LAND NORTH EAST OF HIGHER WELL FARM
HENDRA CROFT
ST NEWLYN EAST
CORNWALL

Results of a Heritage Assessment and Geophysical Survey

South West Archaeology Ltd. report no. 190819

ARCHAEOLOGICAL SERVICES & HISTORIC BUILDING RECORDING
SOUTHWEST ARCHAEOLOGY

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Land NE of Higher Well Farm, Hendra Croft, St Newlyn East, Cornwall

Results of a Heritage Assessment and Geophysical Survey

By P. Webb
Report Version: FINAL
19th November 2019

Work undertaken by SWARCH for We Are Absolute Ltd. (the Agent)
On behalf of a private client

Summary

This report presents the results of a heritage assessment and geophysical survey carried out by South West Archaeology Ltd. (SWARCH) for land north-east of Higher Well Farm, Hendra Croft, St Newlyn East, Cornwall. The site is located south-west of St Newlyn East between the A3075 and Henver Lane. This work was undertaken in support of a planning application.

The site is located south-west of St Newlyn East on relatively flat land towards the summit of a broad ridge. The surrounding landscape contains numerous Prehistoric funerary monuments and enclosed settlements, medieval and post-medieval farming settlements, and post-medieval industrial mining areas. Until the latter part of the 19th century the proposed site formed part of Regenna Common, an area of common grazing. Assessment of historic, cartographic and photographic sources indicate the site contains several relict field boundaries and a backfilled quarry. The geophysical survey undertaken located these historic features as well as a possible holloway, several large pits and a scatter of smaller pits or tree throws. On that basis the archaeological potential of the site is adjudged to be moderate, and some form of limited investigation of these features would be appropriate.

*In terms of indirect impacts, most of the designated heritage assets in the wider area are located at such a distance as to minimise the impact of the proposed development, or else the contribution of setting to overall significance is less important than other factors. The landscape context of many of these buildings and monuments is such that they would be partly or wholly insulated from the effects of the proposed development by a combination of local blocking from trees, topography, buildings or embankments, or that other modern intrusions have already impinged upon their setting. The only sites where there might be the potential for an appreciable impact are the Scheduled Twelve Barrows (**negligible**), the multiple enclosure fort at Shepherds Farm (**negligible**); and the Grade II Listed Trevryn (**neutral**). There is likely to be some cumulative harm arising from its location next to the existing Monkey Tree caravan park.*

*The overall impact of the proposed development can therefore be assessed as **negligible**. The impact of the development on any buried archaeological resource may be **permanent** and **irreversible** but can be mitigated through an appropriate programme of archaeological investigation and recording.*

November 2019

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ACKNOWLEDGEMENTS

THE CLIENT

PROJECT CREDITS

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1.0 INTRODUCTION

LOCATION:	HENDRA CROFT
PARISH:	ST NEWLYN EAST
COUNTY:	CORNWALL
NGR:	SW 8020 5518
PLANNING NO.	PA19/04344
OASIS NO:	SOUTHWES1-374469
SWARCH REFERENCE:	HCW19

1.1 PROJECT BACKGROUND

South West Archaeology Ltd. (SWARCH) was commissioned by We Are Absolute Ltd. (the Agent) on behalf of a private client to produce a heritage assessment informed by a geophysical survey in support of a planning application for a proposed development on land north-east of Higher Well Farm, Hendra Croft, St Newlyn East, Cornwall. This work was undertaken in line with best practice and CIfA guidelines.

1.2 TOPOGRAPHICAL AND GEOLOGICAL BACKGROUND

The site is located approximately 2.7km south-west of St Newlyn East between the A3075 and Henver Lane, on relatively flat land towards the summit of a broad ridge south-east of Penhale Sands at an altitude of *c.*96m AOD (Figure 1). The soils of this area are the well-drained fine loamy soils of the Denbigh 2 Association (SSEW 1983); these overlie the mudstones and siltstones of the Trendrean Mudstone Formation (BGS 2019).

1.3 HISTORICAL & ARCHAEOLOGICAL BACKGROUND

The parish of St Newlyn east lies in the Deanery and Hundred of Pyder, the eponymous settlement first recorded in 1311 as *Villa de Sancta* Newelina; it takes its name from the Norman Church of St Newlyn, which will have earlier origins. The site is situated on land belonging to Treluddra Manor, a former tenement of Cargoll Manor, which was raised in status at the time of the marriage of an heiress to the Borlase family in the 16th century (Lysons 1814). A deer park was created surrounding the new manor at this time. The 1840 St Newlyn East tithe award records the land as owned by Christopher Henry Thomas Hawkins of Trewithen and occupied by William Carne. The fields formed part of *Regenna Downs*.

The historic landscape in this area is characterised by the Cornwall and Scilly Historic Landscape Characterisation (HLC) as *post-medieval enclosed land*, enclosed in the 17th, 18th, and 19th centuries from land that was previously upland rough ground and/or medieval commons. The fields are usually fairly or very regular with straight sides. The proposed site lies in an area where little formal archaeological investigation has been undertaken, but one where Prehistoric activity is recorded in the wider landscape. The Cornwall and Scilly Historic Environment Record (HER) records possible Bronze Age barrows to the south (MCO3278) and south-west (MCO2371, MCO2372), as well as further Prehistoric activity across the wider landscape, including more barrow monuments (SAM1016167) and an Iron Age enclosure fort (SAM1019494).

Relatively few archaeological investigations have taken place in the immediate area. An archaeological assessment with walkover was undertaken of land to the south of the site at Monkey Tree Campsite (Bampton *et al.* 2014), with geophysical surveys at Goonhavern (Sharpe 2013; ECO4346, ECO4404, ECO5063; Boyd *et al*. 2018) and a limited excavation at St Piran's Round (Cole 2005).

1.4 METHODOLOGY

This work was undertaken in accordance in accordance with the CIfA (2014a) and in line with best practice. The gradiometer survey follows the general guidance as outlined in: *Geophysical Survey in Archaeological Field Evaluation* (English Heritage 2008a) and *Standard and Guidance for Archaeological Geophysical Survey* (CIfA 2014b).

The assessment also follows the guidance outlined in: *Conservation Principles: policies and guidance for the sustainable management of the historic environment* (English Heritage 2008b), *The Setting of Heritage Assets* (Historic England 2015), *Seeing History in the View* (English Heritage 2011b), *Managing Change in the Historic Environment: Setting* (Historic Scotland 2010), and with reference to *Visual Assessment of Wind farms: Best Practice* (University of Newcastle 2002) and *Guidelines for Landscape and Visual Impact Assessment* 3rd edition (Landscape Institute 2013).

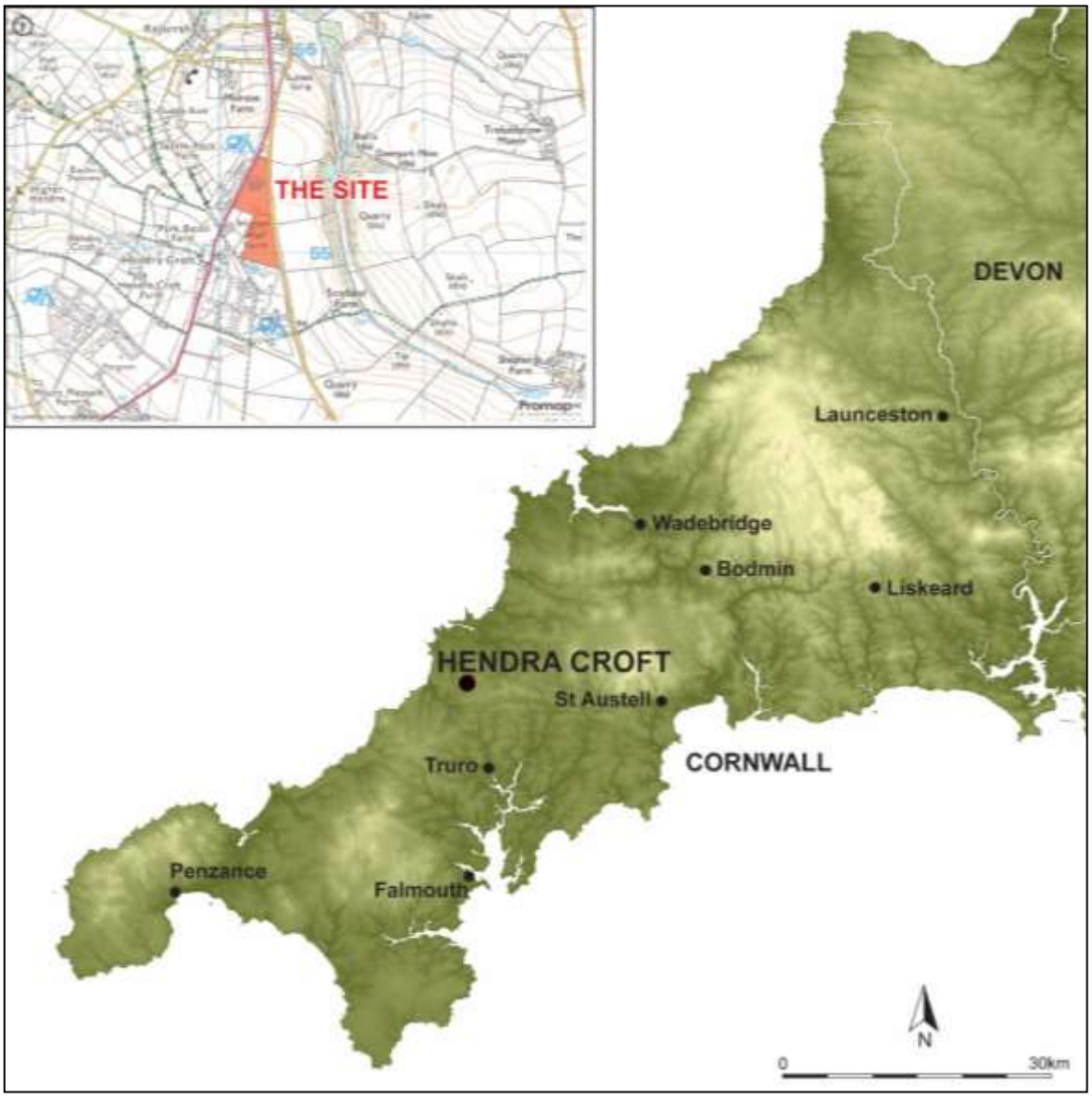

FIGURE 1: SITE LOCATION (THE SITE IS INDICATED).

2.0 HERITAGE IMPACT ASSESSMENT

2.1 HERITAGE IMPACT ASSESSMENT - OVERVIEW

The purpose of heritage impact assessment is twofold: Firstly, to understand – insofar as is reasonably practicable and in proportion to the importance of the asset – the significance of a historic building, complex, area, monument or archaeological site (the 'heritage asset'). Secondly, to assess the likely effect of a proposed development on the heritage asset (direct impact) and/or its setting (indirect impact). This methodology employed in this assessment is based on the approach outlined in the relevant DoT guidance (DMRB vol.11; WEBTAG), used in conjunction with the ICOMOS (2011) guidance and the staged approach advocated in *The Setting of Heritage Assets* (GPA3 Historic England 2015). The methodology employed in this assessment can be found in Appendix 1.

2.2 NATIONAL POLICY

General policy and guidance for the conservation of the historic environment are now contained within the *National Planning Policy Framework* (Department for Communities and Local Government 2018). The relevant guidance is reproduced below:

Paragraph 189
In determining applications, local planning authorities should require the applicant to describe the significance of any heritage assets affected, including the contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum the relevant historic environment record should be consulted and the heritage assets assessed using appropriate expertise where necessary. Where a site on which a development is proposed includes or has the potential to include heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation.

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

A further key document is the Planning (Listed Buildings and Conservation Areas) Act 1990, in particular section 66(1), which provides *statutory protection* to the setting of Listed buildings:

In considering whether to grant planning permission for development which affects a listed building or its setting, the local planning authority or, as the case may be, the Secretary of State shall have special regard to the desirability of preserving the building or its setting or any features of special architectural or historic interest which it possesses.

2.3 LOCAL POLICY

Policy 24: *Historic Environment* in *The Cornwall Local Plan: Strategic Policies 2010-2030* makes the following statement:

All development proposals should be informed by proportionate historic environment assessments and evaluations... identifying the significance of all heritage assets that would be affected by the

proposals and the nature and degree of any affects and demonstrating how, in order of preference, any harm will be avoided, minimised or mitigated.

Great weight will be given to the conservation of Cornwall's heritage assets... Any harm to the significance of a designated or non-designated heritage asset must be justified... In those exceptional circumstances where harm to any heritage assets can be fully justified, and the development would result in the partial or total loss of the asset and/or its setting, the applicant will be required to secure a programme of recording and analysis of that asset, and archaeological excavation where relevant, and ensure the publication of that record to an appropriate standard in public archive.

2.4 STRUCTURE OF ASSESSMENT – DIRECT AND INDIRECT IMPACTS

This assessment is broken down into two main sections. Section 3.0 addresses the *direct impact* of the proposed development i.e. the physical effect the development may have on heritage assets within, or immediately adjacent to, the development site. Designated heritage assets on or close to a site are a known quantity, understood and addressed via the *design and access statement* and other planning documents. Robust assessment, however, also requires a clear understanding of the value and significance of the *archaeological* potential of a site. This is achieved via the staged process of archaeological investigation detailed in Section 3.0. Section 4.0 assesses the likely effect of the proposed development on known and quantified designated heritage assets in the local area. In this instance the impact is almost always indirect i.e. the proposed development impinges on the *setting* of the heritage asset in question, and does not have a direct physical effect.

3.0 DIRECT IMPACTS

3.1 STRUCTURE OF ASSESSMENT

For the purposes of this assessment, the *direct effect* of a development is taken to be its direct physical effect on the buried archaeological resource. In most instances the effect will be limited to the site itself. However, unlike designated heritage assets (see Section 4.0) the archaeological potential of a site, and the significance of that archaeology, must be quantified by means of a staged programme of archaeological investigation. Sections 3.2-3.5 examine the documentary, cartographic and archaeological background to the site; Section 3.6 details the results of a geophysical survey; Section 3.7 summarises this information in order to determine the significance of the archaeology, the potential for harm, and outlines mitigation strategies as appropriate. Appendix 1 details the methodology employed to make this judgement.

3.2 DOCUMENTARY HISTORY

The parish of St Newlyn East lies in the Deanery and Hundred of Pyder, the eponymous settlement first recorded in 1311 as *Villa de Sancta Newelina,* taking its name from the Norman Church of St Newlyn, which is likely to have earlier origins. The site is situated on land formerly belonging to Treluddra Manor, a tenement of Cargoll Manor, which was raised in status at the time of the marriage of an heiress to the Borlase family in the 16th century (Lysons 1814). A deer park was created surrounding the new manor at this time. The 1840 St Newlyn East tithe award records the land as owned by Christopher Henry Thomas Hawkins and occupied by William Carne. The fields were part of *Regenna Downs* common land.

