constructed just south of Barton Road, southeast of the PDA. It comprised two clay pits and several kilns. The buildings have now been demolished.

The fields to the west of the developing town were the site of coprolite mining during the mid-19th century. This provided a source of fertilizer. Although neither documented or mapped, large areas of disturbed ground south of Barton Road are interpreted as rehabilitated coprolite pits (CHER 9600: these were originally interpreted as a moated site, but this is now discounted.)

A number of features dating to WWII are recorded within the Search Area:

- The site of the 36 AA Battalion Military headquarters on Grange Road (CHER CB15109)
- The site of a destroyed pillbox stands in the northeastern corner of the PDA (CHER CB15069). It lay on the western branch of the Cambridge anti-tank trench, which made use of the Bin Brook
- Another pillbox 800m southeast of the PDA, just south of the Selwyn Cricket Ground, at the south end of the anti-tank trench (CHER CB15067)
- An ARP Warden's siren was installed at Selwyn College on Grange Road (CHER25223)
- An ARP Warden's post on Barton Road (CHER 25224)
- A gun emplacement and a searchlight battery at Haggis Farm, which was recorded as a cropmark in aerial photographs. The site now lies beneath the M11 (CHER 9604).

Undated features

There are four undated findspots:

- Two linear features, possibly ditches, visible as dark cropmarks c.400m southeast of the PDA (Palmer 2001b)
- An undated ditch (probably medieval or post-medieval) found during evaluation at the King's College School (CHER 15463)
- An unidentified bronze object found in Kings Road in 1907 (CHER 4401)
- A possible burnt feature northwest of the PDA identified in a geophysical survey (CHER MCB26830).

10. SUMMARY OF THE MAIN ARCHAEOLOGICAL ELEMENTS

The PDA would have seen only occasional light use through much of prehistory until the clay soils began to be exploited in the Iron Age. Early Iron Age settlements would have expanded from the River Cam corridor. By the Late Iron Age, the claylands west of Cambridge were heavily exploited, with settlements spaced every 300–500 metres, some of which would have lasted into the Roman period. Two such sites are known within the PDA at TL 4303 5843 and TL 4369 5824. Given that settlements of this period tend to be spaced c500m apart around Cambridge, a third is likely elsewhere in the PDA, probably on the low ridge in the southwest corner near the M11.

Roman activity is, in part, likely to be a continuation of Iron Age settlement and agriculture. Additional Roman activity is likely to be concentrated around the Roman road, where there is potential for field ditches, animal enclosures and droeways. Burials are also possible along the line of the road, although given the distance from the main Roman settlement on Castle Hill, they are unlikely. The road itself survives as a slightly raised bank running through the northern half of the PDA.

After the Roman period, Anglo-Saxon activity in the area appears to withdraw to land around the River Cam corridor, with a settlement focus and burials around Newnham. Anglo-Saxon finds within the PDA are unlikely and if they do occur, are most likely along the line of the Roman road, but may amount to just stray finds.

From the Anglo-Saxon period through to the post-medieval the land within the PDA was turned over to agriculture. Post-Roman archaeological finds are most likely to be limited to field boundaries and ploughing, with some rubbish pits possible. Medieval activity is likely to be concentrated along Barton Way, Coton Way, Clint Way and the parish boundary between Grantchester and Coton. Parts of Coton Way immediately outside the PDA have been excavated, revealing the flanking ditches.

Modern activity—apart from continuing agriculture—will be chiefly associated with the expansion of Cambridge, and in particular College facilities. Of particular note is the University’s former rifle range, which is likely to preserve evidence for the development of firearms from the late Victoria period through WWI and the lead-up to WWII (the range was closely associated with the Cambridge University Officer Training Corps.) The range was subsequently used for the University’s first radio telescope, when this science was developing in the 1930s and 1940s, and consequently may preserve evidence of the history of the University’s research. The geophysical survey of the range shows that supports for the radio telescope are in situ.

11. SURVIVAL AND SIGNIFICANCE

Survival

As almost all the PDA has been agricultural land for the past millennium, no archaeological features are likely to be preserved in the ploughsoil. The dearth of stray finds reported to the Cambridgeshire HER also suggests that artefacts are unlikely to be common from any age, and any artefacts scatters are likely to have been dispersed through plough action.

In the soil below the ploughzone, preservation is likely to be good, judging by the excavations immediately north of the PDA at Vicar’s Farm, Glebe Farm, and High Cross.

Figure 21 shows the main areas of anticipated archaeological survival within the Search Area.

Importance

The following criteria have been used to rank the potential importance of archaeology within the PDA:

<i>Importance</i>	<i>Description of feature</i>
National	Scheduled ancient monuments; Grade I listed buildings.
Regional	Sites listed in the HER or identified from other sources that comprise important examples in the context of the East Anglian area; Grade II* listed buildings.
District	Sites listed in the HER or identified from other sources that comprise important examples in the context of the South Cambridgeshire area; Grade II listed buildings.
Local	Sites listed in the HER or identified from other sources that comprise important examples in the context of the site and its immediate surroundings; locally listed buildings, hedgerows of defined archaeological or historic importance.

Surviving heritage assets in each period, and their importance, is most likely to consist of the following:

<i>Period</i>	<i>Description</i>	<i>Importance</i>
<i>Prehistoric</i>	Two Iron Age/Roman ‘farmsteads’ are known from geophysical surveys, and a third is likely in the southern half of the PDA. There is potential for field systems and isolated agricultural features such as watering holes and granaries.	District and Local
<i>Roman</i>	(1) The Roman road, particularly in the northern half of the PDA. There is potentially low-level activity along it, such as animal enclosures, field ditches and droveways, along with a small chance of road-side burials. (2) The area around the pottery scatter in the southeast part of the PDA. The very limited information available on the material found does not indicate what type of activity this might reflect, although given its position in the landscape a farmstead and associated fields seems most likely. Its possible extent is difficult to gauge.	(1) Regional (2) District and Local
<i>Medieval</i>	Mostly along (1) the Roman Road/Barton Way, (2) Sheepcote Way in the north of the PDA (upstanding headland), and (3) Clint Way in the middle of the PDA (upstanding headland) and (4) the parish boundary between Godmanchester and Coton, marked by the former course of the Bin brook (now a ditch and hedge). Features are most likely to involve animal and agricultural management, and potentially a small number of dwellings	District/Local
<i>Post-medieval</i>	Historic hedgerows on the Coton–Grantchester parish boundary	Local
<i>Modern</i>	The site of the University’s rifle range and first radio telescope	Regional

12. POTENTIAL DEVELOPMENT IMPACTS

Nature of impacts

The main impacts upon buried heritage assets during construction within the PDA will be caused by:

- ground levelling or lowering
- ground reinstatement
- installation of building foundations
- installation of services
- landscaping, including tree planting
- vehicle movements
- provision of contractors’ compounds.

The only upstanding heritage assets within the PDA which might be impacted by development of the site are the historic hedgerows. There are no listed

buildings, within the PDA, and therefore no impacts will be caused through demolition.

Once construction and landscaping have been completed, any on-going impact on the archaeological resource is likely to be minimal.

Severity of the impact

The following criteria have been used to rank the severity of impacts on heritage assets within the PDA:

<i>Severity of impact</i>	<i>Description of impact</i>
Severe	Site or feature entirely or largely removed / destroyed (over 75%).
Major	Site or feature substantially removed / destroyed (50–75%) or undergoing a fundamental alteration to its setting.
Moderate	Site or feature partially removed (15-50%) or with considerable alteration to its setting.
Minor	Site or feature suffering some disturbance / removal (<15%) or with a discernible alteration to its setting.

Without preservation in situ, the severity of impact to all of the heritage assets within the PDA is likely to be severe.

13. MITIGATION

National and local policy on mitigating the effects of construction on heritage assessments favours preservation in situ. Where preservation is not practicable, an appropriate level of recording and interpretation would need to be undertaken before damage to archaeological remains occurs.

Based on development of the nearby West Cambridge and Northwest Cambridge, there is nothing within the PDA which would prevent development of the site. The Cambridgeshire Historic Environment Team is, however, likely to recommend a program of mitigation works.

Mitigating the potential damage caused by construction can be divided into two phases:

- Evaluation to narrow down the extent, nature, and significance of heritage assets, identifying sites of significance.
- Excavation of sites identified in evaluation. National planning policy requires developers to “record and advance understanding of the significance of any heritage assets to be lost ... in a manner proportionate to their importance and the impact, and make this evidence (and any archive generated) publicly accessible” (National Planning Policy Framework 2019, para. 199).

All archaeological fieldwork needs to be conducted in accordance with a Written Scheme of Investigation. This needs to be prepared in consultation with, and approved by, the relevant planning authority (Cambridgeshire Historic Environment Team).

Evaluation

There are a number of potential evaluation methods which might be used to narrow down the extent, nature, and significance of heritage assets within the PDA.

Aerial photographs

As noted above, an assessment of aerial photographs covering the PDA and most of the search area has previously been undertaken. While this identified a number of features, such as the Roman road and medieval plough headlands, it did not identify other important features such as the Iron Age settlements found by geophysical survey (MOLA 2018) and trial trenching (MacKay 2002). This is a function chiefly of ploughing and landuse, and is unlikely to be resolved by a further assessment of more recent photographs. A further assessment is therefore not recommended.

Fieldwalking

Although artefact scatters were identified by fieldwalking within the PDA, fieldwalking is unlikely to be a productive or reliable method for site identification. Fieldwalking at Vicar's Farm, north of the Search Area, identified only a small assemblage of flints and Roman pottery, and did not identify the extent of features subsequently revealed in excavation (Lucas & Whittaker 2001: Figures 4 & 5). Fieldwalking is therefore not recommended for the PDA.

Geophysical survey

Geophysical survey using fluxgate magnetometers in the northern part of the PDA produced good results, and clearly identified what appear to be two Iron Age/Roman settlements. The magnetic response should be good on the geology across the PDA.

Geophysical survey is therefore recommended as an effective, non-intrusive method for site identification within the PDA.

Trial trenching

Trial trenching following geophysical survey is recommended to identify the nature of sites identified. This will involve excavating a sample of appropriate parts of the PDA, to assess ground conditions, preservation conditions, extent and density of archaeological features, and their likely significance.

Potential for preservation and heritage enhancement

At the time of writing, the site Masterplan proposes a green space along the line of the Roman road (from TL 4341 5828 to TL 4294 5785) and along the former Edwin's Ditch (from TL 4341 5828. to TL 4277 5823). This offers the potential both to preserve both features in situ, and also create a sense of place and identity. (The master plan provisionally terms the eastern part of the PDA 'Roman Way'). The masterplan proposes using both as pedestrian links.

The effectiveness of preservation will naturally depend on exact how these parts of the site are developed. If tree planting, paving, lighting and drainage are involved, then a degree of ground disturbance will presumably be involved, in which case, the Cambridgeshire Historic Environment Team are

likely to recommend evaluation to establish the depth of soils and extent and degree of preservation of the Road and Ditch. Archaeological monitoring may also be recommended during groundworks.

The eastern end of the former University Rifle Range is also proposed as playing fields, which has the potential to preserve buried remains of the range as well as the former radio telescope. Sports pitches developed to Sports England standards can require deeper groundworks than simple grassed pitches, and so will also potentially be recommended for mitigation.

14. CONCLUSION

This desk-based assessment identifies a number of heritage assets and potential archaeological activity within the PDA boundary.

1. Two or possibly three Iron Age/Roman 'farmsteads'
2. The Roman road
3. Medieval activity along (1) the Roman Road/Barton Way, (2) Sheepcote Way (3) Clint Way and (4) the parish boundary between Grantchester and Coton
4. Historic hedgerows on the Coton–Grantchester parish boundary
5. The site of the University's rifle range and first radio telescope

This activity is concentrated in areas indicated in Figure 21.

The high level of archaeological evaluation and excavation in the immediate environment provides a high level of confidence in this assessment.

All of this, apart from 2 and 5, is comparable with archaeology found on the nearby West Cambridge and Northwest Cambridge developments. Based on this, there appears to be nothing within the PDA which would prevent development of the site. The Cambridgeshire Historic Environment Team is, however, likely to recommend a program of mitigation works.

Mitigation would normally involve:

- Evaluation to narrow down the extent, nature, and significance of heritage assets, identifying sites of significance—the most effective methods recommended for the site being geophysical survey and trial trenching
- targeted excavation of significant archaeological features likely to be impacted by construction and landscaping works

There is potential to preserve in situ some archaeological features—the Roman road, Edwin's Ditch and parts of the former rifle range/radio telescope site. The masterplan proposes using the first two as pedestrian links, and the last as playing fields. Incorporation of these features into the developments infrastructure and green space also carries the potential for enhancing public appreciation of these heritage assets. The Masterplan proposes incorporating the Roman road into placemaking in the proposed development.

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APPENDIX 1: PLANNING POLICY

Ancient Monuments and Archaeological Areas Act 1979

The Ancient Monuments and Archaeological Areas Act (1979) allows an archaeological site or historic building of national importance to be designated as a Scheduled Monument, and registered with the Department of Culture, Media and Sport (DCMS). Any development that could affect a Scheduled Monument or its setting requires Scheduled Monument Consent. Advice on Scheduled Monument Consent is provided to DCMS by Historic England, which also provides advice on the management of Scheduled Monuments.

National Planning Policy

The National Planning Policy Framework (February 2019) sets out the Government's planning policies on the historic environment.

189. 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.

