

Archaeology and Heritage Assessment

March 2025

Land at Carisbrook Road,
Mitcheldean

Prepared by
CSA Environmental

On behalf of
Gladman Developments Ltd

Report No: CSA/4057/03

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CSA/4057/03	-	24/10/2018	RM	RM	Desk-Based Assessment Draft for comment
	A	03/12/2018	RM	RM	Updated to Heritage Statement following finalisation of masterplan and completion of geophysical survey
	B	05/12/2018	RM	RM	Client comment
	C	02/07/2024	RM	RM	Refreshed data collection / report update
	D	15/11/2024	RM	RM	Updated design plans
	E	02/12/2024	RM	RM	Minor client comments
	F	05/03/2025	RM	RM	NPPF update



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EXECUTIVE SUMMARY

Residential development is proposed at Carisbrook Road, Mitcheldean, Gloucestershire, for which planning permission is sought.

CSA Environmental was instructed by Gladman Developments Ltd to prepare an updated Archaeology and Heritage Assessment of the proposed development. This report provides a review of the known and potential heritage resource, including archaeology, built heritage and historic landscape. It assesses the significance of the heritage resource which may be affected, and the potential impact of proposals on that significance.

There is no evidence to suggest prehistoric or later settlement, or other significant activity, was focused within the Site. Antiquarian sources suggested that the road bounding the Site to the east was a Roman road, but later interpretations consider this unlikely. Trial trench evaluation immediately west of the Site did not record any significant archaeological finds or features. Geophysical survey within the Site did not identify any anomalies of archaeological interest.

Development will potentially result in, at the very most, negligible harm to the significance of the Grade I listed Church of St Michael and All Angels and Mitcheldean Conservation Area through the reduction of non-key views to the church.

Development would not adversely impact any other designated heritage assets in the vicinity, including the Grade II listed Lagers barn.

1.0 INTRODUCTION

- 1.1 This report has been prepared by CSA Environmental on behalf of Gladman Developments Ltd, for the proposed development at Carisbrook Road, Mitcheldean, Gloucestershire (hereafter 'the Site'). Residential development is proposed at the Site, for which outline planning permission is sought.
- 1.2 This Archaeology & Heritage Assessment provides a review of the known and potential heritage resource, including archaeology, built heritage and historic landscape. It assesses the significance of the heritage resource which may be affected and the potential impact of proposals on that significance. It updates desk-based assessment and setting assessment prepared by CSA Environmental and also refers to Geophysical Survey undertaken by Magnitude Surveys (2018).
- 1.3 The Site occupies an area of c. 9.72ha and is located around central grid reference SO 6642 1932, to the north of Mitcheldean. It consists of a single agricultural field, under arable use at the time of the site visit (see Figure 1).
- 1.4 This Archaeology and Heritage Assessment aims to:
 - determine, as far as possible from existing records, the nature, extent and significance of the heritage resource within the Site;
 - identify any heritage assets located beyond the Site which may be impacted by the proposals through alteration to setting; and
 - assess the impact of the proposals on the heritage resource.
- 1.5 This Archaeology and Heritage Assessment has been prepared with reference to the guidelines in the Standard and Guidance for Historic Environment Desk-based Assessment issued by the Chartered Institute for Archaeologists (CIfA 2017) and the Historic England guidance Managing Significance in Decision-Taking in the Historic Environment: Historic Environment Good Practice Advice in Planning: 2. Historic England (2015).

2.0 LEGISLATION, PLANNING POLICY & GUIDANCE

2.1 This assessment has been prepared in the context of current heritage legislation, planning policy and guidance, including:

- Ancient Monuments and Archaeological Areas Act (1979)
- Planning (Listed Buildings and Conservation Areas) Act (1990)
- Levelling-up and Regeneration Act (2023)
- English Heritage (now Historic England) *Conservation Principles, Policies and Guidance* (2008)
- Historic England *Managing Significance in Decision-Taking in the Historic Environment: Historic Environment Good Practice Advice in Planning Note 2* (2015)
- Historic England *The Setting of Heritage Assets: Historic Environment Good Practice Advice in Planning Note 3 (Second Edition)* (2017)
- The National Planning Policy Framework (MHCLG 2024)
- The Planning Practice Guidance (MHCLG & DLUHC 2019)

2.2 Further information is provided in Appendix B.

National Planning Policy

2.3 The National Planning Policy Framework (NPPF; MHCLG 2024) sets out the government planning policies for England and how they should be applied. Chapter 16: Conserving and Enhancing the Historic Environment, is of particular relevance to this report as it relates to heritage assets. Accompanying guidance is published in the Planning Practice Guidance (PPG; MHCLG & DLUHC 2019) which expands on how the historic environment should be assessed within the National Planning Policy Framework. Further details are provided in Appendix B.

Local Planning Policy

2.4 Local planning policy is contained within the Forest of Dean District Council Local Plan. Local Plan. Relevant policies relating to heritage are summarised in Table B.1 of Appendix B.

Guidance

2.5 Historic England have prepared a number of guidance documents including Good Practice Advice notes (GPAs) designed to provide supporting information on good practice and how national policy and guidance can be applied. These include GPA2, Managing Significance in Decision-Taking in the Historic Environment and GPA3, The Setting of Heritage Assets. Further details are provided in Appendix B.

3.0 METHODOLOGY

Sources of Information and Study Area

3.1 This report involved consultation of publicly available archaeological and historical information including heritage databases and documentary, cartographic and aerial photographic sources. The major sources of information included:

- The National Heritage List for England (NHLE), maintained by Historic England, for details of designated heritage assets
- The Gloucestershire Historic Environment Record (HER), for details of recorded heritage features and previous archaeological works (data received 27 June 2024)
- Historic maps and documentary sources available online and at the Gloucestershire Archives
- Aerial photographs and satellite imagery available online and at the Historic England Archives
- Other online sources including the Local Authority website for information on conservation areas, locally listed heritage assets and the Environment Agency for LIDAR data
- Site visits undertaken 17 October 2018 and 20 June 2024. Selected designated heritage assets in the vicinity were also visited at this time, as far as public access allowed

3.2 HER data was obtained for a 1km buffer from the Site. Following initial review the study area was defined as a minimum of 500m, with reference to sites beyond this where deemed relevant. Designated heritage assets for a wider area were assessed as professional judgement deemed appropriate. Where appropriate a setting assessment is included in Section 5.

Geophysical Survey

3.3 Detailed magnetometry geophysical was undertaken by Magnitude Surveys in November 2018, covering the field within which the Site is located. The results are presented in full in Appendix D and summarised below.

Assessment of Significance

3.4 A heritage asset is *"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"*. This interest may be archaeological, architectural, artistic or historic. Significance may derive from physical remains and also from setting, that is *"the surroundings in which a heritage asset is experienced"* (NPPF).

- 3.5 Heritage assets include designated heritage assets and non-designated heritage assets. Designated heritage assets include world heritage sites, scheduled monuments, listed buildings, protected wreck sites, registered parks and gardens, registered battlefields and conservation areas. Of these, world heritage sites, scheduled monuments, Grade I and II* listed buildings, protected wreck sites, and Grade I and II* registered parks and gardens are of the highest significance.
- 3.6 Non-designated heritage assets may include those identified by the local authority, such as local listings or assets recorded on a Historic Environment Record, or assets identified during the course of an application (HE 2015). They are generally of lesser significance than designated heritage assets. However, non-designated archaeological assets may at times be of a significance commensurate to a scheduled monument, such as where they are not of a type suitable for designation or have not yet been formally assessed. Assessment of the significance of archaeological assets refers to criteria for scheduling monuments outlined by DCMS (2013), including period, rarity, documentation, group value, survival/condition, fragility/vulnerability, diversity and potential (DCMS 2013), as well as the Historic England Scheduling Selection Guides.
- 3.7 An assessment of significance will consider archaeological, historic, architectural and artistic interest of an asset, its fabric and its setting. In order to further understand significance, an assessment may also refer to the heritage values identified in Historic England's *Conservation Principles* (2008), namely evidential, historical, aesthetic and communal values. An assessment of significance should also seek to identify the nature, extent and level of significance for a particular heritage asset (HE 2015).

Assessment of Impacts

- 3.8 Change may preserve, enhance or harm the significance (value) of a heritage asset. In order to understand the impact of change it is necessary to first understand the significance of a heritage asset, and how this significance will be altered, both in terms of direct physical change, and change to setting (HE 2015). Assessment of impacts may also consider how an asset might be enhanced, or how loss of significance might be offset (ClfA 2017).
- 3.9 Guidance on the process for assessing impacts is also provided in *Principles of Cultural Heritage Impact Assessment in the UK* (IEMA, IHBC, ClfA 2021). Assessment of impacts through change to setting will reference the Historic England Guidance, *The Setting of Heritage Assets* (GPA3; HE 2017), discussed further in Section 5 and Appendix B.
- 3.10 With reference to the NPPF, harm may be expressed in terms of 'substantial harm' or 'less than substantial harm'. Substantial harm "is a

high test, so it may not arise in many cases...It is the degree of harm to the asset's significance rather than the scale of the development that is to be assessed" (PPG).

4.0 BASELINE HERITAGE CONDITIONS

- 4.1 This section reviews the recorded heritage resource within and around the Site with reference to the heritage databases, historic maps, aerial photographs and a site visit. A gazetteer of the recorded heritage resource is included in Appendix A and sites are illustrated on Figure 1 (Designated Heritage Assets) and Figure 2 (Historic Environment Record Data). CSA reference numbers, as detailed in the gazetteer, are referenced in **bold** in the text. The chronology used in preparing this report refers to the Historic England categorisation (Historic England 2024). The main categories are summarised in Table 4.1.

Table 4.1 Periods

Palaeolithic	1,000,000 – 10,000 BC	Roman	43 AD - 410
Mesolithic	10,000 – 4,000 BC	Early Medieval	410 – 1066
Neolithic	4,000 BC – 2,200 BC	Medieval	1066 - 1540
Bronze Age	2,600 BC – 700 BC	Post Medieval	1540 – 1901
Iron Age	800 BC – 43 AD	Modern	1901 - present

Site Conditions

- 4.2 The Site comprises a single field, under grass at the time of the 2024 site visit. It is bounded to the south-west by Carisbrook Road, to the east by Bradley Court Road and to the north by agricultural land. Boundaries are hedgerow in the northern part of the Site, and fence with trees at the south.

Designated Heritage Assets

- 4.3 No designated heritage assets are located within the Site. Designated heritage assets in the vicinity include:
- Mitcheldean Conservation Area (**CA1**) and associated listed buildings, including the Grade I listed Church of St Michael and All Angels (**LB1**), located to the south of the Site.
 - The Grade II listed Lagers Barn and Yard Walls (**LB2**) located to the east of the Site.

