



Warleigh Barton, Tamerton Foliot, Devon

Archaeological Assessment



Historic Environment Projects

Warleigh Barton, Tamerton Foliot, Devon

Archaeological Assessment

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This study was commissioned by Alex Herbert of Low Carbon Developers and carried out by Historic Environment Projects, Cornwall Council.

The views and recommendations expressed in this report are those of Historic Environment Projects and are presented in good faith on the basis of professional judgement and on information currently available.

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Cover illustration

View of the site at the top of the hill, taken from Ernesettle on the south side of Tamerton Lake.

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Abbreviations

HER	Devon Historic Environment Record
HE	Historic Environment, Cornwall Council
NGR	National Grid Reference
OS	Ordnance Survey

1 Summary

This archaeological assessment for Low Carbon Developers of a proposed solar farm at Warleigh Barton, Tamerton Foliot in Devon, was undertaken by the Projects team of Historic Environment, Cornwall Council (HE Projects, CC). The study was designed to gain a better understanding of the impacts which would result from the solar farm. It includes desk-based study, site inspection and geophysical survey, and follows current planning policies and guidance, relevant extracts from which are provided in the report.

The proposed area occupies two fields and an access road centred at SX 45692 60971. It does not include any Scheduled Monuments or Listed Buildings but does lie within the Tamar Valley Area of Outstanding Natural Beauty (AONB). The field boundaries are considered 'important' under Hedgerow Regulations.

The results of the desk based assessment identified fifteen archaeological sites of particular significance either within or close to the proposed solar farm. Those within the proposed area include the site of post-medieval field boundaries (**site 1**) of local importance, a 19th or 20th century quarry of local importance (**site 2**) a post-medieval lane of local importance (**site 3**), a post-medieval field system of local importance (**site 4**). Those sites identified outside the area include a group of rectangular enclosures of probable prehistoric or Romano-British date, with associated artefact scatter of regional importance to the north-east (Devon HER: **28430** and **28429**), Warleigh House a 16th century Grade II* listed building (Devon HER: **5501**) along with seven other listed buildings associated with the settlement of Warleigh to the north and the late 19th century Lydford to Devonport railway (Devon HER: **22709**).

The results of the geophysical survey, undertaken within the two fields, revealed evidence for a number of sub-surface archaeological features of significance. These included a cluster of features [**12**] and a hearth or pit [**4**] which may represent remains of early settlement within the development area. Part of a large, single ditched enclosure was identified in the eastern field [**16**]. This is likely to be part of a prehistoric field system along with other ditches that are associated with it. In addition, another series of ditches ([**2-3**]-[**5-8**]) in the western field are also likely to be part of a prehistoric field system (see Figs 17 and 18).

In terms of Historic Landscape Character, the majority of the development area (both fields) is characterised as 'post-medieval enclosures with medieval elements'. The remainder of the land along the access road is characterised as 'modern enclosures' although was formerly ancient woodland. The site is close to existing settlements of medieval origin (Warleigh and Tamerton Foliot). These HLC Types are associated with potential for a significant resource of prehistoric or medieval features, artefacts or deposits surviving below ground, and the presence of a prehistoric site in close proximity indicates a high potential here for prehistoric below-ground remains. This potential has been highlighted by the results of the geophysical survey.

The scheme would involve erecting solar arrays 2m high, with two inverter houses, and associated cable trenching and anchor points. Its potential impacts include, during the construction phase, disturbance or loss of below-ground elements of any buried features as yet unrecorded. In the operational phase it would impact adversely on HLC, and on the Tamar Valley AONB. Overall, the impact on the archaeological resource is assessed as potentially **negative/moderate** without appropriate mitigation; with a **negative/minor** residual impact provided such mitigation is undertaken.

The recommendations set out further work that might be required to mitigate for the archaeological impact should the development proceed. This includes possible site redesign, archaeological evaluation to assess the nature, extent and survival of buried features, archaeological watching brief, excavation and controlled soil stripping. Disturbance to Cornish hedges should be avoided, but if they are, recording of affected sections may be required, and careful reconstruction may be appropriate.



Fig 1. Site location (within red circle).

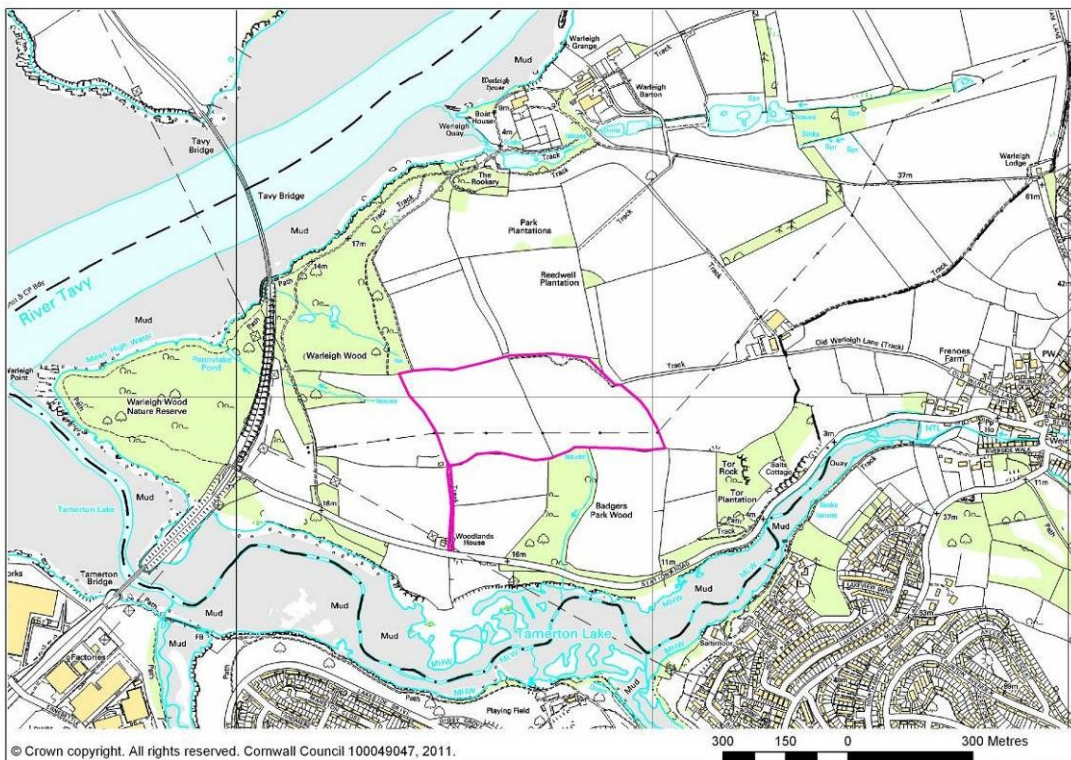


Fig 2. Extent of proposed solar farm (outlined in magenta).

2 Introduction

2.1 Project background

A planning application (04/0770/11/F) was made to South Hams District Council on 15 March 2011 by Low Carbon Developers for a 5Mw solar farm on land at Station Road, Tamerton Foliot, Bickleigh, Devon to the south of Warleigh House on a south-facing peninsula adjacent to the River Tamar and to one of its creeks (Tamerton Lake). The site is centred at SX 45692 60971 (PL5 4LG) and covers an area of 11.4Ha lying between 55m and 85m OD. As well as the 2.2m high arrays, which are proposed for fixing using ground anchors, six inverter cabins will be erected on the site.

Devon County Council planning archaeologist Graham Tait responded to the planning application on 04 May 2011, noting the presence of three cropmark enclosures of probably prehistoric date 400m to the north-east of the application area, whilst the Devon HER also records prehistoric and Roman artefacts found during field walking from the surrounding area. Warleigh Barton, a Grade II* Listed Building lies not far to the north. Given the location of the proposed site in an area with high archaeological potential, Mr Tait set out a requirement for archaeological assessment of the site, including geophysical survey and, potentially, evaluation trenching, should features of potential significance be revealed through the initial surveys.

A brief to guide the production of a Written Scheme of Investigation was prepared by Graham Tait (ref ARCH/DM/SH/17985, dated 8 December 2011). Historic Environment Projects, Cornwall Council was commissioned by Low Carbon Developers to undertake an assessment of the site, to include a geophysical survey undertaken in January 2012 by Archaeophysica covering the site itself as well as the fields to the east and west.

2.2 Aims and objectives

The principal aim of the study was to gain a better understanding of the extent, character and significance of any archaeological deposits within the application area utilising a desk based assessment coupled with geophysical survey.

On the guidance of the Devon County Council Archaeologist, an assessment of the impact of the proposal on the setting of Warleigh Barton was not required, given the site topography (email dated 08/12/2011, citing the advice given to the County Archaeologist by the Planning officer and South Hams District Council Conservation Officer).

The objective was to produce a written report on the findings of the desk based assessment, site inspection and geophysical survey which will be used to guide the Devon County Council Archaeologist's response to the planning application. Additionally, an archive was created for deposition with the Plymouth Museum Service.

2.3 Methods

2.3.1 Desk-based assessment

Historical databases and archives were consulted in order to obtain information about the history of the site and the structures and features that were likely to survive. The main sources consulted were as follows:

- Devon HER.
- Images of England online listed buildings database.
- Early maps (Held by Devon Record Office and the West country Studies Library and Cornwall HER).
- Published histories (see Section 10).

2.3.2 Fieldwork – site inspection

A site inspection was undertaken to assess the survival and condition of features noted from the desk based assessment. Digital colour photographs were taken as appropriate to record sites and aspects of the historic landscape and descriptive notes were made.

2.3.3 Fieldwork – geophysical survey

The geophysical survey was undertaken by Archaeophisica Ltd. and its results are summarised in this project report.

Geometrics MagMapper G858 caesium vapour magnetometers were used for the survey, using a high performance sledge mounted acquisition system. The four sensors were sited approximately 0.3m above the ground surface to maximise sensitivity while decreasing the strengths of anomalies from surface, whilst a line separation of 0.5m was used. The along line interval was approximately 0.25m following English Heritage guidance. As the ground conditions were suitable the instruments were deployed as an array mounted on a specially constructed nonmagnetic high performance sledge towed by a quad bike, offering a faster rate of coverage, less contact with the ground and a stable measurement platform. The sled-based approach avoids the need for extensive grid set out because real time tracking is provided by GNSS receiver mounted on the sledge. Coverage can be guided by real time track plotting visible to the driver who also monitors instrument data, positioning quality and survey resolution through continuous display on a ruggedized laptop mounted on the quad.

