

**The Rainbows, Willersey, Gloucestershire
Archaeological Desk Based Assessment**

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1. INTRODUCTION

1.1 Overview of Works

- 1.1.1 AB Heritage Limited (herein AB Heritage) have been commissioned by Belectric Solar (UK) Limited to produce an Archaeological Desk-Based Assessment covering the site of a proposed 5MWp Solar Energy Farm on land (known as the Rainbows), approximately 1.5km north-west of the village of Willersey, Badsey Lane, Gloucestershire (NGR SP 09940 41150).
- 1.1.2 This report includes a description of the baseline conditions; an examination of available documentary, cartographic and known archaeological evidence; identifies any known and potential cultural heritage receptor(s) within the application site or its immediate vicinity and assesses the potential impact of the proposed development on such a resource.

1.2 Site Location/Description

- 1.2.1 The proposed development site is located on relatively flat ground, at c. 59m AOD, in two previously cultivated fields of arable land to the north east of Lower Field Farm on Badsey Lane, Gloucestershire (Figure 1). The proposed development site is largely surrounded a number of farms and their associated fields. An area of woodland is also located to the south east of the site. The site is located just within the Gloucestershire side of the border with Worcestershire

1.3 Proposed Development

- 1.3.1 The proposed development comprises the construction of a 6MWp Solar Farm across an approximate area of approximately 13.6ha. The solar farm comprise of a series of linear rows of photovoltaic (PV) modules, together with three small inverter platforms, transfer station, collecting station and enhanced landscaping.
- 1.3.2 Each solar array will comprise of a series of short narrow aluminium posts, supporting PV modules. Each solar array will be spaced approximately 8.2m apart.
- 1.3.3 The supporting posts will be excavated to a depth of 1m and in-filled with post grout. The majority of the solar arrays will stand up to a maximum 3m above ground and will be south facing with a 20 degrees inclination. Five inverters are required for the solar farm. The inverters will be positioned on an inverter platform. The solar farm requires just three platforms in total (2x double inverter platform and 1 x single inverter platform). The platforms will have minimal foundations of approximately 50 cm. The transfer station and collecting station will also have minimal excavations with an excavated depth of approximately 80cm.
- 1.3.4 Approximately 98% of natural areas between the arrays will continue to exist after the construction of the solar farm. Recent solar farm's delivered by BELECTRIC indicate that only 2% of the total site area will be disturbed (i.e. trenching, excavations, foundations) during construction.

2. REPORT AIMS

2.1 Aims of Cultural Heritage Works

- 2.1.1 Early consultation on the results of archaeological research and consideration of the implications of proposed development are the key to informing reasonable planning decisions.
- 2.1.2 The aim of this report is to facilitate such a process by understanding the historical development of the application site and understanding the likely impact upon any surviving archaeological resource resulting from any future proposed development, devising appropriate responses where necessary.
- 2.1.3 The Desk Based Assessment has a number of aims.
- Examination of readily accessible pre-Ordnance Survey Maps, documentary sources and historic aerial photographs covering the site of proposed development at the Gloucestershire Record Office;
 - On-line research;
 - A site visit to understand key cultural heritage issues of the site and surrounding area, including information on areas of past truncation within the site boundary;
 - Confirmation of statutory and non-statutory designations within and in close proximity to the site of proposed development;
 - Consultation with Charles Parry (Gloucestershire County Council Senior Archaeological Officer);
 - An Impact Assessment and development of a mitigation strategy, where required, which appropriately targets any future heritage works.

3. REPORT METHODOLOGY

3.1 Methodology of Cultural Heritage Works

3.1.1 The assessment has been carried out, in regard to the collation of baseline information, in line with the Institute for Archaeologists' Standard and Guidance for Desk-Based Assessment (1994, rev.2001 & 2008).

3.1.2 This assessment includes information contained in relevant statutory requirements, national, regional and local planning policies and professional good practice guidance, including:

- Ancient Monuments and Archaeological Areas Act, 1979;
- Planning (Listed Buildings and Conservation Areas) Act, 1990;
- The National Planning Policy Framework, 2012.

3.1.3 The Gloucestershire and Worcestershire Historic Environment Records (HER) are the primary source of information concerning the current state of archaeological and architectural knowledge in this area. The information contained within these databases were supported by examination of data from a range of other sources, principally:

- An assessment of historical and documentary evidence held by the Gloucestershire Record Office, including historic maps covering the application site;
- The Heritage Gateway (www.heritagegateway.org.uk): for information from the English Heritage National Monuments Record, Pastscape and other resources;
- The English Heritage website professional pages, particularly the national heritage list (<http://www.english-heritage.org.uk/professional/protection/process/national-heritage-list-for-england/>);
- Order of the relevant Gloucestershire HER transcribed aerial photograph plots on 13th of November 2012;
- A site-walk over on the 22nd November 2012.

3.1.4 Information from these sources was also sought on the following:

- Information on statutorily designated sites, including World Heritage Sites and their buffer zones, Scheduled Monuments, Listed Buildings, Registered Parks and Gardens, and Historic Battlefields;
- Information on non-statutorily and locally designated heritage assets, including Conservation Areas, locally listed buildings, and non-designated archaeological assets recorded in the Gloucestershire Historic Environment Record;
- Readily accessible information on the site's history from publicly available non-copyright historic maps;
- Evidence on the location and orientation of the remains of ridge and furrow cultivation, or the presence of any other earthworks/cropmarks, as recorded on aerial photographs;

- Any information on the site contained in published and unpublished archaeological and historical sources, including local archaeological journals;
- Information on any previous archaeological investigations undertaken within the study area.

3.1.7 Furthermore, phone/email consultation was undertaken between Andy Buckley (AB Heritage and Charles Parry (Gloucestershire County Council Senior Archaeological Officer) to better understand his thoughts on the archaeological resource of the site and the potential requirements associated with the progression of future development works in relation to such a resource.

3.2 Assessment of the Cultural Heritage Resource

3.2.1 This desk-based assessment contains a record of the known and potential cultural heritage resource of an area. In relation to buried archaeological remains, where there is a potential for encountering a particular resource within the application site this is assessed according to the following scale:

- Low - Very unlikely to be encountered on site;
 Medium- Possibility that features may occur / be encountered on site;
 High - Remains almost certain to survive on site.

3.2.2 Where there is either a known or above medium potential for the recovery of archaeological remains within study area, which may be subject to impact by the proposed development, the significance of this resource is assessed.

3.2.3 There is currently no standard adopted statutory or government guidance for assessing the importance of an archaeological feature and this is instead judged upon factors such as statutory and non-statutory designations, architectural, archaeological or historical significance, and the contribution to local research agendas. Considering these criteria each identified feature can be assigned to a level of importance in accordance with a five point scale (Table 1, below).

Table 1: Assessing the Importance of a Cultural Heritage Site

SCALE OF SITE IMPORTANCE	
NATIONAL	The highest status of site, e.g. Scheduled Monuments (or undesignated assets of schedulable quality and importance). Grade I and Grade II* Listed Buildings. Other listed buildings that can be shown to have exceptional qualities in their fabric or historical associations not adequately reflected in the listing grade. Conservation Areas containing very important buildings. Undesignated structures of clear national importance. Extremely well preserved historic landscape, whether inscribed or not, with exceptional coherence, time depth, or other critical factor(s).