- 4.4 These assets are considered in further detail in the setting assessment in section 5 below and in the period summaries, where relevant.

Non-designated Heritage Assets

- 4.5 No non-designated heritage assets are recorded within the Site although the road bounding the Site to the east has historically been suggested as the route of a Roman road. This seems unlikely and is not generally favoured by current interpretations. No extant Roman period road features have been identified adjacent to the Site. It has been estimated that 9,500 miles of Roman road had been constructed by the

2nd century AD (Historic England 2018) and as such this is a relatively common monument type. Roman roads may be of particular significance where they are preserved as extant earthworks not impacted by later infrastructure, which is not the case here. In the event that below-ground Roman period road deposits are present at the eastern boundary of the Site these would be of a significance commensurate to a non-designated heritage asset.

- 4.6 This road and non-designated heritage assets in the wider area are discussed in the period summaries below, where relevant.

Previous Archaeological Investigations

- 4.7 Geophysical survey was undertaken within the Site in 2018 **(22)**. This recorded anomalies consistent with former field boundaries but no anomalies considered to be of probable or possible archaeological interest (Appendix D, Figure 5).

- 4.8 Previous archaeological works in the vicinity comprise:

- Desk-based assessment followed by trial-trench evaluation immediately west of the Site in 2005-2006. The evaluation comprised ten trenches and did not record any significant archaeological finds or features **(1)**.
- Heritage desk-based assessment followed by geophysical survey of land to the east of the Site in 2013 **(2)**. The geophysical survey did not record any anomalies suggesting significant archaeological remains, although linear anomalies of likely agricultural origin were recorded.
- A watching brief at Police House, to the south of the Site, in 2009 which did not record any finds or features of archaeological interest.
- Test-pits at the site of the former police station which recorded post-medieval deposits and a putative prehistoric hammerstone **(4)**.

- 4.9 The results of these investigations are discussed further in the period summaries below, where relevant.

Geology, Topography and the Palaeoenvironment

- 4.10 The Site is located on a south-facing slope which drops from c. 160m aOD at the north of the Site to c. 140m aOD at the south. The bedrock geology of the Site is mapped as Devonian Brownstone Formation sandstone and argillaceous rocks. No superficial deposits are recorded within the Site.

Prehistoric and Romano-British

- 4.11 Cropmarks potentially representing a D-shaped enclosure are recorded c. 350m north of the Site. The presence of any associated below-ground archaeological remains is uncertain and the HER describes the feature

as 'possible' and 'somewhat dubious' (5). Two curvilinear cropmarks are recorded c. 50m to the west of the Site, which might also have represented an enclosure (6) (now developed for housing).

- 4.12 As mentioned above, a possible prehistoric hammerstone was recorded during test-pits at the site of the former Mitcheldean Police Station (4).
- 4.13 Iron ore deposits occurring within Carboniferous limestones in the Forest of Dean area were exploited from the late prehistoric to the post-medieval period and are known to have been a focus for Roman period activity. Undated earthworks associated with iron stone workings are recorded c. 500m west of the Site (7), and there is further evidence of ore extraction beyond the study area. There is no evidence to suggest that activity associated with ore extraction or working extended into the Site area.
- 4.14 The Dean Road has historically been suggested as a Roman road although this interpretation is no longer generally accepted. The Dean Road as mapped by the HER stops at the southern edge of Mitcheldean c. 800m south of the Site (19). Margary's publication, 'Roman Roads in Britain', suggests the Dean Road continued north from Mitcheldean towards the site of the Roman town of Ariconium, c. 4.5km north-west of the Site. The theory was that this road would have connected iron mines at Lydney with smelting furnaces at Ariconium (Gloucestershire HER). Margary describes the road between Mitcheldean and Lea (north of the Site) as following '*a minor ridge on the east of the higher ground*'. This most likely describes the road which bounds the eastern edge of the Site, labelled '*Roman Road (site of)*' on the late 19th-century Ordnance Survey mapping (Plate 2). A stretch to the north-east of the Site is labelled '*Traces of Roman Paving*', as are other parts of the route. However, the antiquarian interpretation of 'Roman paving' has been criticised by later authors and generally a medieval or later origin is favoured. At the eastern Site boundary, the road is certainly less-straight than might typically be expected for a Roman road (Plate 2).
- 4.15 The A4136 c. 600m to the south of the Site is also suggested as fossilising the course of a Roman road, the route from Gloucester to Mitcheldean (Margary road 61; 20). This is generally still accepted as a Roman road, although a continuation west towards Lower Lydbrook, not recorded by Margary but suggested as Roman by antiquarian sources, is now more usually thought to be post-medieval (21). Again these routes are generally sinuous in nature, not a typical Roman morphology.

Early Medieval and Medieval

- 4.16 The Site is located within the historic parish of Mitcheldean. Medieval activity would have been focused within the historic settlement core of Mitcheldean, including the medieval market c. 330m south of the Site (8) and the Church of St Michael and All Angels (LB1). The Site was most





Plate 2: Extract from the First Edition Ordnance Survey map of 1881

- 4.20 A field to the north of the Site has the field name 'Park' on the Tithe map (11), but there is no evidence of formal parkland or park features.
- 4.21 Some boundary loss is evident by the time of the First Edition Ordnance Survey mapping (Plate 2), and the watercourse at the southern edge is not marked although it is shown on later sources so this may simply be an omission. No major changes are depicted within the Site in the earlier 20th-century.
- 4.22 Carisbrook Road was established in the later 20th-century associated with expanding residential settlement at Mitcheldean. An industrial estate was established to the east of the Site in the later 20th-century.

The wider area

- 4.23 Other post-medieval and modern sites recorded in the wider area include fieldnames (12-15) as well as buildings (23) and a possible cinders mound within or near the historic core of Mitcheldean (16).

5.0 SETTING ASSESSMENT

- 5.1 This section follows the methodology detailed in the Historic England Guidance *The Setting of Heritage Assets* (2017). This recommends a stepped approach, as detailed in Appendix B.
- 5.2 In line with step 1 of the guidance, consideration was given to which heritage assets in the vicinity of the Site include the Site as part of their setting, and which may therefore be affected by the proposed development.
- 5.3 Designated heritage assets in vicinity include:
- Mitcheldean Conservation Area (**CA1**) and associated listed buildings, including the Grade I listed Church of St Michael and All Angels (**LB1**).
 - Grade II listed Lagers Barn and Yard Walls (**LB2**).
- 5.4 These heritage assets are considered in further detail below. No other designated heritage assets are considered potentially sensitive to adverse impacts as a result of the proposed development. No non-designated heritage assets have been identified which are considered to require setting assessment.

Church of St Michael and All Angels

- 5.5 The Grade I listed Church of St Michael and All Angels is located c. 525m south of the Site within the historic core of Mitcheldean. This is a medieval parish church which includes 14th and 15th century elements.
- 5.6 The church is located within an associated churchyard which includes Grade II listed monuments, to the west of High Street. Its wider setting includes historic settlement (within Mitcheldean Conservation Area), and recent settlement at Mitcheldean.
- 5.7 Views towards the Site from ground level in the vicinity of the church are screened by intervening built form and trees. The church spire is visible from much of the wider area, including from within and adjacent to the Site. There are views to the church tower and spire from within the northern area of the Site (Photo 1). There are also glimpsed views to the church spire from Bradley Court Road, looking across the field gate at the north-eastern edge of the Site, although the spire is not prominent and the main body of the church is obscured by trees (Photo 2).



Photo 1: View towards the Church of St Michael and All Angels from within the Site, view to south



Photo 2: Glimpsed view to church spire from road to the north-east of the Site, view to south

- 5.8 The Grade I listed Church of St Michael and All Angels is a designated heritage asset of the highest significance. It principally derives this significance from the architectural and historic interest associated with

its built form, in particular the medieval elements. This interest is derived from evidential and illustrative value associated with built fabric, aesthetic value, and also its communal value as a place of worship and settlement focal point.

- 5.9 Agricultural land within the Site does not contribute to the significance of the Church of St Michael and All Angels. As church spires are designed to be prominent, views to them may be considered to contribute to their significance. Views towards the church from Bradley Court Road, adjacent to the Site are limited. Views towards the Church from within the Site are not key views and are in the context of existing later-20th century built form. At the most, these views make a negligible contribution to the significance of the Church of St Michael and All Angels. The proposed development will likely result in a reduction to or loss of these non-key views. Any resulting harm to the Church of St Michael and All Angels whole would be negligible at most, i.e. less than substantial harm at the very lowermost end of this spectrum.

Mitcheldean Conservation Area

- 5.10 Mitcheldean Conservation Area is located c. 240m south of the Site at its closest point. No conservation area appraisal was identified at the time of writing this DBA. However, it may be assumed that the boundary of the Conservation Area is drawn to encompass the historic core of Mitcheldean.
- 5.11 The conservation area contains fourteen Grade II listed buildings as well as the Grade I listed Church of St Michael and All Angels (discussed above). The current setting of the conservation area comprises later 20th-century built form which surrounds the conservation area, excepting a short stretch at its southern boundary, and part of its north-western extent which is adjacent to playing fields.
- 5.12 Views to the Site from ground level within the conservation area are screened by intervening buildings. These buildings include later 20th-century built form located between the Site and the conservation area. In places there are glimpsed views to ridges of higher ground to the east and west of the conservation area. As noted above, the church is visible from much of the wider area, including from within and adjacent to the Site (Photo 1, Photo 2). However, the main element of these views is later 20th-century residential and industrial built form located outside the conservation area.
- 5.13 Mitcheldean Conservation Area principally derives its significance from the architectural and historic interest of its associated historic buildings, including listed buildings.

- 5.14 Agricultural land within the Site is separated from the historic core of Mitcheldean by later 20th-century built form and does not contribute to the significance of the conservation area or its associated listed buildings. Views to the Church of St Michael and All Angels from within the Site, and looking across the Site from the adjacent road, are not key views and are in the context of existing later 20th-century built form. They make only a negligible contribution to the significance of church, and via this to the conservation area as a whole. The proposed development will likely result in a reduction to or loss of these non-key views. Any resulting harm to Mitcheldean Conservation Area would be negligible at most, i.e. less than substantial harm at the very lowermost end of this spectrum.