The field data was subjected to normal potential field processing techniques including reduction of the background regional field and splitting of the resultant residual field into different depth models through analysis in the frequency domain, yielding a shallow data set modelling anomalies likely to originate within the upper 3m of ground and also a pseudo-gradient data set which models the response of a 1m vertical gradiometer.

The data was presented as a series of greyscale images overlaid onto map data georeferenced to the Ordnance Survey grid. A separate catalogue map graphically highlights the most significant anomalies regardless of their origin and also provides a numerical key to a detailed anomaly catalogue included within the Archaeophisica report. Significant aspects of the results are discussed, and were accompanied by a detailed methodological description, and justification and analysis of the geophysical environment and its impact upon or presence within the data.

The geophysics report has been made available to Devon Historic Environment Record, and its findings have been incorporated into the HEP assessment report and form the basis of recommendations for any further investigative work on site.

2.3.4 Post-fieldwork

The results of the desk based assessment and fieldwork were collated as an archive in accordance with: *Management of Research Projects in the Historic Environment (MoRPHE) English Heritage 2006*. The site archive will be deposited at Plymouth Museum and Art Gallery.

An archive report (this report) has been produced and supplied to the client. This report has been sent to the Devon County Council Planning Archaeologist. Copies of the report have been supplied to Devon Historic Environment Record. Copies of all digital records have been filed on the Cornwall Council network.

An English Heritage/ADS online access to the index of archaeological investigations (OASIS) record has been made covering this assessment project.

3 Location and setting

The proposed site lies on land at Station Road, Tamerton Foliot, Bickleigh, Devon, to the south of Warleigh House on the south-facing side of a peninsula adjacent to the River Tamar and bordered by the River Tavy to the north and Tamerton Lake to the south (Fig 1). The site comprises two agricultural fields centred at SX 45692 60971 and covers an area of 11.4Ha (Fig 2). It lies within the Tamar Valley Area of Outstanding Natural Beauty (AONB) and is neighboured to the west by ancient woodland (now a nature reserve) which once belonged to the Warleigh Estate.

The two fields occupy a south and south-west facing slope overlooking Tamerton Lake to the south and the northern part of Plymouth beyond. The ground in the north-eastern part of the site reaches 85m in height and slopes down to 55m in the southern and south-western part of the site (Fig 12). The bedrock geology is recorded as Upper Devonian Saltash Formation mudstones, siltstones and sandstones, with a band of chert, though the eastern end is underlain by Torpoint formation mudstones and siltstones.

3.1 Historic Landscape Characterisation

The Historic Landscape Characterisation for the area (both fields) is recorded as post-medieval enclosure with medieval elements (see Fig 9). The present field boundaries had been established by 1840. The site is close to existing settlements of medieval origin (Warleigh Barton and Tamerton Foliot). Post-medieval enclosures with medieval elements are associated with the potential for a significant resource of prehistoric or medieval features, artefacts or deposits surviving below ground. The presence of prehistoric sites in the surrounding area indicates a high potential within the site for prehistoric below-ground remains. The land bordering the access road has been characterised as 'modern enclosures' but was formerly part of Warleigh Wood. Bordering the west of the site there are remains of ancient sessile oak woodland (Warleigh Wood) associated with the Warleigh Estate. This has been assessed as quite possibly the finest example of coastal oak woodland in Devon (woodland-trust.org.uk/ancient-tree-forum).

4 Designations

4.1 National

The site lies within the Tamar Valley Area of Outstanding Natural Beauty (AONB). Outside the site, the River Tavy to the north-west and Tamerton Lake to the south are both designated Sites of Special Scientific Interest (SSSI) and Special Areas of Conservation (SAC).

There are no Scheduled Monuments within 1Km of the site boundary. However, there are a cluster of eight listed buildings and structures to the north of the site at Warleigh including the 16th century house (Devon HER: 5501) which is listed at Grade II*.

4.2 Regional/county

There are no regional or county designations within the development area, but Warleigh Wood to the west of the site is part of a Nature Reserve.

5 Archaeological results

5.1 Chronological summary of the site and its landscape

Information drawn up by the National Mapping Programme (NMP) (Fig 10) shows a group of rectilinear enclosures (Devon HER: 28430) located two fields away to the

north-east. These enclosures, with associated features, are also shown on an aerial photograph (DAP/AB5) taken in June 1984, whilst field-walking undertaken at this site (Devon HER: 28429) produced a quantity of prehistoric flint and a Roman bead which indicate a prehistoric and/or Roman date for the enclosures, together with post-medieval pottery thought to have been derived from manuring. No other prehistoric activity has been documented in the immediate vicinity, although the results of the geophysical survey clearly indicate the survival of below-ground features which are likely to be prehistoric in date (see section 5.5 and Figs 17 and 18).

To the north of the site lies the medieval settlement of Warleigh. The original Warleigh House (Devon HER: 5501) was built sometime between 1135 and 1154 by Sampson Foliot, whose manor of Tamerton then became known as Tamerton Foliot. The family continued to own the estate until 1253, when it passed to the Gorges. In 1435 other descendants, the Bonvilles, took over the estate, and were followed by the Coplestones around 1472, the Bampfyldes in 1631 and finally the Radcliffes in 1741 (www.plymouthdata.info).

The development site clearly lies within an area that was once part of the Warleigh estate and the present field boundaries had been established by 1840. Bordering the west of the site there are the remains of ancient sessile oak woodland (Warleigh Wood) associated with the Warleigh Estate.

Before the 20th century the site lay within the parish of Tamerton Foliot. Benjamin Donn's map of 1765 (Fig 3) is not detailed but shows 'Warley' to the north of the site and the settlement of 'Tamerton Foliot' to the east. The OS Surveyors' Drawing of c1809 (Fig 4) is slightly more detailed but does not show the layout of the fields. It does, however, show the extent of Warleigh Wood at this date with a track leading up to the site from the south.

The c1840 Tamerton Foliot Tithe Map (Fig 5) indicates that the fields had been laid out in their present form by this date. In the north-east corner of the eastern field a small coppice is shown and immediately south of the two fields is Warleigh Woods, much of which has since been replaced with fields. The Apportionment shows that all the fields in this area were part of the Warleigh Estate, owned at this date by the Reverend Walter Radcliffe. Both fields (Lower South Park and Higher South Park) were arable at this date and occupied by Henry Bradridge (the farmer at Warleigh Barton farm (Devon HER: 12634)).

The First Edition 25" to the mile OS map of c1880 (Figs 6 and 7) indicates that there had been little change since c1840. The small coppice in the north-east corner of the eastern field remained *in situ* and a path is shown leading southwards from the south-west corner of the western field in the location of the proposed solar farm access road.

The Second Edition 25" to the mile OS map of c1907 was unavailable for reproduction but shows that only one alteration had occurred within the site since c1880. This was the insertion of a small quarry (Devon HER: 48804) just to the west of the coppice in the eastern field along the northern field boundary.

In more recent years electricity pylons have been installed in a line running east-west across the southern half of the site, the path shown on the c1880 OS map to the south has been widened to form a roadway and the quarry has been filled in, but no other obvious changes have occurred. The north-east coppice remains *in situ* along with all the field boundaries.

5.2 Site Investigation

The site walkover confirmed the Historic Landscape Character of the site as being post-medieval enclosure with medieval elements. Both fields have been recently deep ploughed and both are in pasture (Figs 15 and 16). There is much quartzite, siltstone and sandstone debris in the soil. The land has been arable in the past, as night-soil debris is occasionally visible in the ploughsoil. No earthwork or topographical features

other than natural outcrops were visible. The fields were defined and separated by stone-faced earth banks between 0.8m and 1.1m high and up to 1.5m wide. Most of the boundaries were topped with vegetation, this including mature oaks in places.

5.3 Inventory of sites within the proposed development area identified through desk based assessment

(see Fig 13 for locations)

Site 1. Cropmark, SX 45541 61018

This cropmark was identified by the NMP (Fig 10). It appears to be the below-ground remains of former post-medieval boundary ditches defining a small field in the north-west corner of the western field.

Site 2. Quarry, (Devon HER: 48804) SX 45777 61087

This small quarry (approximately 0.35m wide) located adjacent to the north boundary of the eastern field is late 19th or early 20th century in date and first appeared on the Second Edition OS 25" to the mile map of c1907. It is now filled in and surrounded by trees and vegetation.

Site 3. Lane, SX 45516 60731

This lane leading southwards from the south-west corner of the western field fossilises an earlier path or track which originally led through Warleigh Wood and is first shown on the First Edition OS 25" to the mile map of c1880.

Site 4. Field system, SX 45710 60960

This is the field system which extends across the site. All the field boundaries that survive within the site pre-date the c1840 Tithe Map. All of the boundaries are stone-faced earth banks overgrown with vegetation and both small and mature trees, including oaks. On average the boundaries measure between 0.8m and 1.1m high and are up to 1.5m wide. The field boundaries are recorded in detail on the c1840 Tithe Map (Fig 5) and the subsequent c1880 and c1907 OS maps (Figs 6 and 7). Many of the boundaries are likely to have medieval origins. Remains of additional removed boundaries may survive below ground.

5.4 Inventory of sites surrounding the proposed development area identified through desk based assessment

Archaeological sites of significance recorded in the surrounding area are listed below and shown on Fig 11.

Enclosures (Devon HER: 28430)

North-west of Tamerton Foliot. Three rectangular enclosures at SX 46476143 (SW corner only) SX 46456136 and SX 46326124 are probably prehistoric or Romano-British in date. These were recorded as crop-marks by Frances Griffith in June 1984. In 1985 the area was systematically field walked. A large number of finds were recovered including a huge amount of post-medieval/modern pottery, c150 pieces of worked flint, and one Roman bead. These finds were deposited in Plymouth Museum. In 1989 aerial photography showed a weaker curvilinear feature between the two rectilinear ones.

Artefact scatter (Devon HER: 28429)

Multi-period artefacts were recovered from the field to the north of Old Warleigh Lane during the field walking of a site consisting of three cropmark enclosures at Warleigh Barton (Walford *et al*). Large amounts of post-medieval and modern pottery deriving from 'dock dung' dredged from Plymouth Sound for manuring were identified, as well as one Roman bead and scattered flint, this mainly consisting of waste but including some scrapers and other tools.