3.3 CARTOGRAPHIC DEVELOPMENT

The earliest detailed cartographic source available to this study is the tithe map of 1840 (**Error! R eference source not found.**2). This shows St Newlyn East set within a landscape of enclosed agricultural fields and isolated farmsteads. The proposed site lies to the south-west of the main churchtown settlement within an area of common grazing that had yet to be enclosed. The accompanying 1840 tithe apportionment indicates that the land was owned by Christopher Henry Thomas Hawkins esq. of Trewithen, being one of the estates purchased by his uncle in the early 19th century. It was occupied by William Carne of Nanhellon, part of the estate of Lower Treluddra, with the adjacent fields occupied by James Swan. The more irregular and curving field boundaries in the area have their origins in the medieval layout of the landscape, with straighter post-medieval boundaries extending up onto the higher ground and representing a later phase of enclosure. The field names recorded in the tithe apportionment are essentially prosaic, reflecting the topography or their position as part of common land (e.g. no.1503 *Regenna Downs*).

By 1847, the plan of East Huel Rose (updated from the St Newlyn East tithe map) (Figure 3) depicts the same basic fieldsystem as the earlier map, but with the mines of Huel Hawkins and North Shepherds shown to the east.

The 1888 OS 1st edition map (Figure 4) depicts a landscape very similar to that of 1840 and 1847. Some boundary loss had occurred, although *new* boundaries are quite common, particularly in areas of former common land. The boundaries of the proposed site were largely established in the period 1847-1888; both fields having internal subdivisions and an *old quarry* depicted in the southern field. The most significant developments in the surrounding landscape appear to be the depiction of the Deerpark (part of the old Huel Hawkins site), Great Retallack, and Duchy Peru mines; along with the construction of the Treamble branch of the Cornwall Minerals Railway.

The landscape as depicted in the 1907 OS 2nd edition map (Figure 5) is almost unchanged, with only

a limited increase in the depiction of mining activity and some further boundary alteration and rationalisation. The latter is visible within the proposed site: the zig-zag sub-division of the northern field shown on this map as a single straight boundary.

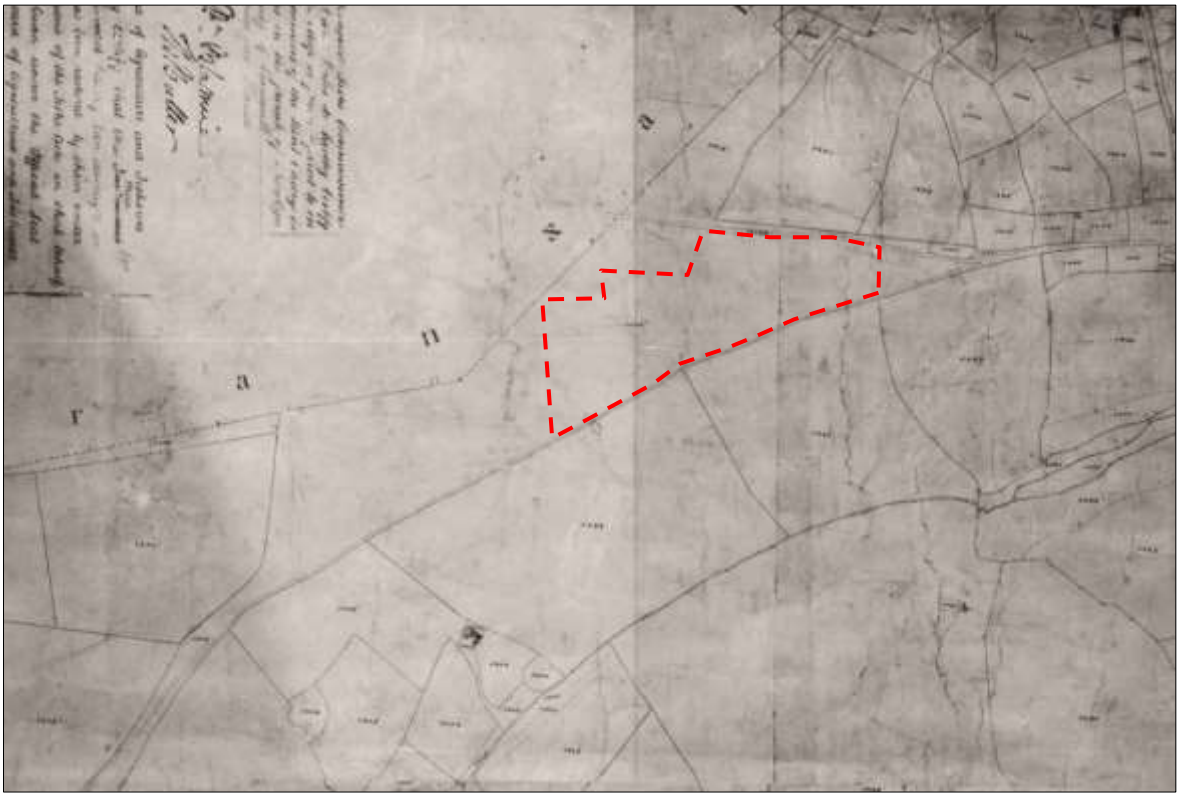

FIGURE 2: EXTRACT FROM THE ST NEWLYN EAST TITHE MAP OF 1840; THE EXTENT OF THE SURVEY AREA IS INDICATED (CRO).

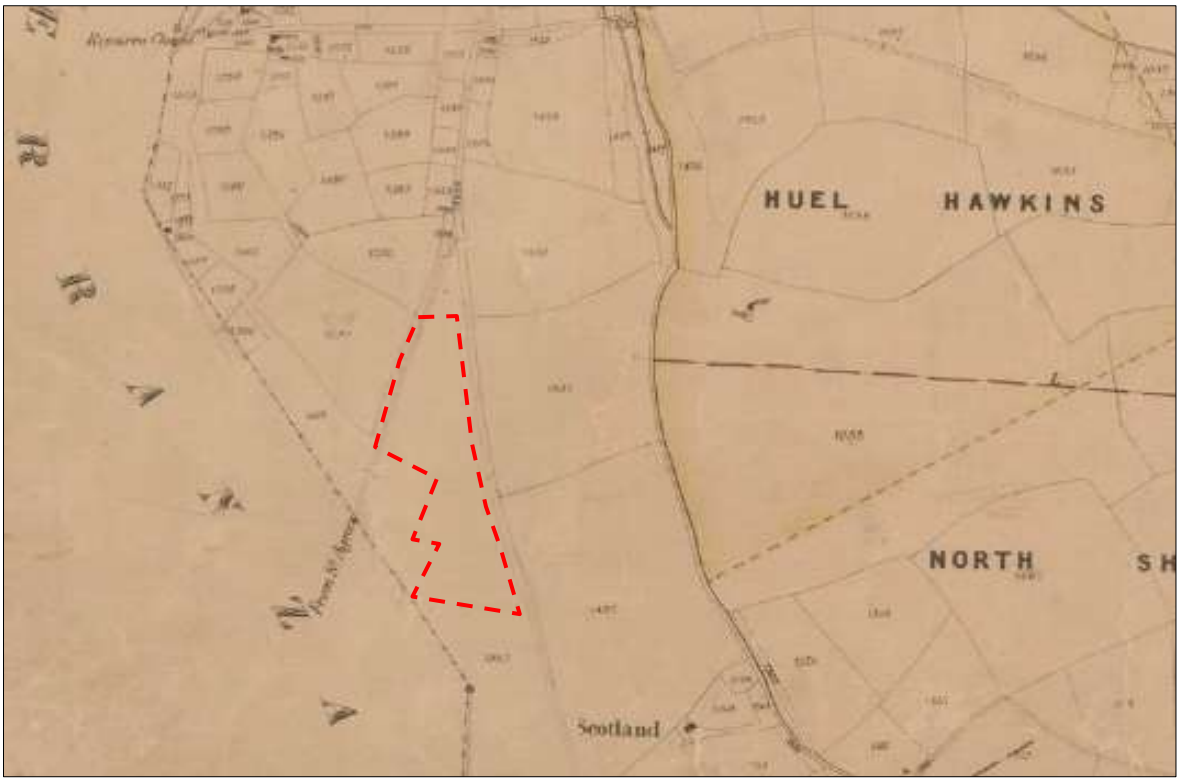

FIGURE 3: EXTRACT FROM THE 1847 PLAN OF EAST HUEL ROSE; THE EXTENT OF THE SURVEY AREA IS INDICATED (CRO).

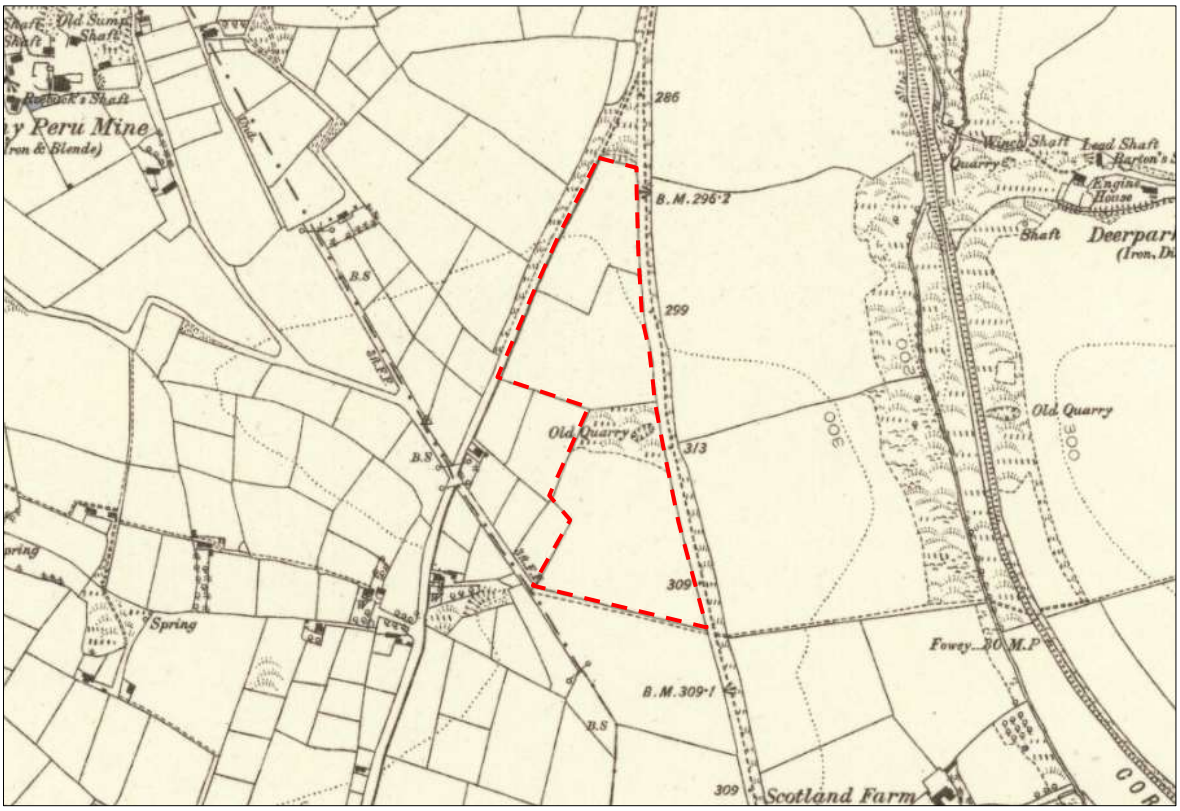

FIGURE 4: EXTRACT FROM THE FIRST EDITION OS 6" MAP OF 1888; THE EXTENT OF THE SURVEY AREA IS INDICATED (CRO).

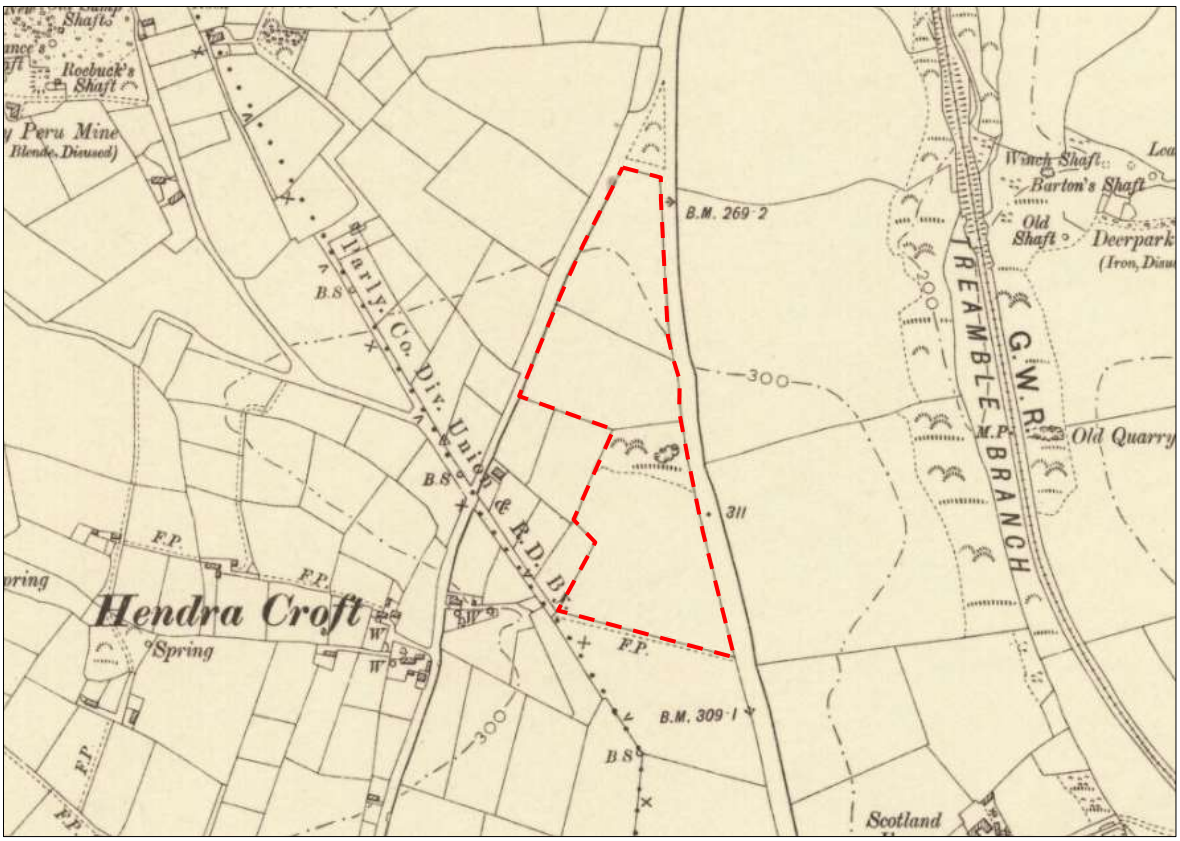

FIGURE 5: EXTRACT FROM THE SECOND EDITION OS 6" MAP OF 1906; THE EXTENT OF THE SURVEY AREA IS INDICATED (CRO).

Subsequent OS maps (not illustrated) indicate little change over the course of most of the 20th century. The nearby caravan sites expanded significantly in the 2000s, and the central boundary in

the northern field was lost between 1973 and 2001. At some point during the 20th century the quarry was backfilled, now showing only as a slight cropmark in recent aerial photographs.