Laggers Barn and Yard Walls

- 5.15 The Grade II listed *Laggers Barn and yard walls* is located c. 300m east of the Site (hereafter referred to as 'Laggers Barn'). This group of adjoining buildings includes an 18th-century field barn and attached 19th-century cattle sheds described as "*a very complete group*" (see NHLE listing description, Historic England 1985).
- 5.16 At the time of the Tithe survey the field within which the barn is located was under the ownership of one Maynard Colchester, but occupied by William Jones. Maynard Colchester occupied Wilderness house c. 1.4km south-west of the Site and owned about two thirds of the titheable land in Mitcheldean, as recorded in the apportionment register. Land occupied by William Jones covered about 40 hectares. Land within the Site was under the same ownership and occupancy as Laggers Barn.
- 5.17 The current setting of the barn comprises agricultural land to the north and east and industrial estate to the south-west. This industrial estate, which partly lies between the Site and the barn, was established in the later 20th-century. The barn appears to have been converted for residential use in the later 20th or early 21st century, certainly by the time of a 2005 photograph included on Images of England (IoE 2018) but after it was first listed (1985).
- 5.18 The listing description includes the comment "*Barn prominent in landscape from across valley*" (Historic England 1985). However, it seems likely that this comment was provided at the date of listing, i.e. 1985, before the industrial estate was established to the south of the barn, and before the establishment of housing at Lining Wood house west of the Site. At the time of the Site visit views to the barn from footpaths to the south-west of the Site were screened by planting at the industrial estate (Photo 3). Views from the footpath immediately north-west of the Site were impeded by/beyond residential development (Photo 4). The barn is visible from the northern area of the Site (Photo 5), although largely screened from within the southern area of the Site by planting at the industrial estate.



Photo 3: View looking across the site from footpaths at Windman Hill, view to north-east.



Photo 4: View looking towards Laggers Barn from footpath west of the Site, view to east.



Photo 5: View to Laggers Barn from within the Site, view to east.

- 5.19 The Grade II listed Laggers Barn and yard walls are a designated heritage asset which principally derive their significance from their historic interest as post-medieval agricultural buildings, albeit now converted to residential use. Immediately adjacent agricultural land forms a rural setting and may be considered to make some contribution to its significance. Agricultural land within the Site is more distant and although it does have a broad historic functional relationship with the barn it is not key to its significance.
- 5.20 While it may have historically been 'prominent' in views across the valley this has been reduced by later 20th-century development and such views are not considered key to its significance. The barn is visible from the northern area of the Site. These views are not key to its significance and while they do allow an appreciation of the barn in its rural setting, so do views from other parts of the adjacent agricultural landscape.
- 5.21 Development proposals will alter agricultural land in the wider vicinity of the barn to built form but will retain views to the barn from adjacent agricultural land outside the Site. While agricultural land within the Site has a general historic relationship with the barn, this relationship has been severed. As such, it is concluded that the proposals would not harm the significance of this listed building.

6.0 CONCLUSIONS

- 6.1 Antiquarian sources suggested that the road bounding the Site to the east was a Roman road, but later interpretations consider this unlikely. In the event that Roman period below-ground road remains are present along the eastern Site boundary these would be of a significance commensurate to a non-designated heritage asset. It is anticipated that development of the Site would preserve the eastern Site boundary, and as such would preserve the course of the Roman road (if it in fact existed).
- 6.2 There is no evidence to suggest prehistoric or later settlement, or other significant activity, was focused within the Site. While proximity to a Roman road can be considered to increase the likelihood of Roman period activity, the presence of a Roman road is by no means proven and there is no direct evidence to suggest Roman period activity was focused within the Site.
- 6.3 The Site most likely formed part of the agricultural hinterland to settlement at Mitcheldean from at least the medieval period. There is no evidence to suggest significant medieval period archaeological remains are present within the Site.
- 6.4 Trial trench evaluation immediately west of the Site did not record any significant archaeological finds or features. Geophysical survey within the Site identified historic field boundaries, demonstrating that the survey was successful, but no anomalies of archaeological interest. While it is recognised that not all archaeological features will necessarily be identified by geophysical survey, the negative results combined with the findings of the desk-based assessment do not indicate the Site has any notable archaeological potential. If considered necessary by the archaeological advisor to the LPA, the limited archaeological potential could be addressed by a programme of trial trench evaluation.
- 6.5 The proposed development would likely result in some reduction in/loss of non-key views to the Church of St Michael and All Angels from within and looking across the Site. Any resulting harm to the significance of the Grade I listed Church of St Michael and All Angels and Mitcheldean Conservation Area would be negligible at most, i.e. less than substantial harm at the very lowermost end of this spectrum.
- 6.6 The Grade II listed Lagers Barn is located to the east of the Site. Development proposals will alter agricultural land in the wider vicinity of the barn to built form but will retain views to the barn from adjacent agricultural land. While agricultural land within the Site has a general historic relationship with the barn, this relationship has been severed. It is

concluded that the proposals would not harm the significance of this listed building.

- 6.7 Development would not adversely impact any other designated heritage assets in the vicinity. Under the NPPF less than substantial harm to a designated heritage asset should be weighed against the public benefits of the proposal.

7.0 REFERENCES

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1923 Third Edition Ordnance Survey 25" and 6" series

Aerial photographs

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OS/66007	18 MAR 1966
OS/69268	10 JUN 1969
OS/76172	10 AUG 1976
OS/85173	04 JUL 1985
OS/01971	09 FEB 2001
MAL/52010	JAN 1952

Appendix A: Heritage Data Gazetteers

Designated Heritage Assets

CSA Ref.	NHLE Ref.	Name/Designation
LB1	1100286	Grade I listed building CHURCH OF ST MICHAEL AND ALL ANGELS
LB2	1186513	Grade II listed building LAGGERS BARN AND YARD WALLS
CA1	-	Mitcheldean conservation area Contains 14 Grade II listed buildings and the Grade I listed Church of St Michael and All Angels (CSA ref. LB1).

HER data

CSA Ref./Summary	HER No.	HER Description
1	27614	Desk based assessment of Lining Wood House, Mitcheldean.
	28194	2006 - Modern negative evaluation on land at Lining Wood House, Mitcheldean.
	25806	20 th century barn location identified during 2005 DBA of Lining Wood House
	25805	Former field boundary corresponding with the former parish boundary, identified during 2005 DBA prior to development at Lining Wood House, Mitcheldean.
2	45110	2013 desk based assessment of land at Vantage Point, Mitcheldean.
	45109	2013 geophysical survey of land at Vantage Point, Mitcheldean.
3	32862	A modern negative watching brief at the Police House, Townsend, Mitcheldean.
4	26885	Site visit to Glen Rock, High Street, Mitcheldean.
5	22759	A possible D shaped enclosure of unknown date visible as a cropmark and mapped from aerial photographs, Mitcheldean.
6	22761	A large curvilinear enclosure of unknown date which was seen as an incomplete cropmark on land now developed for housing, Mitcheldean.
7	27470	Iron stone workings visible as earthworks on aerial photographs taken in 1947, Mitcheldean.
	23587	Undated scowles, located around a mining ventilation shaft known as 'Sway Hole', and c.100 metres south-east of Firtree Bungalow.
8	17324	Site of medieval market place and market cross, dating from the C14-C18 and located in Mitcheldean.
9	20753	Undated well, possibly known as Holywell, located north of Mitcheldean.
10	22760	A Medieval or Post Medieval lynchet visible as an earthwork on aerial photographs, Mitcheldean.
11	21848	Post medieval field name of The Park, dating to 1840, and located north of Mitcheldean.
12	21850	Post medieval fieldname of Mill House Orchard, dating to 1840, and located in the north-east of Mitcheldean.
13	21851	Post medieval field name of Well Piece, dating to 1840, and located in the east of Mitcheldean.
14	13631	Undated placename of Windmill or Windman Hill located north west of Mitcheldean.
15	10578	Undated placename of Cooperskiln, located at Lining Wood. Mitcheldean.
16	21870	Site of post medieval farm, known as Court Farm. Dating to the C17 and located north east of Mitcheldean.
	17322	Post medieval police station, dating to the C19, located in Mitcheldean.
	5859	Post medieval brewery, known as The Forest Brewery, dating from 1868 to 1945, and located in Mitcheldean.
	22343	Post medieval police station, dating to 1878, in Mitcheldean.

CSA Ref./Summary	HER No.	HER Description
	21876	Post medieval Methodist chapel, dating to 1814, later a Bible Christian chapel, and located near the Bull Ring, Mitcheldean.
	5863	Post medieval toll house, probably dating to after 1769, and located on the Mitcheldean to Lea road, Mitcheldean.
	20143	Post medieval gas works known as Mitcheldean Gas Light and Coke Company. Dating to 1865 and located in Mitcheldean.
	20140	Post medieval public house, possibly dating to the C17, known as the White Horse. Located on High Street, Mitcheldean.
	23536	Possible site of Undated Cinders Mound, Brook Street, Mitcheldean.
	13877	Listed building Post medieval town hall, known as Old Town Hall and dating to the early 18th century. Located in Mitcheldean. (LBII).
17	48844	Turnpike Possible route of the 1795 Huntley and Mitcheldean Turnpike.
18	20142	Post medieval farmhouse, known as Knockalls or Nockalls. Dating to the late C17 and located north of Mitcheldean.
See LB2	13872	Listed building Grade II listed Lagers Barn and yard walls, located north east of Mitcheldean.
19	5904	Projected route of The Dean Road, originally thought to have been a Roman route.
20	7123	Roman Road from Mitcheldean to Gloucester, a section of the road was visible as a cropmark, Longhope and Mitcheldean.
21	6779	Possible medieval paved road known as the Spanneway between Mitcheldean and Drybrook.
22	50097	2018 Geophysical Survey, at Carisbrook Road, Mitcheldean Gloucestershire.
23	13491	A post-medieval well and outbuilding were identified during a site visit to a 20023 Time Team Big Dig excavation at Glen Rock, High Street, Mitcheldean.
24	-	HER LIDAR 2006: Charcoal Burning Platform
25	-	HER LIDAR 2006: Linear Earthworks
26	-	HER LIDAR 2006: Ridge and Furrow

Appendix B: Legislation and Planning Policy

The **Ancient Monuments and Archaeological Areas Act (1979)** forms the principal legislation for designated archaeological sites. It relates to Scheduled Monuments and designated Areas of Archaeological Importance (the historic city centres of Canterbury, Chester, Exeter, Hereford and York). The 1979 Act does not contain any requirements relating to the setting of designated archaeological assets.