Warleigh House, Grade II* listed building (Devon HER: 5501)

A country house, of 16th century date with earlier stone vaulted cellars under its north wing. Its interior was remodelled during the 18th century and the north-west wing was added in the 19th century. It was first recorded as 'Wardlegh' in 1242. The manor belonged to the Foliots in early Middle Ages, then passed to the Gorges and Bonvilles, coming to the Copplestones by marriage in 1472. It subsequently passed to the Bampfylde and was sold to the Radclifes in 1741 (Dyer, M. J. + Manning, P. T. 1998).

Cross, (Devon HER: 4049)

A granite trough set against the west wall of Warleigh House which seems to have been made out of the socket stone of a cross.

Boat House, Grade II listed building, (Devon HER: 62454)

A gothic-style boat house at Warleigh House dating to c1800.

Dovecote, Grade II listed building (Devon HER: 5602)

A circular brick dovecote c20m diameter and c20m high with 16 tiers of nest holes in a regular grid pattern. It originally had a conical slated roof and has been dated to the 17th or 18th centuries.

Barn, Grade II listed building (Devon HER: 23482)

A barn to the south-west of the farmhouse, *circa* 17th century, having a long range with an opposing cart entrance to north of centre on both sides.

Cross socket stone, (Devon HER: 12635)

A possible medieval cross socket stone on the west wall of Warleigh Barton which had been used as a trough.

Garden wall, Grade II listed building (Devon HER: 59763)

Garden boundary walls immediately to the south east of Warleigh House, of 18th century date.

Farmhouse, Grade II listed building (Devon HER: 28430)

Warleigh Barton. A 16th century farmhouse much altered in 18th century and later which was occupied by Henry Bradridge in the mid 19th century.

Railway (Devon HER: 22709)

Part of the Lydford to Devonport railway, opened in June 1890.

5.5 Archaeophysica geophysical survey 2011

(see Figs 17-18)

Archaeophysica Ltd. undertook a magnetometer survey of the development area. The survey extended across the two fields within the area (east and west).

The soil was found to be strongly magnetic, being derived from the Saltash Formation and particularly shallow. Recent deep ploughing had brought fragments of rock to the surface, and had left a clear striation across much of the survey. Some former field boundaries were identified, one being a typical 'Cornish' hedge indicated by two closely-set parallel ditches, but overall there were few signs of any previous post-medieval or perhaps even medieval field layout (Roseveare 2012).

The results from the survey revealed evidence for a number of sub-surface archaeological features within the fields (see Figs 17-18).

A single ditched enclosure (feature [16] and associated feature [17]) was identified in the eastern field which is likely to be part of a prehistoric or Roman-British field system

and could well represent a western continuation of the prehistoric or Romano-British settlement structures identified from aerial photographs to the north-east (Devon HER 25430).

In the western field there are also remnants of a likely prehistoric or Romano-British field system, which is represented by ditch features [2], [3], [5], [6], [7], [8], (and in the eastern field) [11]. Within this field system is an area of burning [4] (a probable pit or hearth) which may suggest the presence of former structures here (Roseveare 2012).

Feature [13] in the south-west corner of the eastern field represents an area of strong magnetic disturbance with either a geological origin or as a result of the disturbance of magnetic rock beneath a thin soil. It is interesting to note that it continues the shape of a remaining portion of ancient woodland to the south, perhaps marking its former extent. Feature [10] in the western field represents an area of ferrous debris. (Roseveare 2012)

Evidence for possible prehistoric/Romano-British fields and potentially settlement is apparent in within both fields. Some features appear to be elements of former field systems but a lack of magnetic contrast against a strongly variable background limits this identification to tentative on present evidence (Roseveare 2012).

5.6 Further site potential

In addition to the known sites, other, buried archaeological remains as yet unrecorded may survive within the extent of the proposed solar farm.

Areas of post-medieval enclosure with elements of the medieval farmland HLC Type have been shown through interventions such as watching briefs and excavations elsewhere to have high archaeological potential. Buried traces of both secular and ceremonial prehistoric sites, as well as of medieval settlement and farming-related activity, may remain in land of this Type. There is also a high potential for 'stray' or even *in-situ* artefacts such as pottery and flint surviving in the soils.

6 Significance

Of the known individual archaeological sites adjacent to the proposed solar farm, Prehistoric/Romano-British enclosures (Devon HER: **28430**) and associated artefact scatter (Devon HER: **28429**) to the north-east is considered to be of high significance because of its below-ground archaeological potential. Although this site is not designated it is considered to be of at least regional importance. The geophysical survey results suggest that associated settlement and farming activity may continue into and across the site but that recent deep ploughing may well have disturbed elements of the below-ground remains.

Features identified from the results of the geophysical survey are also considered to be of high significance. Although part of an enclosure within the eastern field [16] is an obvious feature picked up by the survey, there are other anomalies scattered across the two fields which suggest further evidence for prehistoric/Romano-British settlement and associated fields.

The medieval and post-medieval field system (**site 4**) is of moderate significance and local importance. The cropmark post-medieval field ditches (**site 1**), the late 19th century quarry (**site 2**) and the lane (**site 3**) are all of local importance.

The fields within the development area have been characterised using HLC as 'post-medieval enclosure with medieval elements', which is considered to have a high potential for a significant resource of prehistoric or medieval features, artefacts or deposits surviving below ground. The woodland to the west is characterised as Ancient Woodland, where there are remains of ancient sessile oak woodland (Warleigh Wood) which has been said to be possibly the finest example of coastal oak woodland in Devon

(woodland-trust.org.uk/ancient-tree-forum). In addition the site lies within the Tamar Valley Area of Outstanding Natural Beauty (AONB).

It should also be noted that, given their age, the field boundaries are considered important under the historic criteria of the 1997 Hedgerow Regulations. The boundaries may contain early fabric and may seal buried soils with evidence of past environments. They also indicate the time depth of the historic landscape here.

7 Policies and guidance

The following section brings together policies and guidance (or extracts from these) used in the development of the assessment and its methodology.

7.1 Planning Policy Statement 5 (PPS5), 'Planning for the Historic Environment'

7.1.1 Policy HE9.6

HE9.6 *'There are many heritage assets with archaeological interest that are not currently designated as scheduled monuments, but which are demonstrably of equivalent significance....The absence of designation for such heritage assets does not indicate lower significance and they should be considered subject to the policies in HE9.1 to HE9.4 and HE10.'*

7.1.2 Extracts from Policies HE9.1 to HE9.4 and HE10

Policies HE9.1 to HE9.4 and HE10, referred to in Policy HE9, include the following;

- HE9.1 *'There should be a presumption in favour of the conservation of designated heritage assets and the more significant the designated heritage asset, the greater the presumption in favour of its conservation should be. Once lost, heritage assets cannot be replaced and their loss has a cultural, environmental, economic and social impact. Significance can be harmed or lost through alteration or destruction of the heritage asset or development within its setting.'*
- HE9.2 *'Where the application will lead to substantial harm to or total loss of significance local planning authorities should refuse consent unless it can be demonstrated that: (i) the substantial harm to or loss of significance is necessary in order to deliver substantial public benefits that outweigh that harm or loss...'*
- HE10.1; *'When considering applications for development that affect the setting of a heritage asset, local planning authorities should treat favourably applications that preserve those elements of the setting that make a positive contribution to or better reveal the significance of the asset. When considering applications that do not do this, local planning authorities should weigh any such harm against the wider benefits of the application....'*

7.2 PPS5 English Heritage guidance

The English Heritage and DCMS (Department for Culture, Media and Sport) document 'PPS5 Planning for the Historic Environment: Historic Environment Planning Practice Guide' provides guidance on PPS5 and its application.

This refers to the need, for decision-making in response to an application for change that affects the historic environment, of providing and assessing, at a level appropriate to the relative importance of the asset affected, information on the asset and its extent, on its setting, and on the significance of both of these aspects. Section 5, 54 states that *'Heritage assets may be affected by direct physical change or by change in their*

setting. Being able to properly assess the nature, extent and importance of the significance of a heritage asset and the contribution of its setting is very important...'

Section 5 on Policies HE6 to HE 12, 58, notes among appropriate actions (in point 5) 'Seek[ing] advice on the best means of assessing the nature and extent of any archaeological interest e.g. geophysical survey, physical appraisal of visible structures and/or trial trenching for buried remains.'

The section on Policy HE10 defines setting as follows;

'113. Setting is the surroundings in which an asset is experienced. All heritage assets have a setting, irrespective of the form in which they survive and whether they are designated or not. 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.'

'114. The extent and importance of setting is often expressed by reference to visual considerations. Although views of or from an asset will play an important part, the way in which we experience an asset in its setting is also influenced by other environmental factors such as noise, dust and vibration; by spatial associations; and, by our understanding of the historic relationship between places. For example, buildings that are in close proximity but not visible from each other may have a historic or aesthetic connection that amplifies the experience of the significance of each. They would be considered to be within one another's setting.'

7.3 Hedgerow Regulations

Under the current, 1997 Hedgerow Regulations, owners wishing to remove all or part of a hedgerow considered to be historically important must notify the Local Planning Authority (LPA). Criteria determining importance include whether the hedge marks a pre-1850 boundary, and whether it incorporates an archaeological feature. The LPA may issue a hedgerow retention notice prohibiting removal.

8 Likely impacts of the proposed development

8.1 Types and scale of impact

Two general types of archaeological impact associated with solar farm developments have been identified as follows.

8.1.1 Types of impact, construction phase

Construction of the solar farm could have direct, physical impacts on the buried archaeology of the site through the installation of mountings for solar panels and associated control plant, through the undergrounding of cables, and through the provision of any works compound, together with any permanent or temporary vehicle access ways into and within the site.

8.1.2 Types of impact, operational phase

A solar farm might be expected to have a visual impact on the settings of some key heritage assets within its viewshed during the operational phase, given the scales of such developments and the introduction of large areas of new materials into the rural landscape.

8.1.3 Scale and duration of impact

The impacts of a solar farm on the historic environment may include positive as well as adverse effects. For the purposes of assessment these are evaluated on a seven-point scale:

positive/substantial

positive/moderate

positive/minor

neutral

negative/minor

negative/moderate

negative/ substantial

Negative/unknown is used where an adverse impact is predicted but where, at the present state of knowledge, its degree cannot be evaluated satisfactorily.

The assessment also distinguishes where possible between **permanent** and **temporary** effects, or between those that are **reversible** or **irreversible**, as appropriate, in the application of the scale of impacts.

8.1.4 Potential and residual impacts

Potential adverse impacts may be capable of mitigation through archaeological recording or other interventions. In the assessments forming Section 8.2, where appropriate, both 'potential' and 'residual' impacts are given; that is, expected impacts 'before' and 'after' such work. A proposed mitigation strategy is outlined below in Section 9.