3.4 ARCHAEOLOGICAL BACKGROUND

The development site lies in an area where little formal archaeological investigation has been undertaken but one where Prehistoric activity is recorded in the wider landscape. The Cornwall and Scilly Historic Environment Record (HER) identifies the sites of possible Bronze Age barrows to the south (MCO3278) and south-west (MCO2371, MCO2372) in close proximity to the site, as well as further Prehistoric activity across the wider landscape, including other barrow monuments (SAM1016167) and an Iron Age enclosure fort (SAM1019494) (see Table 1 and Figure 6).

Relatively few archaeological investigations have taken place in this area; archaeological assessment and walkover survey of land to the south of the site at Monkey Tree Campsite (Bampton *et al* 2014), geophysical surveys at Goonhavern (Sharpe 2013; ECO4346, ECO4404, ECO5063; Boyd *et al.*) and an excavation at St Piran's Round (Cole 2005).

The historic landscape in this area is characterised by the Cornwall and Scilly Historic Landscape Characterisation (HLC) as *post-medieval enclosed land*; enclosed in the 17th, 18th, and 19th centuries from land that was previously upland rough ground and/or medieval commons. The fields are fairly to very regular with long straight boundaries.

3.4.1 PREHISTORIC 4000BC - AD43

The evidence for Prehistoric activity in this landscape is relatively common. The earliest evidence dates to the Bronze Age and is largely restricted to funerary barrows identified across the landscape at Twelve Barrows (SAM1016167) and Carnebo (MCO2371, MCO2372). Settlement activity is much scarcer and is suggested by flint scatters at Treludderow (MCO1607), but it is not until the Iron Age that there is structural evidence, with the enclosure fort at Shepherds Farm (SAM1019494) and other enclosed settlements ('rounds') in this landscape (e.g. MCO117; MCO33607; MCO33646; MCO32863).

3.4.2 ROMANO-BRITISH AD43 – AD409

The evidence for Romano-British activity is sparse, but it is probable that many of the Iron Age settlements continued to be occupied.

3.4.3 EARLY MEDIEVAL AD410 – AD1065

The archaeology of the early medieval period is poorly represented, but there are several *tre* place-names (e.g. *Treludderow*) normally regarded as indicative of a settlement established during this period. However, only Rejerrah (MCO16547) is recorded with origins in this period, dating to 960AD. Despite this the basic framework of the tenurial and ecclesiastical landscape was established during this period, as were many of the farming settlements.

3.4.4 MEDIEVAL AD1066 - AD1540

Most of the other farms and many of the settlements in the area are at least medieval in origin, with documentary evidence for sites at Treludderow (1284) (MCO17493), Treludrou Gres (1327-1364) (MCO17495), and Lewins (1538) (MCO15411). Open or strip fields at likely to have been laid out in association with these farms, with fieldsystems identified at Fiddlers Green (MCO33636) and Hendra (MCO32864) which form the basis of the modern fieldscape.

3.4.5 POST-MEDIEVAL AND MODERN AD1540 - PRESENT

Population and settlement expanded during the post-medieval period; the settlement of Rejerrah gained new Sunday Schools and Nonconformist chapels (MCO32310, MCO56783). The main developments, however, were through industrial activity associated with mining, several mines

being set up in the surrounding landscape including at: Deer Park (MCO11998), Duchy Peru (MCO12018), North Shepherds (MCO12335, MCO32359) and Wheal Hart (MCO12980) all working the nearby lodes, as well as several quarry pits (MCO33634, MCO33635). Alongside these, the associated infrastructure of the Cornwall Minerals Railway (MCO29114, MCO55862, MCO55863) would have made a significant impact across the landscape. During the 20th century, the outbreak of World War II and the need for coastal defence led to the installation of radio stations at Goonhavern (MCO54458, MCO54459), whilst increased tourism led to a new station at Shepherds in 1905 (MCO53897) on the junction between the Chacewater to Newquay branch of the GWR and the Cornwall Minerals line, the latter opened 1874.

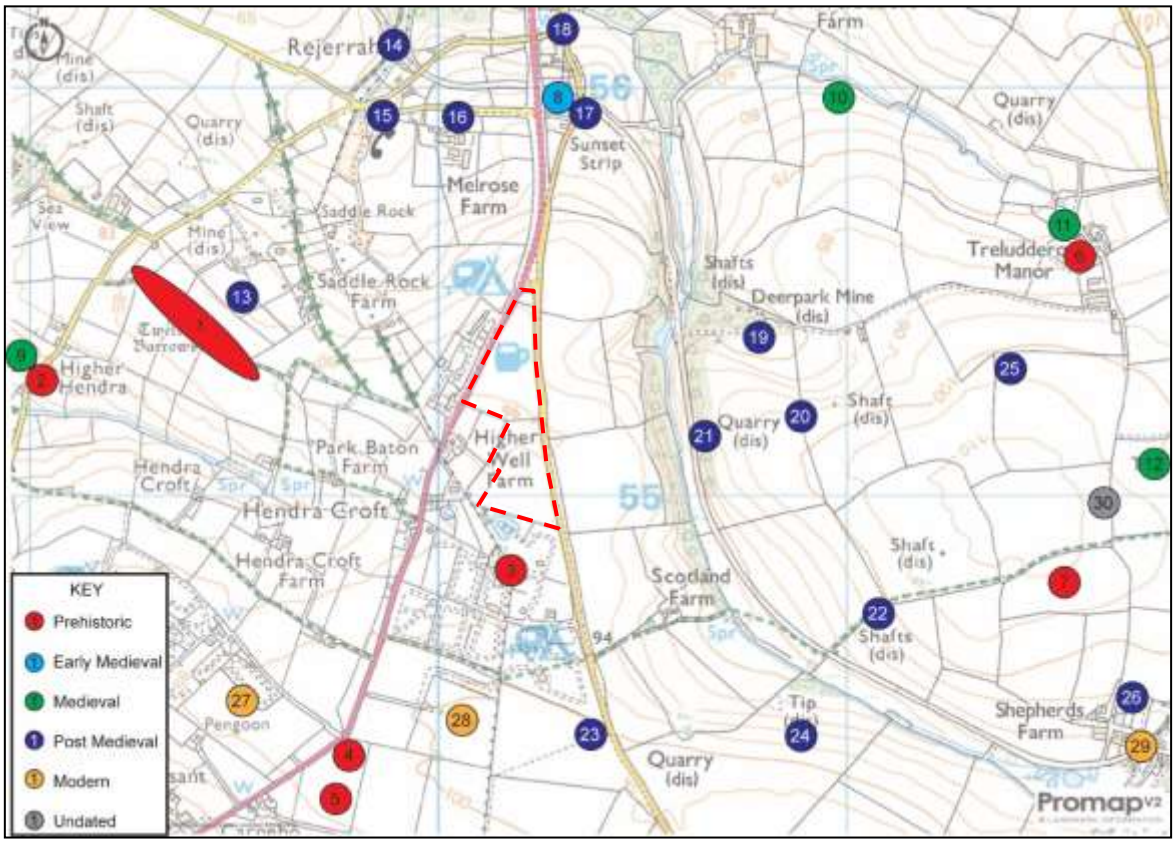

FIGURE 6: NEARBY HERITAGE ASSETS (THE SITE IS INDICATED) (SOURCE: CORNWALL & SCILLY HER).

TABLE 1: LISTING ALL OF THE HERITAGE ASSETS PLOTTED ON MAP ABOVE (SOURCE: CORNWALL AND SCILLY HER).

Reference		Name	Form	Summary
1	SAM 1016167 MCO3901-3920	Twelve Barrows – Bronze Age barrow	Monument	Series of 12 barrows situated along a ridge. Some are visible as earthworks, are recorded on aerial photographs.
2	MCO2794	Bronze Age Barrow	Documentary	A barrow at Hendra recorded by Thomas in 1851.
3	MCO3278	Penpillo – Bronze Age Barrow	Documentary	A barrow was recorded in this location in the 17th century, and later used as a boundary marker with boundary stone.
4	MCO2371	Carnebo – Bronze Age Barrow	Cropmark	One of two barrows recorded by Thomas now visible as cropmarks on aerial photographs.
5	MCO2372	Carnebo – Bronze Age Barrow	Cropmark	One of two barrows recorded by Thomas now visible as cropmarks on aerial photographs.
6	MCO1607	Treludderow – Prehistoric findspot	Findspot	Flints have been recorded as frequently being uncovered by ploughing at Treluddro Farm.
7	SAM1019494 MCO7945	Multiple Enclosure Fort 320m north-west of Shepherds Farm	Scheduled Monument	An Iron Age multiple enclosure fort is visible on aerial photographs.
8	MCO16547	Rejerrah – Early Medieval settlement	Documentary	The settlement of Rejerrah is first recorded in AD960, as *Hryd Wordig*. This is regarded as Cornish for ford+?personal name, but the second element could be OE *woƿig* 'enclosure'.
9	MCO32864	Hendra – Medieval field system	Cropmark	Fragments of a medieval strip field system are visible as cropmarks on aerial photographs.

10	MCO15411	Lewins – Medieval settlement	Documentary	The settlement of Lewins is first recorded in 1538 as *Leghwen alias Lawenne.*
11	MCO17493	Treludderow – (early) Medieval settlement	Documentary	The settlement of Treludderow is first recorded in 1284.
	MCO17495	Treludrou Gres – Medieval settlement	Documentary	The settlement of Treludrou Gres is recorded only between 1327 and 1364.
	MCO10301	Treludderow – Medieval chapel, Post-medieval chapel	Extant Structure	A barn at Treludderow is said to have been a chapel.
12	MCO33636	Fiddlers Green – Medieval field boundary, Post-medieval field boundary	Cropmark	Field ditches visible as cropmarks on aerial photographs are recorded as being part of a medieval field system.
13	MCO12018	Duchy Peru – Post-medieval mine	Extant Structure	The opencast Duchy Peru Mine is recorded from 1873.
14	MCO55863	Rejerrah – Post-medieval railway bridge	Extant Structure	A bridge under the Shepherds to Treamble Branch of the Cornwall Minerals Railway.
	MCO29114	CMR Shepherds to Treamble – Post-medieval railway	Extant Structure	The Shepherds to Treamble branch of the Cornwall Minerals Railway. Now disused.
15	MCO56783	Post-medieval Sunday School	Documentary Evidence	The remains of a Sunday School are recorded at this location on the 1880 OS map.
16	MCO32310	Rejerrah – Post-medieval non-conformist chapel	Extant Structure	Wayside Wesleyan chapel and attached Sunday School, now converted to a house.
17	MCO55862	Rejerrah – Post-medieval railway bridge	Extant Structure	A bridge over the Shepherds to Treamble branch of the Cornwall Minerals Railway.
18	List1141418	Trevryn	Listed Building	Grade II Listed later 17th century house.
19	MCO11998	Deer Park – Post-medieval mine	Extant Structure	An early 19th century iron and lead mine.
20	MCO26438	Treludderow – (Post)-medieval deer park	Documentary	A (now disparked) deer park is recorded at this location and is further supported by tithe field name evidence.
21	MCO33634	Deer Park – Post-medieval quarry	Earthwork	Four small quarries are visible on aerial photographs.
22	MCO12335	North Shepherds – Post-medieval mine	Cropmark	The unsuccessful North Shepherds lead mine survives as a series of shafts visible on aerial photographs.
23	MCO32359	Scotland Farm – Post-medieval shaft	Earthwork	A mound, presumed to be spoil or shaft associated with Wheal Hart or North Shepherds is visible on aerial photographs.
24	MCO12980	Wheal Hart – Post-medieval mine	Earthwork	A disused mine waste tip is visible on aerial photographs.
25	MCO33635	Deer Park – Post-medieval quarry	Cropmark	A linear quarry with spoil heap is visible on aerial photographs.
26	List1141419 MCO10914	Shepherds House – Post-medieval house	Listed Building	Grade II Listed house built in 1817-18 for the manager of Old Wheal Rose.
27	MCO54458	Goonhavern – Modern radio station	Extant Structure	World War II radio station.
28	MCO54459	Goonhavern – Modern radio station	Extant Structure	World War II radio station.
29	MCO53897	Shepherds – Modern railway station	Demolished Structure	The site of the Shepherds Station on the Chacewater to Newquay branch.
30	MCO32360 MCO32361	Fiddlers Green – Undated enclosure	Cropmark	Possible curvilinear ditched enclosures are visible on aerial photographs.

3.5 AERIAL PHOTOGRAPHY AND LIDAR

Assessment of the readily available commercial aerial photography for the proposed site reveals the cropmarks for the 1906 field boundary in the northern field and the quarry pit in the southern field. In 2009 the south-west corner of the northern field appears to have been stripped of topsoil leaving an irregular curving boundary. Both the quarry pit and the stripped area were observed during the site inspection (below). Environment Agency LiDAR coverage for the site is not comprehensive, covering only the northern tip of the northern field and the southern end of the southern field. However, recourse to the TELLUS dataset allows for complete coverage. Analysis of this data (Figure 7) shows the lost field boundary and stripped area in the northern field but little else.

FIGURE 7: IMAGE GENERATED FROM TELLUS SURVEY DSM 1M LIDAR DATA (PROCESSED USING QGIS 3.8 SLOPE FUNCTION, VERTICAL EXAGGERATION 3) (CONTAINS FREELY AVAILABLE DATA SUPPLIED BY THE NATURAL ENVIRONMENT RESEARCH COUNCIL (NERC) UNDER THE OPEN GOVERNMENT LICENCE 2019).

FIGURE 8: AERIAL PHOTOGRAPH OF THE SITE TAKEN IN 2005 (©GOOGLE 2019) SHOWING SOILMARKS OF THE HISTORIC FIELD BOUNDARY AND QUARRY PIT (INDICATED).

FIGURE 9: AERIAL PHOTOGRAPH OF THE SITE TAKEN IN 2009 (©GOOGLE 2019) SHOWING THE APPARENT STRIP/CHANGE IN USE OF THE SOUTH-WEST CORNER OF THE NORTHERN FIELD (INDICATED).

3.6 GEOPHYSICAL SURVEY

3.6.1 INTRODUCTION

An area covering *c.*6ha was the subject of a magnetometry (gradiometer) survey. The purpose of this survey was to identify and record magnetic anomalies within the proposed site. While identified anomalies may relate to archaeological deposits and structures the dimensions of recorded anomalies may not correspond directly with any associated features. The following discussion attempts to clarify and characterise the identified anomalies. The survey was undertaken between the 12th and 14th of August 2019 by P. Webb; the survey data was processed by P. Webb.

3.6.2 METHODOLOGY

The gradiometer survey follows the general guidance as outlined in: *Geophysical Survey in Archaeological Field Evaluation* (English Heritage 2008) and *Standard and Guidance for Archaeological Geophysical Survey* (CIfA 2014).