REGIONAL	Grade II Listed Buildings or other designated or undesignated archaeological sites (in addition to those listed above), or assets of a reasonably defined extent and significance, or reasonable evidence of occupation / settlement, ritual, industrial activity etc. Examples may include areas containing buildings that contribute significantly to its historic character, burial sites, deserted medieval villages, Roman roads and dense scatter of finds.
LOCAL	Evidence of human activity more limited in historic value than the examples above, or compromised by poor preservation and/or survival of context associations, though which still have the potential to contribute to local research objectives. Examples include sites such as 'locally designated' buildings or undesignated structures / buildings of limited historic merit, out-of-situ archaeological findspots / ephemeral archaeological evidence and historic field systems and boundaries etc.
NEGLIGIBLE	Assets with very little or no surviving archaeological interest. Examples include destroyed antiquities, structures of almost no architectural / historic merit, buildings of an intrusive character or relatively modern / common landscape features such as quarries, drains and ponds etc.
UNKNOWN	Insufficient information exists to assess the importance of a feature (e.g. unidentified features on aerial photographs).

3.2.4 The importance of already identified cultural heritage resources is determined by reference to existing designations. Where classification of a receptors value covered a range of the above possibilities or for previously unidentified features where no designation has been assigned, the value of the receptor was based on professional knowledge and judgement.

3.2.5 For some types of finds or remains there is no consistent value and the importance may vary, for example Grade II Listed Buildings and Conservation Areas. For this reason, adjustments are occasionally made, where appropriate, based on professional judgement.

3.3 Impact Assessment Criteria

3.3.1 The magnitude of impact upon the archaeological and heritage resource, which can be considered in terms of direct and indirect impacts, is determined by identifying the level of effect from the proposed development upon the baseline conditions of the site and the cultural heritage resource identified. The criteria for assessing the magnitude of impact are set out in Table 2 (below).

3.3.2 In certain cases it is not possible to confirm the magnitude of impact upon a cultural heritage resource, especially where anticipated buried deposits exist. Where possible a professional judgement as to the scale of such impacts is applied to enable the likely 'Significance of Effects' to be established; however, a magnitude level of 'uncertain' is included for situations where it is simply not appropriate to make such a judgement at this stage of works.

Table 2: Criteria for Determining Magnitude of Impact

LEVEL OF MAGNITUDE	DEFINITION
HIGH	Major impacts fundamentally changing the baseline condition of the receptor, leading to total or considerable alteration of character or setting – e.g. complete or almost complete destruction of the archaeological resource; dramatic visual intrusion into a historic landscape element; adverse change in the setting or visual

	amenity of the feature/site; significant increase in noise; extensive changes to use or access.
MEDIUM	Impacts changing the baseline condition of the receptor materially but not entirely, leading to partial alteration of character or setting – e.g. a large proportion of the archaeological resource damaged or destroyed; intrusive visual intrusion into key aspects of the historic landscape; or use of site that would result in detrimental changes to historic landscape character.
LOW	Detectable impacts which alter the baseline condition of the receptor to a small degree – e.g. a small proportion of the surviving archaeological resource is damaged or destroyed; minor severance, change to the setting or structure or increase in noise; and limited encroachment into character of a historic landscape.
NEGLIGIBLE	Barely distinguishable adverse change from baseline conditions, where there would be very little appreciable effect on a known site, possibly because of distance from the development, method of construction or landscape or ecological planting, that are thought to have no long term effect on the historic value of a resource.
UNCERTAIN	Extent / nature of the resource is unknown and the magnitude of change cannot be ascertained.

3.3.3 The overall Significance of Effects from the proposed development upon the Cultural Heritage Resource is determined by correlating the magnitude of Impact against the value of the Cultural Heritage resource. Table 3 highlights the criteria for assessing the overall Significance of Effects. Where effects are moderate or above these are classified as significant.

Table 3: Significance of Effects

IMPORTANCE	MAGNITUDE			
	ADVERSE			
	HIGH	MED	LOW	NEG
NATIONAL	Severe	Major	Mod	Minor
REGIONAL	Major	Mod	Minor	Not Sig.
LOCAL	Mod	Minor	Minor	Not Sig.
NEGLIGIBLE	Minor	Not Sig.	Not Sig.	Nt.

Not Sig. = Not Significant; Nt. = Neutral; Mod = Moderate; Ext. = Extensive

3.4 Limitations

3.4.1 It should be noted that the report has been prepared under the express instructions and solely for the use of Belectric Solar (UK) Ltd and associated parties they elect to share this information with.

3.4.2 Measurements and distances referred to in the report should be taken as approximations only and should not be used for detailed design purposes.

3.4.3 All the work carried out in this report is based upon the professional knowledge and understanding of AB Heritage Limited on current (November 2012) and relevant United Kingdom standards and codes, technology and legislation. Changes in these areas may occur

in the future and cause changes to the conclusions, advice, recommendations or design given. AB Heritage Limited does not accept responsibility for advising Belectric Solar Ltd or associated parties of the facts or implications of any such changes in the future.

- 3.4.4 This report has been prepared utilising factual information obtained from third party sources. AB Heritage Limited takes no responsibility for the accuracy of such information. It should also be noted that this report represents an early stage of a phased approach to assessing the archaeological and cultural heritage resource of the application site to allow the development of an appropriate mitigation strategy, should this be required. It does not comprise mitigation of impacts in itself.

4. PLANNING, LEGISLATIVE, FRAMEWORK AND GUIDANCE

4.1 Statutory Protection for Heritage Assets

- 4.1.1 Current legislation, in the form of the Ancient Monuments and Archaeological Areas Act 1979, provides for the legal protection of important and well-preserved archaeological sites and monuments through their addition to a list, or 'schedule' of archaeological monuments by the Secretary of State for Culture, Media and Sport. This necessitates the granting of formal Scheduled Monument Consent for any work undertaken within the designated area of a Scheduled Ancient Monument.
- 4.1.2 Likewise, structures are afforded legal protection in the form of their addition to 'lists' of buildings of special architectural or historical interest. The listing of buildings is carried out by the Department of Culture, Media and Sport under the Planning (Listed Buildings and Conservation Areas) Act, 1990. The main purpose of the legislation is to protect buildings and their surroundings from changes that would materially alter the special historic or architectural value of the building or its setting. This necessitates the granting of formal Listed Building Consent for all works undertaken to or within the designated curtilage of a Listed Building. This legislation also allows for the creation and protection of Conservation Areas by local planning authorities to protect areas and groupings of historical significance.
- 4.1.3 The categories of assets with some form of legal protection have been extended in recent years, and now include Registered Parks and Gardens, and Historic Battlefields. While designation as a UNESCO World Heritage Site is not a statutory designation under English planning law, such a designation is regarded as a material consideration in planning decisions, and World Heritage Sites are in practice protected from development that could affect any aspect of their significance including settings within the Site and a buffer zone around it.

4.2 Planning Policy Statement 5: Planning for the Historic Environment (PPS5)

- 4.2.1 Up until March 27th 2012, PPS5 was the national policy guidance document related to the historic environment, and set out planning policies relating to the conservation of the historic environment. It classified 'heritage assets' as all those parts of the historic environment that have significance because of their historic, archaeological, architectural or artistic interest. Its policies covered heritage assets which are designated and those which are undesignated. Policies related to both the treatment of the assets themselves and their settings, both of which are a material consideration in development management decision
- 4.2.2 PPS 5 provided policies (HE6 - HE12) that were a material consideration in managing and guiding the decision making process on progressing development works. There is also a range of policies to guide local planning authorities on the preparation of local development documents (HE1-HE5).