The **Planning (Listed Buildings and Conservation Areas) Act 1990** (the 1990 Act) sets out legislation relating to listed buildings and conservation areas. With regards to listed buildings, Section 66 (1) of the 1990 Act states that *"in considering whether to grant planning permission for development which affects a listed building or its setting, the Local Planning Authority or, as the case may be, Secretary of State shall have special regard to the desirability of preserving the building or its setting or any features of special architectural or historic interest which it possesses"*. With regards to conservation areas, Section 72 (1) of the 1990 Act states that *"...with respect to any building or other land in a conservation area...special attention shall be paid to the desirability of preserving or enhancing the character or appearance of that area"*.

The **Levelling-up and Regeneration Act 2023** (LURA) introduces section 58B to the **Town And Country Planning Act 1990**. Section 58B (1) states that *"In considering whether to grant planning permission or permission in principle for the development of land in England which affects a relevant asset or its setting, the local planning authority or (as the case may be) the Secretary of State must have special regard to the desirability of preserving or enhancing the asset or its setting."* An 'asset' in this context includes scheduled monuments, registered parks and gardens, registered battlefields, protected wrecks and world heritage sites.

National Planning Policy Framework (2024) (NPPF) sets out the government planning policies for England and how they should be applied. With regards to the historic environment, Chapter 16: Conserving and Enhancing the Historic Environment highlights that heritage assets *"are an irreplaceable resource, and should be conserved in a manner appropriate to their significance"* (NPPF paragraph 202).

A heritage asset is defined as *"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. Heritage assets include designated heritage assets and assets identified by the local planning authority (including local listing)"* (NPPF Annex 2). Heritage significance is defined as *"The value of a heritage asset to this and future generations because of its heritage interest. The interest may be archaeological, architectural, artistic or historic. Significance derives not only from a heritage asset's physical presence, but also from its setting."* Setting is defined as *"the surroundings in which a heritage asset is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve. Elements of a setting may make a positive or negative contribution to the significance of an asset, may affect the ability to appreciate that significance or may be neutral"*.

With regards to the level of information to be provided, paragraph 207 of the NPPF states that *"In determining planning 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".

With regards to considering impacts the NPPF states that "*great weight should be given to the asset's conservation (and the more important the asset, the greater the weight should be). This is irrespective of whether any potential harm amounts to substantial harm, total loss or less than substantial harm to its significance*" (paragraph 212).

With regards to impacts to designated heritage assets, "*Any harm to, or loss of...should require clear and convincing justification*", substantial harm to or loss of designated heritage assets of the highest significance should be "wholly exceptional", and for grade II designated heritage assets should be "exceptional" (paragraph 213). Less than substantial harm to a designated heritage asset "*should be weighed against the public benefits of the proposal*" (paragraph 215). Footnote 72 clarifies that "*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*".

With regards to 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*" (paragraph 216).

Where heritage assets will be lost as a result of development "*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*" (paragraph 218).

Advice on enhancing and conserving the historic environment is also published in the **Planning Practice Guidance (2019)** (PPG) which expands on how the historic environment should be assessed within the National Planning Policy Framework. This notes that "*Where potential harm to designated heritage assets is identified, it needs to be categorised as either less than substantial harm or substantial harm (which includes total loss)*" and also that "*Within each category of harm (which category applies should be explicitly identified), the extent of the harm may vary and should be clearly articulated... In general terms, substantial harm is a high test, so it may not arise in many cases*". With regards to non-designated heritage assets it also notes that "*A substantial majority of buildings have little or no heritage significance and thus do not constitute heritage assets. Only a minority have enough heritage significance to merit identification as non-designated heritage assets*".

Local Planning Policy is contained within the **Forest of Dean District Council Local Plan** including the Forest of Dean District Core Strategy (adopted February 2012). Emerging policy is contained within the Draft Local Plan 2041. Local planning policies relevant to heritage and the Site have been set out in Table B.1 below.

Table B.1. Local planning policy relating to heritage

Policy Ref.	Policy Text
Forest of Dean District Core Strategy (February 2012)	
Policy CSP.1	<i>“Design, environmental protection and enhancement (strategic objective: providing quality environments)</i> <i>The design and construction of new development must take into account important characteristics of the environment and conserve, preserve or otherwise respect them in a manner that maintains or enhances their contribution to the environment, including their wider context. New development should demonstrate an efficient use of resources. It should respect wider natural corridors and other natural areas, providing green infrastructure where necessary.</i> <i>In achieving the above, the following will be considered:</i> <i>...[bullet points including]</i> <i>The impact on any protected sites (natural and historic sites and heritage assets and potential for avoiding and/ or mitigating any impacts, or providing enhancement, should the development be acceptable</i> <i>...</i> <i>Development that is not able to be satisfactorily accommodated in respect of the above will not be permitted.”</i>
Forest of Dean Draft Local Plan 2021-2041 (Full Council version 30 May 2024)	
Policy LP. 16 Historic Character and Distinctiveness	<i>In order to maintain its cultural identity and sense of place, development should protect and promote the special qualities, historic character and local distinctiveness of the district. Development proposals will be required to demonstrate that they preserve and enhance local character and those aspects of the historic environment together with their settings which are recognised as being of special historic architectural, landscape or townscape quality. Particular attention should be paid to the following:</i> <i>• Local distinctive and cohesive style that provides local character to towns and villages</i> <i>• The built form and setting of the traditional settlements in and around the Forest of Dean (Statutory Forest).</i> <i>• Protected buildings and structures, including designated and non-designated heritage assets</i> <i>• Remaining features (buildings, structures and sites) relating to the industrial history of the area.</i> <i>• Individual buildings or structures that are of historical or cultural significance and or contribute to the character of a settlement or locality</i> <i>Other buildings or areas of local and or national cultural significance</i> <i>Open spaces of historic and/ or cultural significance</i>

The Historic England document **Conservation Principles, Policies and Guidance** (2008) sets out the recommended approach making decisions about the historic environment. It defines ‘conservation’ as “*the process of managing change to a significant place in its setting in ways that will best sustain its heritage values, while recognising opportunities to reveal or reinforce those values for present and future generations*” (Principle 4.2). In order to understand significance, it recommends consideration of four heritage ‘values’, evidential,

historical, aesthetic and communal in relation to a 'place'. Conservation Principles uses the term 'place' to mean "*any part of the historic environment that can be perceived as having a distinct identity*". **Evidential value** "*derives from the potential of a place to yield evidence about past human activity*", *derives from the physical remains or genetic lines that have been inherited from the past. The ability to understand and interpret the evidence tends to be diminished in proportion to the extent of its removal or replacement*". **Historical value** "*derives from the ways in which past people, events and aspects of life can be connected through a place to the present*". Historical value is often 'illustrative', i.e. visible remains may illustrate an aspect of the past, or 'associative', i.e. may be associated with a notable family, person, event or movement. **Aesthetic value** "*derives from the ways in which people draw sensory and intellectual stimulation from place*" and may be associated with conscious design or 'fortuitous' development. **Communal value** "*derives from the meanings of a place for the people who relate to it, or for whom it figures in their collective experience or memory*". Communal value is closely related to historical associative value and aesthetic value but tends to have additional aspects such as commemorative, symbolic, social or spiritual values. Conservation Principles recommends that assessment of significance should also consider setting and context. Setting being "*the surroundings in which a place is experienced, its local context, embracing present and past relationships to the adjacent landscape*", with the clarification that "*definition of the setting of a significant place will normally be guided by the extent to which material change within it could affect (enhance or diminish) the place's significance*". Context relates to the "*relationship between a place and other places*". In the context of managing change to significant places Conservation Principles highlights that "*Change to a significant place is inevitable, if only as a result of the passage of time, but can be neutral or beneficial in its effect on heritage values. It is only harmful if (and to the extent that) significance is eroded*".

Historic England have prepared a series of advice notes including **Good Practice Advice notes** (GPAs) and **Historic England Advice Notes** (HEANs). The GPAs included **Managing Significance in Decision-Taking in the Historic Environment: Historic Environment Good Practice Advice in Planning Note 2** (2015) which includes guidance relating to the assessment of significance through understanding the nature, extent and level of significance.

The IEMA, IHBA and ClfA guidance **Principles of Cultural Heritage Impact Assessment in the UK** details two principles and six analytical stages recommended for impact assessment, specifically:

A. Understanding cultural heritage assets:

1. describing the asset;
2. ascribing cultural significance; and
3. attributing importance.

B. Evaluating the consequences of change:

1. understanding change.
2. assessing impact; and
3. weighting the effect.

The Historic England guidance **The Setting of Heritage Assets: Historic Environment Good Practice Advice in Planning Note 3** (Second Edition) (2017) (GPA3) details the recommended approach to assessing setting and potential harm to heritage assets through alteration to setting. This clarifies that “*setting is not itself a heritage asset...its importance lies in what it contributes to the significance of the heritage asset or to the ability to appreciate that significance*”. Historic England recommends that assessment of setting covers five broad steps:

Step 1: Identify which heritage assets and their settings are affected.

Step 2: Assess the degree to which these settings and views make a contribution to the significance of the heritage asset(s) or allow significance to be appreciated.

Step 3: Assess the effects of the proposed development, whether beneficial or harmful, on the significance or on the ability to appreciate it.

Step 4: Explore ways to maximise enhancement and avoid or minimise harm.