190. Local planning authorities should identify and assess the particular significance of any heritage asset that may be affected by a proposal (including by development affecting the setting of a heritage asset) taking account of the available evidence and any necessary expertise. They should take this into account when considering the impact of a proposal on a heritage asset, to avoid or minimise any conflict between the heritage asset's conservation and any aspect of the proposal.

Local Planning Policy

The Cambridge City's Council's *Local Plan 2018* includes an extended discussion of heritage, including archaeology (pp. 189–192).

Policy 61: Conservation and enhancement of Cambridge's historic environment

To ensure the conservation and enhancement of Cambridge's historic environment, proposals should:

- a. preserve or enhance the significance of the heritage assets of the city, their setting and the wider townscape, including views into, within and out of conservation areas;
- b. retain buildings and spaces, the loss of which would cause harm to the character or appearance of the conservation area;
- c. be of an appropriate scale, form, height, massing, alignment and detailed design which will contribute to local distinctiveness, complement the built form and scale of heritage assets and respect the character, appearance and setting of the locality;
- d. demonstrate a clear understanding of the significance of the asset and of the wider context in which the heritage asset sits, alongside assessment of the potential impact of the development on the heritage asset and its context; and
- e. provide clear justification for any works that would lead to harm or substantial harm to a heritage asset yet be of substantial public benefit, through detailed analysis of the asset and the proposal.

Supporting text:

7.22 Cambridge's historic and natural environment defines the character and setting of the city, and contributes significantly to Cambridge residents' quality of life. Against the backdrop of a successful, growing city, it is important to preserve and enhance the historic and natural environment to ensure that Cambridge remains compact and walkable and that the connection between the city's historic core and the wider countryside is maintained. The city has a varied architectural heritage, from the internationally recognised grandeur of King's College Chapel to the more modest vernacular buildings reminiscent of an East Anglian market town. The number of grade I and grade II* listed buildings is high, with an exceptional concentration of collegiate buildings around the arc of the River Cam. Green open spaces such as the commons, greens and The Backs are also key features of the city's life and layout. In addition, there are a number of registered parks and gardens of special historic interest, including college grounds, cemeteries and the Cambridge University Botanic Garden.

7.23 Archaeological work in Cambridge has discovered remains from early prehistory, with significant settlement known from at least the Iron Age. Development within the city's boundaries has revealed significant archaeological remains, some of which are of national importance, and further discoveries are to be expected.

7.24 Viewed simply, Cambridge has an historic centre surrounded by concentric rings of development. This development takes the form of the commercial city core, surrounded by mainly collegiate and university buildings and open spaces. A pre-university urban core existed on Castle Hill, with other remains extending towards the current centre. Beyond the open spaces, which include The Backs, Midsummer Common, Jesus Green and Parker's Piece, the city takes on a predominantly residential character. This comprises different areas of townscape character, including the large Victorian houses to the west of the city centre, railway-related development of the Newtown and Romsey areas, inter-war development to the south and west and the post-war suburbs of King's Hedges, Arbury, and Abbey wards.

7.25 Given the rich tapestry of Cambridge's historic and natural environment and the strategic objectives of this local plan, the strategy for its management is, in itself, one of a multi-document, multi-layered approach which includes a number of interrelated initiatives, policies and players. Together, as illustrated in figure 7.1, they represent Cambridge's historic environment strategy, the components of which will be added to and updated as necessary and provide the necessary tools to realise the ongoing management of the city's heritage assets. Planning decisions will be made having regard to the content of the relevant components of the strategy.

7.26 The conservation of a designated heritage asset is a material planning consideration and the higher the significance of the asset, the more weight will be given to its preservation and/or enhancement. The level of information or investigation required to support a proposal that could impact on a heritage asset needs to be proportionate to the work proposed to the asset and to its significance. Scheduled monuments/archaeological areas, listed buildings, conservation areas and registered parks and gardens are all designated heritage assets. Listed building descriptions, conservation area appraisals and management plans and suburbs and approaches studies should be referred to as a material consideration in making and determining applications. In order to comply with the requirements of the NPPF (2012), it may be necessary to access other sources of information such as the Historic Environment Record, and commission further evaluation, in order to properly understand the significance of the asset and to be able to explain the impact that a proposal may have on that significance.

The South Cambridgeshire Local Plan includes the following policy on heritage, including archaeology:

Policy NH/14: Heritage Assets

1. Development proposals will be supported when:
 - a. They sustain and enhance the special character and distinctiveness of the district's historic environment including its villages and countryside and its building traditions and details;
 - b. They create new high quality environments with a strong sense of place by responding to local heritage character including in innovative ways.

2. Development proposals will be supported when they sustain and enhance the significance of heritage assets, including their settings, as appropriate to their significance and in accordance with the National Planning Policy Framework, particularly:
 - c. Designated heritage assets, i.e. listed buildings, conservation areas, scheduled monuments, registered parks and gardens;
 - d. Non-designated heritage assets including those identified in conservation area appraisals, through the development process and through further supplementary planning documents;
 - e. The wider historic landscape of South Cambridgeshire including landscape and settlement patterns;
 - f. Designed and other landscapes including historic parks and gardens, churchyards, village greens and public parks;
 - g. Historic places;
 - h. Archaeological remains of all periods from the earliest human habitation to modern times.

6.43 A core planning principle of the NPPF (2012) is to conserve heritage assets in a manner appropriate to their significance, so that they can be enjoyed for their contribution to the quality of life of this and future generations. 6.44 Heritage assets are buildings, monuments, sites, places, areas or landscapes which are significant because of their historic interest. They are irreplaceable but can be vulnerable to neglect or unsympathetic change.

6.45 The district's character is largely shaped by its heritage, including that of its much loved historic villages and countryside. Villages stand out in the landscape, with a variety of forms which respond to their locations such as at the edge of Fens or on hilltops or valley sides. Agricultural and foodprocessing buildings are characteristic, and the varied geology is reflected in traditional materials such as brick, tile, clunch and clay batt. 6.46 Challenges facing the historic environment include preserving the district's special rural character and scale of building, the degree of change generated by prosperity, the impact of intensive agriculture on historic landscapes and archaeology, the need to find new uses for traditional farm, food-processing and industrial buildings, and securing the future of unoccupied buildings such as historic garden pavilions. Understanding, conserving and enhancing the historic environment will be an essential part of master planning the growth planned within the district helping to create a sense of place.

6.47 The distinctive character and quality of life given by the historic environment of the area has been key to its economic success. Many important Hi-Tech and Bio-Tech organisations and businesses are based in large historic houses and their parkland settings. Strategic management plans are an important tool for achieving successful growth. Historic farm and industrial buildings can provide a range of size and type of premises for smaller businesses. Retaining historic pubs in use is important for village life as well as conservation.

6.48 Heritage is an essential component of plans from a village or neighbourhood level to that of the district. A full understanding of the historic environment, including traditional materials as used in vernacular buildings, is needed to inform plans, identify opportunities for conservation and enhancement, and to be able to reinforce local identity and create a sense of place.

6.49 The conservation of heritage assets does not prevent all change but requires it to be managed in a way which does not compromise heritage significance and exploits opportunities for enhancement. Section 12 of the NPPF (2012) provides guidance regarding the consideration of development proposals on heritage assets. In summary the

more important the asset, the greater the weight should be applied to its conservation. Where development would lead to the substantial harm or total loss of significance of a designated asset, the local planning authority should refuse consent unless demonstrated it is necessary to achieve substantial public benefit that outweigh the harm or loss. Proposals leading to less than substantial harm to the significance should also be weighed against public benefits of the proposal. For proposals affecting non-designated assets a balanced judgement will be made, having regard to the scale of any harm or loss and the significance of the heritage asset.

6.50 Non-designated heritage assets of archaeological interest which are of equal significance to scheduled monuments will be considered in the same way as designated heritage assets.

6.51 Finding viable uses which sustain rather than compromise the significance of historic buildings is fundamental to conservation (though not possible for all buildings). The need to secure the future of buildings may require a flexible approach to other policies or enabling development, Section 106 agreements and other planning contributions. Buildings at risk will be monitored and action taken to secure their repair and encourage sustaining uses. The Council is committed to ensuring the future viable uses of assets within the district.

6.52 Decisions on development proposals must be based on a good understanding of how the proposals will affect heritage. Applicants must describe the significance of any heritage assets, including any contribution from their setting. The level of detail must reflect the importance of the asset and clearly identify the potential impact of the proposal.

6.53 Where development is proposed for a site which includes or has the potential to include heritage assets with archaeological interest, developers must submit an appropriate desk-based assessment and, where necessary, a field evaluation.

6.54 Prospective developers should contact the County Council's Historic Environment Team for information to establish whether there is known or potential archaeological interest and the need for investigation and evaluation at an early stage.

6.55 Different levels of information are available on different types of heritage asset and parts of the district. For some development proposals, more research will be required. It will always be important to investigate sites and their context on the ground.

6.56 The Cambridgeshire Historic Environment Record, maintained by the County Council, provides information on heritage assets, including non-designated and designated heritage assets with archaeological interest. Other information on heritage assets and local heritage character is available on national websites, from the County Council's Historic Environment Team, and in District Council Conservation Area Appraisals and SPDs. The Council's web site and officers will give advice on sources of information. 6.57 Where development resulting in the loss of a heritage asset is permitted, the developer will be required to record and advance the understanding of the heritage asset to be lost. The results of assessments and investigations which are required and collected as part of development management are of public interest and will be made accessible, normally through the Cambridgeshire Historic Environment Record.

6.58 The Council encourages people to be involved with and enjoy local heritage and, where appropriate, developers will be required to support public understanding and engagement, and interpretation.

The northeast corner of the PDA lies immediately adjacent to the West Cambridge Conservation Area. The Character Appraisal is "a 'material' document when the Council considers applications for change within, or on the edges of, the Conservation Area" (Cambridge City Council 2011: 1)

APPENDIX 2: LIST OF HERITAGE ASSETS IN THE CAMBRIDGESHIRE HISTORIC ENVIRONMENT RECORD

The following is a complete list of all CHER entries within the search area as at 30 September 2019. Periods are those assigned by the CHER.

<i>CHER no.</i>	<i>Description</i>	<i>Period</i>
04380	Boundary stone, Coton	Post Medieval
04381	Boundary stone, Coton	Post Medieval
04382	Boundary stone, Coton	Post Medieval
04395	Site of boundary stone or cross, Cambridge	Post Medieval
04398	17th century clay tobacco pipes, undated skeleton at Bredon House	Post Medieval
04398A	Prehistoric stone object, Bredon House	Prehistoric
04399	Ridge and furrow, W Cambridge	Medieval
04400	Medieval finger-ring, Grange Road, Cambridge	Medieval
04401	Unidentified bronze object, King's Road	Unknown
04405	Roman pottery, Cambridge	Roman
04406	Ridge and furrow, Clarkson Road/Grange Farm, Cambridge	Medieval
04421	Roman pottery, Grange Road, Cambridge	Roman
04927A	Roman burials, Cambridge	Roman
04928	Roman/Saxon burial, 69 Grange Road, Cambridge	Roman to Late Saxon
04997	Saxon burials, Croft Lodge, Newnham Croft	Early Saxon
04997a	Roman pottery, Barton Road	Roman
05019	Roman coins and pottery, University Farm	Roman
05049A	Roman burials, 71 Grange Road, Cambridge	Roman
05049B	Saxon burials, 71 Grange Road, Cambridge	Saxon
05049C	Medieval bronze and coin, Grange Road, Cambridge	Medieval
05053	Grange Road skeletons	Saxon
05072	Medieval pottery finds, Barton Close	Medieval
05097	Roman pottery, 24 Barton Road, Cambridge	Roman
05097A	Saxon inhumations, 24 Barton Rd, Cambridge	Saxon
05098	Saxon inhumation, Barton Road	Saxon
05103	Late prehistoric pottery finds, Dam Hill	Late Prehistoric
05105	Bronze pin, Grange Road, Cambridge	Late Iron Age
05105A	Roman finds, St John's Farm, Cambridge	Roman
05108	Selwyn College	19th–20th century
05111	Roman bronze pin, Grange Road, Cambridge	Roman
05111A	Saxon brooch, bronze and lead objects, Grange Road, Cambridge	Saxon
05111B	Undated skeleton, Grange Road, Cambridge	Unknown
05113	Medieval metalwork, Barton Road, Cambridge	Medieval
05113A	Roman pottery, Barton Road, Cambridge	Roman
05114	Saxon spears and chisel, Barton Road, Cambridge	Saxon
05114A	? Medieval axe, Barton Road, Cambridge	Medieval
08691	Flint blade, Grantchester	Prehistoric
08713	Post medieval pottery finds, Cambridge	Post Medieval
09600	Dumpling Farm possible moat	Unknown
09604	WWII Searchlight Battery at Haggis Farm, Grantchester	World War II
09604A	Ridge and furrow, Grantchester	Medieval
09609	Ridge and furrow, Coton	Medieval
09619	Ridge and furrow, Newnham	Medieval
09623	Ridge and furrow, Clarkson Road	Medieval
09625	Ridge and furrow, Coton	Medieval
09626	Ridge and furrow, Cambridge	Medieval