4.3 National Planning Policy Framework (NPPF)

- 4.3.1 On 27th March 2012, previous Planning Policy Statements and other guidance were superseded by the new NPPF. This document has retained the principles of PPS5 in its

treatment of the historic environment within the planning process, but has a greater emphasis overall on sustainability.

- 4.3.2 The NPPF states that: 'Planning law requires that applications for planning permission must be determined in accordance with the development plan, unless material considerations indicate otherwise. The National Planning Policy Framework must be taken into account in the preparation of local and neighbourhood plans, and is a material consideration in planning decisions. Planning policies and decisions must reflect and where appropriate promote relevant EU obligations and statutory requirements'.
- 4.3.3 On page 6 of the NPPF, the aim relating to the historic environment states there is a need 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'.

5. BASELINE CONDITIONS

5.1 Key Planning Considerations

- 5.1.1 The application site is located within an extensive area of Medieval Ridge and Furrow activity, identified by cropmarks and earthworks photographed in the area (EH 871071 & EH 1431871; see Figure 4). While these have been plotted within the application site they are now fairly ephemeral in nature and no longer survive as a prominent earthwork due to past ploughing of the site.
- 5.1.2 While the application site falls within Gloucestershire it lies immediately adjacent to the county boundary with Worcestershire, with heritage features being recorded from both sides of the border. The wider landscape is rich in Roman and Medieval features (Heritage Gateway 2012) and, within 1km of the proposed development site, Iron Age – Roman cropmark enclosures (WSM27880 & WSM36014) and a possible Bronze Age ring ditch (WSM45703) have been recorded.
- 5.1.3 While no features have been recorded within the application site Romano-British settlements flank the application site to the north and south (HER 2333 & 2332; EH 328340). In addition, a Deserted Medieval Village (WSM06100) is located at Larkborough, c.500m to the east of the site, while Willersey Barn (HER 7513) lies c.500m to the west of the site.
- 5.1.4 This assessment has confirmed that, within the application site or the 1km study area surrounding it, there are no Scheduled Ancient Monuments, Listed Buildings, World Heritage Site property boundaries or buffer zones, Parks and Gardens, Registered battlefields, building preservation notices or certificates of immunity (English Heritage, 2012).

5.2 Previous Archaeological Works

- 5.2.1 The NMR Excavation Index records three archaeological interventions within 1km of the site of proposed development (Heritage Gateway 2012). These comprise the following:
- In 2005 an archaeological evaluation took place at Bower's Hill Equestrian Centre, Badsey, c. 700m to the north west of the proposed development site (WSM 34484), but these works recorded no archaeology;
 - In 2006 the Honeybourne to Wormington a range of archaeological works was undertaken in advance of a proposed gas pipe line (HER 28403, 28436 & 33900). The geophysical survey (HER28436) recorded no potential features but the subsequent archaeological evaluation trenching works (HER 33900) recorded a Roman ditch c. 30 meters to the north of the proposed development site, reflective of Roman activity mentioned above (section 5.1.3).
 - In 1989 an archaeological survey was undertaken on the site of a WWII heavy bomber (WSM1253641), which crashed in 1944 c. 700m to the north east of the proposed development site, so therefore no associated archaeological finds could be associated with this project.

6. ARCHAEOLOGICAL AND HISTORIC BACKGROUND

6.1 The Prehistoric Period (c. 500,000 BC – AD 43) and Roman (AD 43 – AD410)

- 6.1.1 There is evidence for settlement and domestic occupation in the locality from the Middle Bronze Age onwards, with the remains of settlements sometimes being marked by ditched enclosures within what would have been organised agricultural landscapes.
- 6.1.2 It appears likely that the floodplains of the major river valleys of the region, such as the Avon and Severn valleys, were cleared for agriculture by the later Bronze Age, and the wider region extensively settled by the 1st Millennium BC.
- 6.1.4 It should also be noted that this area of northern Gloucestershire/southern Worcestershire is particularly rich in cropmarks/earthworks, recorded from assessment of aerial photographs. The cropmarks and earthworks depicted in Figure 4 (including those showing the remains of medieval ridge and furrow within the application site) are plotted from several sources including aerial photography transcriptions completed by Worcestershire and Gloucestershire County Councils.
- 6.1.5 An archaeological investigation c.30m to the north of the proposed development site revealed a steep-sided ditch of up to 2.3m wide and 0.7m deep. This contained a single fill, from which a flint flake was recovered. Nine sherds of Roman Severn Valley Ware pottery, not closely datable, were also retrieved from the surface of the fill, but it is possible that the ditch itself was pre-Roman (Morton, 2006).

6.2 The (Saxon) Early Medieval (AD 410 – AD 1066)

- 6.2.1 Following the abandonment of the British Isles by the Roman legions in the early 5th century AD the country fell into an extended period of socio-economic decline. Little is known about activity within large parts of the country during the early part of this period, which is commonly referred to as the 'dark ages'. This reflects our lack of knowledge of events and activities at this time due to a reduction in all forms of evidence, from artefactual to first hand documentary sources. Bar the fact this area formed part of the land of the Willersey parish, being named Willersey or '*Willerseia*' in AD 709 (Frith, 1980) this paucity of information is also reflected in the wider region surrounding the site.

6.3 Medieval to Modern Periods (AD 1066 – Present)

- 6.3.1 Willersey is recorded in the Domesday Survey of 1086, notified as being held by St Mary's of Evesham (Frith 1980, 1459). It is stated to have had 3 carucates in demesne and is likely to have been predominately agricultural land throughout this period, as testified to by the large array of medieval ridge & furrow that has been plotted across the wider region.
- 6.3.2 The main settlement foci in the medieval period in the vicinity of the site was *Wickhamford*. Recorded in the Domesday Survey of 1086, Wickhamford evolved with associated manors through the early medieval period. The 'wick' elements of Wickhamford is particularly indicative of early medieval settlements, derived from the Old English '*wic*', a common term for a settlement (Gelling, 1984, p.323).

- 6.3.3 In relation to recorded activity, the Cultural Heritage Features Map records the recovery of six undated ditches and a posthole (33900), c. 30m to the north east of the proposed development site. All features were truncated by Medieval furrows, demonstrating that they were earlier to or contemporary with the Medieval period.
- 6.3.4 By 1767 the Inclosure Act for Gloucestershire lists 1000 acres of common fields and commonable and waste land in Willersey, demonstrating the continuation of the agricultural nature of the land in this area (Frith 1980, p.1459).
- 6.4.1 The land use is currently under grass and partially under arable use. This situation is likely to replicate the situation within this area of land from the medieval period onwards, if not earlier. Ordnance Survey maps from 1884 and 1970 (Figure 5 & 6) show the site to be absent of any development while there is surface evidence that there site was more recently used for the growth of strawberry plots in the eastern half of the site, before this form of agriculture was abandoned.

6.5 Site Visit

- 6.5.1 A visit of the site was conducted on Thursday November 22nd 2012. The purpose of this visit was to gain a greater understanding of existing land use and any past impacts within the current site limits, along with an appreciation as to the potential for the survival of below ground archaeological deposits and/or heritage constraints. A number of photos are included to illustrate pertinent points of information noted during the site visit.
- 6.5.2 Firstly, it was noted during the site visit that the ground level naturally slopes to the south and contains remnants of the Medieval ridge and furrow, documented by the HER (Figure 4). The site visit also demonstrated that a large proportion of the south east section of the site (Figure 1) has been subject to past ground profile engineering to create, what appears to be, strawberry beds with accompanying irrigation pipes.
- 6.5.3 Photograph 1 shows the western section of the proposed development facing north. Faint remains of ridge and furrow can be seen in the background, running north to south .