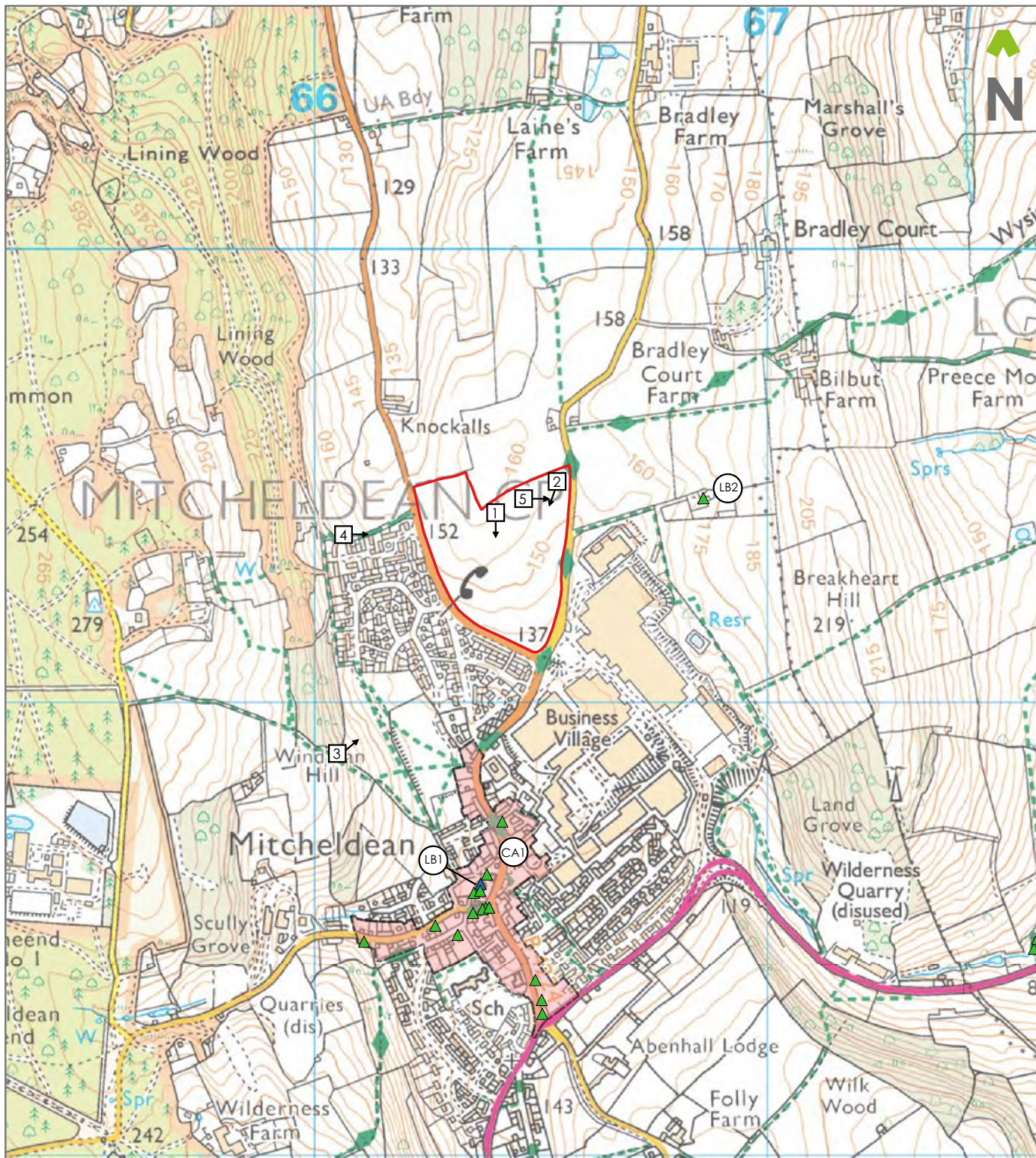
Step 5: Make and document the decision and monitor outcomes.

Step 1 should consider whether proposals have the potential to affect the setting of any heritage assets. Where appropriate this may utilise a 'search area' and 'Zone of Theoretical Visibility', as well as the nature of proposals. **Step 2** should consider the assets physical surroundings and its relationship with other heritage assets, intangible associations with surroundings and patterns of use, the contribution made by factors such as noise and smell, as well as the ways in which views allow the significance of the asset to be appreciated. A non-exhaustive checklist of potential attributes is given on page 11 of GPA3, including items such as: topography, aspect, definition of surrounding spaces, formal design, orientation, historic materials, greenspace, vegetation, openness, functional relationships, history, change over time, surrounding character, views, intentional intervisibility, visual dominance, vibration, tranquillity, busyness, enclosure, land use, accessibility, patterns of movement, degree of interpretation, rarity, associations, artistic representations and traditions. **Step 3** is informed by step 2 and considers the effects of the proposed development with reference to factors including location, siting, form, appearance and permanence. Minimising harm in **Step 4** may include design alterations or the implementation of mitigating factors such as screening. **Step 5** includes documenting steps 1-4, but also reviewing a scheme following its implementation.

Appendix C: Figures

Figure 1: Site Location and Designated Heritage Assets

Figure 2: Historic Environment Record Data



Site



CSA Reference



Grade I Listed Building



Photo location



Grade II Listed Building



Conservation Area

0 250 500 m



CSA
environmental

3 Ripple Court, Bockeridge Park,
Twynning, Tewkesbury, GL20 6FG

t 01386 751100

e enquiries@csaenvironmental.co.uk

w w.csaenvironmental.co.uk

Project Land at Carisbrook Road, Mitcheldean

Drawing Title Figure 1: Site Location and Designated Heritage Assets

Client Gladman Developments Ltd

Drawing No.
CSA/4057/108

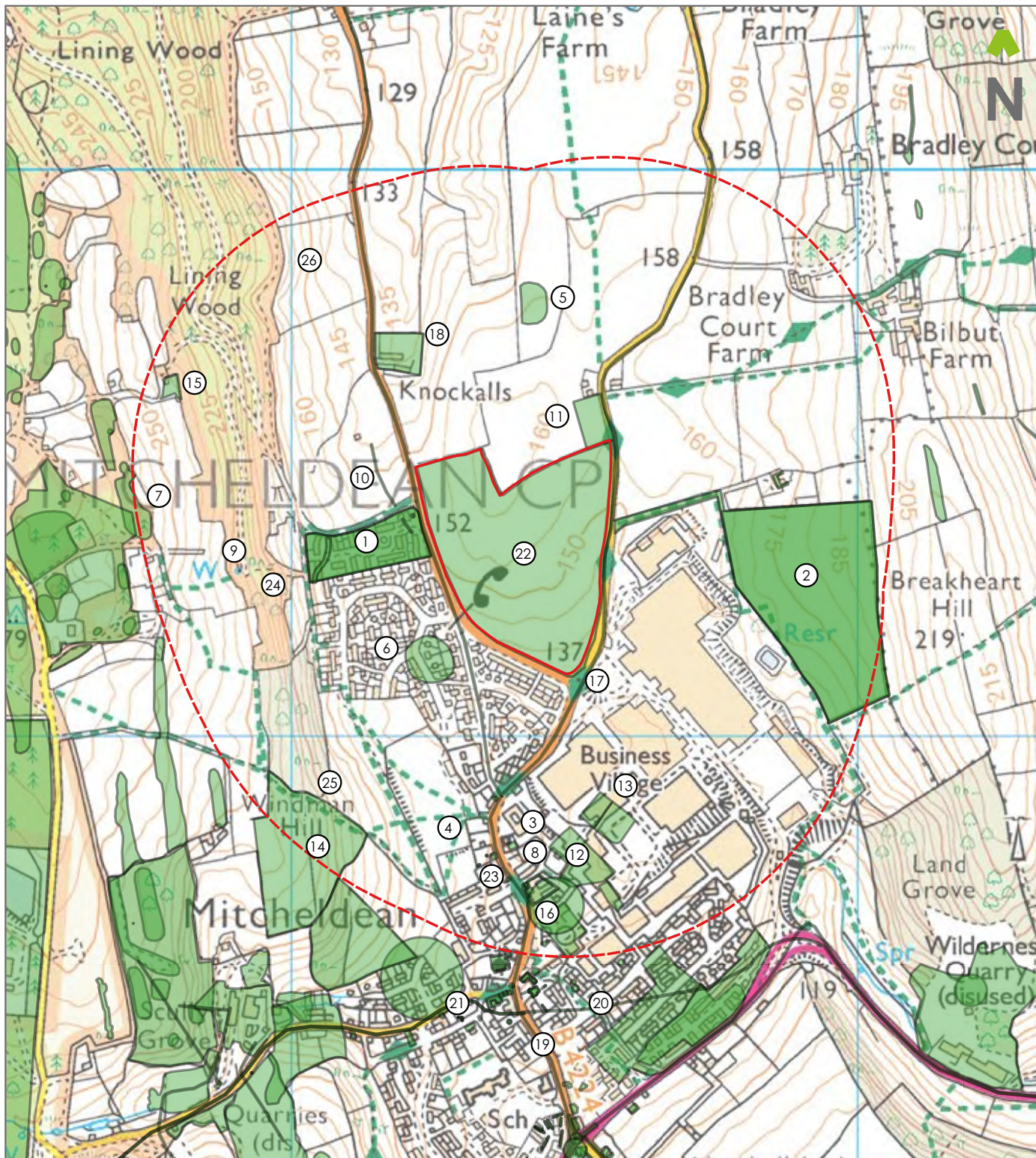
Scale
1:12,500 @A4

Date
July 2024

Rev
B

Drawn
RM

Checked
RJ



Site



Study Area



HER polygon (after Gloucestershire HER)



CSA Reference

0 250 500 m



3 Ripple Court, Bockeridge Park,
Twynning, Tewkesbury, GL20 6FG

† 01386 751100
e enquiries@csaenvironmental.co.uk
w csaenvironmental.co.uk

Project Land at Carisbrook Road, Mitcheldean

Drawing Title Figure 2: Historic Environment Record Data

Client Gladman Developments Ltd

Drawing No.
CSA/4057/109

Scale
1:10,000 @A4

Date
July 2024

Rev
B

Drawn
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Checked
RJ

Appendix D: Geophysical Survey

Magnitude Surveys 2018. Geophysical Survey Report of Carisbrook Road,
Mitcheldean, Gloucestershire



**Geophysical Survey Report
of
Carisbrook Road, Mitcheldean
Gloucestershire**

**For
CSA Environmental**

**On Behalf Of
Gladman Developments**

Magnitude Surveys Ref: MSSO405

November2018



**magnitude
surveys**

Unit 17, Commerce Court

Challenge Way

Bradford

BD4 8NW

01274 926020

info@magnitudesurveys.co.uk

Version	Purpose/Revision	Author	Interpretation/Figures	Approved By	Date Issued
Draft 1.0	Initial Draft to Client	William Rigby BA MA PCIfA Kayt Armstrong BA MSc PhD	William Rigby BA MA PCIfA Marta Fortuny BA MA	Kayt Armstrong BA MSc PhD & Marta Fortuny BA MA	30 November 2018
Final 2.0	Minor amendments from client	William Rigby BA MA PCIfA	William Rigby BA MA PCIfA	Marta Fortuny BA MA	30 November 2018

Abstract

Magnitude Surveys was commissioned to assess the subsurface archaeological potential of a c. 9.7 ha area of Land at Carisbrook Road, near Mitcheldean, Gloucestershire. A fluxgate magnetometer survey was successfully completed no anomalies of probable or possible archaeological origin have been identified. The geophysical results primarily reflect agricultural activity in the form of former field boundaries, both known and unknown on historical maps.