The survey was carried out using a twin-sensor fluxgate gradiometer (Bartington Grad601). These machines are sensitive to depths of up to 1.50m. The survey parameters were: sample intervals of 0.25m, traverse intervals of 1m, a zigzag traverse pattern, traverse orientation was circumstantial, grid squares of 30×30m. The gradiometer was adjusted ('zeroed') every 0.5-1ha. The survey grid was tied into the Ordnance Survey National Grid. The data was downloaded onto *Grad601 Version 3.16* and processed using *TerraSurveyor Version 3.0.25.0*. The primary data plots and analytical

tools used in this analysis were *Shade* and *Metadata*. The details of the data processing are as follows:

Processes: Clip +/- 3SD; DeStripe all traverses, median. DeStagger of particular grids.
Details: 5.8028ha surveyed; Max. 131.86nT, Min. -119.39nT; Standard Deviation 6.94nT, mean 0.90nT, median 1.01nT.

FIGURE 10: VIEW ACROSS F1; VIEWED FROM THE SOUTH-EAST (NO SCALE).

FIGURE 11: VIEW ACROSS F2; VIEWED FROM THE NORTH-EAST (NO SCALE).

3.6.3 SITE INSPECTION

The site comprises two trapezoidal fields: the north field [F1] and south field [F2]. Together, these form an irregular triangular plot to the north of Monkey Tree Holiday Park and between the A3075 and Henver Lane.

During the survey both fields contained rows of straw from the recently cut cereal crop. The south-western corner of F1 appeared to have very little soil coverage, the shillet bedrock being visible in several locations, indicating that this area had previously been stripped and corroborating the aerial photographic and LiDAR evidence (above). Several tyres had been positioned within this area. A broadly curvilinear but slight irregular bank and ditch were identified to its northern and eastern edge and are likely to reflect the remains of a soil bund. A single earthwork was visible within F2, a shallow hollow to the north-eastern corner of F2 at the location of the mapped quarry. The two fields were bounded on all sides by overgrown earth hedgebanks standing up to 1.5m high; the southern boundary of F2 appeared to be at least partially stone faced. No finds were observed.

3.6.4 RESULTS

Table 3 with the accompanying Figures 12 and 13 show the analyses and interpretation of the geophysical survey data. Additional graphic images of the survey data and numbered grid locations can be found in Appendix 2.

TABLE 2: INTERPRETATION OF THE GRADIOMETER SURVEY DATA.

Anomaly Group	Class and Certainty	Form	Archaeological Characterisation	Comments
1	Weak-moderate positive and negative, probable	Linear	Historic field boundaries	Indicative of bank material with infilled cut features flanking both sides indicative of ditches. Boundaries are depicted on 1888 OS mapping. Responses of *c.*-11.67nT to +22.10nT.
2	Moderate-strong positive and negative, possible	Linear	Historic field boundaries	Indicative of bank material with infilled cut features flanking both sides indicative of ditches. Boundaries are depicted on 1888 and 1906 OS mapping. Associated with anomaly Group 1. Responses of between *c.*-39.15nT and +11.85nT.
3	Weak positive, probable	Linear	Historic field boundaries	Indicative of infilled cut features such as ditches. Boundaries are depicted on 1906 OS mapping. Associated with anomaly Group 2. Responses of between +2.18nT and +11.85nT.
4	Moderate -strong positive and negative, probable	Linear	Field boundaries	Indicative of bank material with infilled cut features flanking both sides indicative of ditches. Boundaries are not present on historic mapping though aligned with elements of anomaly Group 1 and likely associated as part of an earlier phase of the same field system. Responses of between -11.11nT and +50.98nT.
5	Strong positive, probable	Linear	Field boundary	Indicative of an infilled cut feature such as a ditch. Boundaries are not depicted on historic mapping though aligned with elements of anomaly Group 1 and likely associated as part of an earlier phase of the same field system. Responses of between +7.21nT and +44.67nT.
6	Weak positive and negative, possible	Linear	Possible boundary / agricultural	Indicative of bank material with an infilled cut feature such as a ditch to one side. Weak responses suggest shallow survival or masking by local geology. Aligned with elements of the existing field system suggesting possible boundary feature but may be a deeper cut of an agricultural plough. Responses of between -12.72nT and +8.24nT.
7	Weak-moderate positive and negative, probable	Curving linear	Field boundaries	Indicative of bank material with flanking infilled cut features indicative of ditches. Survive as slight earthwork features and positioned on the edge of modern disturbance. Likely form the remains of a modern boundary. Responses of between -4.48nT and +29.24nT.
8	Strong bipolar, positive, probable	Discrete ovoid	Modern features	Bipolar and discrete positive responses indicative of modern/metallic objects. Situated in the approximate location of tyres identified during the site inspection. Responses of between -100.09nT and +99.28nT.
9	Weak-moderate positive, probable	Discrete ovoid	Possible pit / tree-throw	Indicative of discrete infilled cut features such as pits/tree-throws. Responses of between +1.96nT and +18.26nT.

Anomaly Group	Class and Certainty	Form	Archaeological Characterisation	Comments
10	Strong positive and negative, probable	Discrete irregular forming ovoid	Quarry pit	Indicative of infilled cut features with associated mounded spoil material. A quarry pit is marked at this location on the 1888 and 1906 OS mas. Responses of between -92.59nT and +102.97nT.
11	Weak positive and negative, possible	Linear	Possible track / Holloway	Indicative of infilled cut features with associated bank material. Weak responses suggest only shallow survival or masking by local geology. Responses of between -5.81nT and +7.58nT. Three associated positive anomalies, probably pits or large tree throws.
12	Weak-moderate positive and negative, possible	Irregular, linear	Possible prospection activity	Indicative of infilled cut features with associated bank material. Irregularity and position suggest possible prospection pit. Responses of between -10.95nT and +24.41nT.
13	Weak-moderate negative, possible	Linear	Drain	Indicative of linear stone/ceramic feature suggestive of a drain. Responses of between -12.08nT and -0.53nT.
14	Moderate bipolar, probable	Linear	Modern service	Indicative of a modern service pipe. Responses of between -9.50nT and +18.59nT.
15	Weak positive and negative	Linear	Agricultural activity	Linear striations covering the entire site with regularity. Weak mixed positive and negative responses suggest shallow ploughing. Responses of between -3nT and +3nT.
	Strong bipolar (mixed response)	Discrete	Ferrous anomaly	Indicative of a metallic object. Responses of between -99.96nT and +61.17nT.
	Strong bipolar (mixed response)	Irregular	Modern disturbance	Indicative of disturbed ground and disturbance caused by proximity to metallic fences and debris. Responses of between -99.87nT and +100.58nT.

3.6.5 DISCUSSION

The survey identified 15 groups of anomalies. These were predominantly linear anomalies likely to be associated with historic field boundaries and agricultural activity, but also including anomalies associated with the infilled quarry. The general geological variation across the site was between +/-1nT. The identified anomaly groups include: probable historic field boundaries; ditch features; quarry pits; pits/tree-throws; agricultural activity; possible tracks; and modern drainage. Visual sources supporting the discussion and comments can be seen in Appendix 2.

Anomaly Group 1 consists of weak to moderate (-11.67nT to -0.08nT) negative linear responses indicative of bank material with associated weak to moderate (+1.45nT to +22.10nT) positive linear response indicative of infilled cut ditches. Together these indicate the presence of a traditional Cornish field boundary with a central bank flanked by ditches. They are orientated approximately north-east to south-west, turning to run north-west to south-east at the northern end; their position and alignment matching those of the boundaries depicted on the 1888 OS map.

Anomaly Group 2 consists of moderate to strong (-39.15nT to -0.51nT) negative linear responses indicative of bank material with associated weak (+2.18nT to +11.85) flanking positive linear responses indicative of infilled cut ditches. Together these indicate the presence of a traditional Cornish field boundary with a central bank and flanking ditches. They are orientated north-west to south-east; their position and alignment matching those of boundaries depicted on the 1888 and 1906 OS maps and are associated with anomaly Groups 1 and 3.

Anomaly Group 3 consists of weak (+2.18nT to +11.85nT) positive linear responses indicative of infilled cut ditches. They are orientated north-west to south-east; their position and alignment matching those of boundaries depicted on the 1906 OS map and continuing a boundary partially formed by anomaly Group 2.

Anomaly Group 4 consists of a moderate to strong (-11.11nT to -0.32nT) negative linear responses indicative of bank material with associated moderate to strong (+1.49nT to +50.98nT) positive linear responses indicative of infilled cut ditches. Together these indicate the presence of a traditional Cornish field boundary with a central bank and flanking ditches. They are orientated approximately north-west to south-east and while they do not appear on the historic maps their

position and alignment forms a continuation of elements of anomaly Group 1, and it is likely that they represent part of the same fieldsystem.

Anomaly Group 5 consists of a moderate to strong (+7.21nT to +44.67nT) positive linear responses indicative of infilled cut ditches. They are orientated north-east to south-west and whilst they do not appear on the historic maps, their alignment runs parallel to elements of anomaly Group 1, and it is likely that they represent part of the same fieldsystem.

Anomaly Group 6 consists of weak (-12.72nT to -1.42nT) negative linear responses indicative of bank material with associated weak (+1.02nT to +8.24nT) positive linear response indicative of infilled cut ditches. The weak nature of the responses suggests only shallow survival or masking by local geology. They are orientated approximately north to south and whilst they do not appear on the historic maps, their alignment matches that of the existing fieldsystem and it is possible they form part of the same fieldsystem. However, it may be more likely that they represent deeper-cut elements of agricultural activity as part of a strip-field system.

Anomaly Group 7 consists of weak (-4.48nT to -0.58nT) negative curvilinear responses indicative of bank material with associated weak to moderate (+1.56nT to +29.24nT) positive curvilinear responses indicative of infilled cut ditches. They are orientated broadly north-west to south-east and form the boundary to the south-west corner of Field 1 which appears to have been stripped during the early 21st century and are therefore likely to represent the remains of a soil bund creating a boundary against the rest of the field.

Anomaly Group 8 consists of strong (-100.09nT to -4.25nT and +5.65nT to +99.28nT) discrete bipolar and (+21.44nT to +97.15nT) positive discrete ovoid responses indicative of modern disturbance and metallic objects. A number of modern tyres were observed across this corner of the site and it is likely that these responses are associated with this modern activity.

Anomaly Group 9 consists of weak to moderate (+1.19nT to +7.16nT) positive discrete ovoid responses indicative of cut and filled features such as pits or tree-throws. Given that the site lies within former common land either or both are possible.

Anomaly Group 10 consists of moderate to strong (+7.92nT to +102.97nT) positive irregular responses indicative of cut features with associated moderate to strong (-92.59nT to 11.45nT) negative irregular responses indicative of spoil mounds. The anomaly group is situated in the position of a quarry pit marked on the historic OS mapping.

Anomaly Group 11 consists of weak (+0.51nT to +7.58nT) positive linear responses indicative of infilled cut features with associated weak (-5.81nT to -0.50nT) negative responses indicative of banked material. The weak nature of the responses suggests only shallow survival or masking by local geology, and the anomaly group appears more as a trend in the results than a definite feature. This suggests that it may have been 'worn' rather than cut and may represent a possible track or holloway.

Anomaly Group 12 consists of weak to moderate (-2.39nT to -10.95nT) negative irregular linear responses indicative of banked material with associated weak to moderate (+1.63nT to +24.41nT) positive irregular linear responses indicative of cut and filled features. Given the irregular nature of the anomalies and their proximity to a known quarry pit it is possible that these responses represent a further mineral prospection/quarry pit. However, they are also situated at the juncture of possible drainage and modern service features (anomaly Groups 13 and 14) and may be associated with either or both of these.

Anomaly Group 13 consists of weak to moderate (-0.53nT to -12.08nT) negative linear responses

indicative of a stone or ceramic drain.

Anomaly Group 14 comprises a linear bipolar (-9.50nT to +18.59nT) anomaly indicative of a modern service pipe.

Anomaly Group 15 consists of weak (*c.*-3nT to *c.*+3nT) mixed positive and negative responses with a general north-north-west to south-south-east trend. They are narrowly and consistently spaced and are likely to represent the most recent episode of ploughing across the field.

Modern disturbance, Di-Polar anomalies and magnetic disturbance are also located across the site, particularly around the site boundaries. This is likely due to modern or metallic debris and metallic components along the boundaries of the field.

3.7 ARCHAEOLOGICAL POTENTIAL AND IMPACT SUMMARY

The direct *effect* of the development would be the disturbance or destruction of archaeological features or deposits present within the footprint of the development; the *impact* of the development would depend on the presence and significance of archaeological features and deposits.

The review of local fieldwork, and known or suspected sites in the immediate area (above), would indicate the archaeological value of the site is *low* despite the presence of known Prehistoric monuments and sites in the wider area. Its historic use as open common grazing, only enclosed in the second half of the 19th century, also points to extensive rather than intensive use. As a result, we are reliant on the results of the geophysical survey to determine archaeological potential.

The results of the geophysical survey would suggest that the archaeological potential of the site is *moderate,* for though most of the identified features relate to historic field boundaries and the known quarry pit, the scatter of possible pits in the north field (anomaly group 9) and the larger pits in the south field associated with a possible holloway (anomaly group 11) may prove to be archaeological significant. Therefore, a staged programme of archaeological works carried out in accordance with a Written Scheme of Investigation (WSI) and involving evaluation trenching and possible subsequent targeted area investigation would be appropriate to mitigate the potential for harm.

TABLE 3: SUMMARY OF DIRECT IMPACTS.

Asset	Type	Distance	Value	Magnitude of Impact	Assessment	Overall Assessment
Direct Impacts						
Unidentified archaeological features	U/D	Onsite	Unknown	Major	Low	Negative/Substantial
After mitigation			Negligible	Minor	Neutral/Slight	Neutral/Negligible

FIGURE 12: SHADE PLOT OF GRADIOMETER SURVEY DATA; BANDWEIGHT EQUALISED, GRADIATED SHADING.