Photograph 1: Western Section of Proposed Development Site (Facing North)

- 6.5.4 Photograph 2 shows the eastern section of the proposed site, facing north west. The ridge and furrow is less visible in this area. The ground is level and flat and it is speculated that the ridge and furrow, which would have been located within this area, has been ploughed out in the past, which would account for less visible surviving earthworks.



Photograph 2: Eastern Section of Proposed Development Site (Facing North West)

- 6.5.5 Photograph 3 shows the abandoned strawberry beds that run almost the entire length of the eastern half of the proposed development site. The photograph shows that the abandoned strawberry beds have become overgrown, and are currently waterlogged due to recent adverse weather conditions. The vegetation cover is very dense in places but the abandoned strawberry plots are still just visible on the right hand side of the photograph. It is estimated that the total area covered by strawberry beds and associated irrigation works in this area would have amounted to a minimum of c. 4 hectares.



Photograph 3: Strawberry Bed Area

- 6.5.6 Photograph 4 shows faint evidence for what appear to be surviving earthworks in the eastern section of the proposed development. Facing in a north west there is a very slight ridge line evident in the horizon of the photo, which runs east-west across the centre of the photograph.



Photograph 4: Evidence of Ridge & Furrow (Facing North West)

- 6.5.7 Photograph 5 shows a small strip of land along the southern extent of the eastern half of the site (and to the south of a large area previously cultivated as strawberry beds). The photograph is taken in an easterly direction and shows the site to be heavily rutted, following the line and direction of the ridge and furrow; however, its origin may prove to be more modern than medieval ridge and furrow.



Photograph 5: South Strip

6.1 Summary of Known Cultural Heritage Receptors

- 6.1.1 Within the limits of proposed development there are currently no known designated archaeological remains. However archaeological features in the form of medieval ridge and furrow (Figure 4) do exist within the proposed development site; though a large proportion of the surviving remains of such activity was ploughed out during the 1970's (WSM 1431871).
- 6.1.2 There are a range of archaeological remains in wider vicinity of the site (Figure 3). This includes a range of Romano-British activity, recorded during archaeological evaluation works. The closest activity noted was over 30m to the north of the proposed site and include a ditch cut feature, with limited artefactual evidence.

7. IMPACT ASSESSMENT & MITIGATION STRATEGY

7.1 Forms of Heritage Impact

7.1.1 An archaeological resource can be affected by development in a number of ways: the removal of material during works, the destruction to sensitive deposits caused by the presence of heavy plant, and the alteration of stable ground conditions that may lead to degradation of the quality, and survival of buried archaeological remains.

7.1.2 Equally, the built heritage can be affected by development typically in the form of possible demolition or loss of part of a structure or its grounds; increased visual intrusion, noise or vibration; changes in the original landscape; severance from linked features such as gardens, outbuildings etc or through the loss of an amenity. The wider settings of historic buildings can be affected by development, and the unity of groups of buildings can be disrupted.

7.2 Proposed Development

7.2.1 The proposed development comprises the construction of a 6MWp Solar Farm across an approximate area of approximately 13.6ha. The solar farm comprise of a series of linear rows of photovoltaic (PV) modules, together with three small inverter platforms, transfer station, collecting station and enhanced landscaping.

7.2.2 Each solar array will comprise of a series of short narrow aluminium posts, supporting PV modules. Each solar array will be spaced approximately 8.2m apart.

7.2.3 The supporting posts will be excavated to a depth of 1m and in-filled with post grout. The majority of the solar arrays will stand up to a maximum 3m above ground and will be south facing with a 20 degrees inclination. Five inverters are required for the solar farm. The inverters will be positioned on an inverter platform. The solar farm requires just three platforms in total (2x double inverter platform and 1 x single inverter platform). The platforms will have minimal foundations of approximately 50 cm. The transfer station and collecting station will also have minimal excavations with an excavated depth of approximately 80cm.

7.2.4 The following generalised construction activities are likely to be undertaken as part of this redevelopment, which may impact on any buried archaeological remains within the site boundary.

- Groundworks associated with construction of module support frameworks which will be driven into the ground to a depth of 1m;
- Groundworks associated with the construction of frameworks and any additional services (electric supply, inverter platforms, transfer station, collecting station), if required;
- Erection of security fence to enclose the site.

7.2.5 However, the proposed construction methods to be employed will ensure that levels of physical disturbance to ground surface are extremely limited, with only 2% of the total site area being disturbed (i.e. trenching, excavations, foundations) during construction.

7.3 Past Impacts within Site Boundary

- 7.3.1 The site along with many of the adjacent fields have been impacted by ploughing activity in the post medieval and modern periods. This has been attributed to a loss of the earthwork remains of ridge and furrow that would have survived within this area as shown on historic aerial photographs of the site (e.g. WSM 1431871).
- 7.3.2 Insertion of strawberry beds and associated irrigation pipes and channels within a large area of the eastern half of the development site are also likely to have impacted any surviving below ground archaeology within the proposed development site.

7.4 Predicted Impact of Proposed Development

Archaeological Impacts

- 7.4.1 In relation to impacts on potential below ground archaeology it is possible that the construction of the supporting frameworks could impact on below ground archaeological remains that may survive in this area; however, such features may have suffered previous disturbance by deep ploughing from the 1970's onwards, as well as the later placement of strawberry beds/irrigation pipes in the eastern half of the site in more recent times.
- 7.3.2 In relation to the proposed development the most notable construction impact will be the insertion of the framework supports c. 1m into the ground. The severity of this impact will depend on the presence, nature and depth of any surviving archaeology within the footprint of such works but it is considered that impacts will not be highly significant, given the fact that the site is likely to have been used for agricultural purposes from at least the medieval period onwards, if not earlier; the lack of dense concentrations of significant archaeological remains in the surrounding area; potential past impacts from the construction of strawberry beds/irrigation works and deep ploughing from the 1970's onwards.
- 7.3.3 In summary, the potential for archaeological remains of significance is concluded to be low

Built Heritage Impacts

- 7.3.4 Given the form of development and the absence of built heritage receptors within the surrounding area there are concluded to be no impacts on the built heritage resource associated with the proposed development.

7.4 Proposed Mitigation

- 7.4.1 Based on the findings of this report it is concluded that there is a low potential to impact significant below ground archaeological remains and, where such remains do survive, they are likely to have suffered past impacts.
- 7.4.2 As part of these works a geophysical survey has been undertaken to provide greater understanding of the below ground archaeological resource within this area. Based on the results of this record (Rubicon, 2012), it is recommended that a limited programme of archaeological evaluation trenching be undertaken. This will target areas of archaeological potential identified during the geophysical survey, along with a small number of trenches placed in areas of past impact identified in this report and blank areas recorded during the geophysical survey to confirm the below ground archaeological resource.

- 7.4.3 The results of the above works would enable the production of an appropriate archaeological mitigation strategy, where required.
- 7.4.4 Although, the geophysical survey and desk top assessment revealed no significant sub-surface archaeological potential at the application site, the applicant would accept an appropriate planning condition requiring that archaeological trial trenching takes place prior to the commencement of construction works in order to investigate the geophysical anomalies and to confirm whether these apparently blank areas are in fact devoid of archaeology.