8.2 Assessment of impact

Overall, the impacts of the proposed solar power installation on the archaeological resource are assessed as having a potential scored as **negative/moderate** without appropriate recording and other mitigating work, and a **negative/minor** residual impact provided that the recommended mitigation is undertaken.

The assessments supporting this general statement are outlined in the following sub-sections. To comply with current policies and guidance (Section 7) these provide assessments of impact in terms of different aspects of the archaeological resource - its individual sites, the settings of sites, HLC, and field boundaries. There are inevitably areas of overlap between these categories of impact; the assessment is adjusted accordingly to avoid 'double counting' of impacts.

8.2.1 Impact on archaeological sites within the development area

Ground disturbance associated with the installation of supports for the arrays, cables or ancillary works during the construction phase could result in permanent, irreversible loss of below ground remains of the archaeological sites within the area, or elements of these. The works, if extending deeper than current topsoil levels, might affect buried cut features.

The scale of impact will vary with the significance of the individual site, and with the proportion of each site which would be affected. Notably, buried features could be disturbed, truncated or removed. In the absence of detailed information regarding the survival of sub-surface archaeology within the development area, this impact is considered to be **negative/unknown**, with a residual impact of **negative/minor** provided that appropriate mitigating work is carried out. These impacts would be **permanent** and **irreversible**.

8.2.2 Impacts on the settings of surrounding key heritage assets

On the guidance of the Devon County Council Archaeologist, an assessment of the impact of the proposal on the setting of Warleigh Barton was not required, given the site topography (email dated 08/12/2011, citing the advice given to the County Archaeologist by the Planning officer and South Hams District Council Conservation Officer).

The proposed solar farm is considered to have an impact on the setting of key surrounding heritage assets, summarised as a **negative/moderate** impact overall, as follows:

- During its operational phase the solar farm would detract from the visibility and understanding of the general area as ancient farmland, and so obscure aspects of the significance - as early farming settlement working this land.
- However the impacts noted above would be limited with regard to site settings because the layout evident in the upstanding field boundaries means that the predominant historic character of the solar farm area today is medieval/post-medieval, so it contributes less directly to understanding of the prehistoric landscape.
- The above effects would also be limited because any direct impact on buried remains identified could be avoided or adequately mitigated (see Section 7.8) and because the visual impact could be reversible.
- In operation the solar farm would also have adverse impact on the Tamar Valley Area of Outstanding Natural Beauty (AONB) and also on the ancient woodland to the west.

8.2.3 Impacts on Designations

The site lies within a nationally designated area as part of the Tamar Valley Area of Outstanding Natural Beauty (AONB). Tamerton Lake to the south is designated as a Site of Special Scientific Interest (SSSI) and as a Special Area of Conservation (SAC). The development would degrade the rural character of the landscape to some degree, and thus the expected impact on the AONB is assessed as **negative/moderate**.

8.2.4 Impacts on Historic Landscape Character

A solar farm installation at Warleigh Barton can be predicted to degrade the historic character of the landscape to some degree. The expected effect on HLC is **negative/minor** to **negative/moderate**. Factors contributing to this assessment are as follows:

- The land-take for the project is relatively substantial in comparison with the area of the HLC Unit of post-medieval enclosed land with medieval elements within the surrounding landscape.
- However, there would probably be no impacts in terms of physical loss during the construction phase of the upstanding boundaries which form the visible components of HLC.
- Significant visual impact throughout the operational phase would occur, affecting the integrity of this area as historic open farmland, part of a former manorial estate, and most certainly as an Area of Outstanding Natural Beauty (AONB) as a result of the introduction of modern features into an area which is currently devoid of them. This part of the landscape is over-looked by residential areas in the north-western part of Plymouth.
- Any impacts on the legibility of HLC would be **temporary** and **reversible** should the solar farm be dismantled in the future.

8.2.5 Other archaeological impact

Any ground disturbing works here could encounter significant buried prehistoric or medieval remains, resulting in permanent, irreversible loss of these, or elements of them. This potential impact is assessed as **negative/unknown** as specific evidence for the nature and extent of any such remains is limited to the geophysical survey results. It is likely that it could be mitigated satisfactorily though archaeological recording,

reducing the residual impact to **neutral** or **negative/minor**. These impacts would be **permanent** and **irreversible**.

9 Mitigation Strategy

A range of means to mitigate the potential impacts identified in this assessment may be considered by the Historic Environment Planning Advice Officer, which is likely to include one or more of the following.

9.1 Site re-design

Based on the results of the geophysical survey, the HEPAO might ask the site developer to either avoid some areas of the site or to mount arrays on non-intrusive concrete shoes to avoid direct impacts on sensitive areas of the site. This would reduce the direct impacts on the known archaeology of the site to **Neutral**.

Should the finalised site design seem likely to result in unavoidable impacts on below-ground features, a Written Scheme of Investigation (WSI) will need to be prepared and agreed to establish and direct a programme of mitigating archaeological work. This should follow a brief set by Devon County Council's Planning Advisor, and would set out the scope of any further work required, which might include some or all of the following.

9.2 Evaluation

An archaeological evaluation (test trenching) may be required to determine the extent, nature and significance of the archaeological features identified by the geophysical survey and to test other areas of the site.

9.3 Controlled soil stripping and archaeological watching brief

Controlled soil stripping (direction by an archaeologist of mechanical topsoil and subsoil stripping) is recommended either where any large areas of ground are to be disturbed (including works compounds) or in areas where significant geophysical survey results have been identified and which remain proposed for ground disturbance in the final scheme design. This would provide for preservation by record of buried archaeological features or artefacts, and would also allow identification of any further recording or other needs such as wider excavation or sampling. In other areas where narrow trenches or small areas of ground disturbance are proposed, an archaeological watching brief during groundworks might be more suitable.

9.4 Excavation

Archaeological excavation may be appropriate in advance of any ground disturbance in areas where features of high significance are found as a result of geophysical survey, evaluation or controlled soil strip.

9.5 Boundary recording and reconstruction

Any of the historic field boundaries or parts of these disturbed by the works should be recorded in advance. Where sections of boundaries are to be taken down to allow access for construction vehicles or for cable routes, sections through them should be drawn at a suitable scale. Boundaries should also be sampled for buried soils and palaeoenvironmental evidence if considered appropriate by the recording archaeologist. If possible boundaries so disturbed should be re-instated using original or similar local materials, and in a style matching neighbouring undisturbed boundaries.

9.6 Analysis and presentation of findings

The results of any required mitigating archaeological recording outlined above would need to be compiled and analysed; significant findings would be presented as required, with publication to professional standards where appropriate.

10 References

10.1 Primary sources

Benjamin Donn's one inch to the mile survey of Devon, 1765

Ordnance Survey, c1809. *2 Inch Drawing*

Tithe Map and Apportionment, c1840. *Parish of Tamerton Foliot* (Devon Record Office)

Ordnance Survey, c1880. *25 Inch Map* First Edition (licensed copy at West Country Studies Library)

Ordnance Survey, c1907. *25 Inch Map* Second Edition

Ordnance Survey, 2007. *Mastermap Digital Mapping* (licensed copy at Historic Environment Cornwall Council)

Aerial photography undertaken for Cornwall Council in 2005

Historic Landscape Character mapping © Devon County Council

Devon Historic Environment Record

Devon County Council aerial photograph (DAP/AB5) taken in June 1984

RAF aerial photographs dating to 1946

10.2 Websites

<http://www.heritagegateway.org.uk/gateway/> English Heritage's online database of Sites and Monuments Records, and Listed Buildings

<http://www.plymouthdata.info/Warleigh%20House.htm>

<http://frontpage.woodland-trust.org.uk/ancient-tree-forum/atfscapes/focus/devon.htm>

10.3 Publications

Roseveare, ACK, 2012. *Warleigh Barton, Devon, Geophysical Survey Report* ArchaeoPhysica Ltd, Hereford

Sharpe, A, 2012, *Hope Farm, Gwithian, Cornwall, Archaeological Assessment* Cornwall Council: Truro

Sturgess, J, 2010. *Proposed Kernow Solar Farm, Newquay, Cornwall, Archaeological Assessment* Cornwall Council: Truro

11 Project archive

The HE project number is **2012002**

Plymouth City Museum accession number: **2012.7**

The project's documentary, photographic and drawn archive will be housed at Plymouth City Museum & Art Gallery and the offices of Historic Environment, Cornwall Council, Kennall Building, Old County Hall, Station Road, Truro, TR1 3AY. The contents of this archive are as listed below:

1. A project file containing site records and notes, project correspondence and administration.
2. Digital photographs stored in the directory ..\Images\Sites Devon\ Warleigh Barton solar farm assessment 2012002
3. English Heritage/ADS OASIS online reference: cornwall2-118784

This report text is held in digital form as: ..\HE Projects\Sites Devon\Warleigh Barton solar farm assessment 2012002

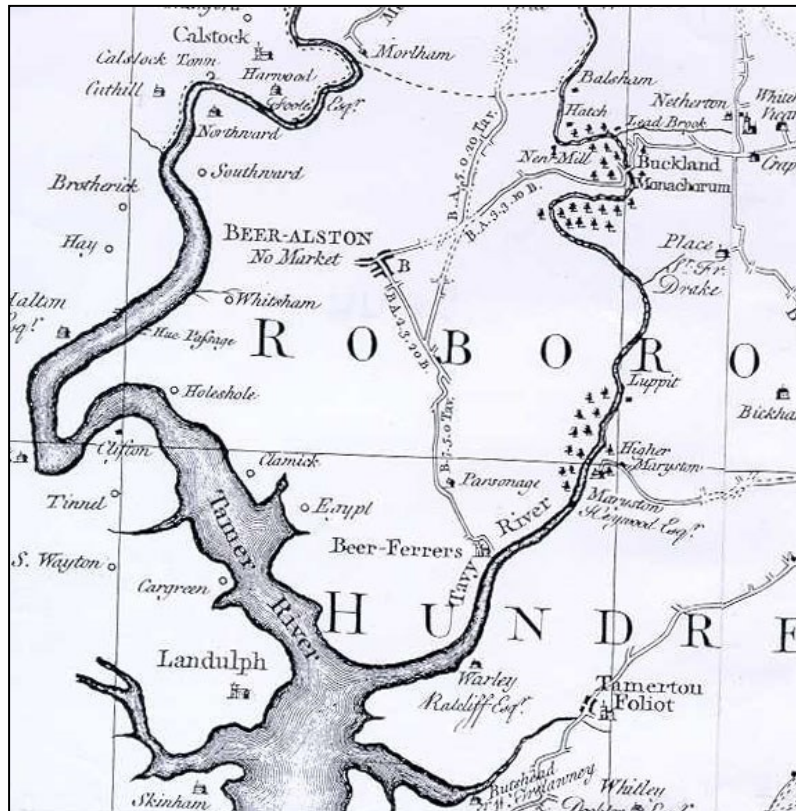


Fig 3. Donn's one inch to the mile survey of 1765. The project area is circled in red.