<i>CHER no.</i>	<i>Description</i>	<i>Period</i>
13016	Early Roman settlement, High Cross	1st century AD to 2nd century AD
13017	Residual Bronze Age finds, High Cross	Bronze Age
CB15026	Iron Age settlement and Iron Age/Roman field system, Barton Road	Early Iron Age to 5th century Roman
CB15067	Pillbox, Cambridge Rugby Club	World War II
CB15069	Destroyed pillbox, West Cambridge	World War II
CB15109	'Binsted', Herschel Road (AA Battalion HQ)	World War II
CB15344	Medieval agricultural remains, The Centre for Mathematical Studies	Medieval to 19th century
CB15463	Undated ditch, King's College School, Cambridge	Unknown
CB15629	Late Iron Age/Roman ditch, Tyndale House, Cambridge	Late Iron Age to 2nd century AD
MCB15811	Human remains, Corpus Christi Sports Field	Unknown
MCB15890	Iron Age and medieval features, Cavendish site, Cambridge	Early Iron Age to Medieval
MCB15913	Mid to late Iron Age settlement, High Cross fields	Middle Iron Age to Late Iron Age
MCB15915	Medieval to post medieval activity, High Cross Fields	Medieval to 19th century
MCB16929	Medieval pottery finds, 32 Barton Road, Newnham	Medieval
MCB17753	Roman brooch and pottery, Coton	Roman
MCB19584	Pits and pottery from land adjacent to 5 Spens Avenue	1st century AD to 4th century AD
MCB19989	Middle Saxon features at Leckhampton House, Corpus Christi College	Middle Saxon
MCB20354	5 Selwyn Gardens	19th century
MCB20635	Former University circular cycle path, Cambridge	19th century
MCB20863	Former site of Grange Farm, Newnham	19th–20th century
MCB20898	University Rifle Range, Newnham, Cambridge	19th–20th century
MCB21896	Late medieval and post medieval features, High Cross, West Cambridge	Medieval to 19th century
MCB22323	Trinity College Cricket Ground, Cambridge	19th century
MCB22324	Pinehurst, Cambridge	19th century
MCB22989	Undated inhumation at Adams Road, Cambridge	Unknown
MCB23312	Trinity Conduit, Cambridge	14th century to Modern
MCB24146	Multi period features, Croft Gardens, Barton Road, Cambridge	Lower Palaeolithic to 19th century
MCB24827	Site of former brickworks, Cambridge	19th century
MCB25223	ARP Wardens Siren, Selwyn College, Cambridge	World War II
MCB25224	ARP Wardens Post, Barton Road, Cambridge	World War II
MCB25688	Former medieval field boundary earthworks, Coton	Medieval to 19th century
MCB25688	Former medieval field boundary earthworks, Coton	Medieval to 19th century
MCB25913	Undated plough mark at 18 Adams Road, Cambridge	Unknown
MCB26827	Possible Roman settlement, west of University Sports Ground, Cambridge	Roman to 19th century
MCB26828	Undated ditch, south of Herschel Road, Cambridge	Unknown
MCB26830	Possible burnt feature, Coton	Unknown
MCB27158	Haggis Farm, Barton	19th century
MCB27197	Roman and post medieval features, Wilberforce Road, Cambridge	Roman to 19th century
MCB27198	Post medieval pits at Cranmer Road, Cambridge	Post Medieval

APPENDIX 3: ARCHAEOLOGICAL WORK WITHIN THE PDA

<i>CHER ref</i>	<i>Description</i>	<i>Type</i>
ECB2959	AP assessment at Laundry Farm, Barton Road, Cambridge, 2001	Aerial photos
ECB5540	Geophysical Survey south of Cavendish Laboratory, Cambridge in 2018	Geophysics
ECB5540	Geophysical Survey south of Cavendish Laboratory, Cambridge in 2018	Geophysics
ECB5540	Geophysical Survey south of Cavendish Laboratory, Cambridge in 2018	Geophysics
ECB5434	Geophysical survey at A1303, north of Coton in 2018	Geophysics
ECB154	Evaluation at High Cross, Cambridge, 2001	Evaluation
ECB782	Evaluation at Barton Road, Cambridge, 2001-2	Evaluation
ECB945	Evaluation at Clare Hall, Cambridge in 1995	Evaluation
ECB946	Evaluation at 11 Herschel Road, Cambridge. 1998	Evaluation
ECB991	Evaluation at the Centre for Mathematical Studies, 1998	Evaluation
ECB1014	Evaluation at Vicar's Farm, West Cambridge, 1999	Evaluation
ECB1015	Excavation at Vicar's Farm, West Cambridge, 1999-2000	Evaluation
ECB1099	Evaluation at King's College School, Cambridge, 2002	Evaluation
ECB1315	Evaluation at Tyndale House, Cambridge, 2003	Evaluation
ECB1446	Evaluation at St. John's College School, Cambridge, 1995	Evaluation
ECB1582	Excavation on the Cavendish site, Cambridge, 2001	Evaluation
ECB1583	Evaluation at the Cavendish site, Cambridge, 2001	Evaluation
ECB1583	Evaluation at the Cavendish site, Cambridge, 2001	Evaluation
ECB1583	Evaluation at the Cavendish site, Cambridge, 2001	Evaluation
ECB1583	Evaluation at the Cavendish site, Cambridge, 2001	Evaluation
ECB1585	Evaluation at Cambridge University Library, 1996	Evaluation
ECB2146	Evaluation at 3 Sylvester Road, Cambridge, 2005	Evaluation
ECB2315	Evaluation at the Physics for Medicine Buildings, West Cambridge, 2006	Evaluation
ECB3056	Evaluation, School of Veterinary Medicine, West Cambridge, 2009	Evaluation
ECB3594	Evaluation and Excavation at Leckhampton House, 37 Grange Road, Cambridge 2011	Evaluation
ECB3734	Evaluation on land adjacent to 5 Spens Avenue, Cambridge in 2012	Evaluation
ECB3844	High Cross, West Cambridge, University of Cambridge: Further Archaeological Evaluation	Evaluation
ECB4088	Evaluation on land off Wilberforce Road, Cambridge in 2013	Evaluation
ECB4858	Evaluation of land on the corner of Cranmer Road and Grange Road, Cambridge	Evaluation
ECB4949	Evaluation at Kings College School, West Road, Cambridge in 2017	Evaluation
ECB5209	Evaluation at University Sports and Athletics Track, Wilberforce Road, Cambridge	Evaluation
ECB5414	Evaluation at 18 Adams Road, Cambridge in 2018	Evaluation
ECB3234	Excavations at High Cross. Cambridge	Excavation
ECB2986	Test pit observations, West Cambridge, 1998	Test pits
ECB4329	Test Pits and Evaluation at Croft Gardens, Cambridge, 2015	Test pits
ECB161	Watching brief along Trumpington Road-King's Road Water Main, 2000	Watching Brief
ECB1260	Watching brief at 78 Barton Road, Cambridge, 1994	Watching brief
ECB1260	Watching brief at 78 Barton Road, Cambridge, 1994	Watching brief
ECB2996	Watching brief on sewer shafts for Anglia Water, 2000-2001	Watching Brief
ECB2996	Watching brief on sewer shafts for Anglia Water, 2000-2001	Watching Brief

<i>CHER ref</i>	<i>Description</i>	<i>Type</i>
ECB2996	Watching brief on sewer shafts for Anglia Water, 2000-2001	Watching Brief
ECB5003	Casual observations made at 'Saxmeadham', 71 Grange Road, Cambridge in 1911	Rescue
ECB5038	Chance discovery made at Bredon House, Cambridge in 1914	Rescue
ECB5091	Salvage recording of soakaway, Corpus Christi Sports field, Cambridge in 1999	Rescue
ECB5093	Salvage recording at 17 Adams Road, Cambridge in 2001	Rescue

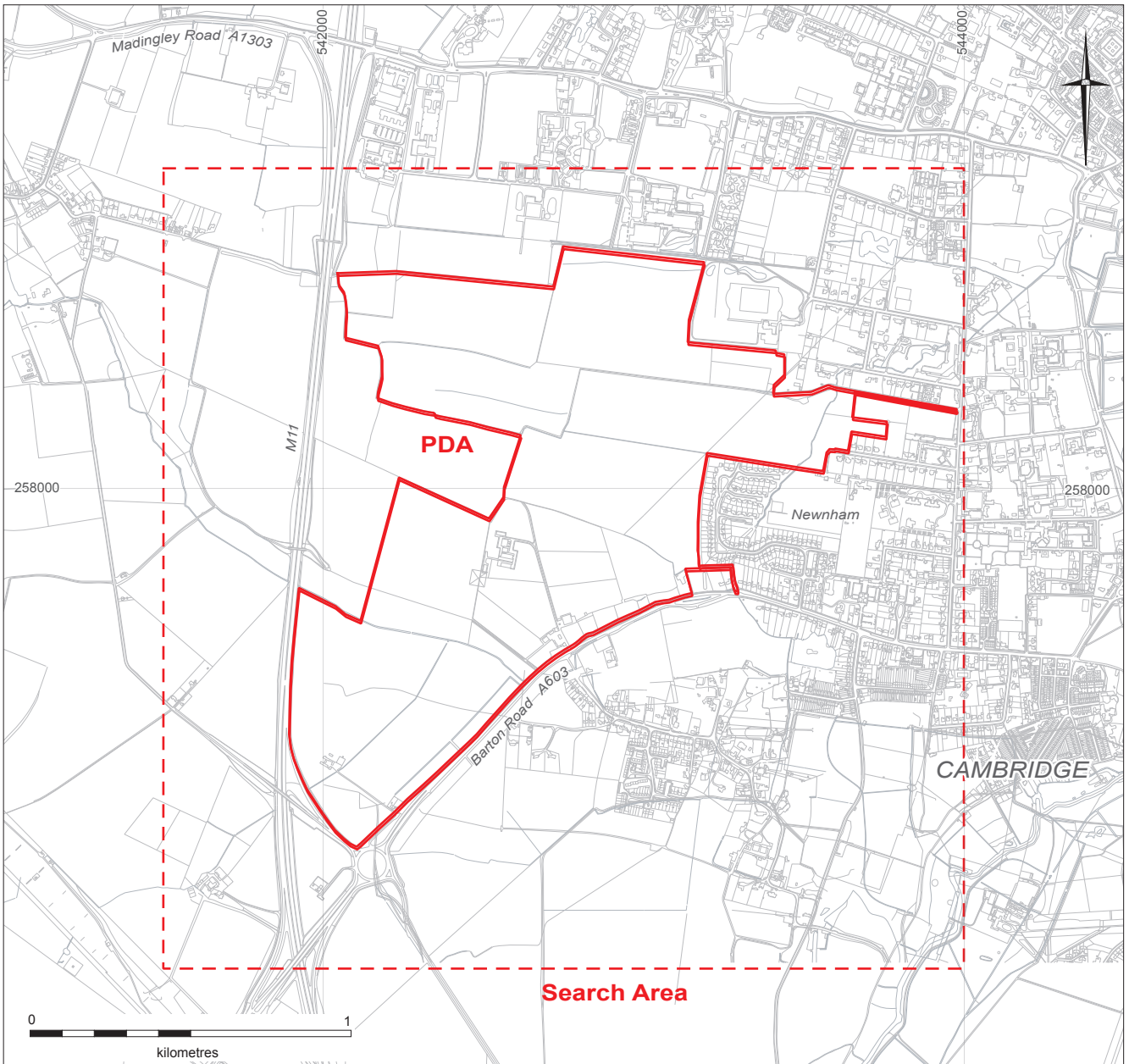
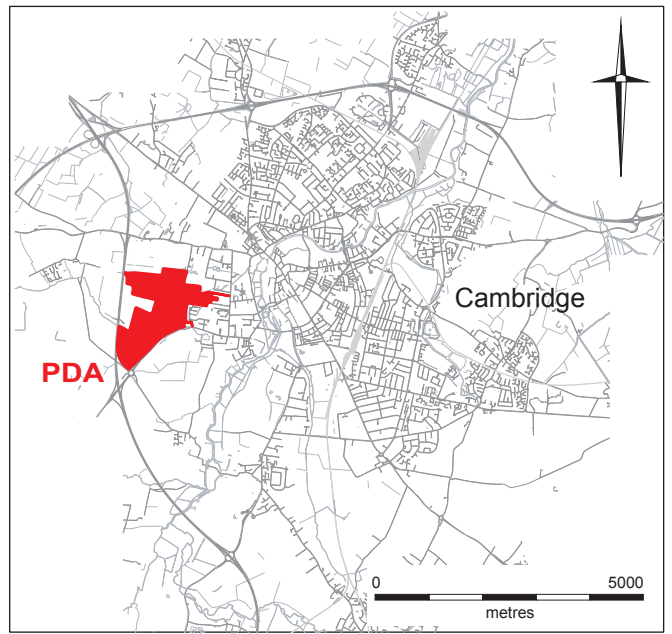
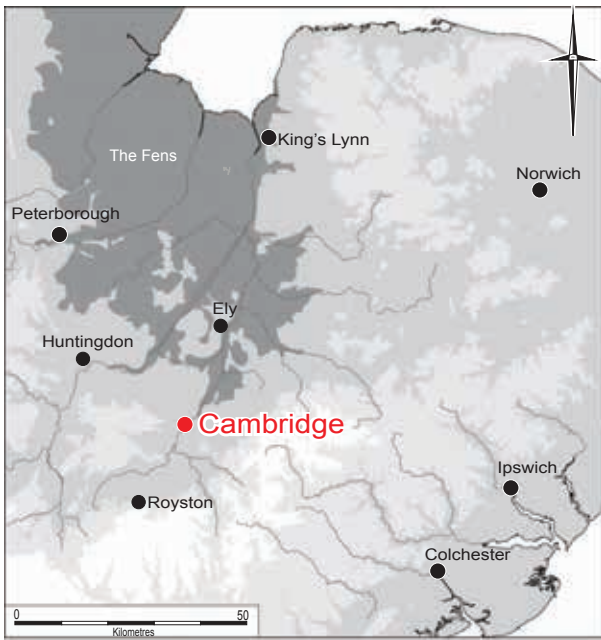