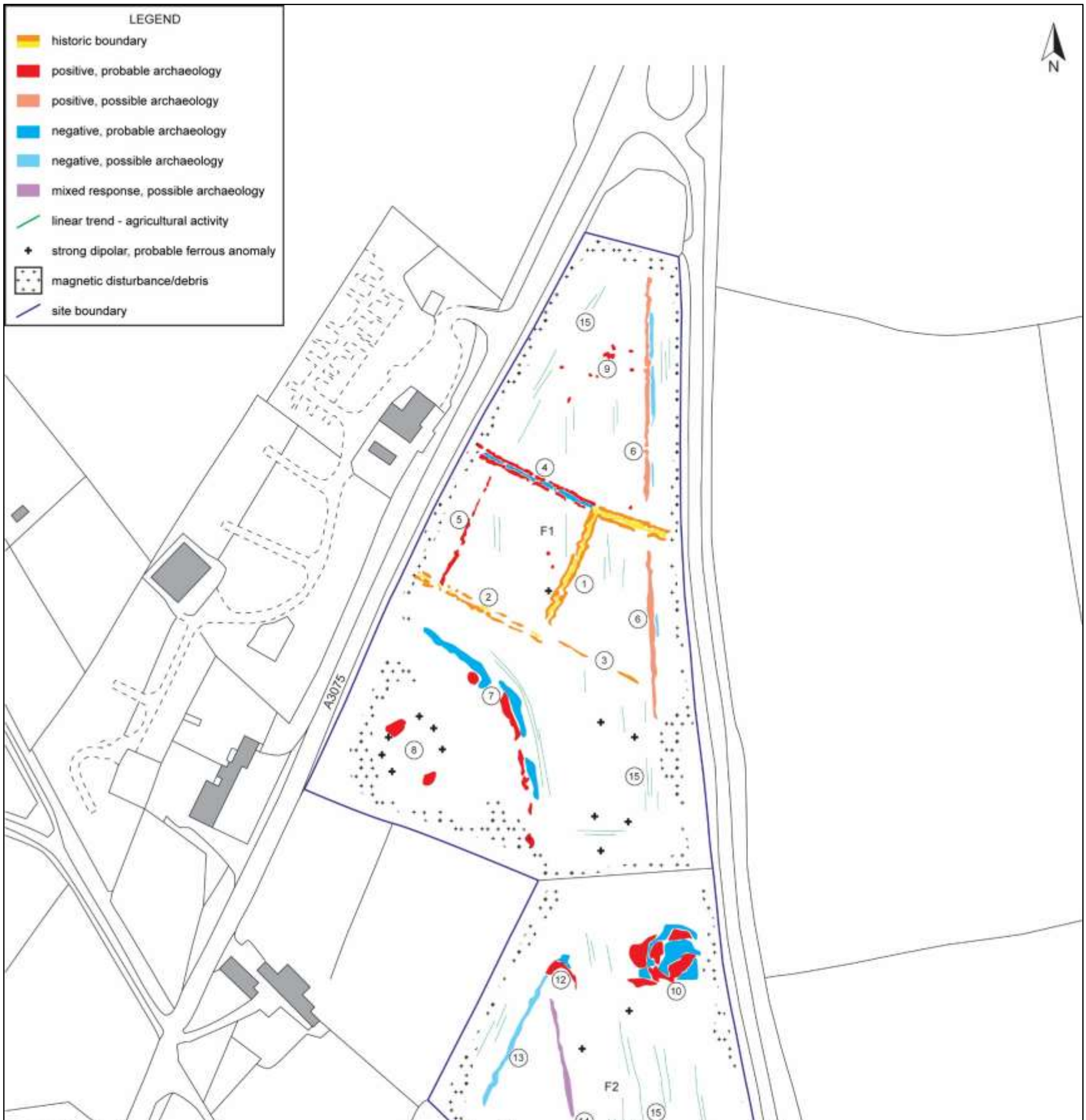

FIGURE 13: INTERPRETATION OF GRADIOMETER SURVEY DATA.

4.0 INDIRECT IMPACTS

4.1 STRUCTURE OF THE ASSESSMENT

For the purposes of this assessment, the *indirect effect* of a development is taken to be its effect on the wider historic environment. The principal focus of such an assessment falls upon identified designated heritage assets like Listed buildings or Scheduled Monuments. Depending on the nature of the heritage asset concerned, and the size, character and design of a development, its effect – and principally its visual effect – can impact on designated assets up to 20km away.

The methodology adopted in this document is based on that outlined in *The Setting of Heritage Assets* (GPA3 Historic England 2015), with reference to ICOMOS (2011) and DoT (DMRB, WEBTAG) guidance. The assessment of effect at this stage of a development is an essentially subjective one, but one based on the experience and professional judgement of the authors. Appendix 1 details the methodology employed.

This report follows the staged approach to proportionate decision making outlined in *The Setting of Heritage Assets* (Historic England 2015, 6). *Step one* is to identify the designated heritage assets that might be affected by the development. The first stage of that process is to determine an appropriate search radius, and this would vary according to the height, size and/or prominence of the proposed development. For instance, the search radius for a wind turbine, as determined by its height and dynamic character, would be much larger than for a single house plot or small agricultural building. The second stage in the process is to look at the heritage assets within the search radius and assign to one of three categories:

- Category #1 assets: Where proximity to the proposed development, the significance of the heritage asset concerned, or the likely magnitude of impact, demands detailed consideration.
- Category #2 assets: Assets where location and current setting would indicate that the impact of the proposed development is likely to be limited, but some uncertainty remains
- Category #3 assets: Assets where location, current setting, significance would strongly indicate the impact would be no higher than negligible and detailed consideration both unnecessary and disproportionate. These assets are still listed in the impact summary table.

For *Step two* and *Step three*, and with an emphasis on practicality and proportionality (*Setting of Heritage Assets* p15 and p18), this assessment then groups and initially discusses heritage assets by category (e.g. churches, historic settlements, funerary remains etc.) to avoid repetitious narrative; each site is then discussed individually, and the particulars of each site teased out. The initial discussion establishes the baseline sensitivity of a given category of monument or building to the potential effect, the individual entry elaborates on local circumstance and site-specific factors. The individual assessments should be read in conjunction with the overall discussion, as the impact assessment is a reflection of both.

4.2 QUANTIFICATION

The size and location of the proposed development would indicate a search radius of 1km is sufficient to identify those designated heritage assets where an appreciable effect might be experienced.

There are relatively few designated heritage assets in the local area (see Figure 6 and Table 1): two Scheduled Ancient Monuments and one GII Listed structure. There are no World Heritage Sites, Conservation Areas, Registered Parks and Gardens or Battlefields in close proximity to the site.

With an emphasis on practicality and proportionality (see *Setting of Heritage Assets* p15 and p18), only those assets where there is the possibility for an effect greater than negligible (see Table 7 in Appendix 1) are considered here in detail – the rest have been scoped out of this assessment.

- Category #1 assets: None
- Category #2 assets: SAM Multiple enclosure fort at Shepherds Farm; SAM Twelve Barrows; GII Listed Trevryn
- Category #3 assets: None

4.3 IMPACT BY CLASS OF MONUMENT OR STRUCTURE

4.3.1 LISTED COTTAGES AND STRUCTURES WITHIN HISTORIC SETTLEMENTS

Clusters of Listed Buildings within villages or hamlets; occasionally Conservation Areas

The setting of the (usually) Grade II Listed buildings within settlements is defined by village context. Their significance is determined by their architectural features, historical interiors or role/function in relation to the other buildings. The significance of their setting to the experience of these heritage assets is of key importance and for this reason the curtilage of a property and any small associated buildings or features are often included in the Listing and any changes must be scrutinised under relevant planning law.

Most village settlements have expanded significantly during the 20th century, with rows of cottages and modern houses and bungalows being built around and between the older 'core' Listed structures. The character of the settlement and setting of the heritage assets within it are continually changing and developing, as houses have been built or farm buildings have been converted to residential properties. The setting of these heritage assets within the village can be impacted by new residential developments especially when in close proximity to the settlement. The relationships between the houses, church and other Listed structures will not be altered, and it is these relationships that define their context and setting in which they are primarily to be experienced. The larger settlements and urban centres usually contain a large number of domestic and commercial buildings, only a very small proportion of which may be Listed or protected in any way. The setting of these buildings lies within the townscape, and the significance of these buildings, and the contribution of their setting to that significance, can be linked to the growth and development of the individual town and any associated industries. The original context of any churches may have changed significantly since construction, but it usually remains at the heart of its settlement. Given the clustering of numerous individual buildings, and the local blocking this inevitably provides, a distant development is unlikely to prove particularly intrusive.

What is important and why

Historic settlements constitute an integral and important part of the historic landscape, whether they are hamlets, villages, towns or cities. The physical remains of previous occupation may survive beneath the ground, and the built environment contains a range of vernacular and national styles (evidential value). Settlements may be archetypal, but development over the course of the 20th century has homogenised most, with streets of terraced and semi-detached houses and bungaloid growths arranged around the medieval core (limited historical/illustrative value). As dynamic communities, there will be multiple historical/associational values relating to individuals, families, occupations, industry, retail etc. in proportion to the size and age of the settlement (historical/ associational). Settlements that grew in an organic fashion developed fortuitously into a pleasing urban environment (e.g. Ledbury), indistinguishable suburbia, or degenerate urban/industrial wasteland (aesthetic/fortuitous). Some settlements were laid out quickly or subject to the attention of a limited number of patrons or architects (e.g. late 19th century Redruth and the architect James Hicks, or Charlestown and the Rashleigh family), and thus strong elements of design and planning

may be evident which contribute in a meaningful way to the experience of the place (aesthetic/ design). Component buildings may have strong social value, with multiple public houses, clubs, libraries (communal/social), chapels and churches (communal/spiritual). Individual structures may be commemorative, and whole settlements may become symbolic, although not always in a positive fashion (e.g. the Valleys of South Wales for post-industrial decline) (communal/symbolic). Settlements are complex and heterogeneous built environments filled with meaning and value; however, beyond a certain size threshold distant sight-lines become difficult and local blocking more important.

Asset Name: **Trevryn**	
Parish: St Newlyn East	*Value:* Medium
Designation: GII	*Distance to Development:* c.600m
Description: Listing: House. Later C17. Colourwashed stone and cob upper floor. Thatched roof. Plan. Two cell, central lobby hall with original kitchen to right, living hall to left, both with gable stacks, and lean-to under same roof (linhay) to rear. Stair rises across back of hall from original kitchen. Thatched stable attached to left gable, now dairy. Elevation, boarded door with heavy frame within brick lean-to slated open porch. Two light paned casement windows with timber lintels. Brick stacks to gables. Dairy has mid-C20 metal windows and porch. Interior. Wide spaced unmoulded ceiling joists supporting bead-moulded floorboards. Fireplaces altered, probably concealed cloam oven in former kitchen. Rafters widely spaced and low pitched. Elementary stair well rail.	
Conservation Value: Listed for its value as a vernacular structure of its type.	
Authenticity and Integrity: The house appears to be in good condition.	
Setting: Located in a secluded valley surrounded by trees, the building is largely obscured from view by tall hedgerows and trees. It stands at the southern end of a garden/lawn, with lanes to the east and north and the busy A3075 to the west. There is a small cottage with a modern extension to the rear, and another ancillary building (summerhouse? store?) to the south-west.	
Contribution of Setting to Significance of Asset: Incidental. This house was built as a practical domestic dwelling and as such setting was not intrinsic to its location. The addition of more recent housing creates the feel of a hamlet, reducing the isolation that would have previously been felt in such a secluded location.	
Magnitude of Effect: There will be no clear effect on the house, as it lies lower in the valley and is screened by trees and hedges. Indirect effects may be an increase in traffic, particularly during the construction phase.	
Magnitude of Impact: Medium value asset + Negligible change = Neutral/Slight Impact.	
Overall Impact Assessment: **Neutral**	

FIGURE 14: VIEW ACROSS THE VALLEY CONTAINING TREVRYN TOWARDS THE PROPOSAL SITE; VIEWED FROM THE NNE.

4.3.1 PREHISTORIC RITUAL/FUNERARY MONUMENTS

Stone circles, stone rows, barrows and barrow cemeteries

These monuments undoubtedly played an important role in the social and religious life of past societies, and it is clear they were constructed in locations invested with considerable religious/ritual significance. In most instances, these locations were also visually prominent, or else referred to prominent visual actors, e.g. hilltops, tors, sea stacks, rivers, or other visually prominent monuments. The importance of intervisibility between barrows, for instance, is a noted phenomenon. As such, these classes of monument are unusually sensitive to intrusive and/or disruptive modern elements within the landscape. This is based on the presumption these monuments were built in a largely open landscape with clear lines of sight; in many cases these monuments are now to be found within enclosed farmland, and in varying condition. Sensitivity to development is also lessened where tall hedgebanks restrict line-of-sight.

What is important and why

Prehistoric ritual sites preserve information on the spiritual beliefs of early peoples, and archaeological data relating to construction and use (evidential). The better examples may bear names and have folkloric aspects (historical/illustrative) and others have been discussed and illustrated in historical and antiquarian works since the medieval period (historical/associational). It is clear they would have possessed design value, although our ability to discern that value is limited; they often survive within landscape palimpsests and subject to the 'patina of age', so that fortuitous development is more appropriate. They almost certainly once possessed considerable communal value, but in the modern age their symbolic and spiritual significance is imagined or attributed rather than authentic. Nonetheless, the location of these sites in the historic landscape has a strong bearing on the overall contribution of setting to significance: those sites located in 'wild' or 'untouched' places – even if those qualities are relatively recent – have a stronger spiritual resonance and illustrative value than those located within enclosed farmland or forestry plantations.

Asset Name: **Twelve Barrows**	
Parish: Perranzabuloe	*Value:* High
Designation: Scheduled Monument	*Distance to Development: c.*630m
Description Summary: Listing Text: The monument, a linear bowl barrow cemetery known as Twelve Barrows, includes the above ground and buried remains of 12 Bronze Age bowl barrows situated 300m east of Higher Hendra, Perranzabuloe. The barrows occupy a position on the ridge of a north west facing spur and all 12 are set in a line aligned from north west to south east along the ridge over a distance of about 250m. The barrows lie at intervals varying between 18m and 32m from one another and they survive as a combination of earthworks and buried remains recorded over the years by way of ground survey and aerial photography. Of the 12 barrow mounds, six are visible above ground; the most extant mound lies near the south eastern end of the group. This barrow retains a height of 2.2m and has a diameter of 16m. Another four barrows occupying positions in the centre of the linear group are visible as low mounds varying between 0.15m and 0.25m in height and having diameters of between 12m and 13m. These four barrows are shown on an aerial photograph to share the same characteristics, these being a quarry ditch surrounding each mound with a connecting ditch on the northern side joining the two quarry ditches of each pair. They flank, with a pair either side, a further single barrow, known from an aerial photograph by its circular quarry ditch. The most north westerly barrow of the linear group survives as a low mound 0.15m high, part of which has been removed by a track on its northern side. Three barrows are recorded as low mounds by a combination of Ordnance Survey mapping and more recent survey; these are on the same alignment as the extant barrows of the cemetery group and are on the north west end of the line. A further two barrows at the extreme south east end of the line are recorded on OS maps and in recent surveys as very low mounds. These complete the 12 barrows as currently known; others in the same group are thought to exist but await confirmation.	
Conservation Value: Scheduled for their high evidential value. Despite damage from antiquarian intervention and agriculture, archaeological features and levels will survive. There will also be a buried historic ground	

surface beneath the barrows that may contain environmental evidence.
Authenticity and Integrity: The barrows are situated overlooking a largely open landscape much as they were intended, although this landscape has been drastically altered by modern infrastructure and development. The integrity of the monuments can be presumed to be good condition given the lack of modern development and presumed survival of most of the assets.
Setting: The monuments are located at the northern end of a set of rectangular fields immediately to the south of a hedgebank flanking one side of an access track; at its western end the track turns and passes over the line of the barrows. The fields here are bounded by tall earth hedgebanks topped with gorse and a few trees. As a result, the fields feel very open, particularly to the south-west where the barrows overlook a shallow valley. The tallest features in this landscape are the telegraph poles.
Contribution of Setting to Significance of Asset: Paramount. The barrows were intended to be visible and viewed as part of a wider funerary landscape as a means of memorialising the dead. The lack of shared ritual culture with our ancestors does not detract from our own appreciation of a setting and/or its use. However, the barrows are no longer particularly visible in the landscape, much reduced in height and now falling within enclosed fields.
Magnitude of Effect: The proposed development would be located ESE of the monument, on higher ground but direct views would be screened by intervening post-medieval/modern buildings and infrastructure. The only possible effect is a cumulative one effect upon the wider setting by increasing the density of modern buildings, but this is likely to be negligible here.
Magnitude of Impact: High value asset + negligible effect = Slight Impact
Overall Impact Assessment: **Negligible**

FIGURE 15: VIEW ACROSS TWELVE BARROWS TOWARDS THE MULTIPLE ENCLOSURE FORT DEMONSTRATING SCREENING BY WOODLAND/HEDGEROWS; VIEWED FROM THE NORTH-WEST.