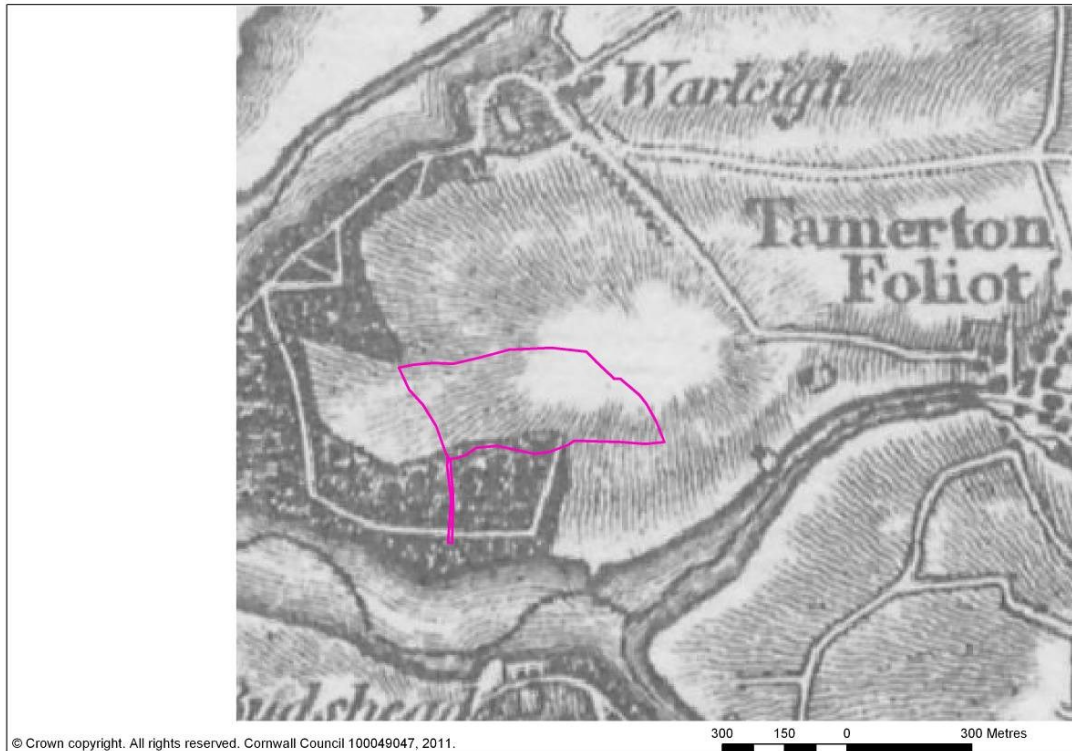


Fig 4: An extract from the c1809 2 Inch Surveyor's Drawing. The project area is shown outlined in magenta.

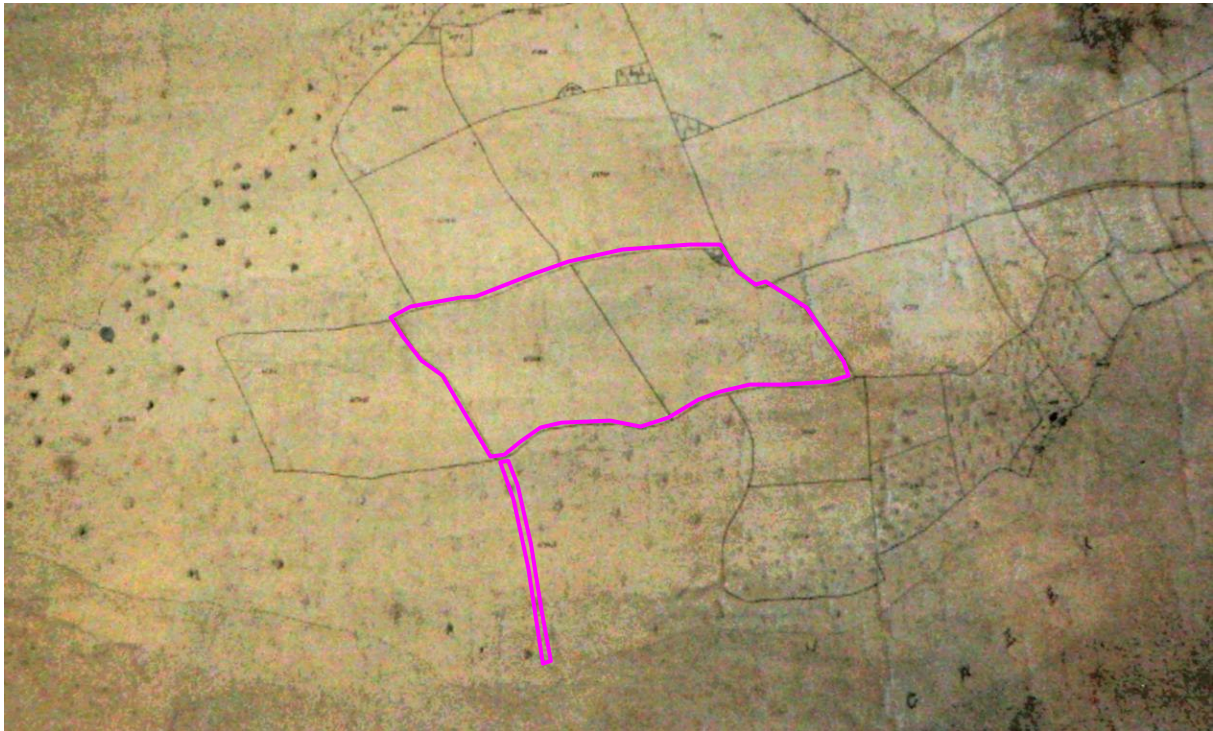


Fig 5. An extract from the circa 1840 Tamerton Foliot Tithe Map showing the survey area.

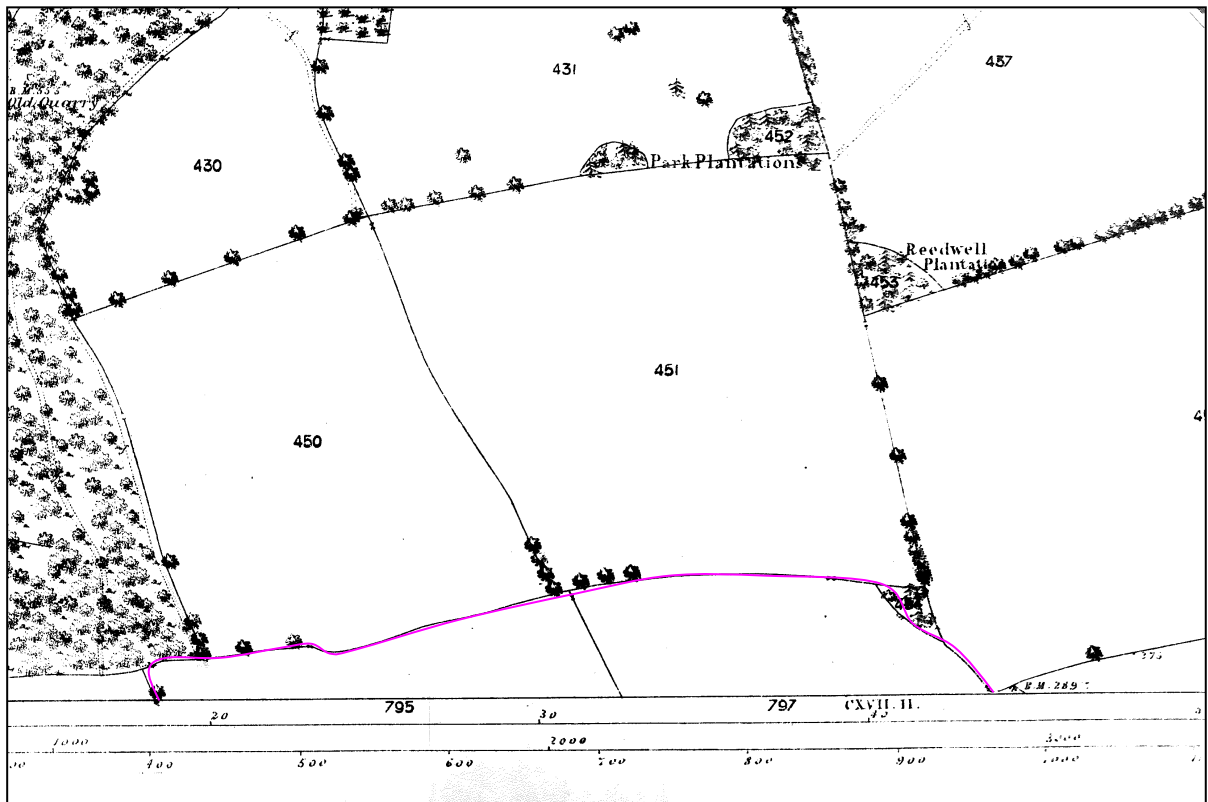


Fig 6. An extract from the circa 1880 1st Edition of the Ordnance Survey 25" to the mile mapping, showing the northern part of the survey area.