Figure 1: Location of the Proposed Development Area (PDA) along with the Search Area

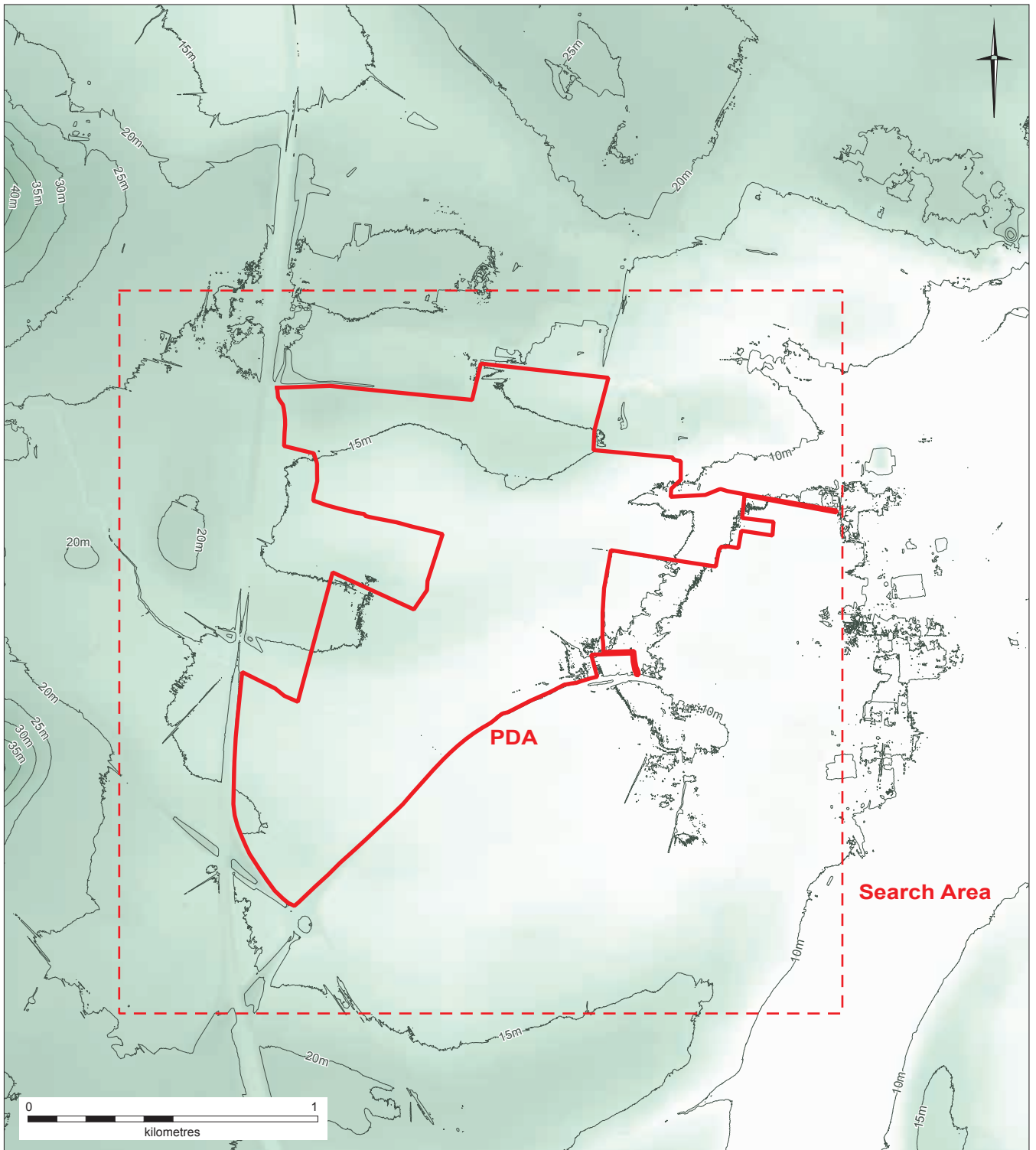


Figure 2: Elevation map of the PDA and surrounding area with 5 metre contours. (Base map: EPA lidar data)

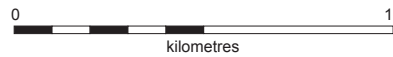
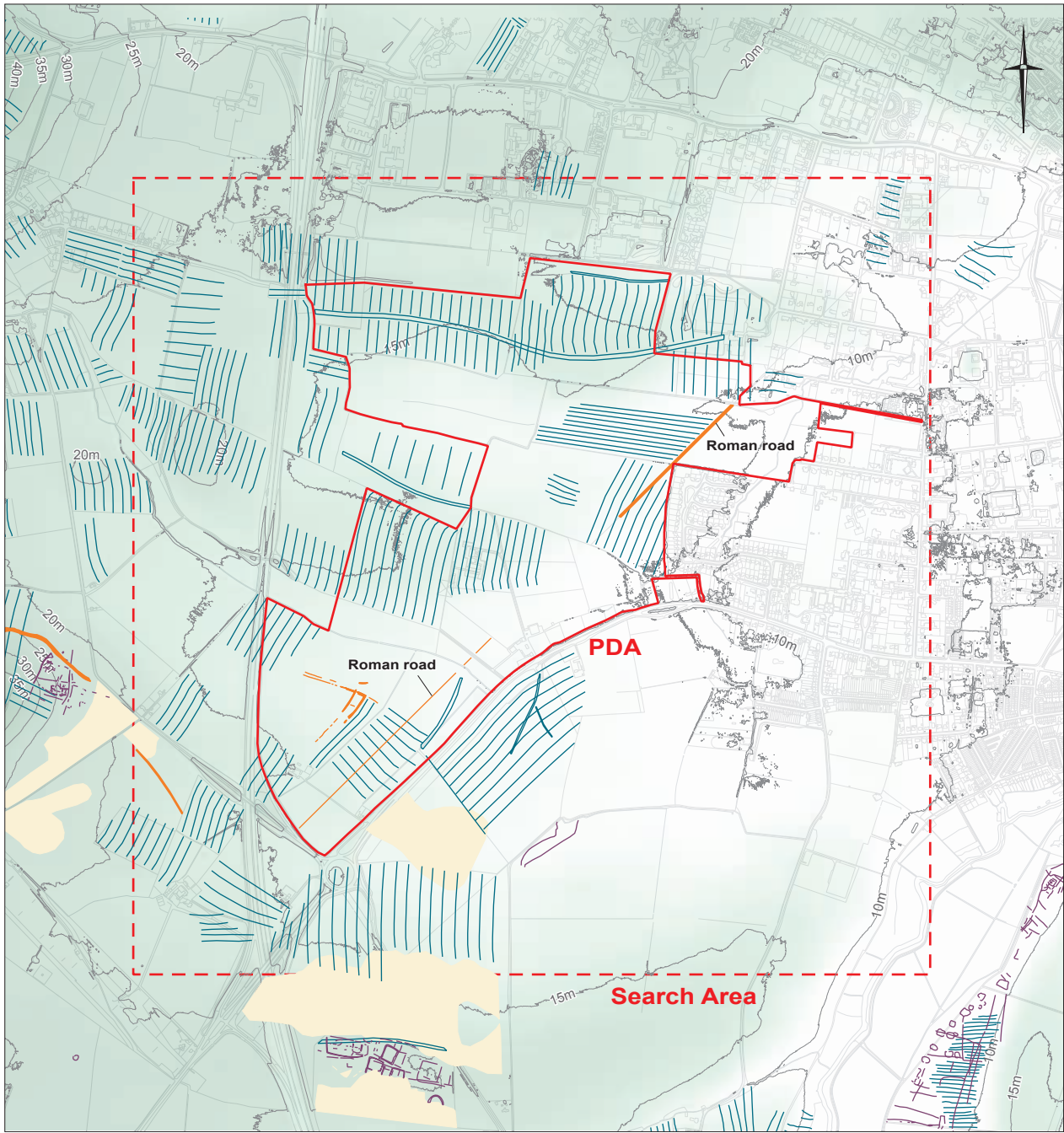
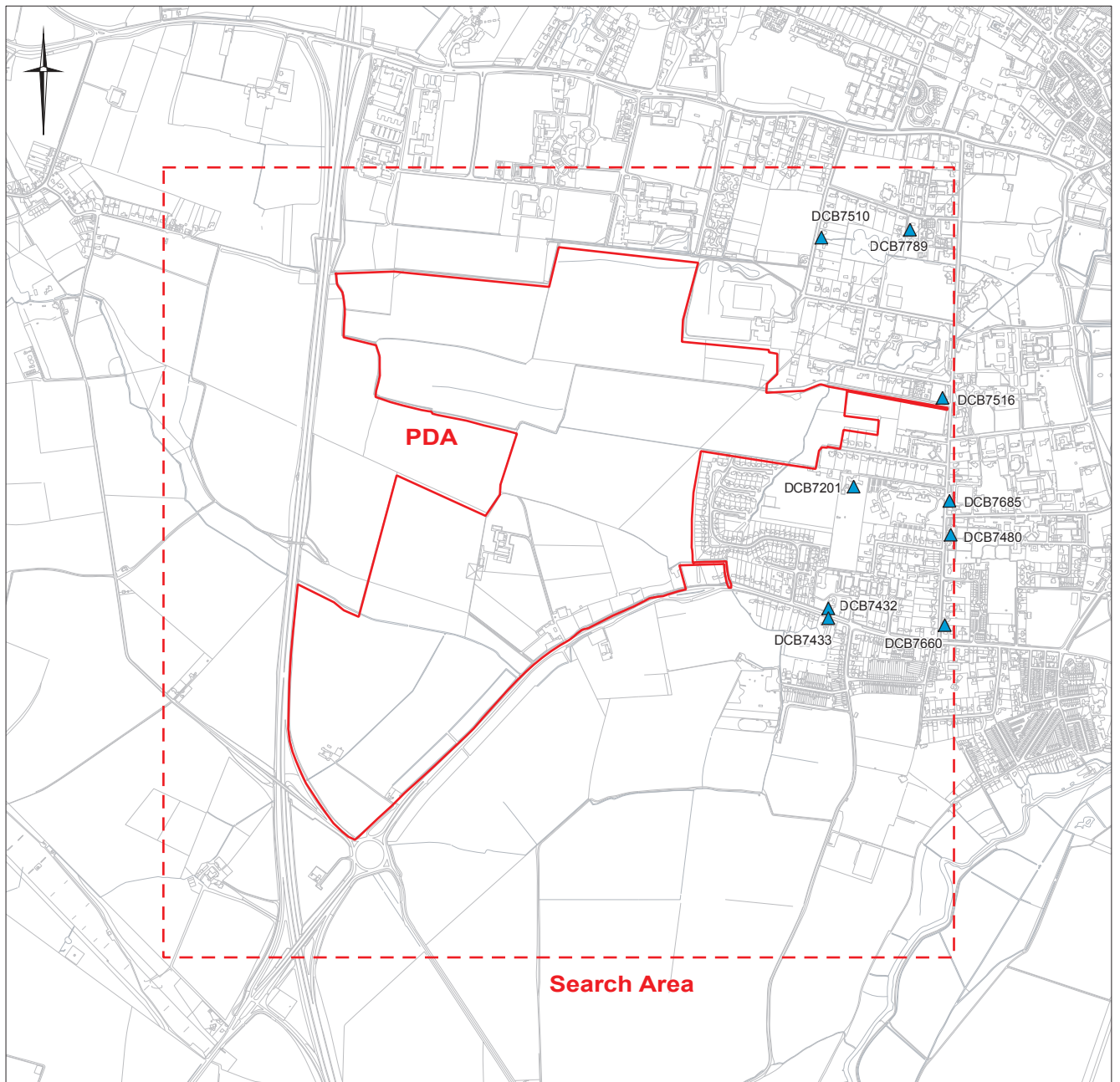


Figure 3: Cropmarks and soilmarks visible in aerial photographs, showing the Roman road, medieval ridge and furrow ploughing, and other features



Key
 ▲ Listed buildings



Figure 5: Location of listed buildings within the Search Area (Source: Cambridgeshire Historic Environment Record)