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1. Introduction

- 1.1. Magnitude Surveys Ltd (MS) was commissioned by CSA Environmental on behalf of Gladman Developments to undertake a geophysical survey on a c.9.72ha of land at Carisbrook Road, Mitcheldean, Gloucestershire (SO664193).
- 1.2. The geophysical survey comprised quad-towed, cart-mounted GNSS-positioned fluxgate magnetometer survey.
- 1.3. The survey was conducted in line with the current best practice guidelines produced by Historic England (David et al., 2008), the Chartered Institute for Archaeologists (CIfA, 2014) and the European Archaeological Council (Schmidt et al., 2015).
- 1.4. The survey was conducted in line with the WSI agreed by the client and archaeological advisor to the LPA, and issued by Magnitude Surveys on 31/10/2018.
- 1.5. The survey commenced on 20/11/2018 and took 2 days to complete.

2. Quality Assurance

- 2.1. Magnitude Surveys is a Registered Organisation of the Chartered Institute for Archaeologists (CIfA), the chartered UK body for archaeologists, and a corporate member of ISAP (International Society of Archaeological Prospection).
- 2.2. Director Graeme Attwood is a Member of CIfA, as well as the Secretary of GeoSIG, the CIfA Geophysics Special Interest Group. Director Finnegan Pope-Carter is a Fellow of the London Geological Society, the chartered UK body for geophysicists and geologists, as well as a member of GeoSIG, the CIfA Geophysics Special Interest Group. Director Chrys Harris has a PhD in archaeological geophysics from the University of Bradford and is the Vice-Chair of the International Society for Archaeological Prospection.
- 2.3. All MS managers have relevant degree qualifications to archaeology or geophysics. All MS field and office staff have relevant archaeology or geophysics degrees and/or field experience.

3. Objectives

- 3.1. The geophysical survey aimed to assess the subsurface archaeological potential of the survey area.

4. Geographic Background

4.1. The site is located off Carisbrook Road, Mitcheldean, Forest of Dean, Gloucestershire (Figure 1). Survey was undertaken on an arable field sown with winter wheat, which sloped north to south. The survey area is to the north of Mitcheldean and is bound to the west by the B4224 and to the east by Carisbrook Road (Figure 2).

4.2. Survey considerations:

Survey Area	Ground Conditions	Further Notes
1	Arable field, sown with winter wheat, with a crop north-south direction.	The survey area was bound by a wire fence and hedgerow perimeter. Accessed via a gateway in the north-eastern corner.

4.3. The underlying geology comprises Brownstones Formation - Sandstone And [subequal/subordinate] Argillaceous Rocks, Interbedded. No superficial deposits have been recorded (British Geological Survey, 2018).

4.4. The soils consist freely draining slightly acid loamy soils (Soilscapes, 2018).

5. Archaeological Background

5.1. The following section summarises the archaeological background of the site and the surrounding landscape, from a desk-based assessment (DBA) produced by CSA Environmental (2018).

5.2. No designated heritage assets are located within the survey area.

5.3. Cropmarks have indicated a possible D shaped prehistoric enclosure, 230m to the north of the survey area.

5.4. Roman activity is present within the surrounding environs of the survey area, with evidence of iron ore extraction 500m to the west and a Roman Road 800m to the south.

5.5. The survey site is located 300m to the north of the medieval core of Mitcheldean, which consists of listed buildings such as the Church of St Michael and all Angels.

5.6. Historic mapping illustrates agricultural field system progression through the post-medieval period.

6. Methodology

6.1. Data Collection

6.1.1. Geophysical prospection comprised the magnetic method as described in the following table.

6.1.2. Table of survey strategies:

Method	Instrument	Traverse Interval	Sample Interval
Magnetic	Bartington Instruments Grad-13 Digital Three-Axis Gradiometer	1m	200Hz reprojected to 0.125m

6.1.3. The magnetic data were collected using MS' bespoke quad-towed cart system GNSS-positioned system.

6.1.3.1. MS' quad towed cart system was comprised of Bartington Instruments Grad 13 Digital Three-Axis Gradiometers. Positional referencing was through a multi-channel, multi-constellation GNSS Smart Antenna RTK GPS outputting in NMEA mode to ensure high positional accuracy of collected measurements. The RTK GPS is accurate to 0.008m + 1ppm in the horizontal and 0.015m + 1ppm in the vertical.

6.1.3.2. Magnetic and GPS data were stored on an SD card within MS' bespoke datalogger. The datalogger was continuously synced, via an in-field Wi-Fi unit, to servers within MS' offices. This allowed for data collection, processing and visualisation to be monitored in real-time as fieldwork was ongoing.

6.1.3.3. A navigation system was integrated with the RTK GPS, which was used to guide the surveyor. Data were collected by traversing the survey area along the longest possible lines, ensuring efficient collection and processing.

6.2. Data Processing

6.2.1. Magnetic data were processed in bespoke in-house software produced by MS. Processing steps conform to Historic England's standards for "raw or minimally processed data" (see sect 4.2 in David et al., 2008: 11).

Sensor Calibration – The sensors were calibrated using a bespoke in-house algorithm, which conforms to Olsen et al. (2003).

Zero Median Traverse – The median of each sensor traverse is calculated within a specified range and subtracted from the collected data. This removes striping effects caused by small variations in sensor electronics.

Projection to a Regular Grid – Data collected using RTK GPS positioning requires a uniform grid projection to visualise data. Data are rotated to best fit an orthogonal grid projection and are resampled onto the grid using an inverse distance-weighting algorithm.

Interpolation to Square Pixels – Data are interpolated using a bicubic algorithm to increase the pixel density between sensor traverses. This produces images with square pixels for ease of visualisation.

6.3.Data Visualisation and Interpretation

6.3.1. This report presents the gradient of the sensors' total field data as greyscale images, as well as the total field data from the upper and/or lower sensors. The gradient of the sensors minimises external interferences and reduces the blown-out responses from ferrous and other high contrast material. However, the contrast of weak or ephemeral anomalies can be reduced through the process of calculating the gradient. Consequently, some features can be clearer in the respective gradient or total field datasets. Multiple greyscale images at different plotting ranges have been used for data interpretation. Greyscale images should be viewed alongside the XY trace plot (Figure 8). XY trace plots visualise the magnitude and form of the geophysical response, aiding in anomaly interpretation.

6.3.2. Geophysical results have been interpreted using greyscale images and XY traces in a layered environment, overlaid against open street maps, satellite imagery, historic maps, LiDAR data, and soil and geology maps. Google Earth (2018) was consulted as well, to compare the results with recent land usages.

7. Results

7.1. Qualification

7.1.1. Geophysical results are not a map of the ground and are instead a direct measurement of subsurface properties. Detecting and mapping features requires that said features have properties that can be measured by the chosen technique(s) and that these properties have sufficient contrast with the background to be identifiable. The interpretation of any identified anomalies is inherently subjective. While the scrutiny of the results is undertaken by qualified, experienced individuals and rigorously checked for quality and consistency, it is often not possible to classify all anomaly sources. Where possible an anomaly source will be identified along with the certainty of the interpretation. The only way to improve the interpretation of results is through a process of comparing excavated results with the geophysical reports. MS actively seek feedback on their reports as well as reports of further work in order to constantly improve our knowledge and service.

7.2. Discussion

7.2.1. The geophysical results are presented in consideration with satellite imagery (Figure 6) and historic maps (Figure 7).

7.2.2. The fluxgate magnetometer survey has responded well to the survey area's environment. The soils on the site appear to have a naturally 'noisy' character with small changes in strength over short spatial distances producing a speckled character in the data. This is likely a result of the parent geology. The survey has detected a series of positive linear and curvilinear anomalies interpreted as former field boundaries and more recent agricultural activity and a scatter of small ferrous anomalies likely a result of modern ferrous material in the topsoil.

7.3. Interpretation

7.3.1. General Statements

7.3.1.1. Geophysical anomalies will be discussed broadly as classification types across the survey area.

7.3.1.2. **Undetermined** – Anomalies are classified as Undetermined when the anomaly origin is ambiguous through the geophysical results and there is no supporting or correlative evidence to warrant a more certain classification. These anomalies are likely to be the result of geological, pedological or agricultural processes, although an archaeological origin cannot be entirely ruled out. Undetermined anomalies are generally not ferrous in nature.

7.3.1.3. **Ferrous (Discrete/Spread)** – Discrete ferrous-like, dipolar anomalies are likely to be the result of modern metallic disturbance on or near the ground surface. A ferrous spread refers to a concentrated deposition of these discrete, dipolar anomalies. Broad dipolar ferrous responses from modern metallic features, such as fences, gates, neighbouring buildings and services, may mask any weaker underlying archaeological anomalies should they be present.

7.3.2. Magnetic Results - Specific Anomalies

- 7.3.2.1. **Agricultural** – A series of discrete coherent linear positive anomalies at right angles to one another covers the survey area. Some of these are co-located with field boundaries seen on historical maps (figure 7), and the other which are not clearly abut or intersect those that do. These are interpreted as the remains of former field divisions removed in the historical past. There are additional curvilinear anomalies that follow the field boundaries. These are interpreted as related to soil changes caused by more recent agricultural activity (repeated tractor movements, ploughing headlands).
- 7.3.2.2. **Natural** – Magnetic anomalies caused by natural variations in the soils and parent geology have been detected across the site. Slight magnetic variations of large enhanced bands running north-south are visible on the magnetic data.
- 7.3.2.3. **Ferrous** - A number of large ferrous responses within the survey area can clearly be related to standing poles for services, and with metal fencing at the field edges. Additionally, there is a scatter of discrete ferrous material likely to be being caused by small modern ferrous rubbish in the topsoil.

8. Conclusions

- 8.1. The magnetic survey responded well to the survey environment, despite the noisy character of the local soils. No anomalies of probable or possible archaeological interest were identified. The geophysical results have primarily recorded a series of former field boundaries, reflecting historical patterns of land division, partially coinciding with historical mapping. Other linear anomalies have been interpreted as being related to more recent agricultural activity. Changes in the natural soils and parent geology have also been recorded.