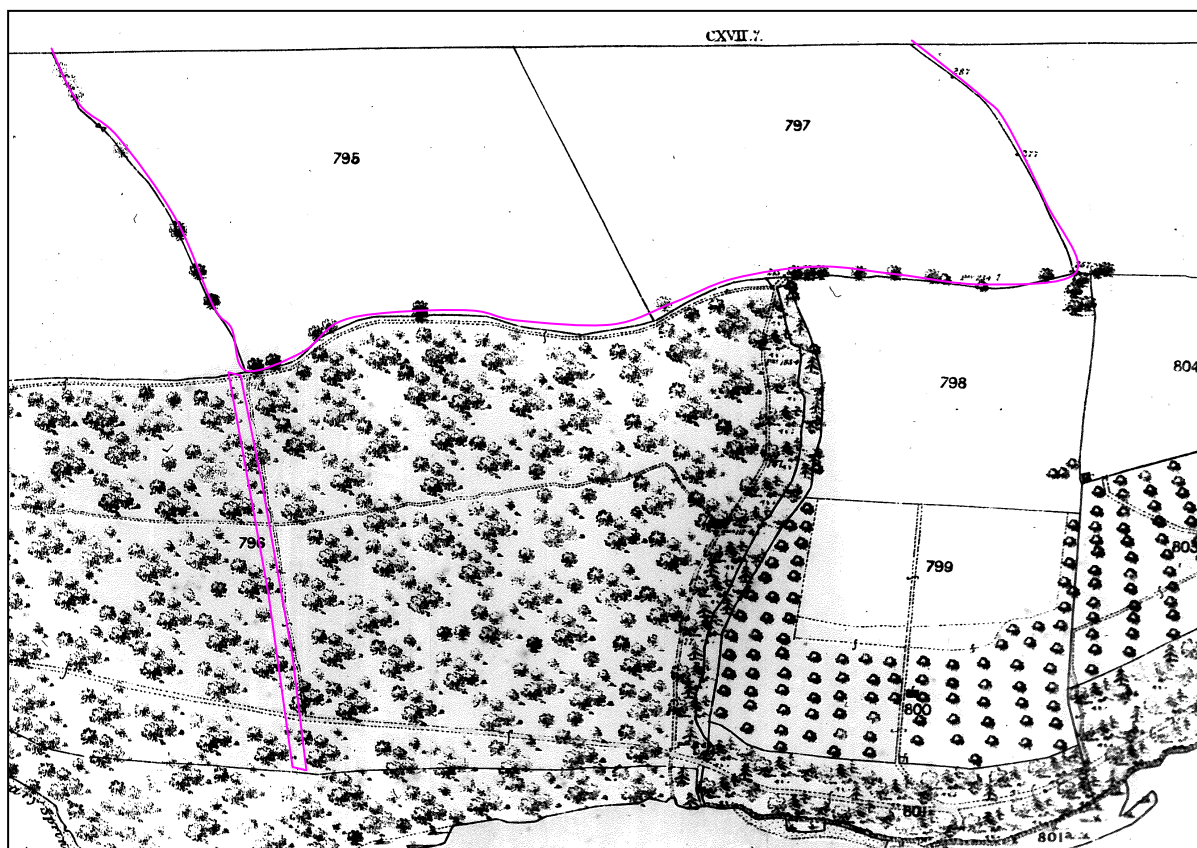


Fig 7. An extract from the circa 1880 1st Edition of the Ordnance Survey 25" to the mile mapping, showing the southern part of the survey area.



Fig 8: Aerial photograph taken for Cornwall Council in 2005.

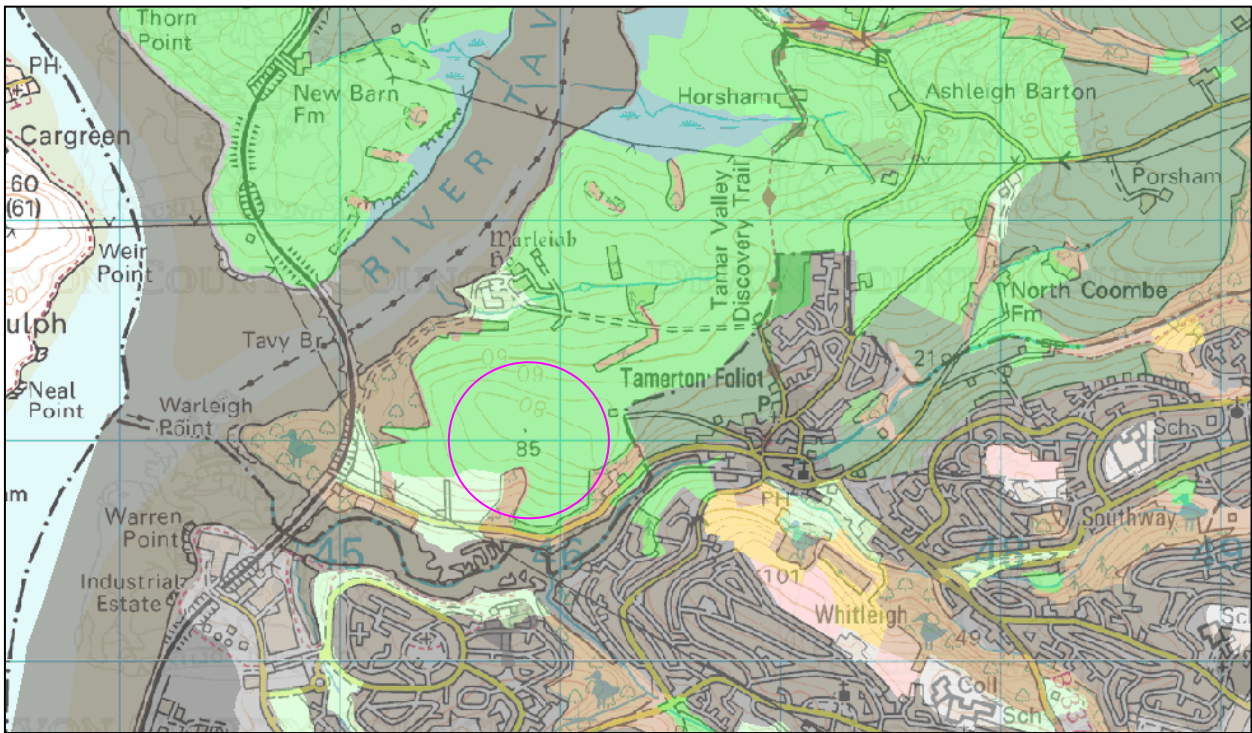


Fig 9: Historic Landscape Character mapping © Devon County Council. Green indicates post-medieval enclosures with medieval elements, pale green indicates modern enclosures from rough ground and tan indicates Ancient woodland.

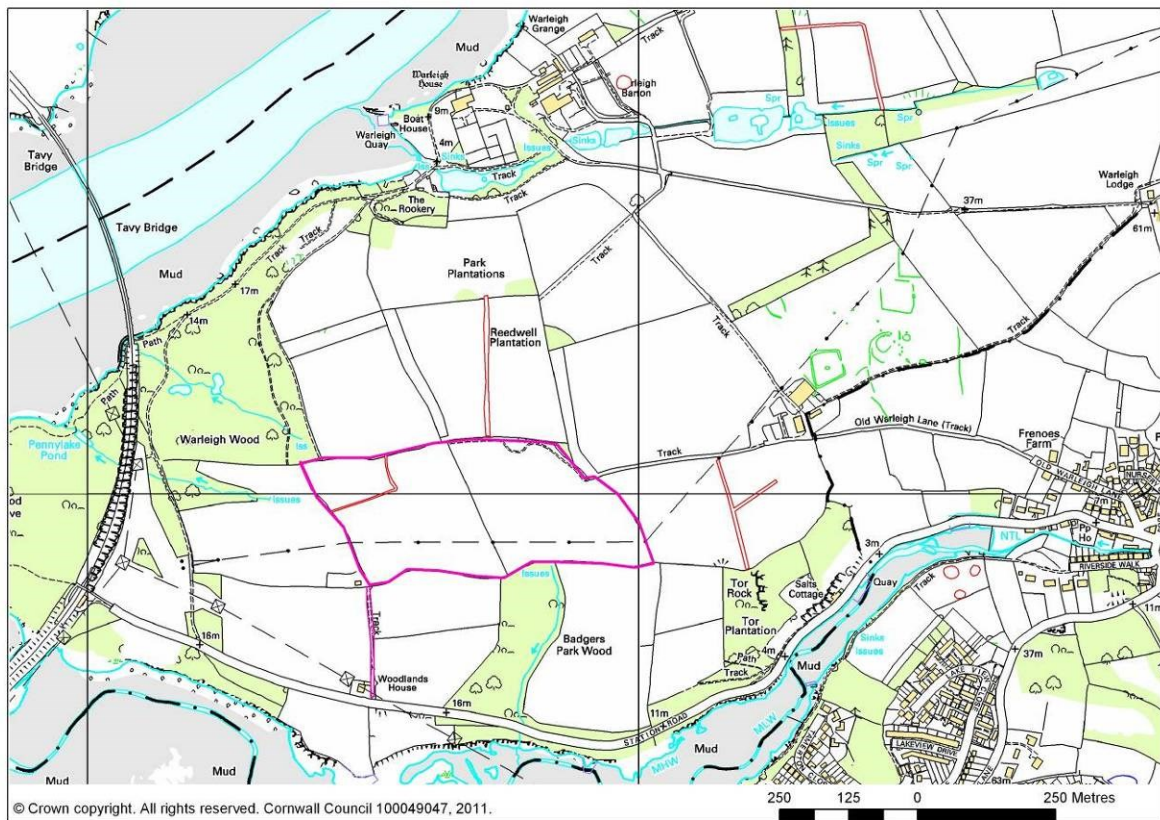


Fig 10. Sites and features plotted from aerial photographs by the National Mapping Programme. Red indicates banks and green indicates ditched features.