8. CONCLUSIONS

8.1 Overview

8.1.1 AB Heritage were commissioned by Belectric Solar (UK) Ltd to produce an Archaeological Desk-Based Assessment covering the site of a proposed 6MWp Solar Farm on land (known as the Rainbows) in Willersey, Gloucestershire.

8.1.2 The proposed development comprises the construction of a 6MWp Solar Energy Farm. The complex would consist of a series of linear rows of PV modules, together with three small inverter platforms, transfer station and collecting station across a 13.6ha area. This includes:

- Construction of a support framework for the solar modules;
- Excavation of posts to 1m in depth;
- Erection of fences around the Solar Farm.

8.2 Archaeological Resource & Impacts

8.2.1 This assessment has identified no known designated archaeological features within the limits of proposed development. Previous transcription of historic aerial photographs across the site and wider area have, however, revealed the presence of medieval ridge and furrow, although a site walkover as part of this assessment revealed this was heavily degraded or almost totally removed across the entire site.

8.2.2 In relation to impacts on potential below ground archaeology it is possible that the construction of the solar modules, associated frameworks and excavation of service trenches could impact on any surviving below ground archaeological remains within their footprint. The potential for the survival of such archaeological deposits is concluded to be low.

8.3 Recommended Mitigation Strategy

8.3.1 Further to the production of this Archaeological Desk-Based Assessment and a concurrent geophysical survey being undertaken (Rubicon, 2012), it is recommended that a limited programme of archaeological evaluation trenching be undertaken. This will target areas of archaeological potential identified during the geophysical survey, along with a small number of trenches placed in areas of past impact identified in this report and blank areas recorded during the geophysical survey to confirm the below ground archaeological resource.

8.3.2 The results of the above works would enable the production of an appropriate archaeological mitigation strategy, where required.

8.3.3 The applicant would accept an appropriate planning condition requiring that archaeological trial trenching takes place prior to the commencement of construction works in order to investigate the geophysical anomalies and to confirm whether apparently blank areas are devoid of archaeology.

9. REFERENCES

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Appendix A

Gazetteer of Cultural Heritage Features

This gazetteer includes archaeological and historical sites identified on the various sources examined within the site limits and surrounding 1km study area.

Abbreviations:

REF:	Unique Reference Number Provided by Respective Repository.
NGR:	National Grid Reference (point reference given unless specified).
NMR:	English Heritage National Monuments Record Number.
GHER:	Gloucestershire Historic Environment Record Number
WHER:	Worcestershire Historic Environment Record Number

PERIOD	TYPE	NAME & DESCRIPTION	NGR	STATUS	REF
Prehistoric	Cropmarks	Oval enclosure defined by palisade trench with entrance gap.	SP 092 422	-	WSM 27881
Prehistoric	Cropmarks	Enclosures.	SP 094 418	-	WSM 27880
Medieval	Cropmarks / Monument	Ridge and furrow visible as a crop mark on the 1999 vertical coverage, running NNE to SSW. All traces of earth works have been ploughed out.	SP 091 406	-	WSM 35178
Medieval	Monument	Deserted Village, Larkborough, Bretforton.	SP 100 422	-	WSM 06100
Post- medieval	Building	Historic barn (1540 AD to 1900 AD) at Larksborough Farm, Bretforton. Placed on HER as a result of personal communication.	SP 100 423	-	WSM 29591
Saxon	Monument	The three Evesham Charters (1580, 1591 & 1599) all describe the boundary of the Abbey's land as being defined by a boundary dyke at this location. The 'Boundary Dyke' defines the boundary of Bretforton between the Gate Inn/Honeybourne Brook and the watercourse to the south-west called by the Saxon surveyors as the Winbourne.	SP 103 419	-	WSM 32016

PERIOD	TYPE	NAME & DESCRIPTION	NGR	STATUS	REF
Medieval	Cropmark	The earthwork and cropmark remains of Medieval and Post Medieval ridge and furrow, visible on aerial photographs. These are situated in the eastern edge of Bretforton parish.	SP 101 416	-	EH 1469802
Bronze Age	Cropmark	A ring ditch, and a possible second, are observable as cropmarks on aerial photographs.	SP 101 416	-	WSM 32014
Medieval	Monument	Larkborough Deserted Medieval Village.	SP 10 42	-	EH 330806
Romano-British	Monument / Findspot	A probable Romano British settlement consisting of finds of coins, pottery and a fibula. An Iron Age coin was also found.	SP 094 418	-	EH 328340
Medieval	Earthwork	A good example of double rig ploughing remains near the south corner of Bretforton parish. The higher ridges are 30 feet wide and over 4 feet high above the furrows; the lower ridges are 15 feet wide.	SP 10 41	-	EH 871071
Medieval	Earthwork/ Cropmark	An extensive area of contiguous Medieval ridge and furrow in the parish of Willersley has been mapped from aerial photographs. The ridges were visible as earthworks in 1946 but at least half were levelled by 1970.	SP 09 41	-	EH 1431871
Modern	Cropmark	Cropmarks centred on SP 1040 4110 to the south of Saintbury Grounds – thought to be the result of modern farming.	SP 1040 4110	-	EH 871070
Modern	Monument/ Findspot	An Armstrong Whitworth Whitley Mark V, British heavy bomber crash site. It crashed at Saintbury, due to engine failure after it took off from Honeybourne (Worcestershire). Wreckage from the aircraft has been identified by a survey carried out by Midland Aircraft Recovery Group.	SP 1040 4110	-	EH 1367359
Medieval	Earthwork/ Cropmark	The earthwork and cropmark remains of of Medieval and Post Medieval ridge and furrow visible on aerial photographs. These are situated in the northern part of Willersey parish.	SP 10 40	-	EH 1469799
Romano-British	Monument	Romano-British Settlement building debris and pottery remains on a slight rise on Badsey Lane.	SP 409910 240230	-	GHER 2332

PERIOD	TYPE	NAME & DESCRIPTION	NGR	STATUS	REF
Romano-British	Monument/ Findspot	Probable Romano-British settlement on a low ridge near Willersey Barn. Dobunnic coin, Roman coins, 3 alloy brooches and over 2000 sherds of pottery have been recovered from this field.	SP 409580 241650	-	GHER 2333
Medieval	Monument	Possible Medieval Settlement near Willersey Barn.	SP 409500 241500	-	GHER 7513
Unknown	Findspot	Cometic Mortar Find at Willersey Barn	SP 409600 241540	-	GHER 14918
Romano-British	Findspot	Roman Plate Brooch Findspot at Willersey Barn	SP 409550 241640	-	GHER 14919
Roman	Findspot	Roman Ditch identified during and Archaeological Excavation Honeybourne to Wormington pipeline, Willersey Barn.	SP 409840 241447	-	GHER 43186
-	Event	DBA Honeybourne to Wormington pipeline	SP 405190 236880	-	GHER 28403
-	Event	Geophysical Survey Honeybourne to Wormington pipeline.	SP 405190 236880	-	GHER 28436
-	Event	Archaeological Evaluation Honeybourne to Wormington pipeline.	SP 410100 241500	-	GHER 28803
-	Event	Archaeological Excavation Honeybourne to Wormington pipeline, Willersey Barn.	SP 410291 241656	-	GHER 33900