9. Archiving

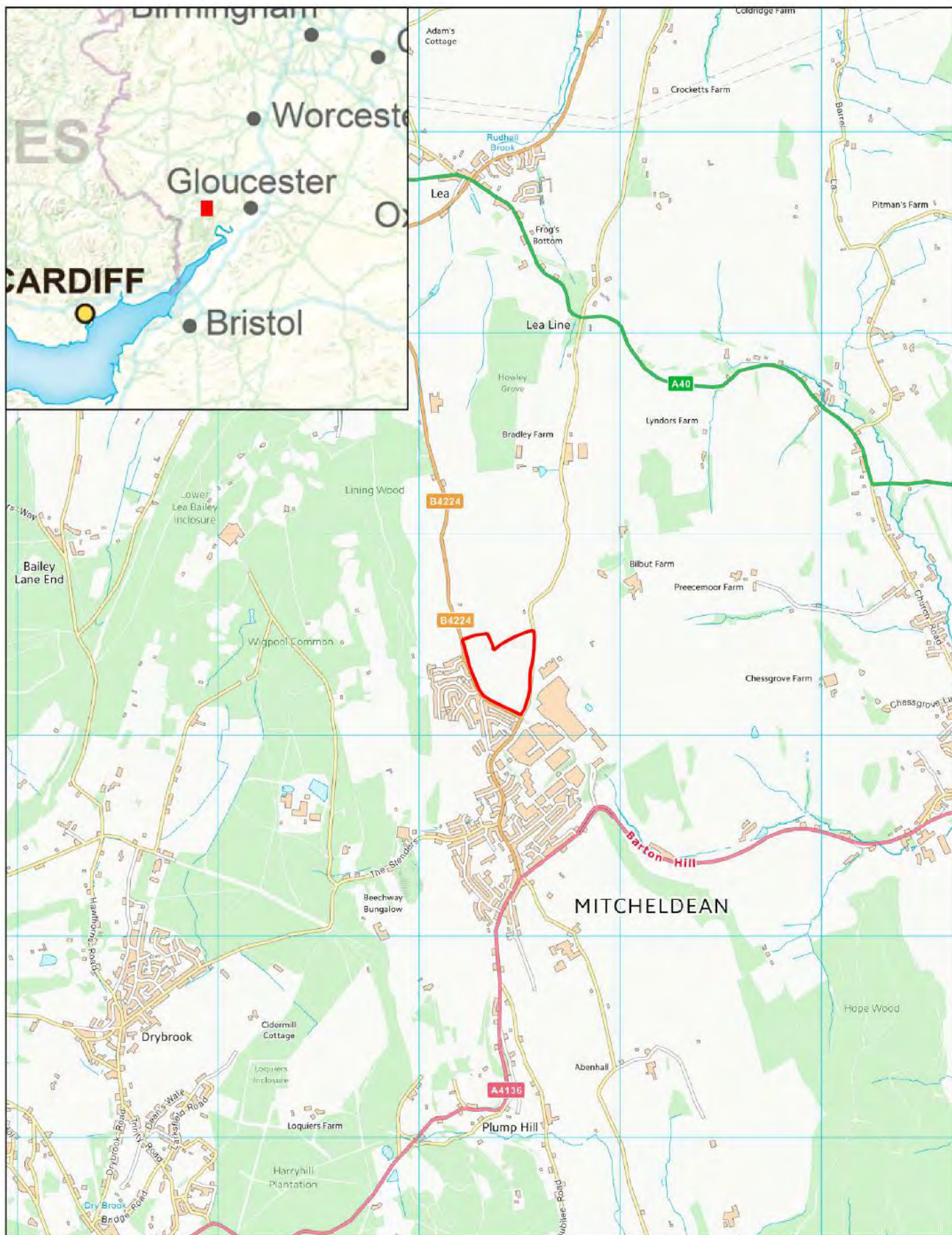
- 9.1. MS maintains an in-house digital archive, which is based on Schmidt and Ernenwein (2013). This stores the collected measurements, minimally processed data, georeferenced and un-georeferenced images, XY traces and a copy of the final report.
- 9.2. MS contributes reports to the ADS Grey Literature Library upon permission from the client, subject to the any dictated time embargoes.

10. Copyright

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11. References

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MSSO405 - Carisbrook Road, Mitcheldean, Gloucestershire

Figure 1 - Site Location

1:25,000 @ A4

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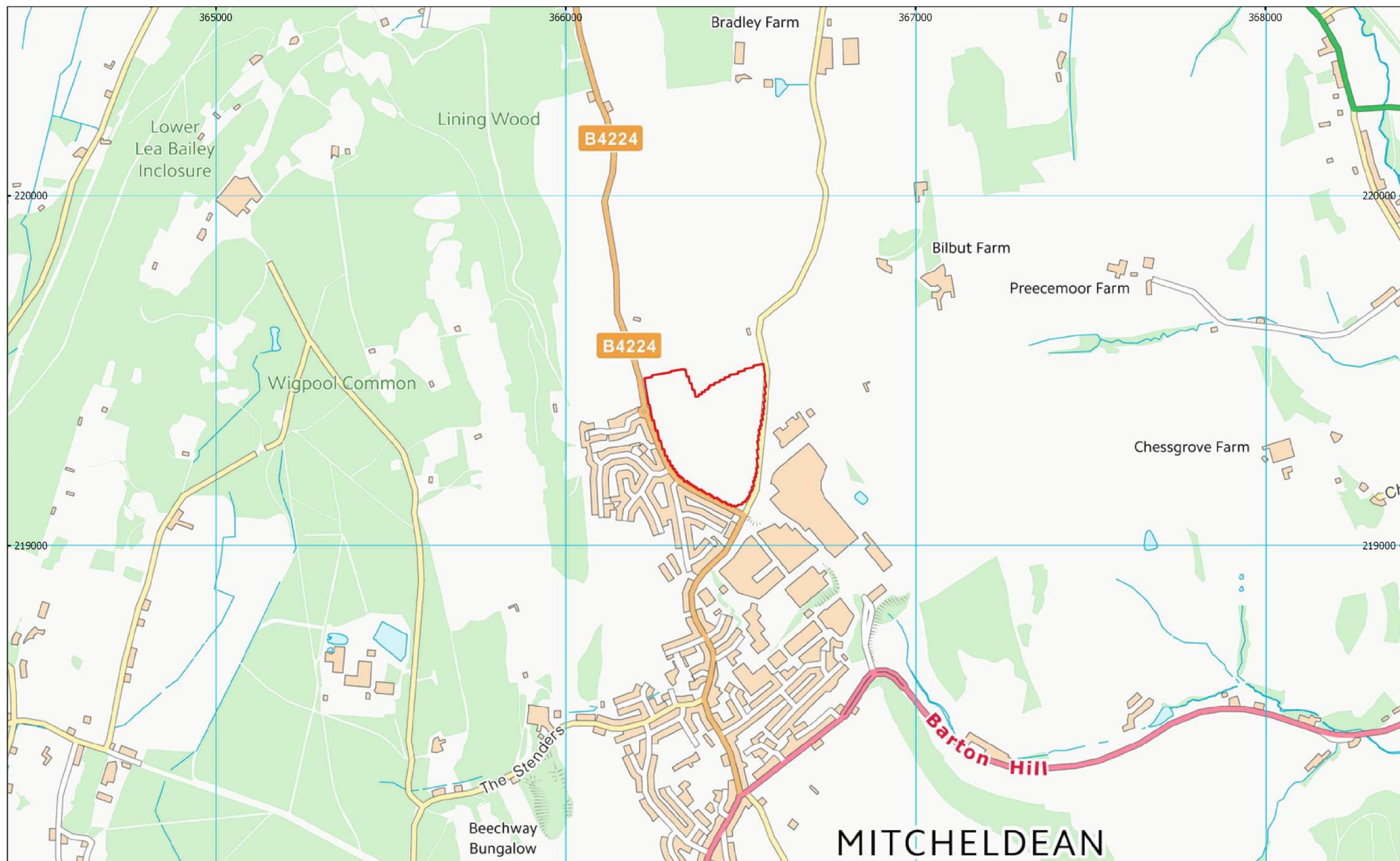
 Site Boundary



0 0.5 1 km

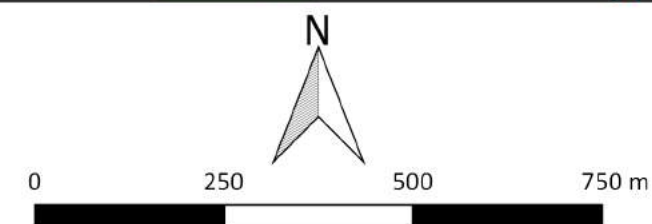


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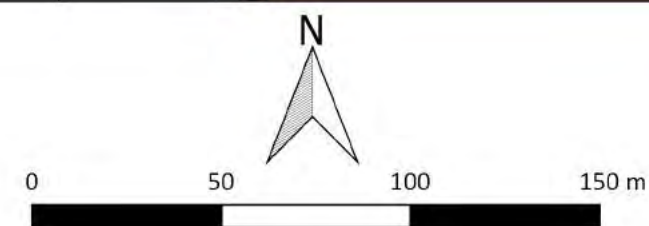
MSSO405 - Carisbrook Road, Mitcheldean, Gloucestershire
 Figure 2 - Location of Survey Area
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 Survey Area



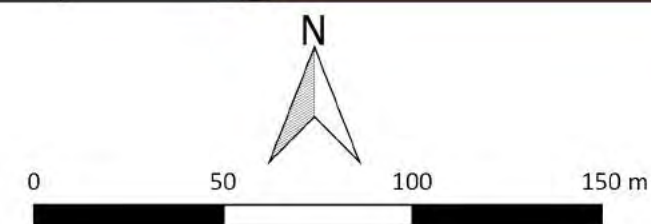
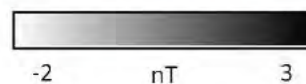


MSSO405 - Carisbrook Road, Mitcheldean, Gloucestershire
Figure 3 - Magnetic Total Field (Upper Sensor)
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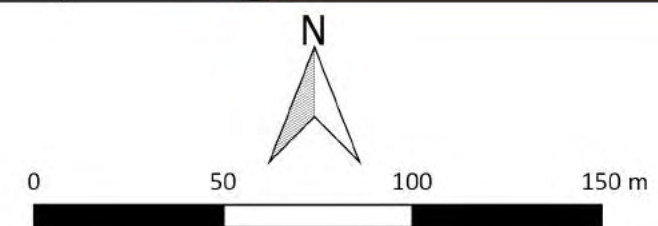
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Figure 4 - Magnetic Gradient
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 Figure 5 - Magnetic Interpretation
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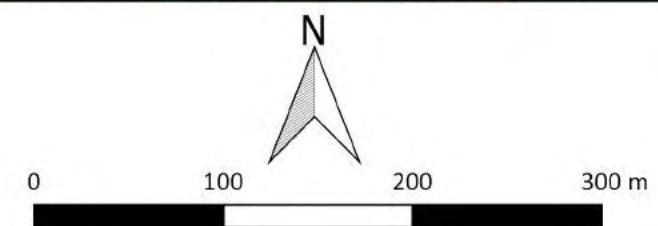
- | | |
|--|--|
| Agricultural (Strong) | Ferrous (Dipolar) |
| Agricultural (Weak) | Ferrous (Spread) |
| Agricultural (Spread) | Natural (Strong) |
| | Natural (Weak) |