Asset Name: **Multiple enclosure fort 320m north-west of Shepherds Farm**	
Parish: St Newlyn East	*Value:* High
Designation: Scheduled Monument	*Distance to Development: c.*1100m
Description Summary: Scheduling text: A later Prehistoric multiple enclosure fort situated on a moderate slope on the south east shoulder of a rounded hill south west of St Newlyn East. The overall ground plan of the fort is shown on aerial photographs. It is sub-oval in plan, measuring approximately 130m north east-	

south west by 110m north west-south east. It has low ramparts around 6m wide, consisting of earth and stone which would have been dug from external ditches of similar width. They form an inner enclosure with an outer enclosure surrounding it on the north and east. The inner enclosure is egg-shaped in plan, measuring approximately 100m north east-south west and 60m north west-south east. It has an entrance on the north east side. The outer enclosure, crescentic in plan, is approximately 20m wide, broadening to 30m on the north side and tapering to the inner enclosure on the north west and south sides. Its entrance is aligned with that of the inner enclosure; the ends of the rampart either side of the entrance are slightly inturned. Supplemental comment: Multiple enclosure forts are interpreted as settlements with integral stock enclosures, with a suggestion they might be located in places to exert control over the movement of people and animals.
Conservation Value: Scheduled for their evidential value is potentially high as multiple enclosure forts are relatively rare and are mostly found in Devon and Cornwall. Important for the study of settlement and stock management in the later Prehistoric period.
Authenticity and Integrity: Although it lies within a much-altered landscape, the monument survives as an upstanding earthwork. Entirely authentic, but subject to ongoing erosion through agricultural use.
Setting: The monument is located within a large open field north-west of a modern farmstead. The fields here are bounded by tall earth hedgebanks topped with gorse and few trees. As a result, the fields feel very open, particularly to the south where the monument overlooks a shallow valley.
Contribution of Setting to Significance of Asset: Integral. Most of these sites are located below the brow of a hill or ridge with good visibility across the surrounding landscape. If they did exert some form of control over the local landscape, then visibility would be a key component of its significance. However, it is no longer a prominent monument (i.e. it is a slight earthwork within enclosed fields and not sky-lining) and it is difficult or impossible to appreciate it from any distance. Views to and across it from the north, west and south would not include the proposed development.
Magnitude of Effect: The proposed development is located north-west of the monument and across the river valley. Direct views are partially screened by woodland and would be set against existing developments here.
Magnitude of Impact: High value asset + negligible effect = Slight Impact
Overall Impact Assessment: **Negligible**

FIGURE 16: VIEW ACROSS THE SAM MULTIPLE ENCLOSURE FORT; VIEWED FROM THE WNW.

4.3.2 HISTORIC LANDSCAPE

General Landscape Character

The landscape of the British Isles is highly variable, both in terms of topography and historical biology. Natural England has divided the British Isles into numerous 'character areas' based on topography, biodiversity, geodiversity and cultural and economic activity. The County Councils and AONBs have undertaken similar exercises, as well as Historic Landscape Characterisation.

Some character areas are better able to withstand the visual impact of development than others. Rolling countryside with wooded valleys and restricted views can withstand a larger number of sites than an open and largely flat landscape overlooked by higher ground. The English landscape is already populated by a large and diverse number of intrusive modern elements, e.g. electricity pylons, factories, modern housing estates, quarries, and turbines, but the question of cumulative impact must be considered. The aesthetics of individual developments is open to question, and site specific, but as intrusive new visual elements within the landscape, it can only be **negative**.

The proposed site would be constructed within the *Newlyn Downs* Character Area (LCA):

- This extensive Landscape Character Area takes in the open and exposed gently undulating plateau landscape extending east to west with extensive views out to sea from the higher ground. In the north the area acts as a backcloth to the coast (Landscape Character Area 15 Newquay and Perranporth Coast). To the south it meets the river valleys of Landscape Character Area 13 (Fal Ria, Truro and Falmouth). The area is incised by shallow valleys on the margins. Field patterns are predominantly medieval but with strongly rectilinear post-medieval enclosure of former rough ground in some areas, particularly in the southern part of the LCA. Land use is a mix of pasture and arable. Cornish hedgerows are prevalent but mature trees are fewer on the higher ground due to exposure and close flailing of hedges. There is some woodland, mostly wet woodland, in the valleys with small areas of wetlands with fens. There is a significant area of lowland heath at Newlyn Downs and along the coast between Perranporth and St Agnes. The historic routeway of the A30 and its associated development follows the east-west spine of higher ground. Two windfarms are highly visible at Carland Cross and Four Burrows. Settlement is generally small nucleated villages associated with the communications network and dispersed farm settlements. Tourism development, including caravan sites is prevalent within the northern part of the Landscape Character Area nearest the coast. The proposed site lies towards the northern edge of this area in proximity to other developments and is likely to blend in with the existing settlement. On that basis the impact is assessed as **neutral** to **negligible**.

4.3.3 AGGREGATE IMPACT

The aggregate impact of a proposed development is an assessment of the overall effect of a single development on multiple heritage assets. This differs from cumulative impact (below), which is an assessment of multiple developments on a single heritage asset. Aggregate impact is particularly difficult to quantify, as the threshold of acceptability will vary according to the type, quality, number and location of heritage assets, and the individual impact assessments themselves.

Based on the restricted number of assets where any appreciable effect is likely, the aggregate impact of this development is **negligible**.

4.3.4 CUMULATIVE IMPACT

Cumulative impacts affecting the setting of a heritage asset can derive from the combination of different environmental impacts (such as visual intrusion, noise, dust and vibration) arising from a single development or from the overall effect of a series of discrete developments. In the latter case, the cumulative visual impact may be the result of different developments within a single view, the effect of developments seen when

looking in different directions from a single viewpoint, of the sequential viewing of several developments when moving through the setting of one or more heritage assets.
The Setting of Heritage Assets 2011a, 25

*The key for all cumulative impact assessments is to focus on the **likely significant** effects and in particular those likely to influence decision-making.*
GLVIA 2013, 123

An assessment of cumulative impact is, however, very difficult to gauge, as it must take into account existing, consented and proposed developments. The threshold of acceptability has not, however, been established, and landscape capacity would inevitability vary according to landscape character. The proposed development would be located adjacent to the large Monkey Tree caravan park and would be seen in relation to that site. Therefore, an assessment of **negative/minor** is appropriate.

TABLE 4: SUMMARY OF IMPACTS.

Asset	Type	Distance	Value	Magnitude of Impact	Assessment	Overall Assessment
Indirect Impacts						
Trevryn	GII	600m	Medium	Negligible	Neutral/Slight	Neutral
Twelve Barrows	SAM	630m	High	Negligible	Slight	Negligible
Multiple enclosure fort 320m north-west of Shepherds Farm	SAM	1100m	High	Negligible	Slight	Negligible
Indirect Impacts						
Historic Landscape	n/a	n/a	High	Minor	Neutral/Slight	Negligible
Aggregate Impact	n/a	n/a				Negligible
Cumulative Impact	n/a	n/a				Negative/Minor

5.0 CONCLUSION

The site is located south-west of St Newlyn East between the A3075 and Henver Lane on relatively flat land towards the summit of a broad ridge south-east of Penhale Sands. The surrounding landscape contains numerous Prehistoric funerary monuments and enclosed settlements, medieval and post-medieval farming settlements and post-medieval industrial mining areas. Until the latter part of the 19th century the proposed site formed part of *Regenna Common*, an area of common grazing associated with medieval farming settlements in the area.

Assessment of historic, cartographic and photographic sources indicate the site contains several relict field boundaries and a backfilled quarry. The geophysical survey undertaken located these historic features as well as a possible holloway, several large pits and a scatter of smaller pits or tree throws. On that basis the archaeological potential of the site is adjudged to be *moderate*, and some form of limited investigation of these features would be appropriate.

In terms of indirect impacts, most of the designated heritage assets in the wider area are located at such a distance as to minimise the impact of the proposed development, or else the contribution of setting to overall significance is less important than other factors. The landscape context of many of these buildings and monuments is such that they would be partly or wholly insulated from the effects of the proposed development by a combination of local blocking from trees, topography, buildings or embankments, or that other modern intrusions have already impinged upon their setting. The only sites where there might be the potential for an appreciable impact are the Scheduled Twelve Barrows (**negligible**) and the multiple enclosure fort at Shepherds Farm (**negligible**). There is likely to be some cumulative harm arising from its location next to the existing Monkey Tree caravan park.

With this in mind, the overall impact of the proposed development can be assessed as **neutral** to **negligible**. The impact of the development on any buried archaeological resource may be **permanent** and **irreversible** but can be mitigated through an appropriate programme of archaeological investigation and recording.

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APPENDIX 1: IMPACT ASSESSMENT METHODOLOGY

Heritage Impact Assessment - Overview

The purpose of heritage impact assessment is twofold: Firstly, to understand – insofar as is reasonably practicable and in proportion to the importance of the asset – the significance of a historic building, complex, area or archaeological monument (the 'heritage asset'). Secondly, to assess the likely effect of a proposed development on the heritage asset (direct impact) and its setting (indirect impact). This methodology employed in this assessment is based on the staged approach advocated in *The Setting of Heritage Assets* (GPA3 Historic England 2015), used in conjunction with the ICOMOS (2011) and DoT (DMRB vol.11; WEBTAG) guidance. This Appendix contains details of the methodology used in this report.

National Policy

General policy and guidance for the conservation of the historic environment are now contained within the *National Planning Policy Framework* (Department for Communities and Local Government 2012). The relevant guidance is reproduced below:

Paragraph 189

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

Paragraph 190

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

A further key document is the Planning (Listed Buildings and Conservation Areas) Act 1990, in particular section 66(1), which provides *statutory protection* to the setting of Listed buildings:

In considering whether to grant planning permission for development which affects a listed building or its setting, the local planning authority or, as the case may be, the Secretary of State shall have special regard to the desirability of preserving the building or its setting or any features of special architectural or historic interest which it possesses.

Cultural Value – Designated Heritage Assets

The majority of the most important ('nationally important') heritage assets are protected through *designation*, with varying levels of statutory protection. These assets fall into one of six categories, although designations often overlap, so a Listed early medieval cross may also be Scheduled, lie within the curtilage of Listed church, inside a Conservation Area, and on the edge of a Registered Park and Garden that falls within a world Heritage Site.

Listed Buildings

A Listed building is an occupied dwelling or standing structure which is of special architectural or historical interest. These structures are found on the *Statutory List of Buildings of Special Architectural or Historic Interest.* The status of Listed buildings is applied to 300,000-400,000 buildings across the United Kingdom. Recognition of the need to protect historic buildings began after the Second World War, where significant numbers of buildings had been damaged in the county towns and capitals of the United Kingdom. Buildings that were considered to be of 'architectural merit' were included. The Inspectorate of Ancient Monuments supervised the collation of the list, drawn up by members of two societies: The Royal Institute of British Architects and the Society for the Protection of Ancient Buildings. Initially the lists were only used to assess which buildings should receive government grants to be repaired and conserved if damaged by bombing. The *Town and Country Planning Act 1947* formalised the process within England and Wales, Scotland and Ireland following different procedures. Under the 1979 *Ancient Monuments and Archaeological Areas Act* a structure cannot be considered a Scheduled Monument if it is occupied as a dwelling,

making a clear distinction in the treatment of the two forms of heritage asset. Any alterations or works intended to a Listed Building must first acquire Listed Building Consent, as well as planning permission. Further phases of 'listing' were rolled out in the 1960s, 1980s and 2000s; English Heritage advise on the listing process and administer the procedure, in England, as with the Scheduled Monuments. Some exemption is given to buildings used for worship where institutions or religious organisations (such as the Church of England) have their own permissions and regulatory procedures. Some structures, such as bridges, monuments, military structures and some ancient structures may also be Scheduled as well as Listed. War memorials, milestones and other structures are included in the list, and more modern structures are increasingly being included for their architectural or social value.

Buildings are split into various levels of significance: Grade I (2.5% of the total) representing buildings of exceptional (international) interest; Grade II* (5.5% of the total) representing buildings of particular (national) importance; Grade II (92%) buildings are of merit and are by far the most widespread. Inevitably, accuracy of the Listing for individual structures varies, particularly for Grade II structures; for instance, it is not always clear why some 19th century farmhouses are Listed while others are not, and differences may only reflect local government boundaries, policies and individuals. Other buildings that fall within the curtilage of a Listed building are afforded some protection as they form part of the essential setting of the designated structure, e.g. a farmyard of barns, complexes of historic industrial buildings, service buildings to stately homes etc. These can be described as having *group value*.

Conservation Areas
Local authorities are obliged to identify and delineate areas of special architectural or historic interest as Conservation Areas, which introduces additional controls and protection over change within those places. Usually, but not exclusively, they relate to historic settlements, and there are c.7000 Conservation Areas in England.

Scheduled Monuments
In the United Kingdom, a Scheduled Monument is considered an historic building, structure (ruin) or archaeological site of **'national importance'**. Various pieces of legislation, under planning, conservation, etc., are used for legally protecting heritage assets given this title from damage and destruction; such legislation is grouped together under the term 'designation', that is, having statutory protection under the *Ancient Monuments and Archaeological Areas Act 1979*. A heritage asset is a part of the historic environment that is valued because of its historic, archaeological, architectural or artistic interest; those of national importance have extra legal protection through designation. Important sites have been recognised as requiring protection since the late 19th century, when the first 'schedule' or list of monuments was compiled in 1882. The conservation and preservation of these monuments was given statutory priority over other land uses under this first schedule. County Lists of the monuments are kept and updated by the Department for Culture, Media and Sport. In the later 20th century sites are identified by English Heritage (one of the Government's advisory bodies) of being of national importance and included in the schedule. Under the current statutory protection any works required on or to a designated monument can only be undertaken with a successful application for Scheduled Monument Consent. There are 19,000-20,000 Scheduled Monuments in England.

Registered Parks and Gardens
Culturally and historically important 'man-made' or 'designed' landscapes, such as parks and gardens are currently "listed" on a non-statutory basis, included on the 'Register of Historic Parks and Gardens of special historic interest in England' which was established in 1983 and is, like Listed Buildings and Scheduled Monuments, administered by Historic England. Sites included on this register are of **national importance** and there are currently 1,600 sites on the list, many associated with stately homes of Grade II* or Grade I status. Emphasis is laid on 'designed' landscapes, not the value of botanical planting. Sites can include town squares and private gardens, city parks, cemeteries and gardens around institutions such as hospitals and government buildings. Planned elements and changing fashions in landscaping and forms are a main focus of the assessment.