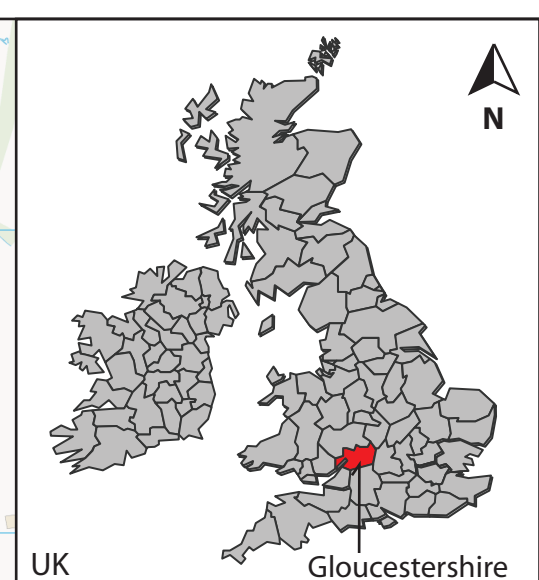
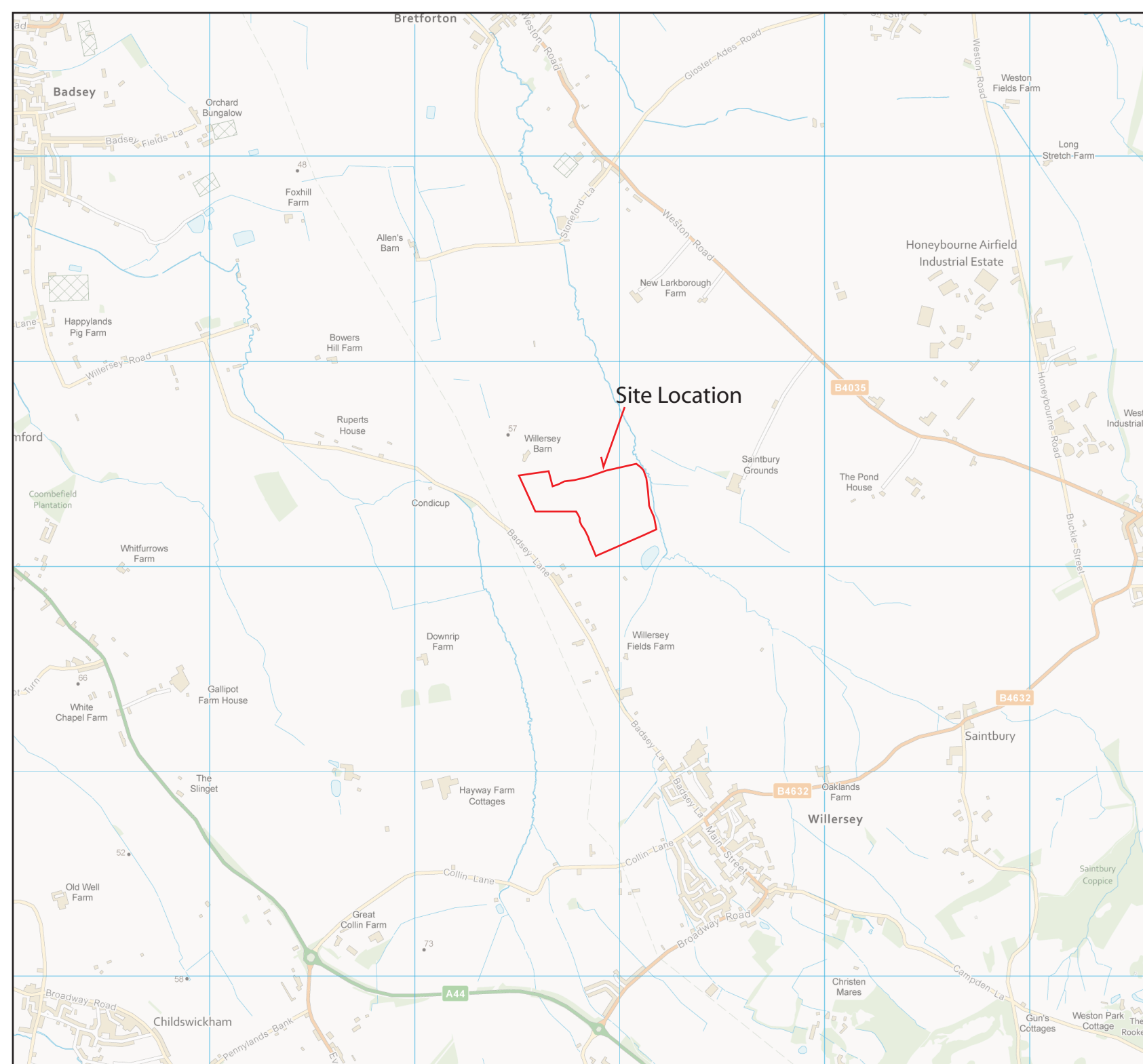


Figure 1: Site Location Plan

Project:	The Rainbows Archaeological Desk-Based Assessment
Scale: Main Map 1:10,000	Date: November 2012
Based on Ordnance Survey Opendata Mapping	
Drawn By: J.Moller	Approved By: A.Buckley





Figure 2: Proposed Development Location

Project: The Rainbows Archaeological Desk-Based Assessment

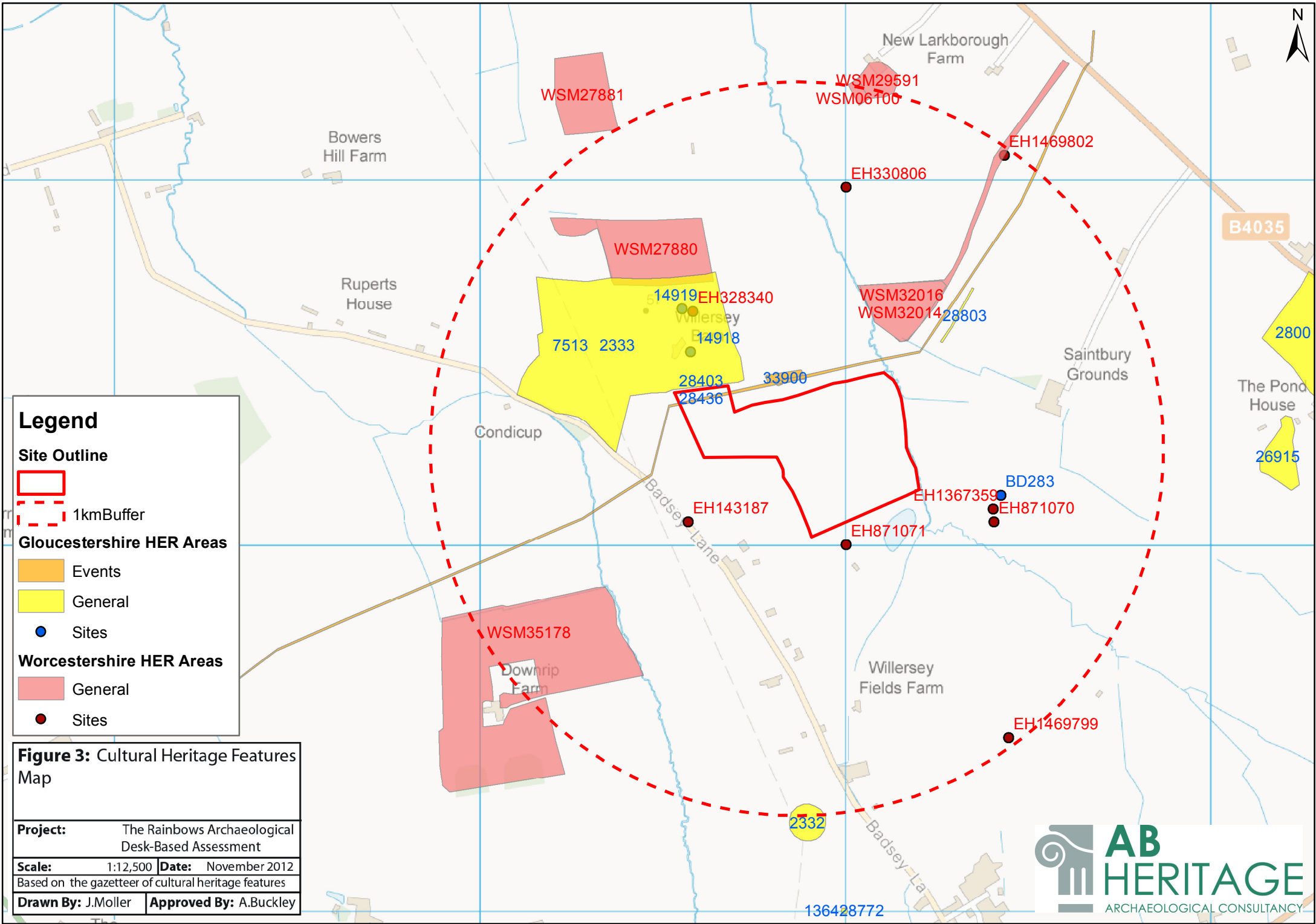
Scale: Not To Scale | **Date:** November 2012