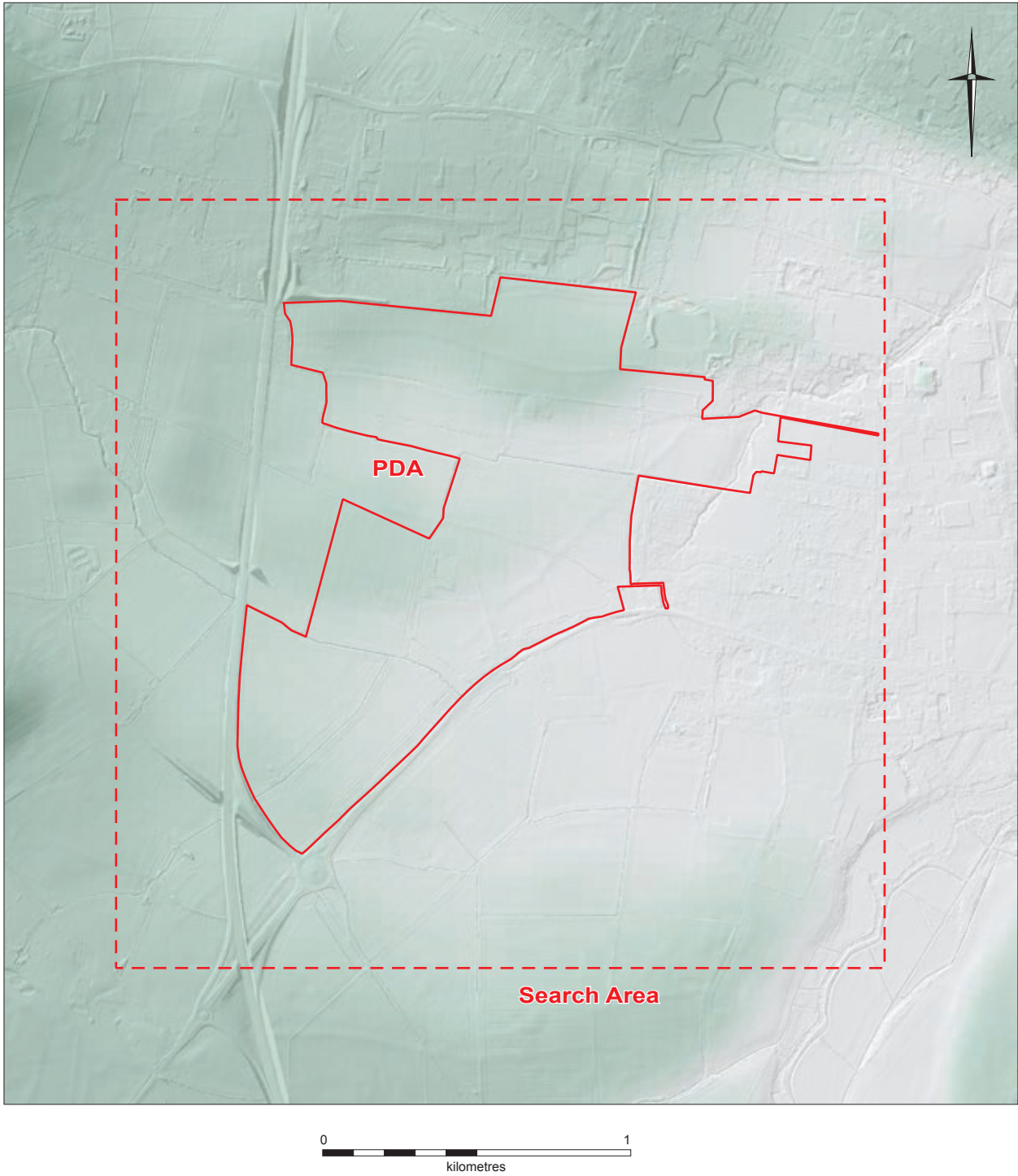


Figure 6: Lidar hillslope model of the PDA and surrounding area (Source: EPA Lidar data)

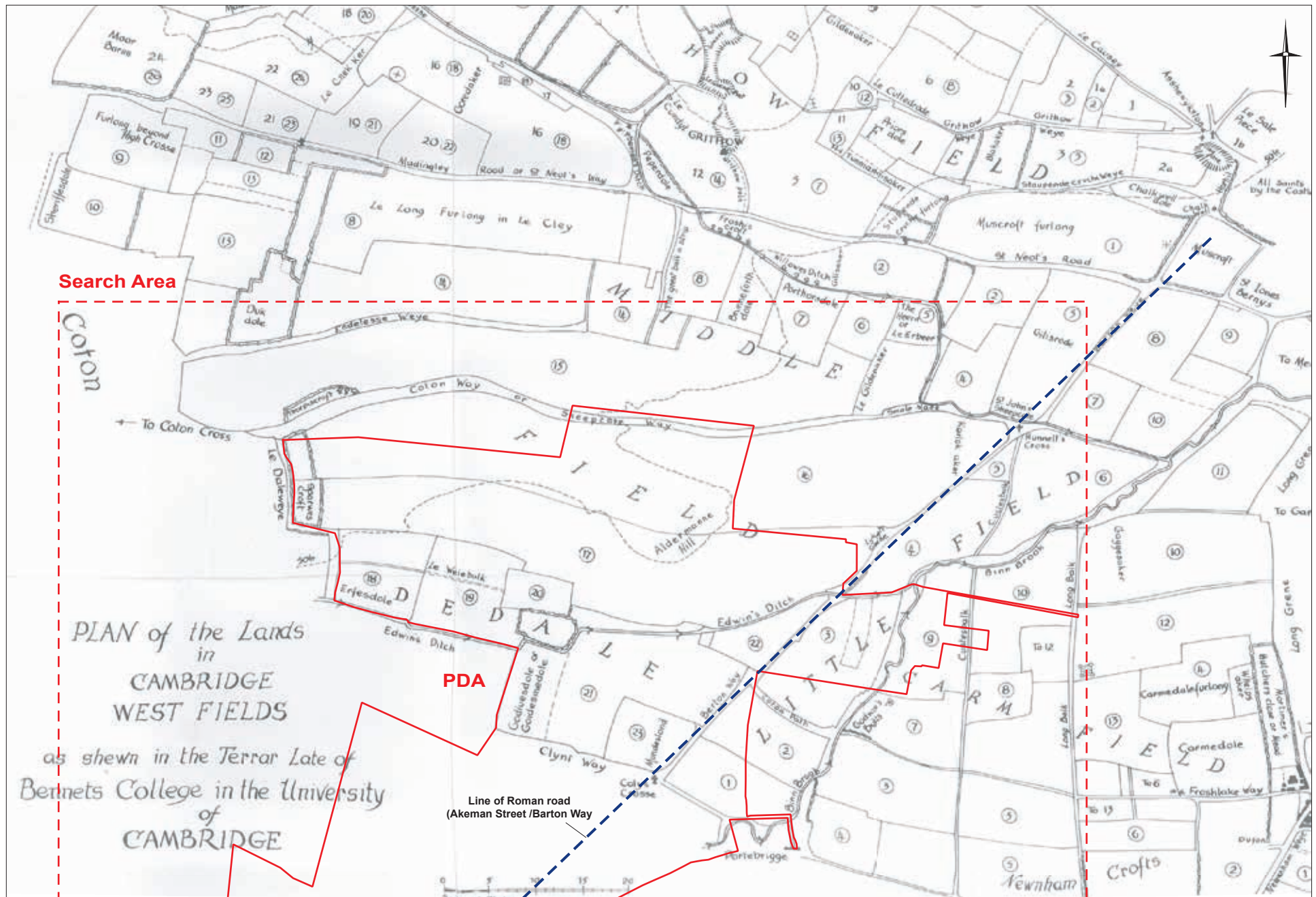


Figure 7: Reconstructed map of the Cambridge West Fields (Source: Hall and Ravensdate 1976)

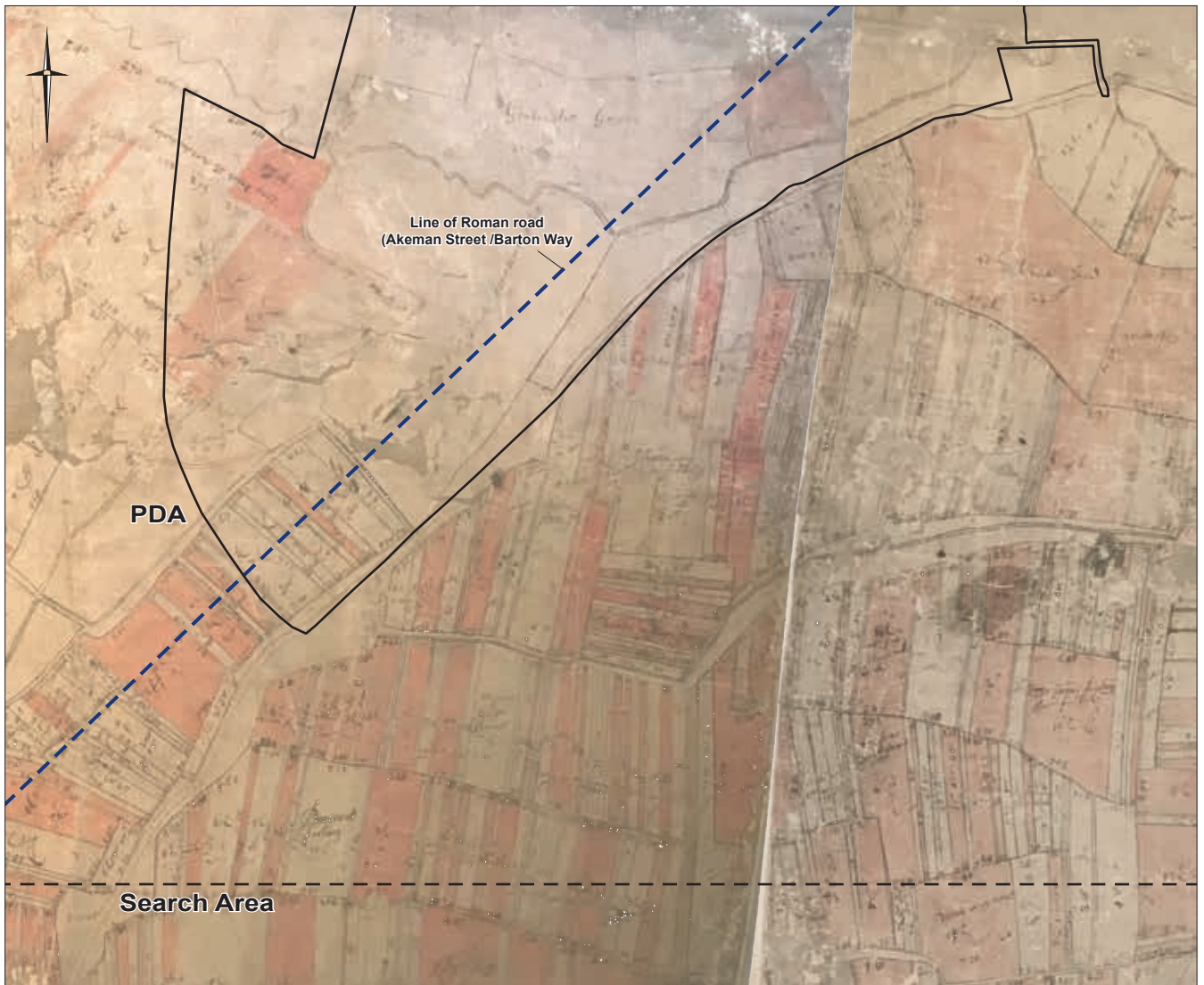


Figure 8: Reprojected extract of the 1666 map of Grantchester (Reproduced with the permission of Kings College, Cambridge)

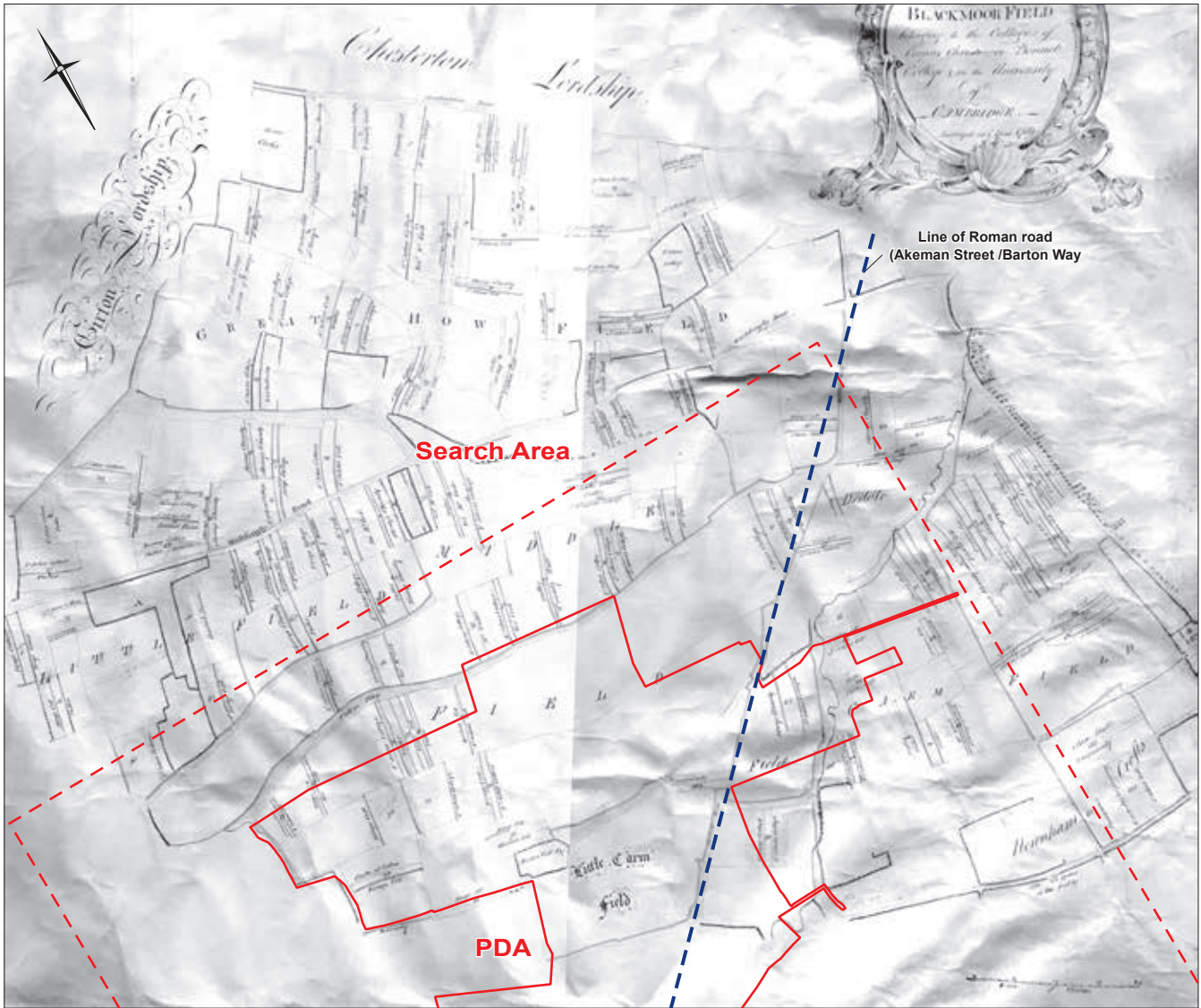


Figure 9: Reprojected extract of the 1789 map of the Cambridge West Fields Grantchester (Reproduced with the permission of Corpus Christi College)