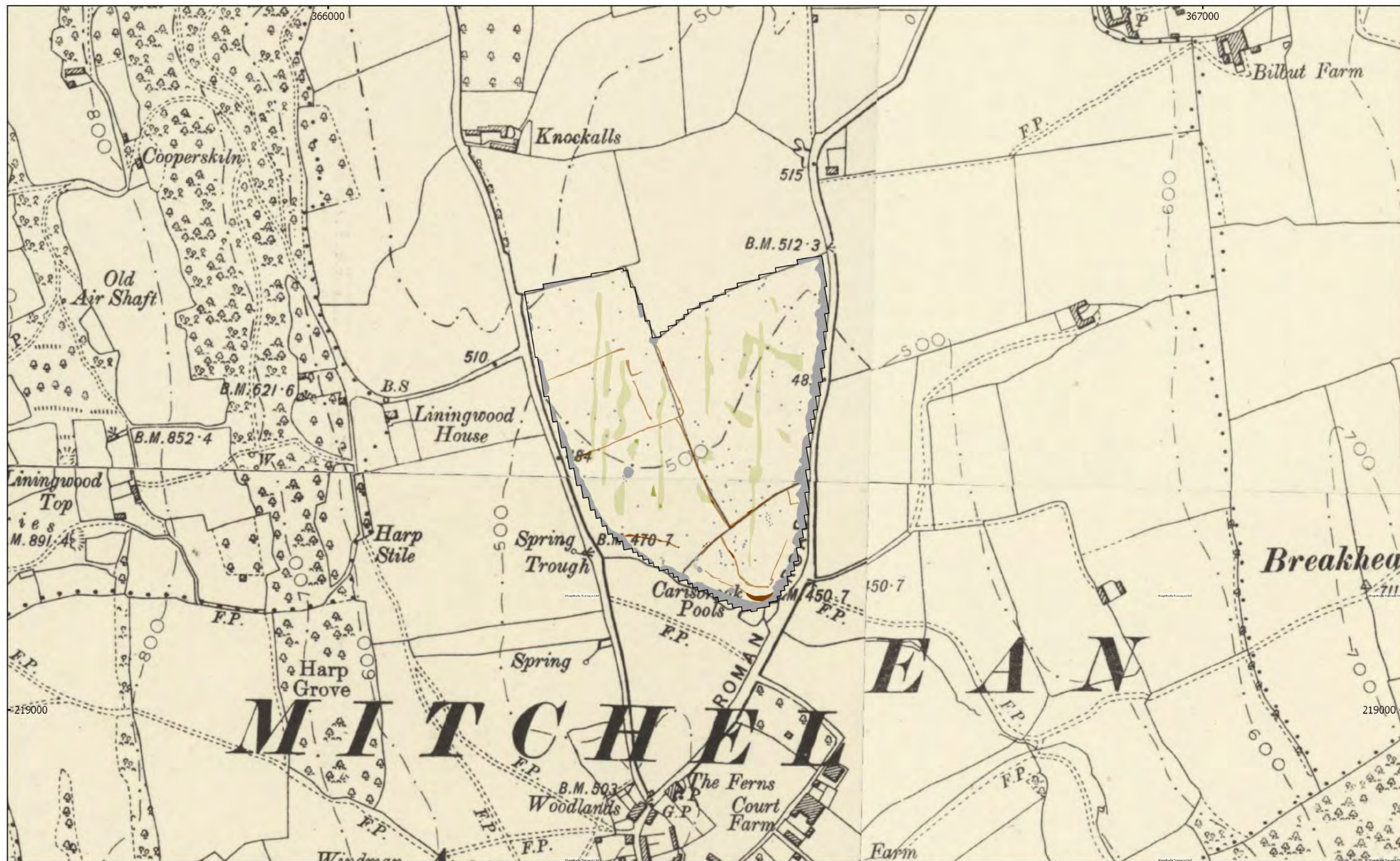


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 Figure 6 - Magnetic Interpretation Over Satellite Imagery
 1:4,000 @ A3
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- | | |
|---|---|
| Agricultural (Strong) | Ferrous (Dipolar) |
| Agricultural (Weak) | Ferrous (Spread) |
| Agricultural (Spread) | Natural (Strong) |
| | Natural (Weak) |



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Figure 7 - Magnetic Interpretation Over Historic Maps

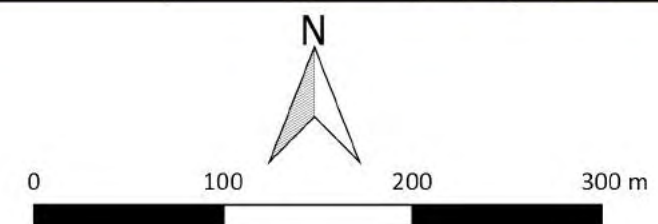
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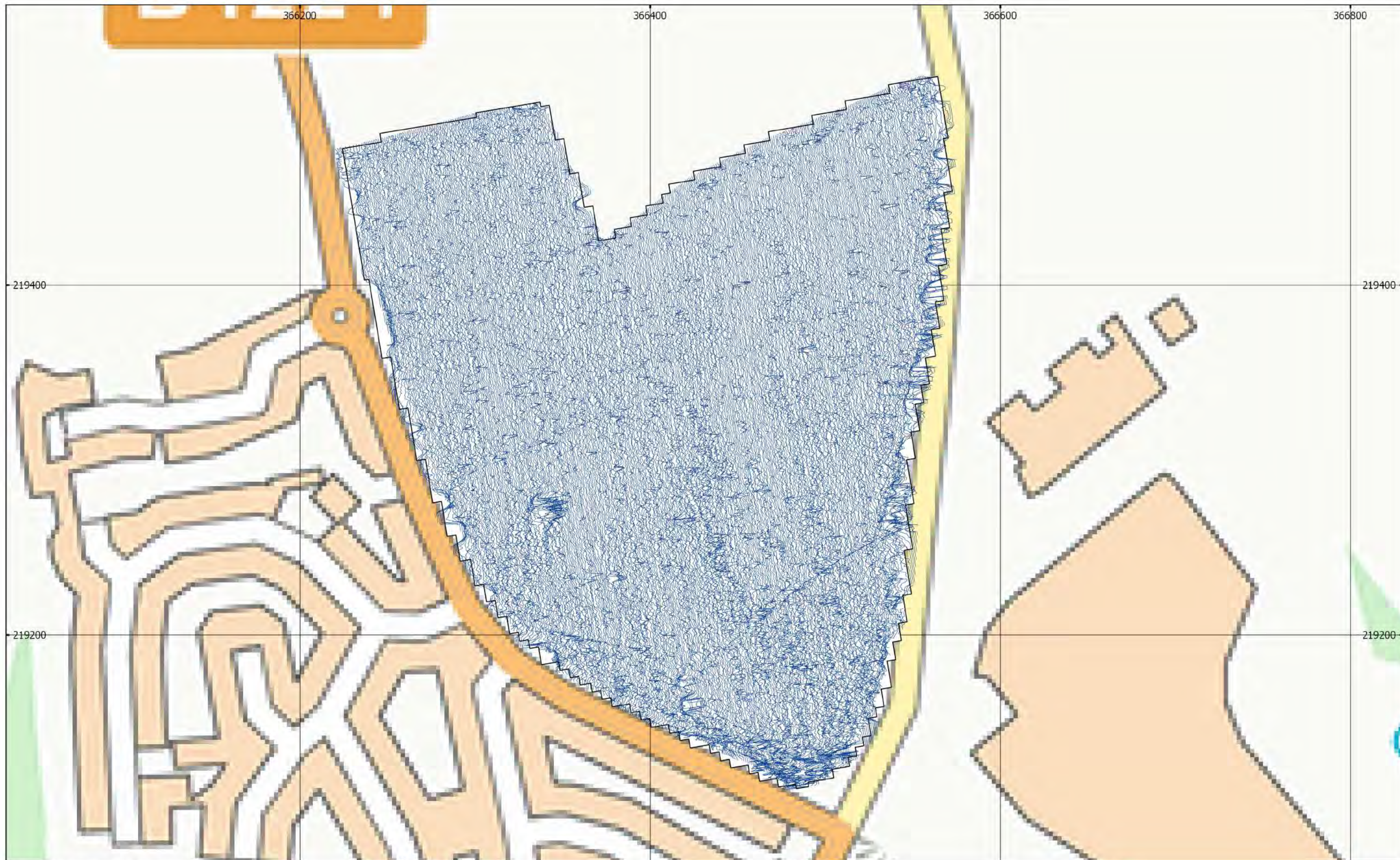
Contains historic maps: Ordnance Survey, 6" 2nd edition c. 1882-1913 ©

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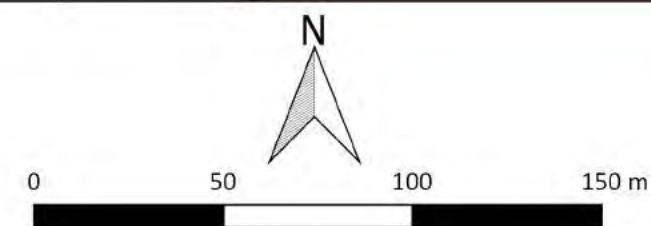
- | | |
|---|---|
| Agricultural (Strong) | Ferrous (Dipolar) |
| Agricultural (Weak) | Ferrous (Spread) |
| Agricultural (Spread) | Natural (Strong) |
| | Natural (Weak) |



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Figure 8 - XY Trace Plot
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Dixies Barns, High Street,
Ashwell, Hertfordshire
SG7 5NT

t 01462 743647
e ashwell@csaenvironmental.co.uk
w csaenvironmental.co.uk

Office 20, Citibase,
95 Ditchling Road,
Brighton BN1 4ST

t 01273 573871
e brighton@csaenvironmental.co.uk
w csaenvironmental.co.uk

9 Hills Road,
Cambridge,
CB2 1GE

t 07713 468300
e cambridge@csaenvironmental.co.uk
w csaenvironmental.co.uk

3 Ripple Court,
Brockridge Park, Twynning,
Tewkesbury GL20 6FG

t 01386 751100
e tewkesbury@csaenvironmental.co.uk
w csaenvironmental.co.uk

Wizu Workspace, 32 Eyre St,
Sheffield City Centre,
Sheffield S1 4QZ

t 07838 290741
e sheffield@csaenvironmental.co.uk
w csaenvironmental.co.uk

Worting House,
Church Lane, Basingstoke,
RG23 8PY

t 01256 632340
e basingstoke@csaenvironmental.co.uk
w csaenvironmental.co.uk