Based on the Plan Produced by Belectric Solar (UK) Ltd

Drawn By: J.Moller | **Approved By:** A.Buckley

- | | |
|------------------------|-------------------------------------|
| Module Structure | Collecting Station |
| Plot Boundary | Shaded Area |
| Construction Boundary | Transfer Station |
| Fencing | Tree population |
| Forbidden Constr. Area | Safety Distance from cables / lines |
| Inverter Stand | Inverter Stand single |





Legend

Site Outline

- Site Outline
- 1km Buffer

Gloucestershire HER Areas

- Events
- General
- Sites

Worcestershire HER Areas

- General
- Sites

Figure 3: Cultural Heritage Features Map

Project: The Rainbows Archaeological Desk-Based Assessment

Scale: 1:12,500 **Date:** November 2012
Based on the gazetteer of cultural heritage features

Drawn By: J.Moller **Approved By:** A.Buckley



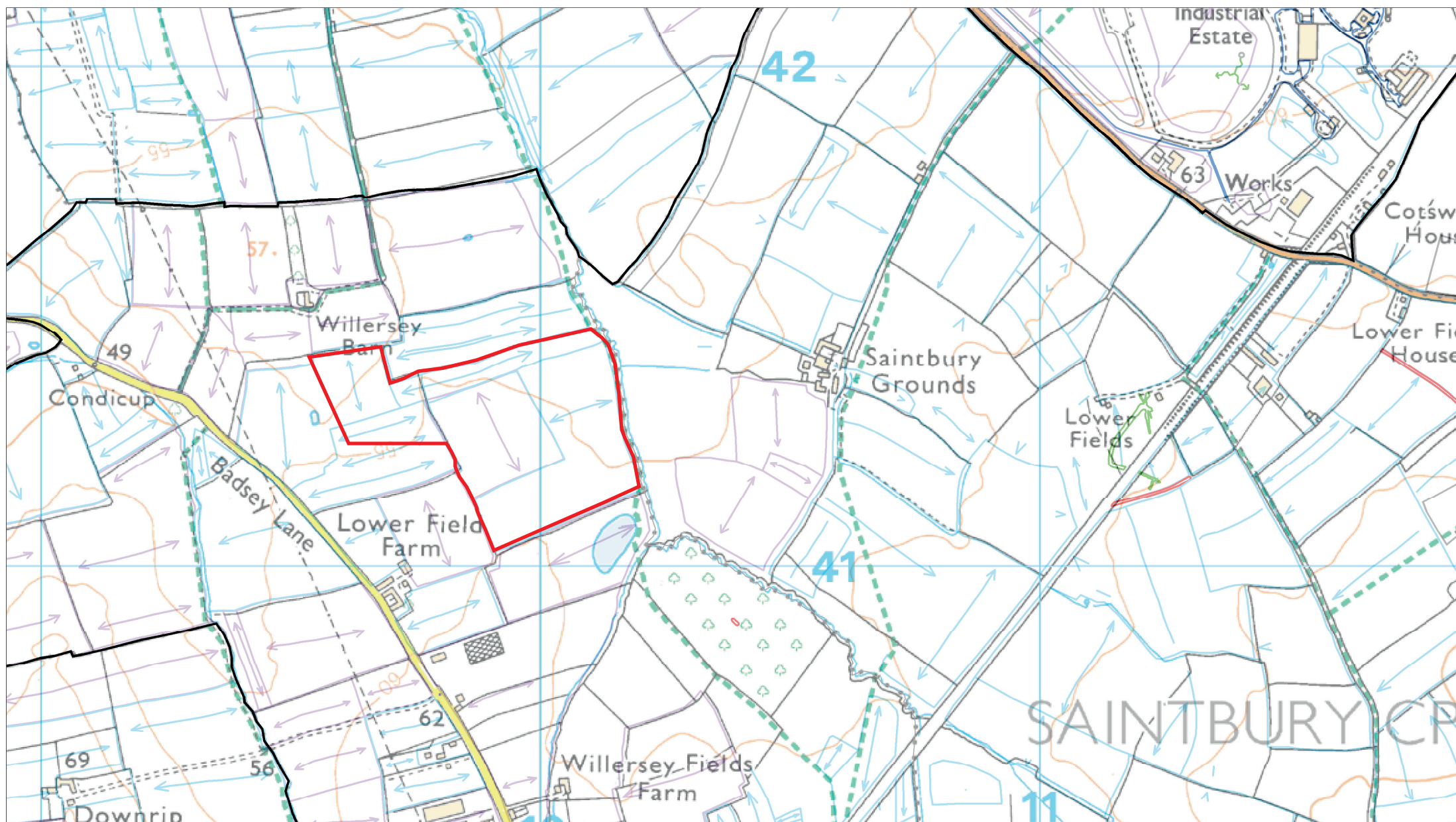


Figure 4: GHER transcribed aerial photographs

Project: The Rainbows Archaeological Desk-Based Assessment

Scale: 1:10,000 **Date:** November 2012

Based on Gloucestershire HER Data

Drawn By: J.Moller

Approved By: A.Buckley

- Site Outline
- Bank
- - - Ditch
- - - Cut Feature
- - - Ridge & Furrow Cropmarks
- - - Ridge & Furrow Earthwork