Figure 10: Reprojected extract from Walford's 1795 plan of Grantchester Parish (Source: Cambridge University Library)

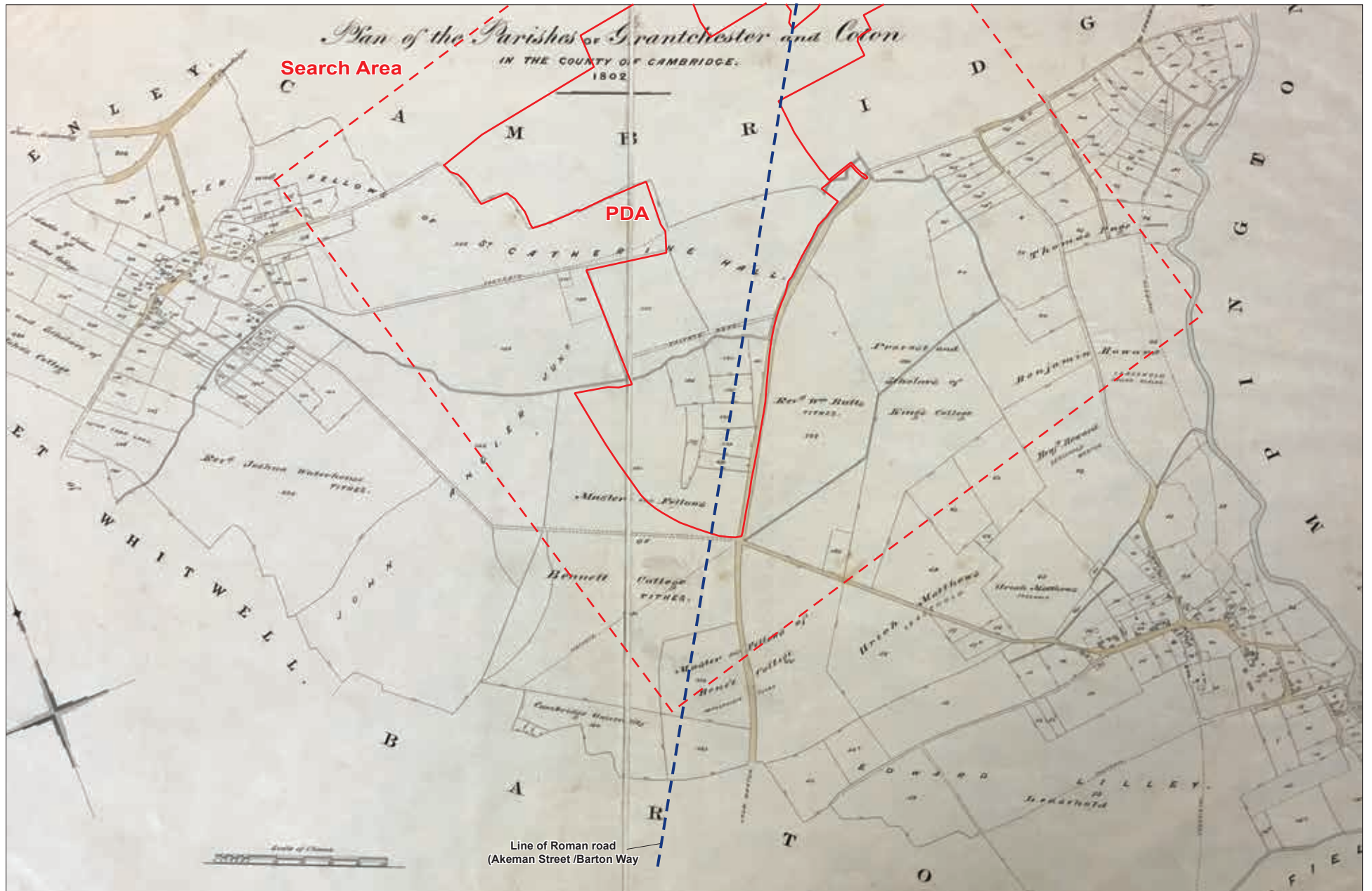


Figure 11: Extract from the 1802 Inclosure map for Grantchester and Coton (Source: Cambridge University Library)

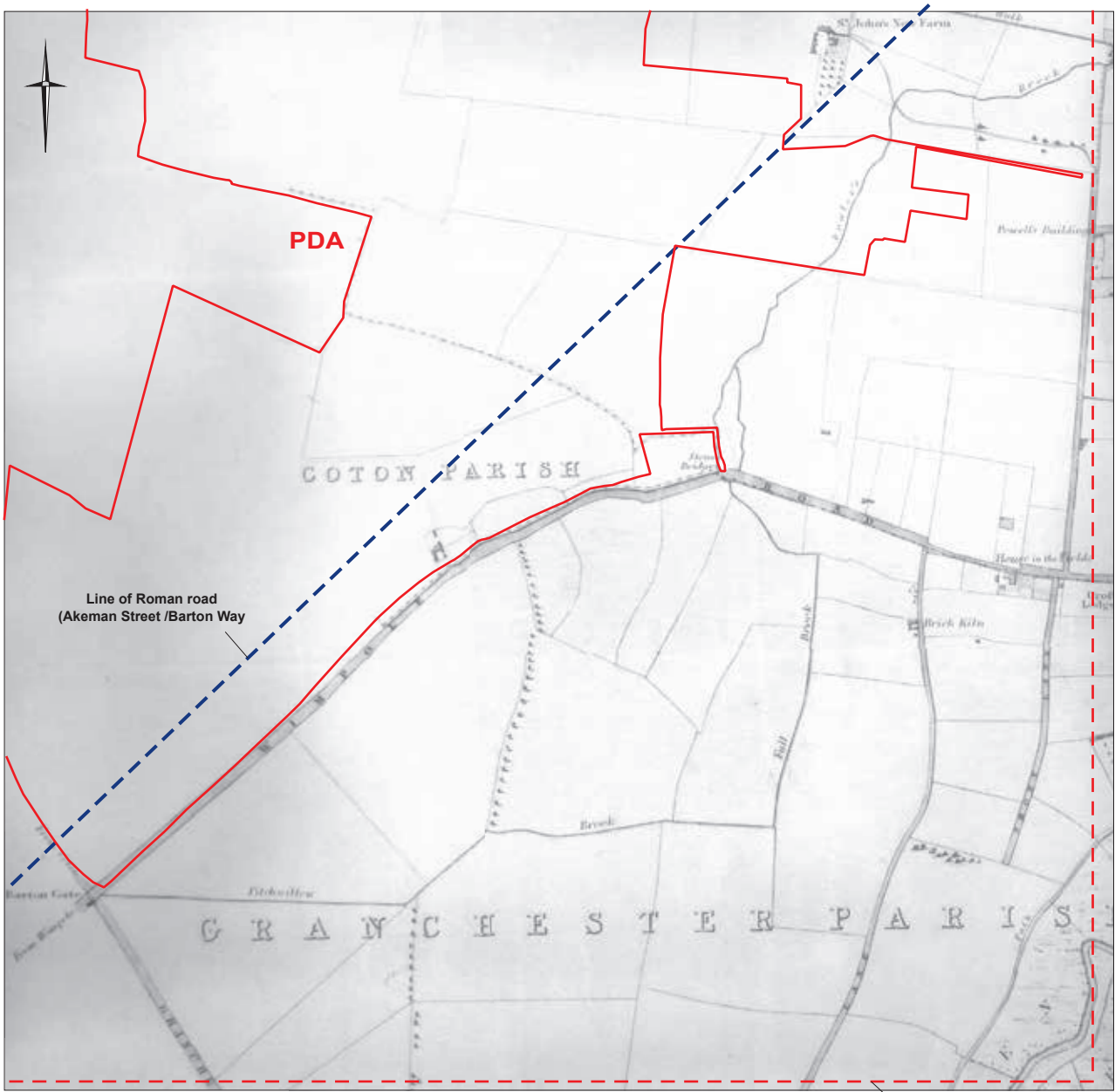


Figure 12: Hawkes' 1830 map of the Cambridge West Field

Search Area

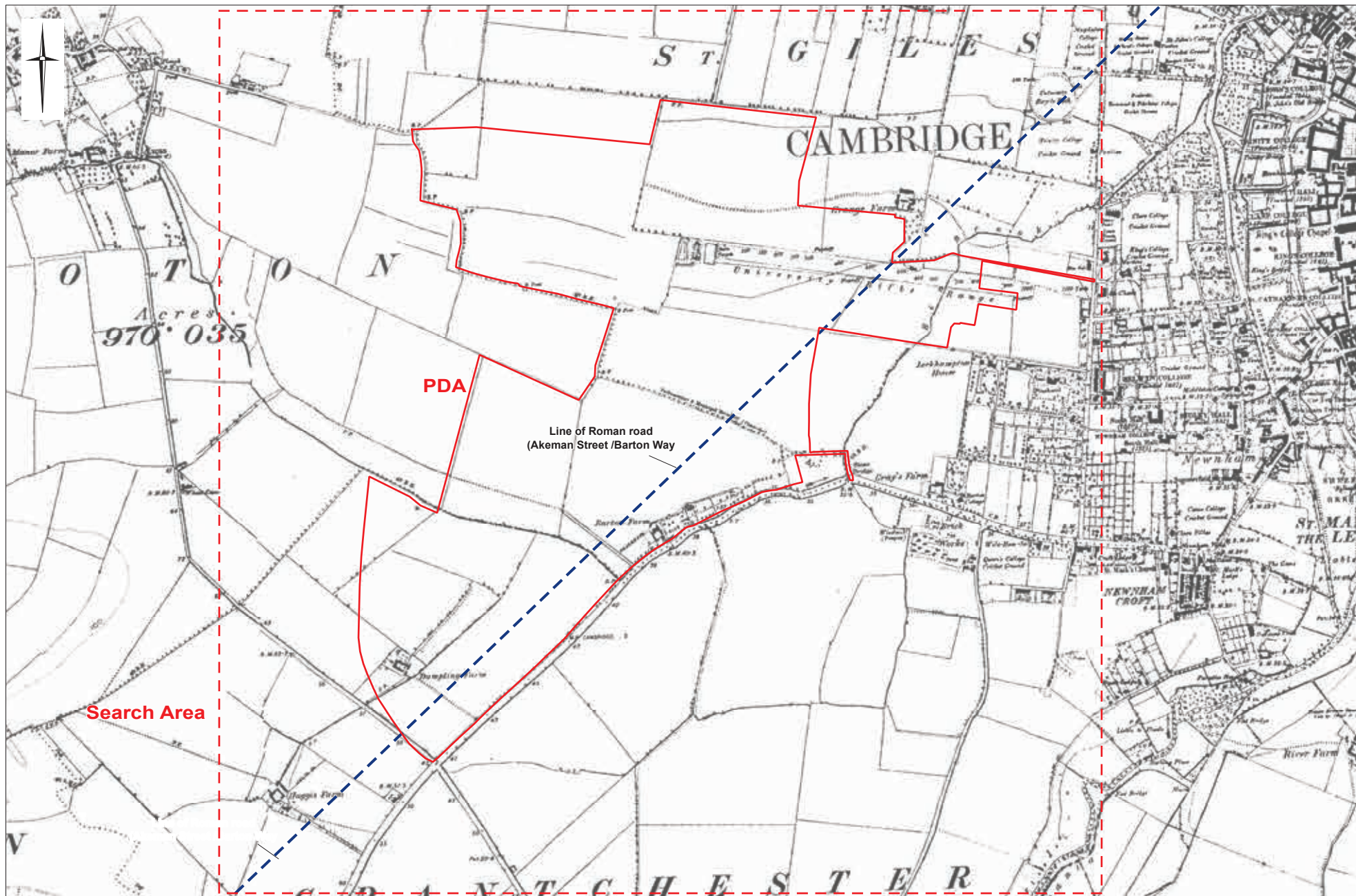


Figure 13: Ordnance Survey Map, 1st edition (1888)