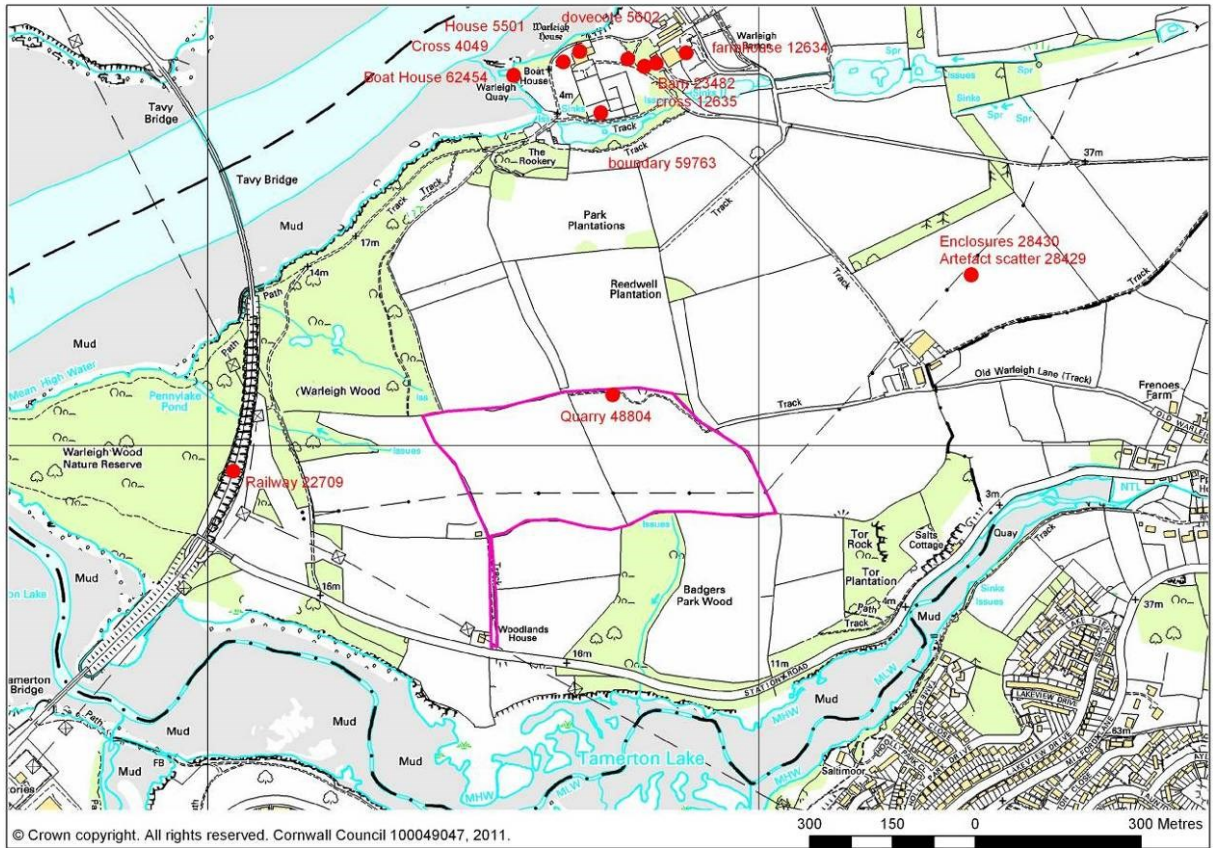


Fig 11. Sites recorded on the Devon Historic Environment Record in the vicinity of the site.

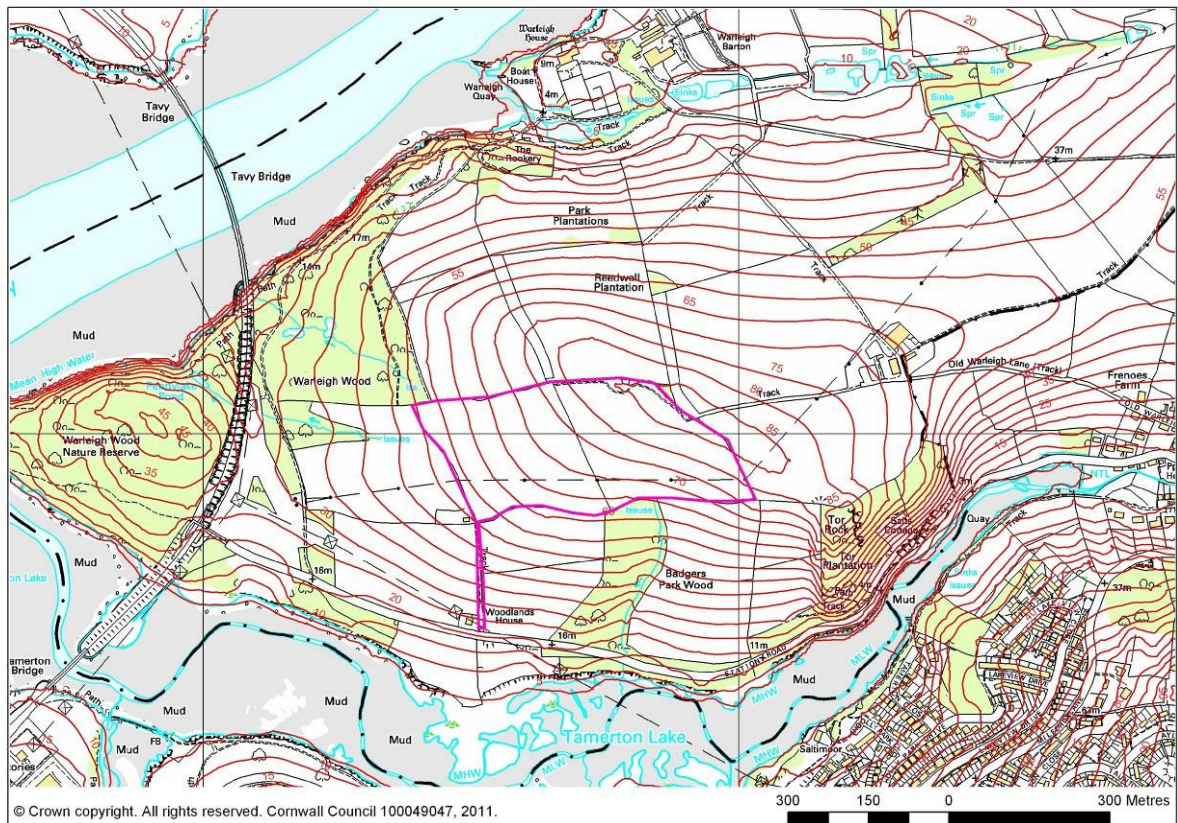


Fig 12: OS 5m interval contour data to indicate the site topography.

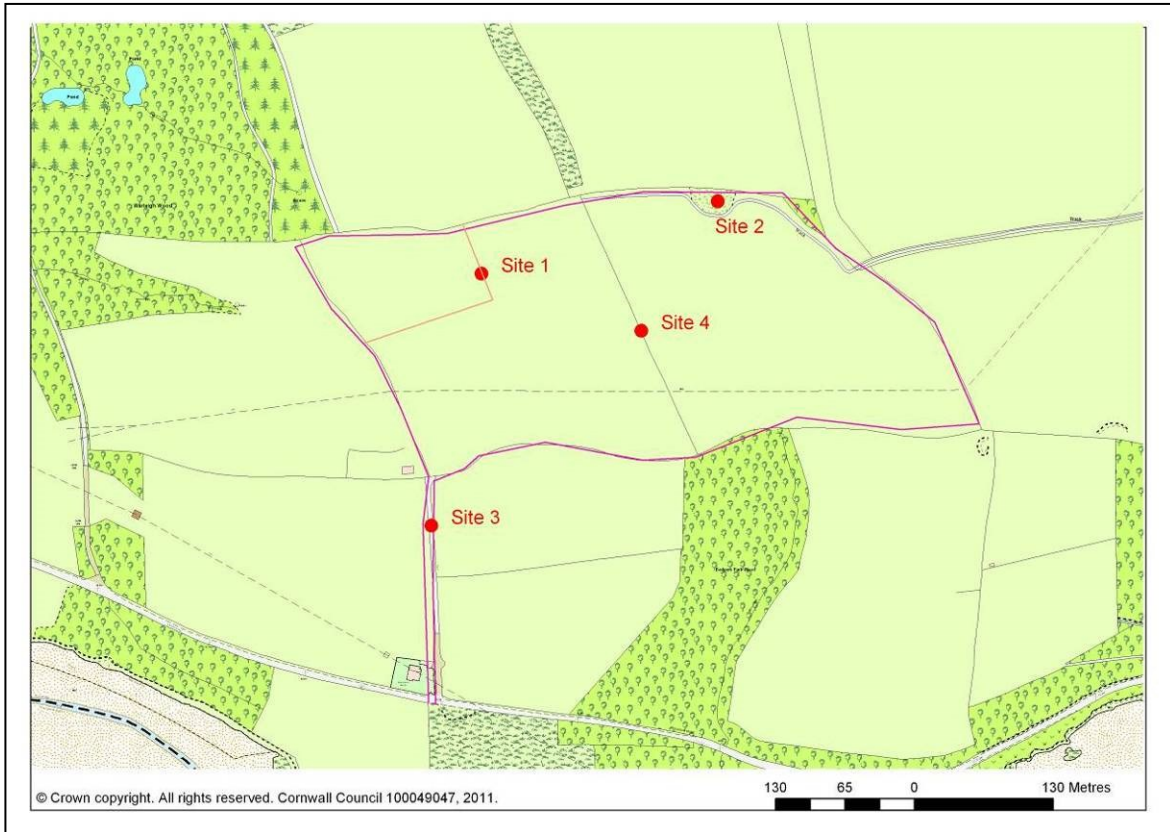


Fig 13: Sites identified within the development area as part of the desk based assessment.

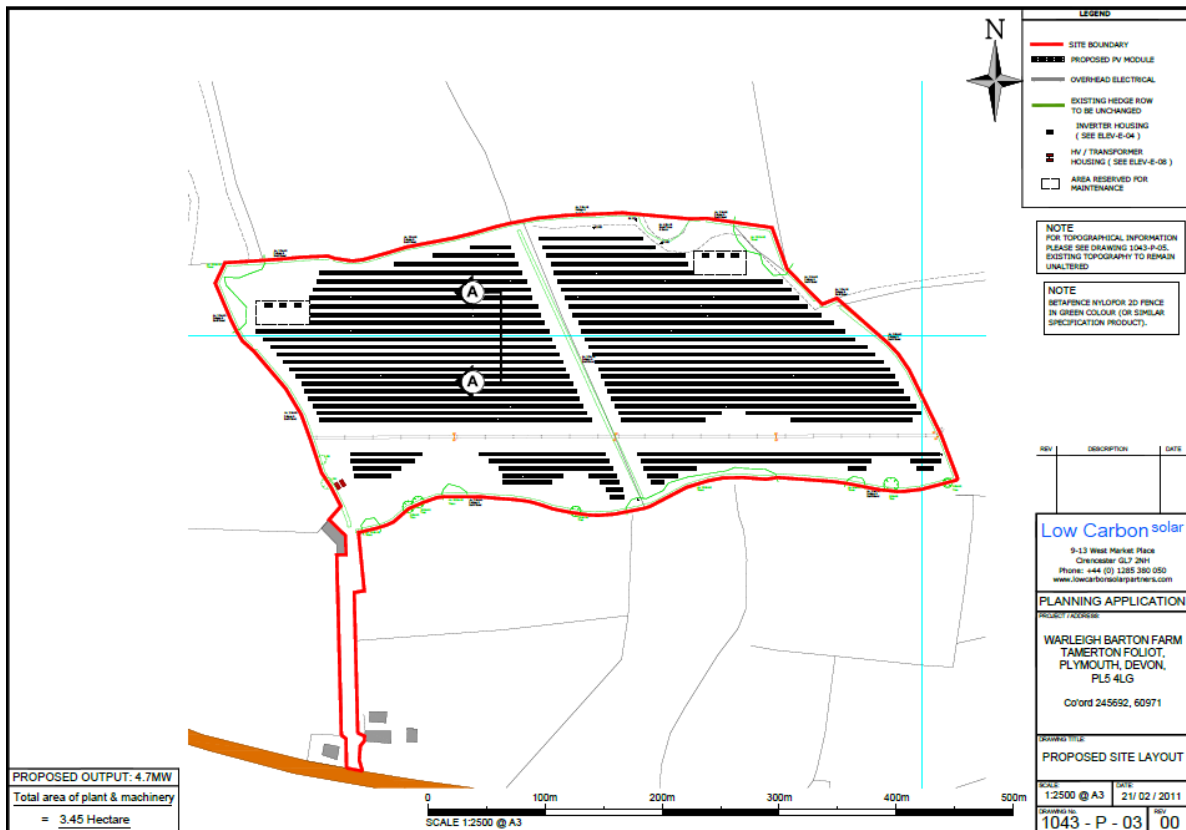


Fig 14. The proposed arrangement of solar arrays at Warleigh Barton.