Registered Battlefields
Battles are dramatic and often pivotal events in the history of any people or nation. Since 1995 Historic England maintains a register of 46 battlefields in order to afford them a measure of protection through the planning system. The key requirements for registration are battles of national significance, a securely identified location, and its topographical integrity – the ability to 'read' the battle on the ground.

World Heritage Sites
Arising from the UNESCO World Heritage Convention in 1972, Article 1 of the Operational Guidelines (2015, no.49) states: 'Outstanding Universal Value means cultural and/or natural significance which is so exceptional as to

transcend national boundaries and to be of common importance for present and future generations of all humanity'. These sites are recognised at an international level for their intrinsic importance to the story of humanity, and should be accorded the highest level of protection within the planning system.

Value and Importance

While every heritage asset, designated or otherwise, has some intrinsic merit, the act of designation creates a hierarchy of importance that is reflected by the weight afforded to their preservation and enhancement within the planning system. The system is far from perfect, impaired by an imperfect understanding of individual heritage assets, but the value system that has evolved does provide a useful guide to the *relative* importance of heritage assets. Provision is also made for heritage assets where value is not recognised through designation (e.g. undesignated 'monuments of Schedulable quality and importance' should be regarded as being of *high* value); equally, there are designated monuments and structures of *low* relative merit.

TABLE 5: THE HIERARCHY OF VALUE/IMPORTANCE (BASED ON THE DMRB VOL.11 TABLES 5.1, 6.1 & 7.1).

Hierarchy of Value/Importance	
Very High	Structures inscribed as of universal importance as World Heritage Sites; Other buildings of recognised international importance; World Heritage Sites (including nominated sites) with archaeological remains; Archaeological assets of acknowledged international importance; Archaeological assets that can contribute significantly to international research objectives; World Heritage Sites inscribed for their historic landscape qualities; Historic landscapes of international value, whether designated or not; Extremely well-preserved historic landscapes with exceptional coherence, time-depth, or other critical factor(s).
High	Scheduled Monuments with standing remains; Grade I and Grade II* (Scotland: Category A) 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; Undesignated assets of Schedulable quality and importance; Assets that can contribute significantly to national research objectives. Designated historic landscapes of outstanding interest; Undesignated landscapes of outstanding interest; Undesignated landscapes of high quality and importance, demonstrable national value; Well-preserved historic landscapes, exhibiting considerable coherence, time-depth or other critical factor(s).
Medium	Grade II (Scotland: Category B) Listed Buildings; Historic (unlisted) buildings that can be shown to have exceptional qualities in their fabric or historical associations; Conservation Areas containing buildings that contribute significantly to its historic character; Historic Townscape or built-up areas with important historic integrity in their buildings, or built settings (e.g. including street furniture and other structures); Designated or undesignated archaeological assets that contribute to regional research objectives; Designated special historic landscapes; Undesignated historic landscapes that would justify special historic landscape designation, landscapes of regional value; Averagely well-preserved historic landscapes with reasonable coherence, time-depth or other critical factor(s).
Low	Locally Listed buildings (Scotland Category C(S) Listed Buildings); Historic (unlisted) buildings of modest quality in their fabric or historical association; Historic Townscape or built-up areas of limited historic integrity in their buildings, or built settings (e.g. including street furniture and other structures); Designated and undesignated archaeological assets of local importance; Archaeological assets compromised by poor preservation and/or poor survival of contextual associations; Archaeological assets of limited value, but with potential to contribute to local research objectives; Robust undesignated historic landscapes; Historic landscapes with importance to local interest groups; Historic landscapes whose value is limited by poor preservation and/or poor survival of contextual associations.
Negligible	Buildings of no architectural or historical note; buildings of an intrusive character; Assets with very little or no surviving archaeological interest; Landscapes with little or no significant historical interest.
Unknown	Buildings with some hidden (i.e. inaccessible) potential for historic significance; The importance of the archaeological resource has not been ascertained.

Concepts – Conservation Principles

In making an assessment, this document adopts the conservation values (*evidential*, *historical*, *aesthetic* and *communal*) laid out in *Conservation Principles* (English Heritage 2008), and the concepts of *authenticity* and *integrity* as laid out in the guidance on assessing World Heritage Sites (ICOMOS 2011). This is in order to determine the relative importance of *setting* to the significance of a given heritage asset.

Evidential Value
Evidential value (or research potential) is derived from the potential of a structure or site to provide physical evidence about past human activity, and may not be readily recognised or even visible. This is the primary form of data for periods without adequate written documentation. This is the least equivocal value: evidential value is absolute; all other ascribed values (see below) are subjective. However,

Historical Value
Historical value (narrative) is derived from the ways in which past people, events and aspects of life can be connected via a place to the present; it can be *illustrative* or *associative*.

Illustrative value is the visible expression of evidential value; it has the power to aid interpretation of the past through making connections with, and providing insights into, past communities and their activities through a shared experience of place. Illustrative value tends to be greater if a place features the first or only surviving example of a particular innovation of design or technology.

Associative value arises from a connection to a notable person, family, event or historical movement. It can intensify understanding by linking the historical past to the physical present, always assuming the place bears any resemblance to its appearance at the time. Associational value can also be derived from known or suspected links with other monuments (e.g. barrow cemeteries, church towers) or cultural affiliations (e.g. Methodism).

Buildings and landscapes can also be associated with literature, art, music or film, and this association can inform and guide responses to those places.

Historical value depends on sound identification and the direct experience of physical remains or landscapes. Authenticity can be strengthened by change, being a living building or landscape, and historical values are harmed only where adaptation obliterates or conceals them. The appropriate use of a place – e.g. a working mill, or a church for worship – illustrates the relationship between design and function and may make a major contribution to historical value. Conversely, cessation of that activity – e.g. conversion of farm buildings to holiday homes – may essentially destroy it.

Aesthetic Value
Aesthetic value (emotion) is derived from the way in which people draw sensory and intellectual stimulation from a place or landscape. Value can be the result of *conscious design*, or the *fortuitous outcome* of landscape evolution; many places combine both aspects, often enhanced by the passage of time.

Design value relates primarily to the aesthetic qualities generated by the conscious design of a building, structure or landscape; it incorporates composition, materials, philosophy and the role of patronage. It may have associational value, if undertaken by a known architect or landscape gardener, and its importance is enhanced if it is seen as innovative, influential or a good surviving example. Landscape parks, country houses and model farms all have design value. The landscape is not static, and a designed feature can develop and mature, resulting in the 'patina of age'.

Some aesthetic value developed *fortuitously* over time as the result of a succession of responses within a particular cultural framework e.g. the seemingly organic form of an urban or rural landscape or the relationship of vernacular buildings and their materials to the landscape. Aesthetic values are where a proposed development usually have their most pronounced impact: the indirect effects of most developments are predominantly visual or aural and can extent many miles from the site itself. In many instances the impact of a development is incongruous but that is itself an aesthetic response, conditioned by prevailing cultural attitudes as to what the historic landscape should look like.

Communal Value
Communal value (togetherness) is derived from the meaning a place holds for people, and may be closely bound up with historical/associative and aesthetic values; it can be *commemorative, symbolic*, *social* or *spiritual*.

Commemorative and symbolic value reflects the meanings of a place to those who draw part of their identity from it, or who have emotional links to it e.g. war memorials. Some buildings or places (e.g. the Palace of Westminster) can symbolise wider values. Other places (e.g. Porton Down Chemical Testing Facility) have negative or uncomfortable associations that nonetheless have meaning and significance to some and should not be forgotten. *Social value* need not have any relationship to surviving fabric, as it is the continuity of function that is important.

Spiritual value is attached to places and can arise from the beliefs of a particular religion or past or contemporary perceptions of the spirit of place. Spiritual value can be ascribed to places sanctified by hundreds of years of veneration or worship, or wild places with few signs of modern life. Value is dependent on the perceived survival of historic fabric or character, and can be very sensitive to change. The key aspect of communal value is that it brings specific groups of people together in a meaningful way.

Authenticity
Authenticity, as defined by UNESCO (2015, no.80), is the ability of a property to convey the attributes of the outstanding universal value of the property. 'The ability to understand the value attributed to the heritage depends on the degree to which information sources about this value may be understood as credible or truthful'. Outside of a World Heritage Site, authenticity may usefully be employed to convey the sense a place or structure is a truthful representation of the thing it purports to portray. Converted farm buildings, for instance, survive in good condition, but are drained of the authenticity of a working farm environment.

Integrity
Integrity, as defined by UNESCO (2015, no.88), is the measure of wholeness or intactness of the cultural heritage ad its attributes. Outside of a World Heritage Site, integrity can be taken to represent the survival and condition of a structure, monument or landscape. The intrinsic value of those examples that survive in good condition is undoubtedly greater than those where survival is partial, and condition poor.

Summary
As indicated, individual developments have a minimal or tangential effect on most of the heritage values outlined above, largely because almost all effects are indirect. The principle values in contention are aesthetic/designed and, to a lesser degree aesthetic/fortuitous. There are also clear implications for other value elements (particularly historical and associational, communal and spiritual), where views or sensory experience is important. As ever, however, the key element here is not the intrinsic value of the heritage asset, nor the impact on setting, but the relative contribution of setting to the value of the asset.

Setting – The Setting of Heritage Assets
The principle guidance on this topic is contained within two publications: *The Setting of Heritage Assets* (Historic England 2015) and *Seeing History in the View* (English Heritage 2011). While interlinked and complementary, it is useful to consider heritage assets in terms of their *setting* i.e. their immediate landscape context and the environment within which they are seen and experienced, and their *views* i.e. designed or fortuitous vistas experienced by the visitor when at the heritage asset itself, or those that include the heritage asset. This corresponds to the experience of its wider landscape setting.

Where the impact of a proposed development is largely indirect, *setting* is the primary consideration of any HIA. It is a somewhat nebulous and subjective assessment of what does, should, could or did constitute the lived experience of a monument or structure. The following extracts are from the Historic England publication *The Setting of Heritage Assets* (2015, 2 & 4):

The NPPF makes it clear that the setting of a heritage asset is the surroundings in which a heritage asset is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve.

Setting is not a heritage asset, nor a heritage designation. Its importance lies in what it contributes to the significance of the heritage asset. This depends on a wide range of physical elements within, as well as perceptual and associational attributes, pertaining to the heritage asset's surroundings.

While setting can be mapped in the context of an individual application or proposal, it does not have a fixed boundary and cannot be definitively and permanently described for all time as a spatially bounded area or as lying within a set distance of a heritage asset because what comprises a heritage asset's setting may change as the asset and its surroundings evolve or as the asset becomes better understood or due to the varying impacts of different proposals.

The HIA below sets out to determine the magnitude of the effect and the sensitivity of the heritage asset to that effect. The fundamental issue is that proximity and visual and/or aural relationships may affect the experience of a heritage asset, but if setting is tangential to the significance of that monument or structure, then the impact assessment will reflect this. This is explored in more detail below.

Landscape Context

The determination of *landscape context* is an important part of the assessment process. This is the physical space within which any given heritage asset is perceived and experienced. The experience of this physical space is related to the scale of the landform, and modified by cultural and biological factors like field boundaries, settlements, trees and woodland. Together, these determine the character and extent of the setting.

Landscape context is based on topography, and can vary in scale from the very small – e.g. a narrow valley where views and vistas are restricted – to the very large – e.g. wide valleys or extensive upland moors with 360° views. Where very large landforms are concerned, a distinction can be drawn between the immediate context of an asset (this can be limited to a few hundred metres or less, where cultural and biological factors impede visibility and/or experience), and the wider context (i.e. the wider landscape within which the asset sits).

When new developments are introduced into a landscape, proximity alone is not a guide to magnitude of effect. Dependant on the nature and sensitivity of the heritage asset, the magnitude of effect is potentially much greater where the proposed development is to be located within the landscape context of a given heritage asset. Likewise, where the proposed development would be located outside the landscape context of a given heritage asset, the magnitude of effect would usually be lower. Each case is judged on its individual merits, and in some instances the significance of an asset is actually greater outside of its immediate landscape context, for example, where church towers function as landmarks in the wider landscape.

Views

Historic and significant views are the associated and complementary element to setting, but can be considered separately as developments may appear in a designed view without necessarily falling within the setting of a heritage asset *per se*. As such, significant views fall within the aesthetic value of a heritage asset, and may be *designed* (i.e. deliberately conceived and arranged, such as within parkland or an urban environment) or *fortuitous* (i.e. the graduated development of a landscape 'naturally' brings forth something considered aesthetically pleasing, or at least impressive, as with particular rural landscapes or seascapes), or a combination of both (i.e. the *patina of age*, see below). The following extract is from the English Heritage publication *Seeing History in the View* (2011, 3):

Views play an important part in shaping our appreciation and understanding of England's historic environment, whether in towns or cities or in the countryside. Some of those views were deliberately designed to be seen as a unity. Much more commonly, a significant view is a historical composite, the cumulative result of a long process of development.

The Setting of Heritage Assets (2015, 3) lists a number of instances where views contribute to the particular significance of a heritage asset:

- Views where relationships between the asset and other historic assets or places or natural features are particularly relevant;
- Views with historical associations, including viewing points and the topography of battlefields;
- Views where the composition within the view was a fundamental aspect of the design or function of the heritage asset;
- Views between heritage assets and natural or topographic features, or phenomena such as solar and lunar events;
- Views between heritage assets which were intended to be seen from one another for aesthetic, functional, ceremonial or religious reasons, such as military or defensive sites, telegraphs or beacons, Prehistoric funerary and ceremonial sites.

On a landscape scale, views, taken in the broadest sense, are possible from anywhere to anything, and each may be accorded an aesthetic value according to subjective taste. Given that terrain, the biological and built environment, and public access restrict our theoretical ability to see anything from anywhere, in this assessment the term *principal view* is employed to denote both the deliberate views created within designed landscapes, and those fortuitous views that may be considered of aesthetic value and worth preserving. It should be noted, however, that there are distance thresholds beyond which perception and recognition fail, and this is directly related to the scale, height, massing and nature of the heritage asset in question. For instance, beyond 2km the Grade II cottage comprises a single indistinct component within the wider historic landscape, whereas at 5km or even 10km a large stately home or castle may still be recognisable. By extension, where assets cannot be seen or recognised i.e. entirely concealed within woodland, or too distant to be distinguished, then visual harm to setting is moot. To reflect this emphasis on recognition, the term *landmark asset* is employed to denote those sites where the structure (e.g. church tower),

remains (e.g. earthwork ramparts) or – in some instances – the physical character of the immediate landscape (e.g. a distinctive landform like a tall domed hill) make them visible on a landscape scale. In some cases, these landmark assets may exert landscape *primacy*, where they are the tallest or most obvious man-made structure within line-of-sight. However, this is not always the case, typically where there are numerous similar monuments (multiple engine houses in mining areas, for instance) or where modern developments have overtaken the heritage asset in height and/or massing.