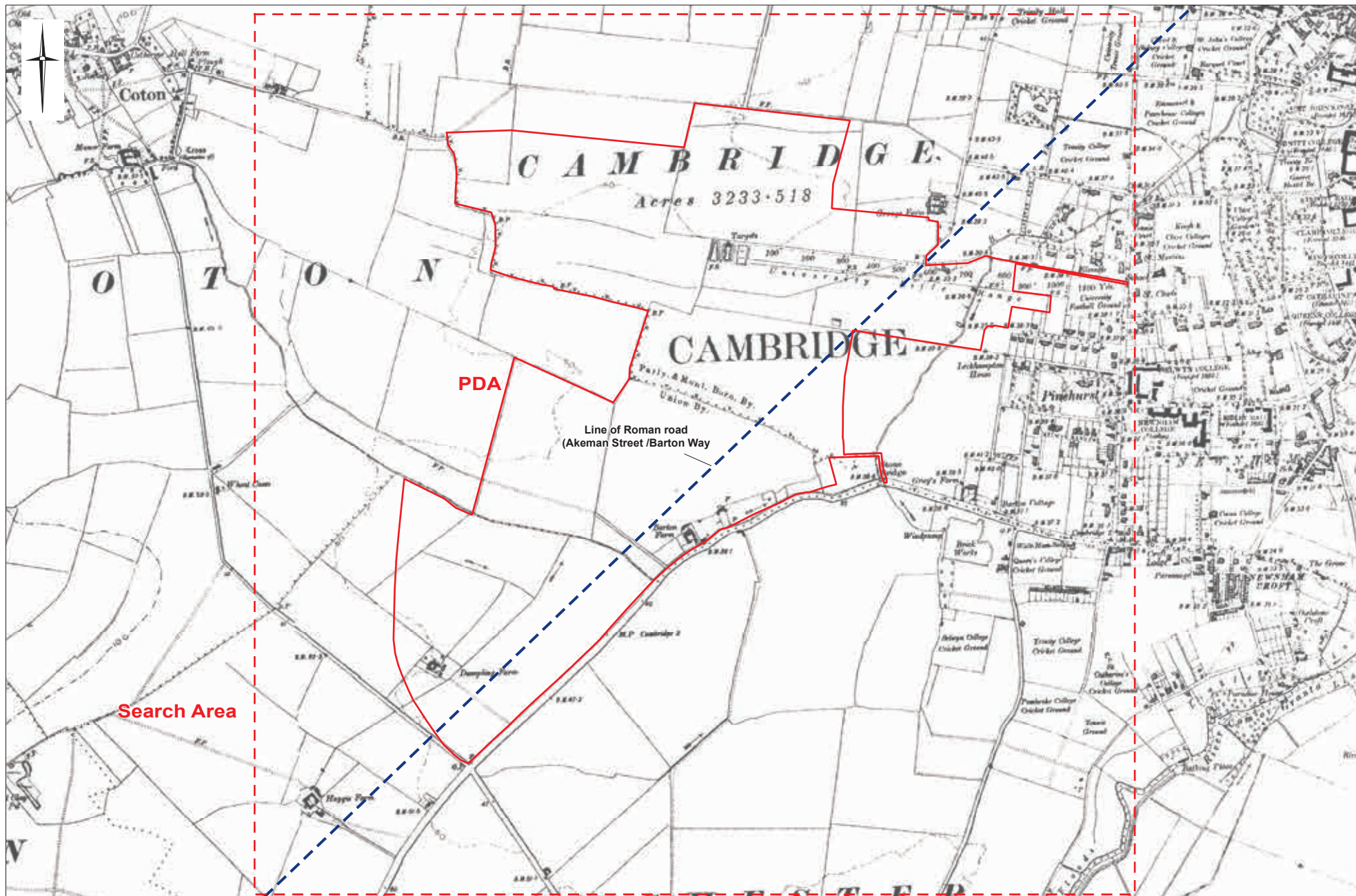


Figure 14: Ordnance Survey Map, 2nd edition (1903)

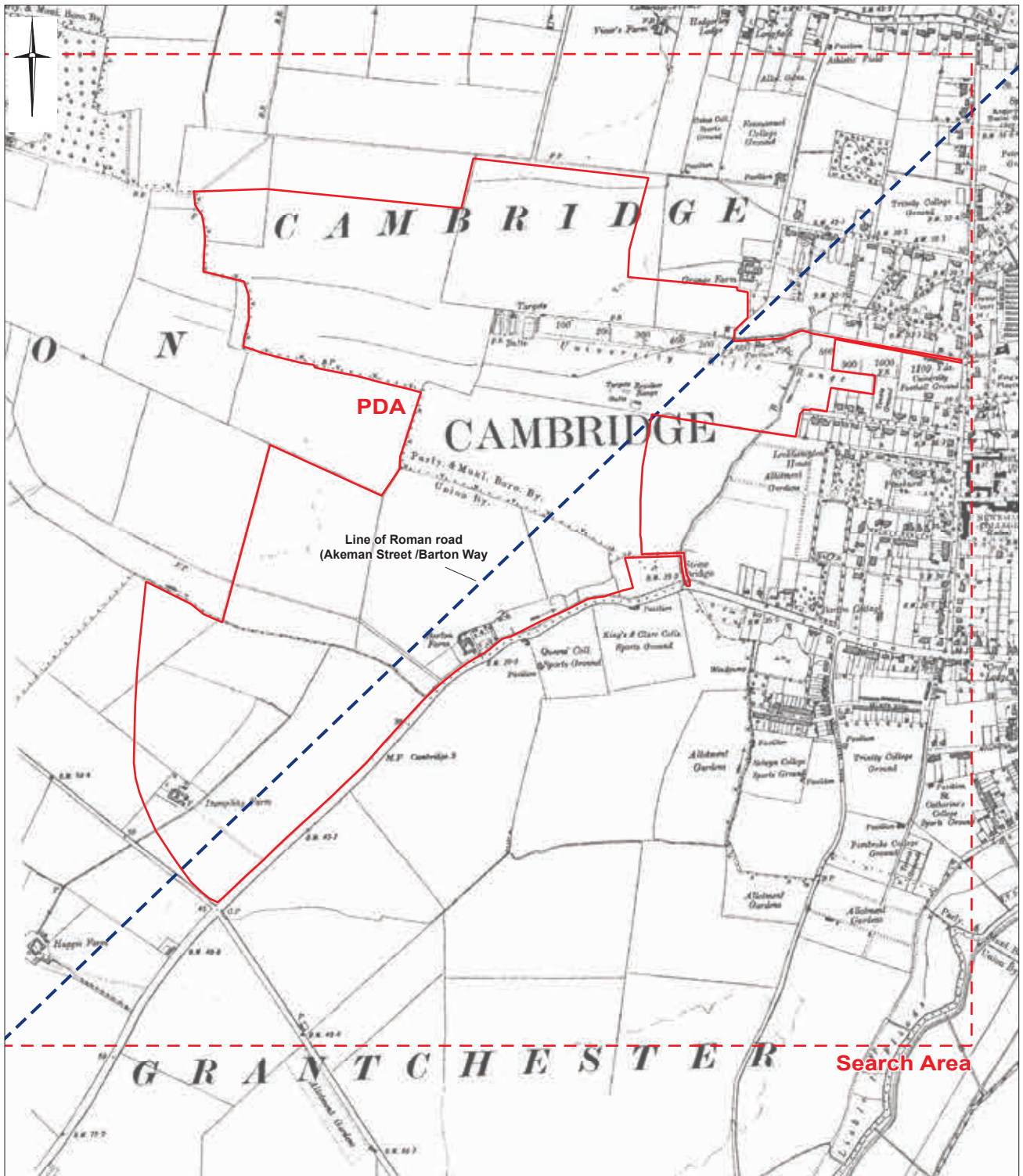


Figure 15: Ordnance Survey Map, 3rd edition (1927)

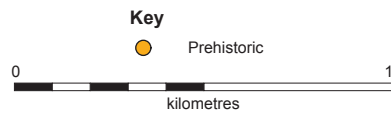
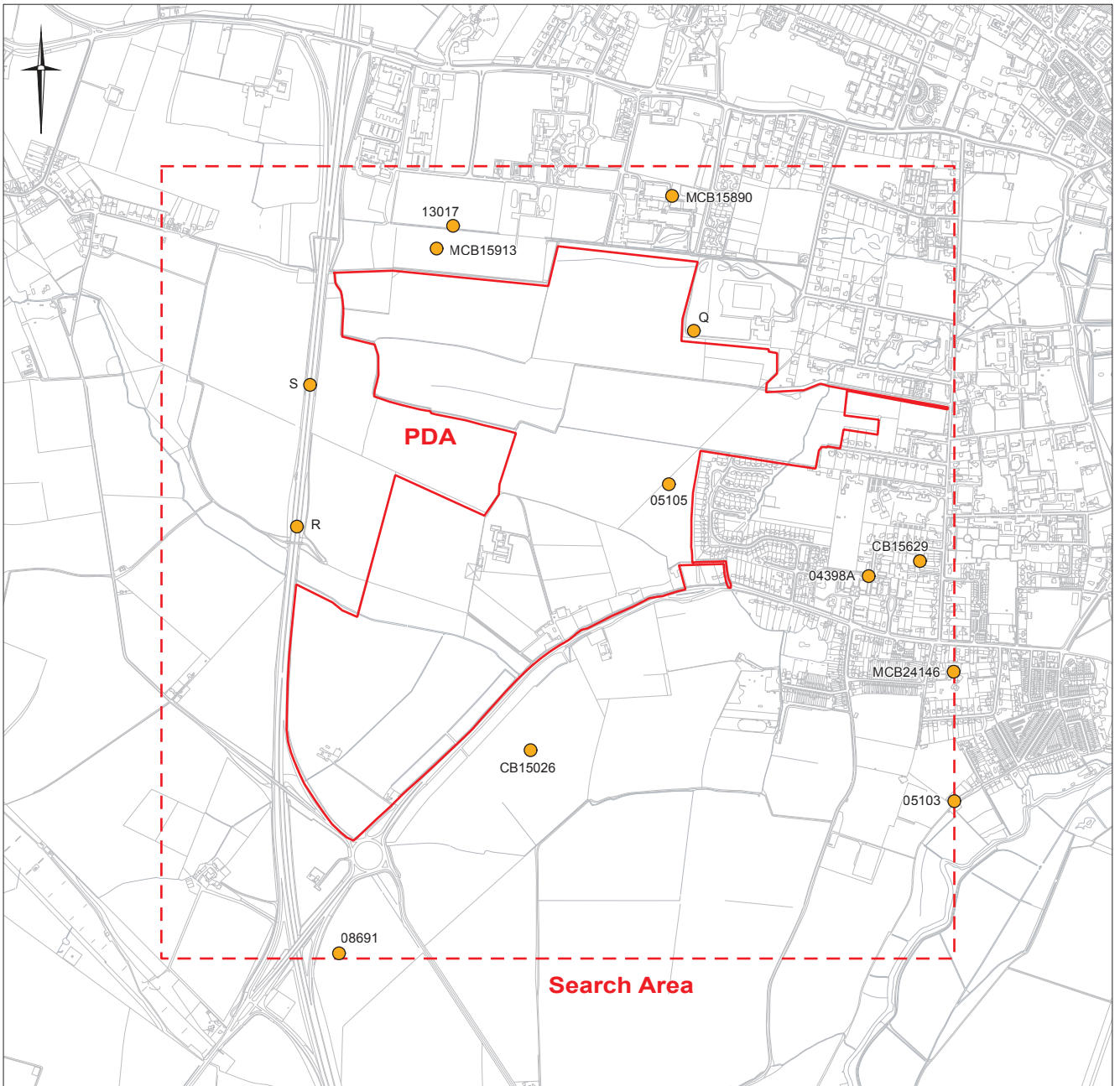
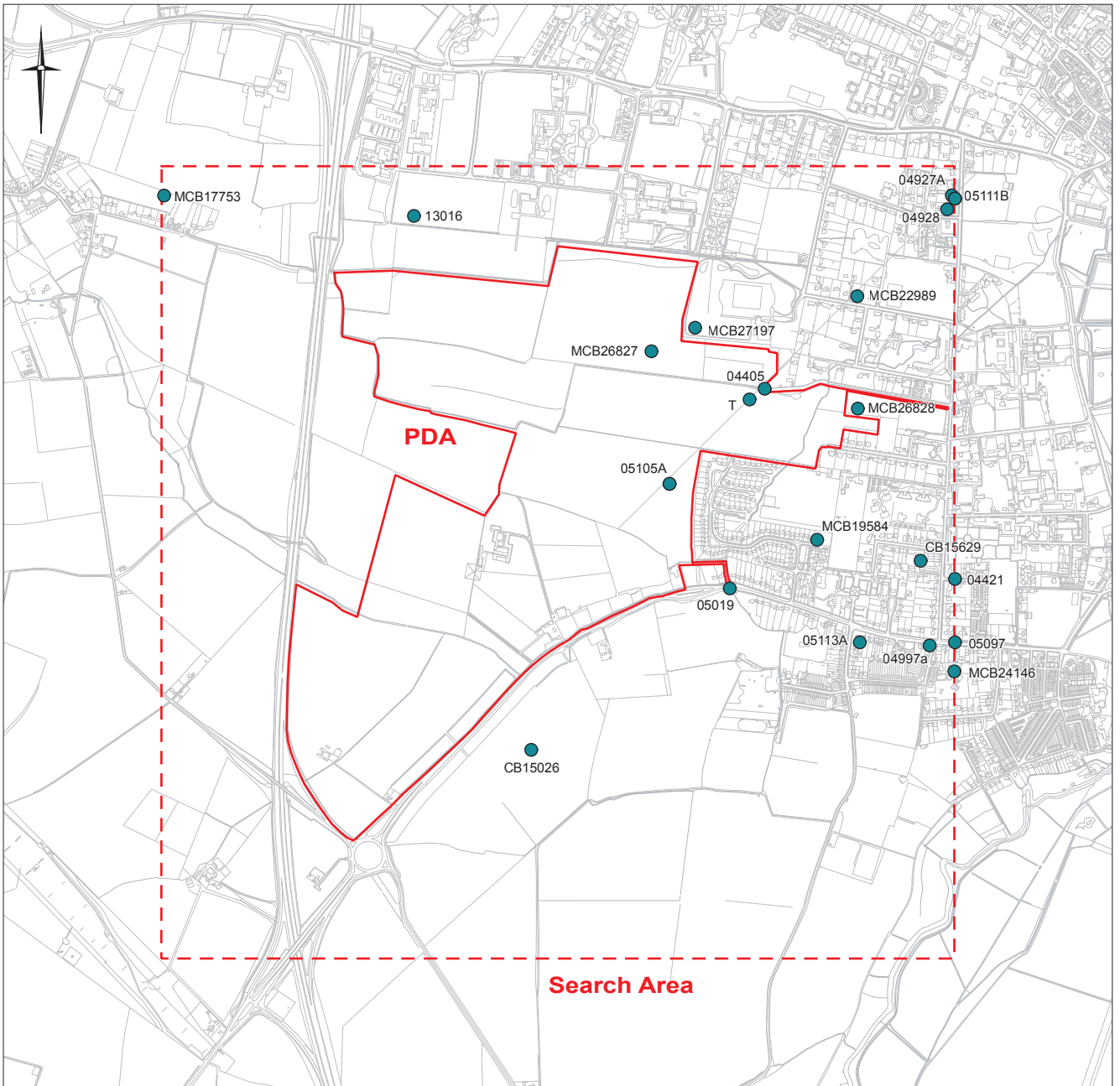