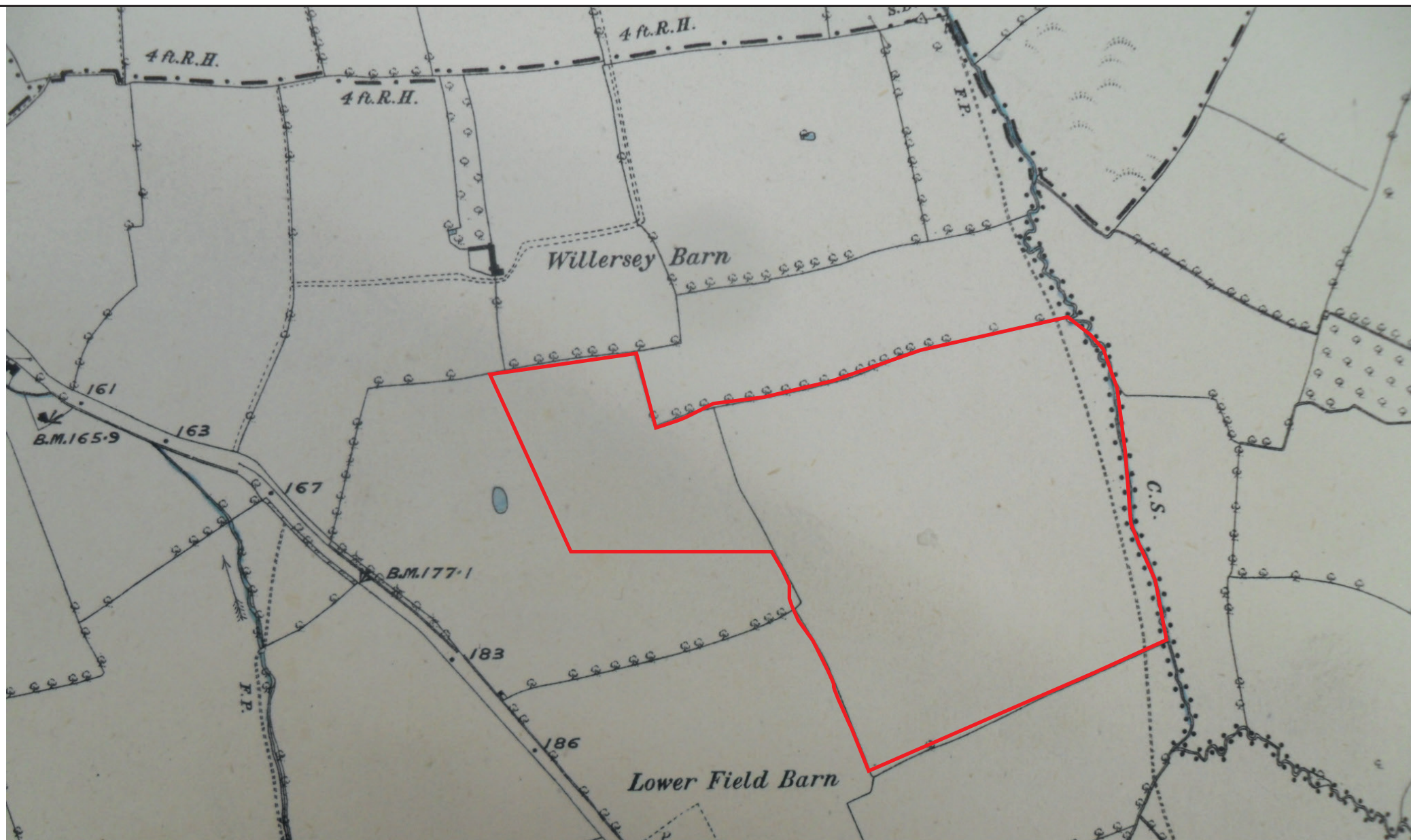


Figure 5: 1884 Ordnance Survey Map

Project: The Rainbows Archaeological Desk-Based Assessment

Scale: 1:5,000 | **Date:** November 2012

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Drawn By: J.Moller | **Approved By:** A.Buckley



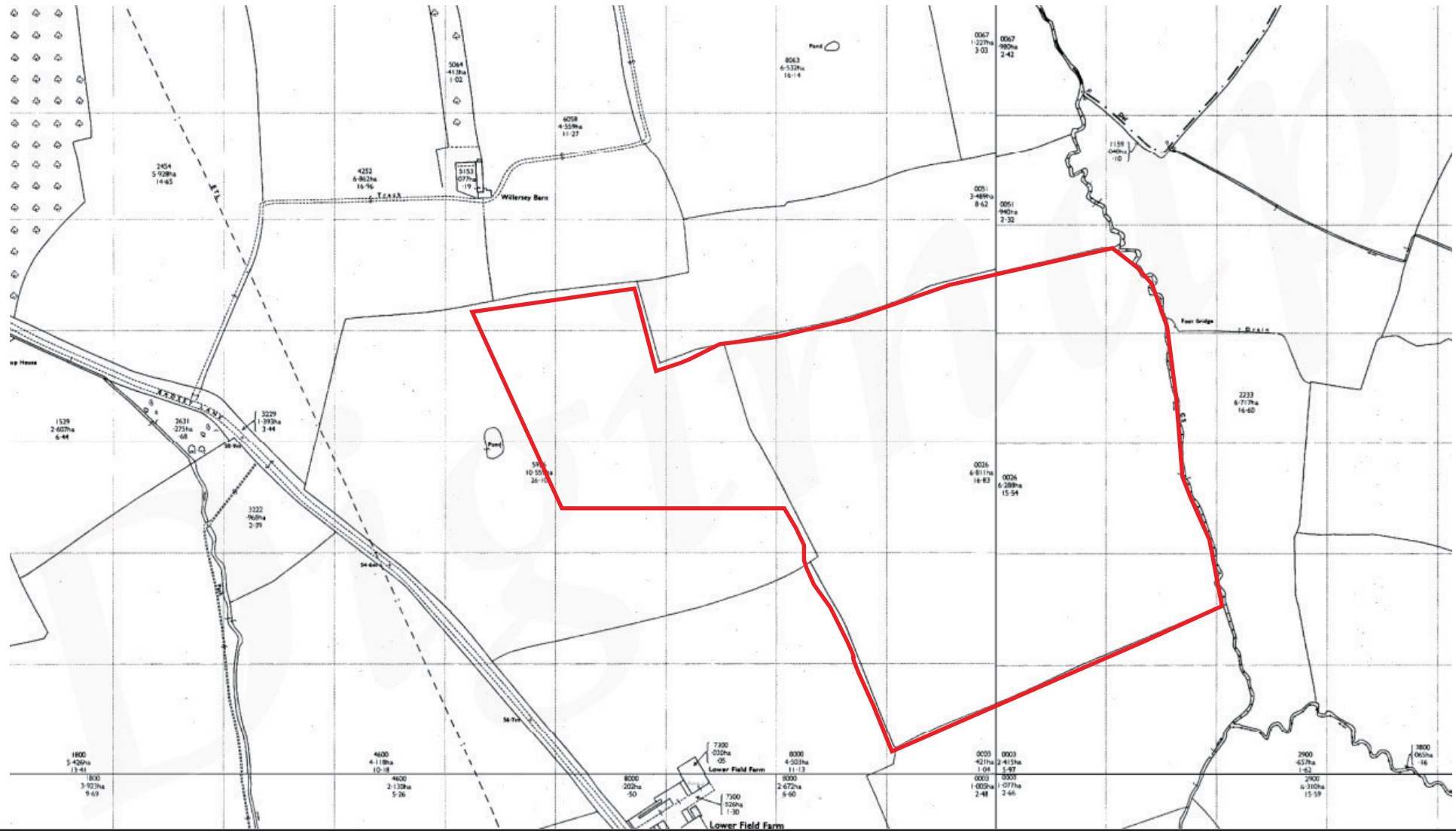


Figure 6: 1970 Ordnance Survey Map

Project: The Rainbows Archaeological Desk-Based Assessment

Scale: 1:5,000 **Date:** November 2012

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Drawn By: J.Moller **Approved By:** A.Buckley