Fig 15: The western field proposed for the solar farm (Field 2) looking westwards from its north-eastern corner.



Fig 16. The eastern field proposed for the solar farm (Field 3) looking south-westwards from its north-eastern corner.

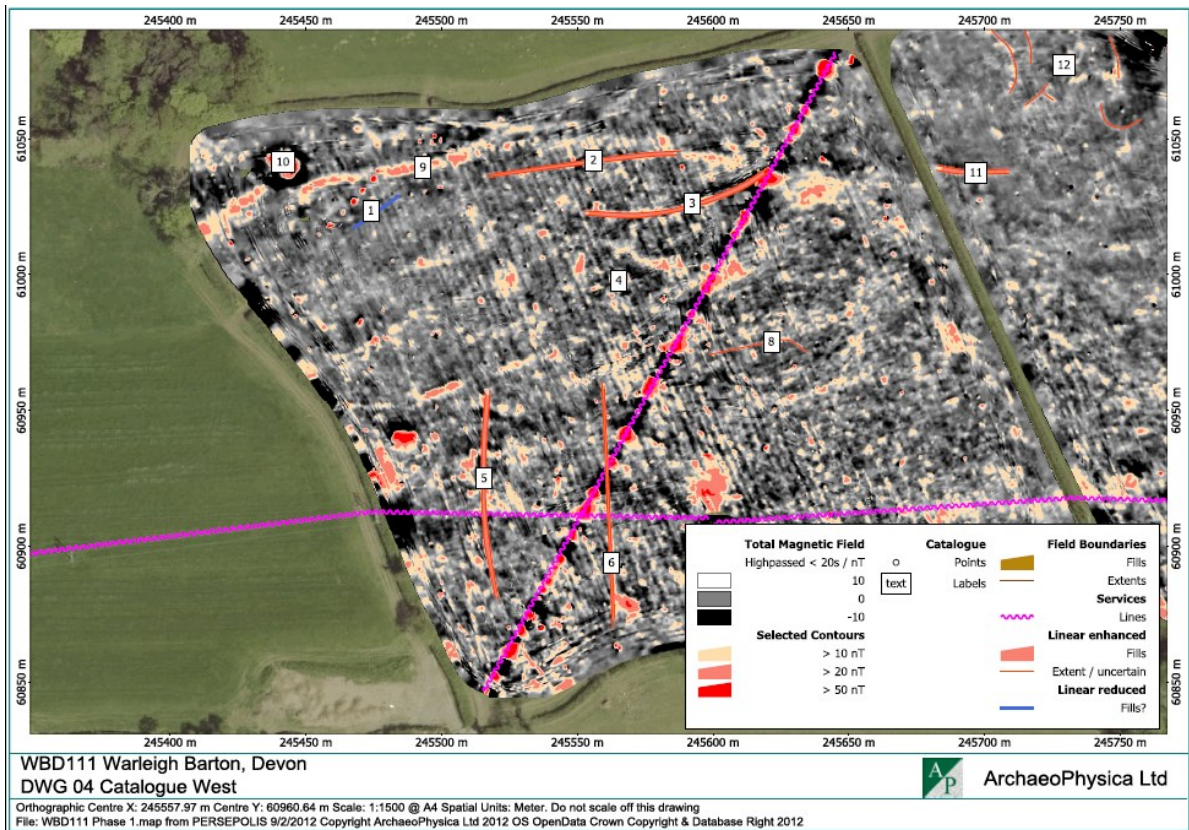


Fig 17. The geophysical data and catalogue numbering for the western field making up the survey area.

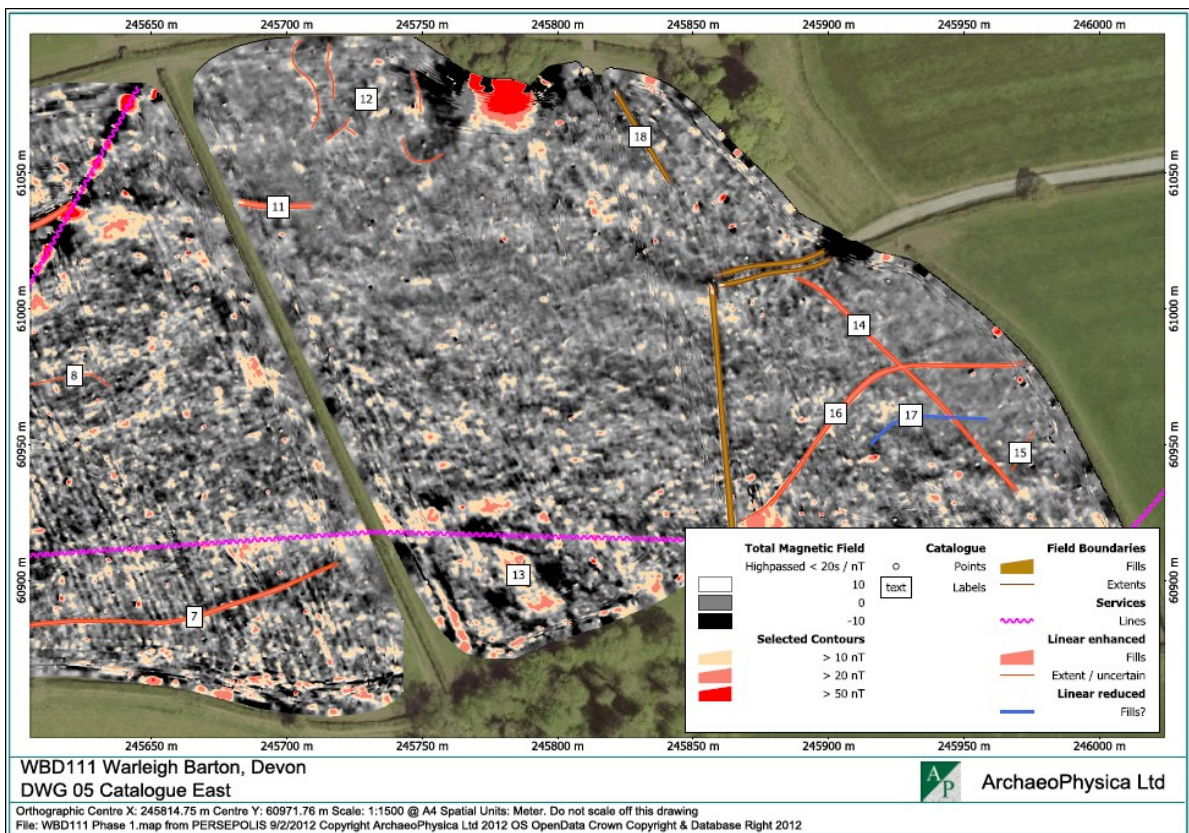


Fig 18. The geophysical data and catalogue numbering for the eastern field making up the survey area.

Geophysical catalogue detail

Label	Anomaly Type	Feature Type	Description	Easting	Northing
1	Linear reduced field	Fill? / Natural?		245473.9	61023.6
2	Linear enhanced field	Fill - Ditch	Possible element of former enclosures or field systems but too fragmentary to determine any coherent plan	245555.9	61042.1
3	Linear enhanced field	Fill - Ditch	See [2]	245592.3	61026.2
4	Discrete unspooled enhanced field	Fill? / Hearth? - Pit?	This appears not to be natural and its association with [6] et al might suggest structures existed here	245565.2	60997.8
5	Linear enhanced field	Fill - Ditch	See [2]	245515.6	60925.0
6	Linear enhanced field	Fill - Ditch	See [2]	245562.5	60893.9
7	Linear enhanced field	Fill - Ditch	See [2]	245665.7	60886.6
8	Linear enhanced field	Fill - Ditch	See [2]	245621.4	60975.3
9	Linear enhanced field	Natural?	Although this could be a major ditch fill it's character is more typical of a natural geological formation, e.g. proximity of met sedimentary rock to an igneous intrusion	245493.1	61039.4
10	Strong dipolar field (sample)	Debris - Ferrous?	One of several discrete areas or objects or ferrous debris, this one being characteristically within the corner of a field and likely to be buried steel	245441.5	61041.4
11	Linear enhanced field	Fill - Ditch	See [2]	245696.8	61037.5
12	Linear enhanced field (group)	Fills? - Ditches? / Natural?	A cluster of thin linear anomalies without clear diagnostic character, in plan resembling former enclosures but perhaps natural in origin	245729.2	61077.1
13	Area enhanced field (sample)	Natural / Site of woodland?	Strong magnetic disturbance with a geological origin or due to disturbance of magnetic rock beneath a thin soil. It is interesting to note that the area continues the shape of an extant woodland to the	245785.5	60901.9

Label	Anomaly Type	Feature Type	Description	Easting	Northing
			south, perhaps marking its former extent		
14	Linear enhanced field	Fill - Ditch	Ditch or drain?	245911.1	60993.8
15	Linear enhanced field	Fill - Ditch	See [14]	245970.7	60946.8
16	Linear enhanced field	Fill - Ditch	Enclosure ditch	245902.5	60961.4
17	Linear reduced field	Fill? / Natural?	Uncertain, perhaps natural?	245930.3	60960.7
18	Linear enhanced field	Fill - Ditch (field boundary?)	Probably a former element of the present field system, however, this is not certain	245830.4	61063.3