Figure 16: Location of prehistoric entries in the Cambridge Historic Environment Record



Key
 ● Roman

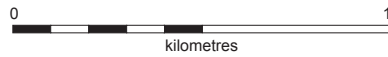


Figure 17: Location of Roman-era entries in the Cambridgeshire Historic Environment Record

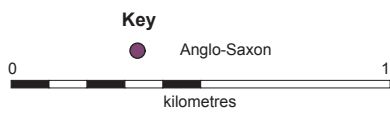
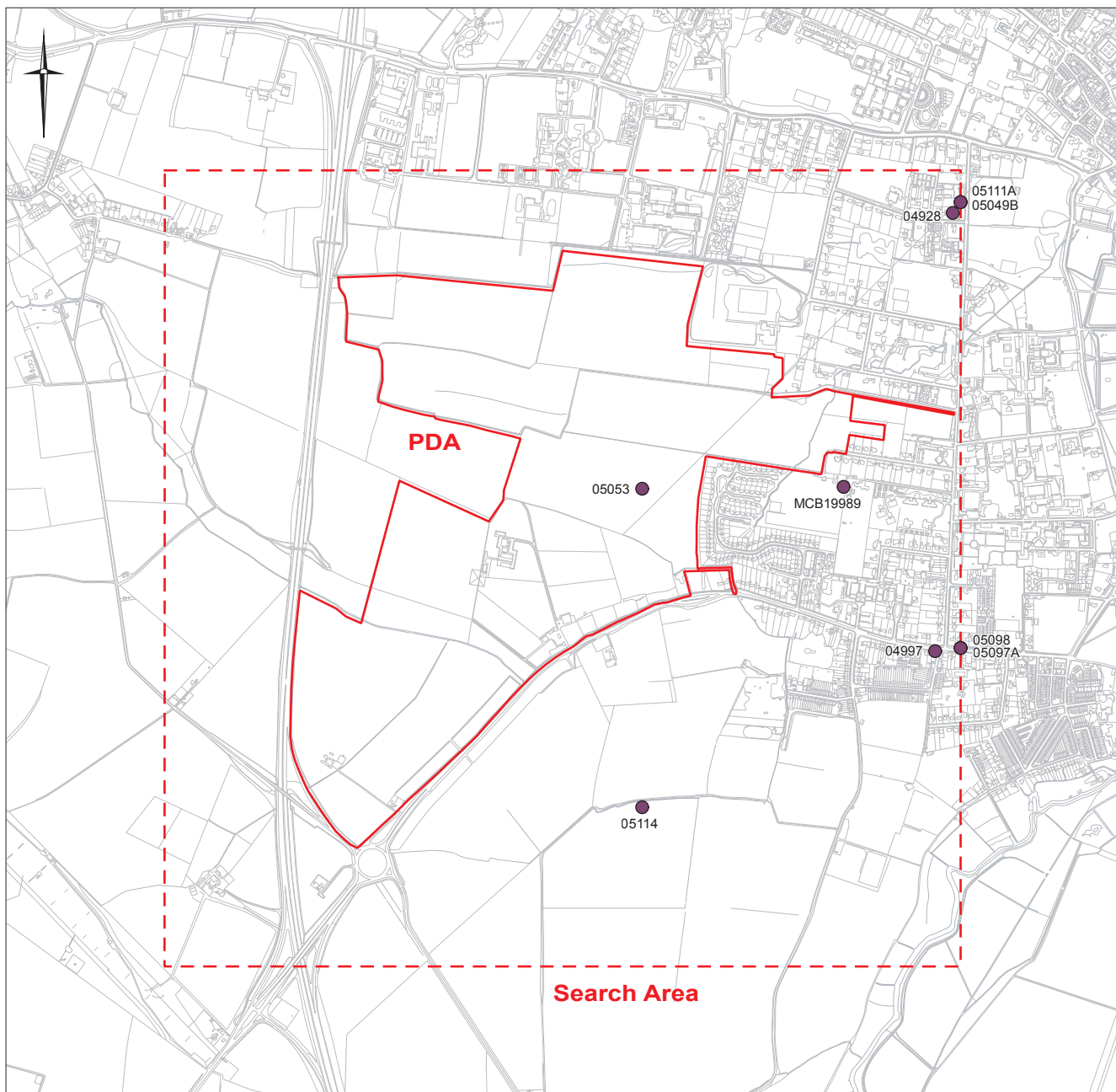


Figure 18: Location of Anglo-Saxon era entries in the Cambridgeshire Historic Environment Record

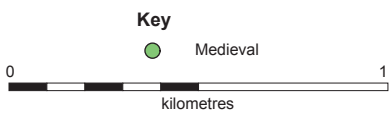
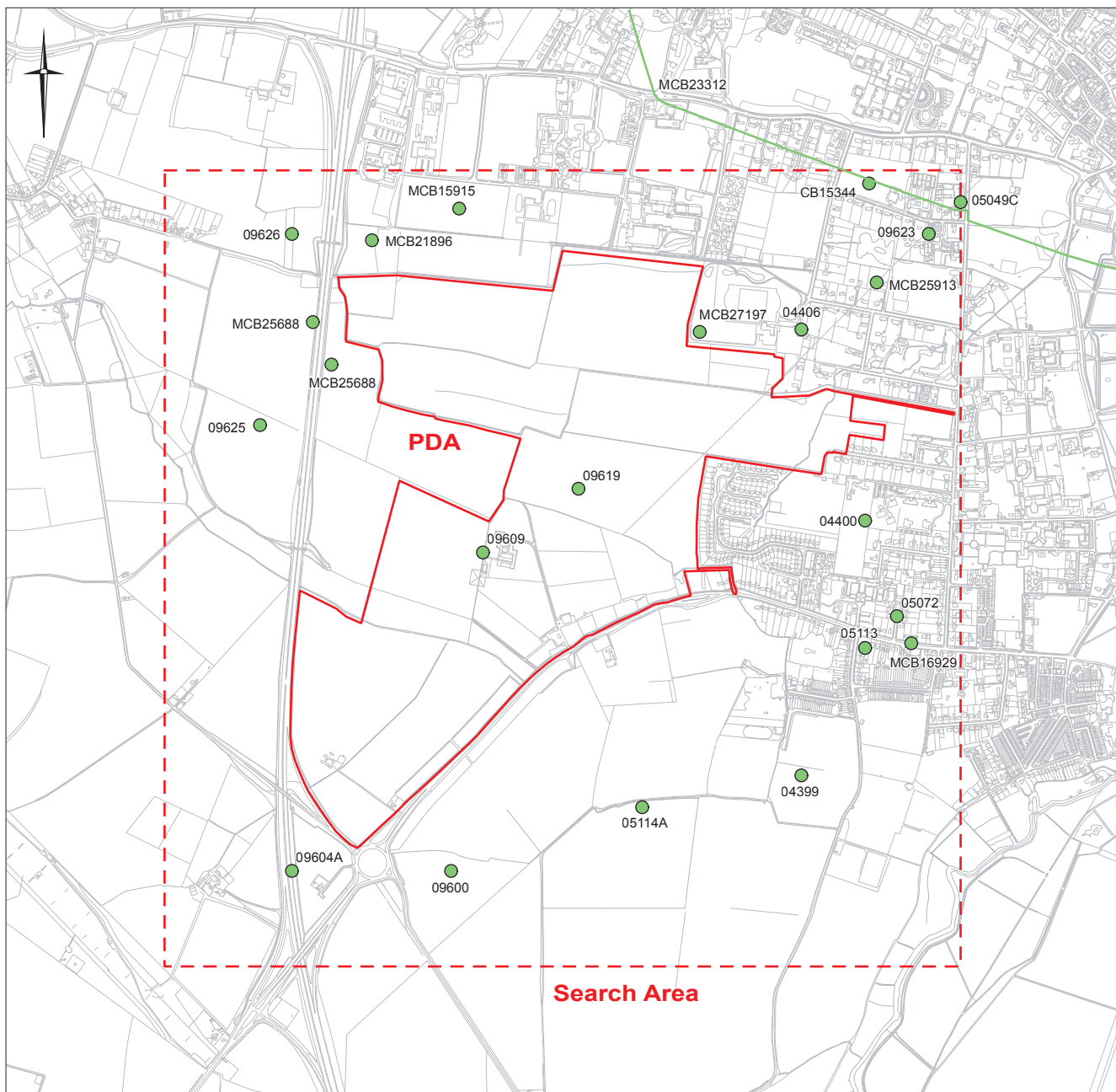
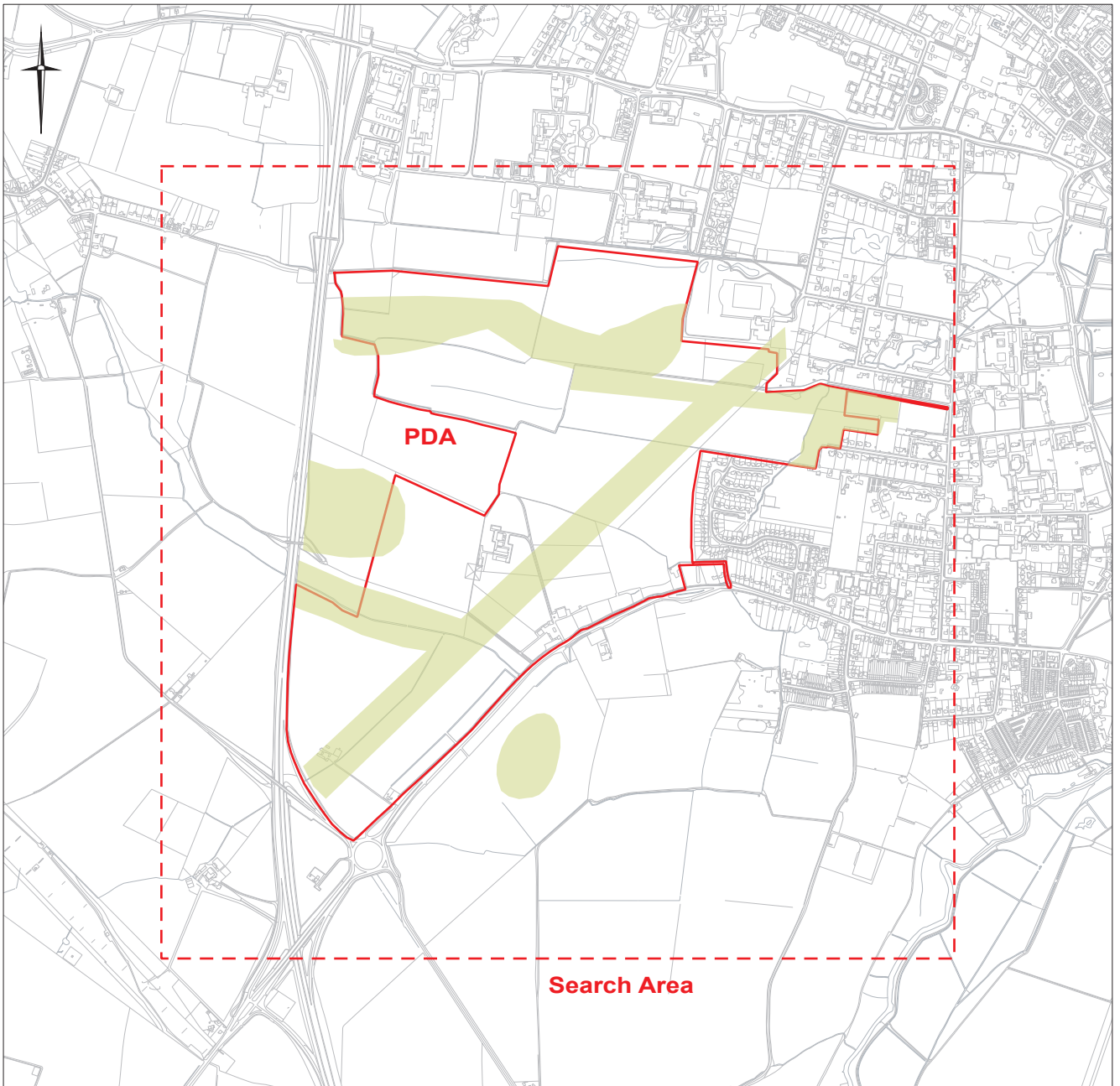


Figure 19: Location of medieval era entries in the Cambridgeshire Historic Environment Record



Key
Archaeological potential



Figure 21: Map of areas of higher archaeological potential in the PDA