Yet visibility alone is not a clear guide to visual impact. People perceive size, shape and distance using many cues, so context is critically important. For instance, research on electricity pylons (Hull & Bishop 1988) has indicated scenic impact is influenced by landscape complexity: the visual impact of pylons is less pronounced within complex scenes, especially at longer distances, presumably because they are less of a focal point and the attention of the observer is diverted. There are many qualifiers that serve to increase or decrease the visual impact of a proposed development (see Table 6), some of which are seasonal or weather-related.

Thus, the principal consideration of assessment of indirect effects cannot be visual impact *per se*. It is an assessment of the likely magnitude of effect, the importance of setting to the significance of the heritage asset, and the sensitivity of that setting to the visual or aural intrusion of the proposed development. The schema used to guide assessments is shown in Table 6 (below).

Type and Scale of Impact
The effect of a proposed development on a heritage asset can be direct (i.e. the designated structure itself is being modified or demolished, the archaeological monument will be built over), or indirect (e.g. a housing estate built in the fields next to a Listed farmhouse, and wind turbine erected near a hillfort etc.); in the latter instance the principal effect is on the setting of the heritage asset. A distinction can be made between construction and operational phase effects. Individual developments can affect multiple heritage assets (aggregate impact), and contribute to overall change within the historic environment (cumulative impact).

Construction phase: construction works have direct, physical effects on the buried archaeology of a site, and a pronounced but indirect effect on neighbouring properties. Direct effects may extend beyond the nominal footprint of a site e.g. where related works or site compounds are located off-site. Indirect effects are both visual and aural, and may also affect air quality, water flow and traffic in the local area.

Operational phase: the operational phase of a development is either temporary (e.g. wind turbine or mobile phone mast) or effectively permanent (housing development or road scheme). The effects at this stage are largely indirect, and can be partly mitigated over time through provision of screening. Large development would have an effect on historic landscape character, as they transform areas from one character type (e.g. agricultural farmland) into another (e.g. suburban).

Cumulative Impact: a single development will have a physical and a visual impact, but a second and a third site in the same area will have a synergistic and cumulative impact above and beyond that of a single site. The cumulative impact of a proposed development is particularly difficult to estimate, given the assessment must take into consideration operational, consented and proposals in planning.

Aggregate Impact: a single development will usually affect multiple individual heritage assets. In this assessment, the term aggregate impact is used to distinguish this from cumulative impact. In essence, this is the impact on the designated parts of the historic environment as a whole.

Scale of Impact
The effect of development and associated infrastructure on the historic environment can include positive as well as negative outcomes. However, all development changes the character of a local environment, and alters the character of a building, or the setting within which it is experienced. change is invariably viewed as negative, particularly within respect to larger developments; thus while there can be beneficial outcomes (e.g. positive/moderate), there is a presumption here that, as large and inescapably modern intrusive visual actors in the historic landscape, the impact of a development will almost always be **neutral** (i.e. no impact) or **negative** i.e. it will have a **detrimental impact** on the setting of ancient monuments and protected historic buildings.

This assessment incorporates the systematic approach outlined in the ICOMOS and DoT guidance (see Tables 6-8), used to complement and support the more narrative but subjective approach advocated by Historic England (see

Table 6). This provides a useful balance between rigid logic and nebulous subjectivity (e.g. the significance of effect on a Grade II Listed building can never be greater than moderate/large; an impact of negative/substantial is almost never achieved). This is in adherence with GPA3 (2015, 7).

TABLE 6: MAGNITUDE OF IMPACT (BASED ON DMRB VOL.11 TABLES 5.3, 6.3 AND 7.3).

Factors in the Assessment of Magnitude of Impact – Buildings and Archaeology	
Major	Change to key historic building elements, such that the resource is totally altered; Change to most or all key archaeological materials, so that the resource is totally altered; Comprehensive changes to the setting.
Moderate	Change to many key historic building elements, the resource is significantly modified; Changes to many key archaeological materials, so that the resource is clearly modified; Changes to the setting of an historic building or asset, such that it is significantly modified.
Minor	Change to key historic building elements, such that the asset is slightly different; Changes to key archaeological materials, such that the asset is slightly altered; Change to setting of an historic building, such that it is noticeably changed.
Negligible	Slight changes to elements of a heritage asset or setting that hardly affects it.
No Change	No change to fabric or setting.
Factors in the Assessment of Magnitude of Impact – Historic Landscapes	
Major	Change to most or all key historic landscape elements, parcels or components; extreme visual effects; gross change of noise or change to sound quality; fundamental changes to use or access; resulting in total change to historic landscape character unit.
Moderate	Changes to many key historic landscape elements or components, visual change to many key aspects of the historic landscape, noticeable differences in noise quality, considerable changes to use or access; resulting in moderate changes to historic landscape character.
Minor	Changes to few key historic landscape elements, or components, slight visual changes to few key aspects of historic landscape, limited changes to noise levels or sound quality; slight changes to use or access: resulting in minor changes to historic landscape character.
Negligible	Very minor changes to key historic landscape elements, parcels or components, virtually unchanged visual effects, very slight changes in noise levels or sound quality; very slight changes to use or access; resulting in a very small change to historic landscape character.
No Change	No change to elements, parcels or components; no visual or audible changes; no changes arising from in amenity or community factors.

TABLE 7: SIGNIFICANCE OF EFFECTS MATRIX (BASED ON DRMB VOL.11 TABLES 5.4, 6.4 AND 7.4; ICOMOS 2011, 9-10).

Value of Assets	Magnitude of Impact (positive or negative)				
	No Change	Negligible	Minor	Moderate	Major
Very High	Neutral	Slight	Moderate/Large	Large/Very Large	Very Large
High	Neutral	Slight	Moderate/Slight	Moderate/Large	Large/Very Large
Medium	Neutral	Neutral/Slight	Slight	Moderate	Moderate/Large
Low	Neutral	Neutral/Slight	Neutral/Slight	Slight	Slight/Moderate
Negligible	Neutral	Neutral	Neutral/Slight	Neutral/Slight	Slight

TABLE 8: SCALE OF IMPACT.

Scale of Impact	
Neutral	No impact on the heritage asset.
Negligible	Where the developments may be visible or audible, but would not affect the heritage asset or its setting, due to the nature of the asset, distance, topography, or local blocking.
Negative/minor	Where the development would have an effect on the heritage asset or its setting, but that effect is restricted due to the nature of the asset, distance, or screening from other buildings or vegetation.
Negative/moderate	Where the development would have a pronounced impact on the heritage asset or its setting, due to the sensitivity of the asset and/or proximity. The effect may be ameliorated by screening or mitigation.
Negative/substantial	Where the development would have a severe and unavoidable effect on the heritage asset or its setting, due to the particular sensitivity of the asset and/or close physical proximity. Screening or mitigation could not ameliorate the effect of the development in these instances.

TABLE 9: IMPORTANCE OF SETTING TO INTRINSIC SIGNIFICANCE.

Importance of Setting to the Significance of the Asset	
Paramount	Examples: Round barrow; follies, eyecatchers, stone circles
Integral	Examples: Hillfort; country houses
Important	Examples: Prominent church towers; war memorials
Incidental	Examples: Thatched cottages
Irrelevant	Examples: Milestones

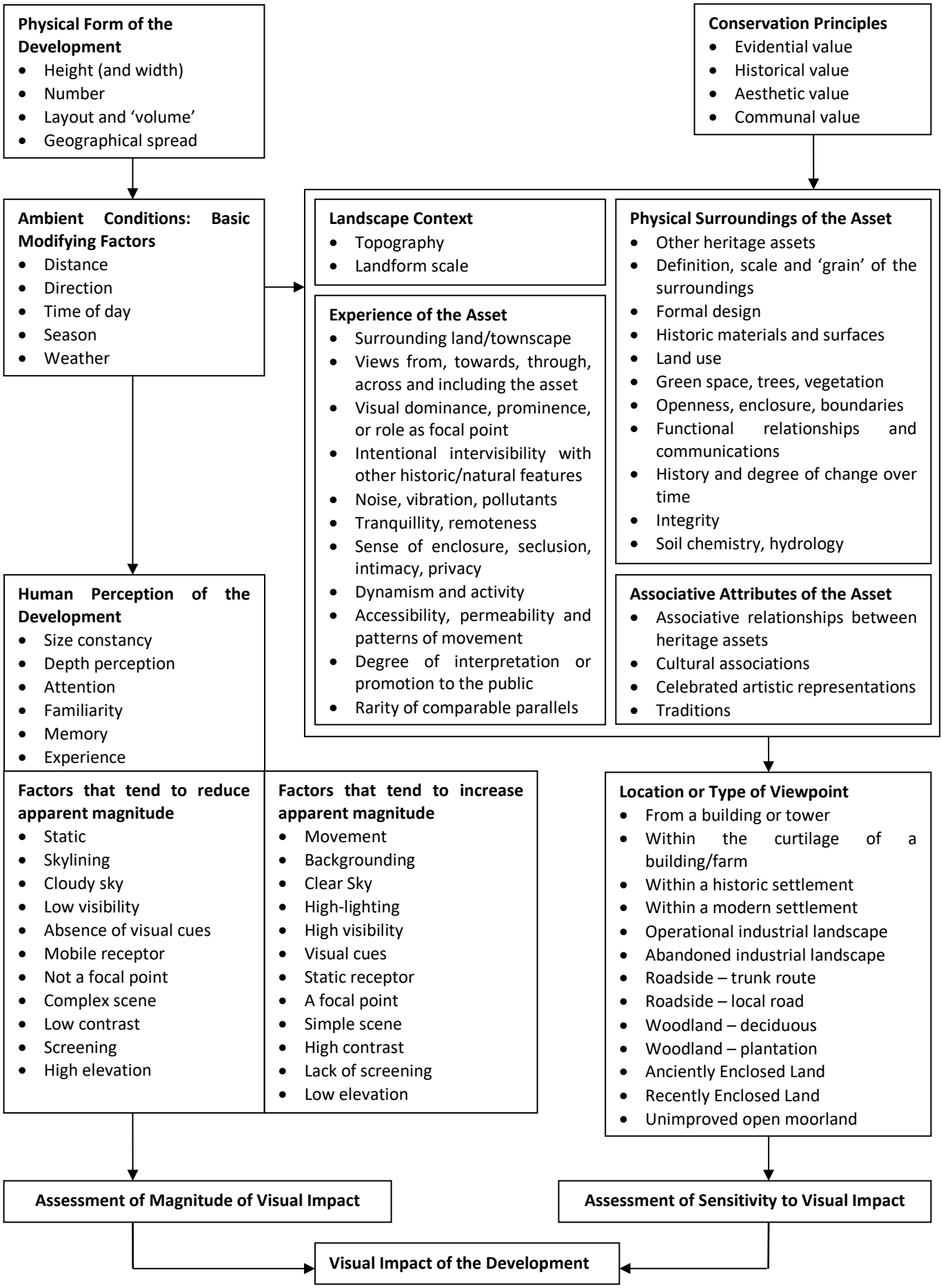
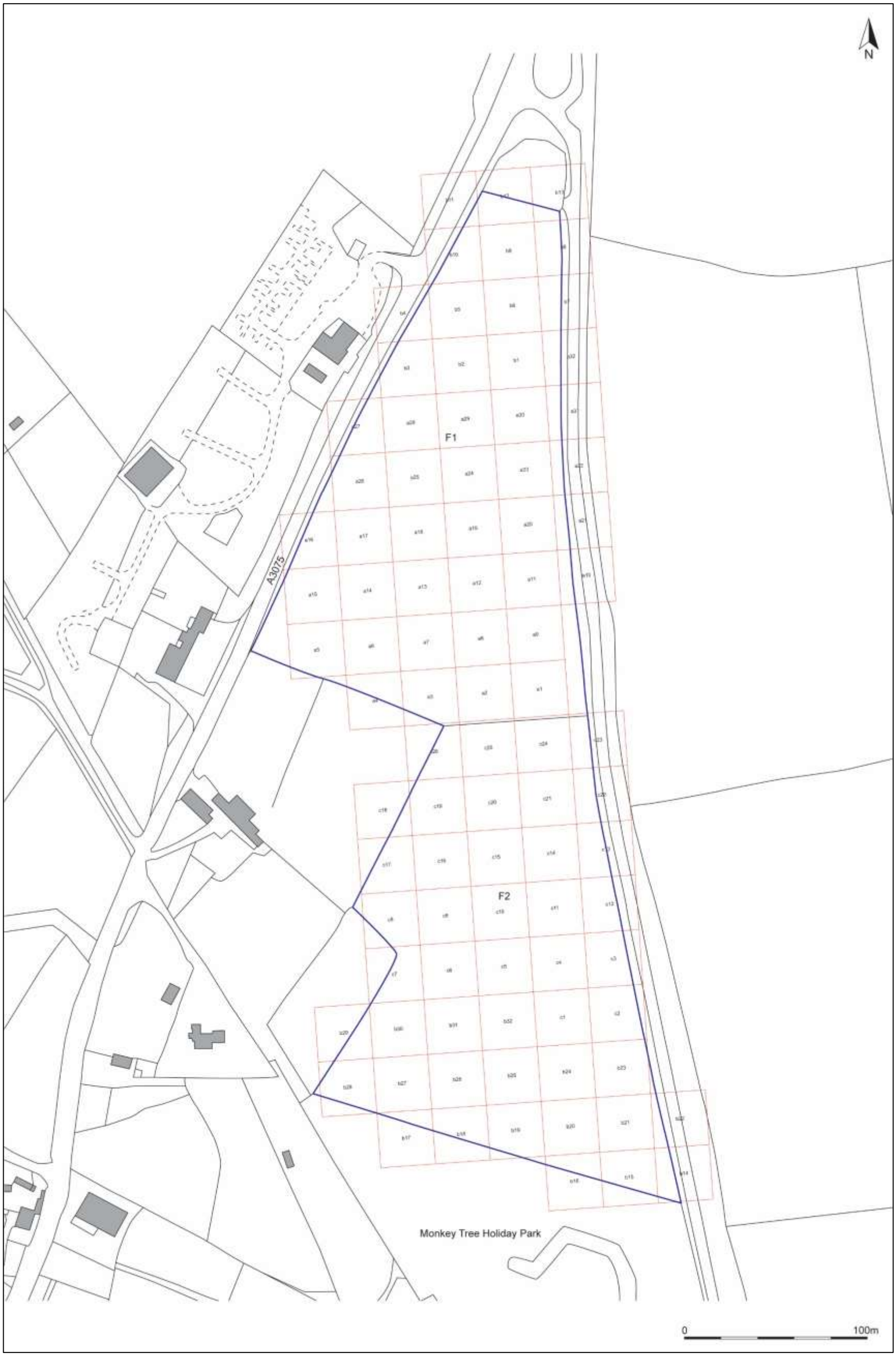


TABLE 10: THE CONCEPTUAL MODEL FOR VISUAL IMPACT ASSESSMENT PROPOSED BY THE UNIVERSITY OF NEWCASTLE (2002, 63), MODIFIED TO INCLUDE ELEMENTS OF *ASSESSMENT STEP 2* FROM THE SETTING OF HERITAGE ASSETS (HISTORIC ENGLAND 2015, 9).

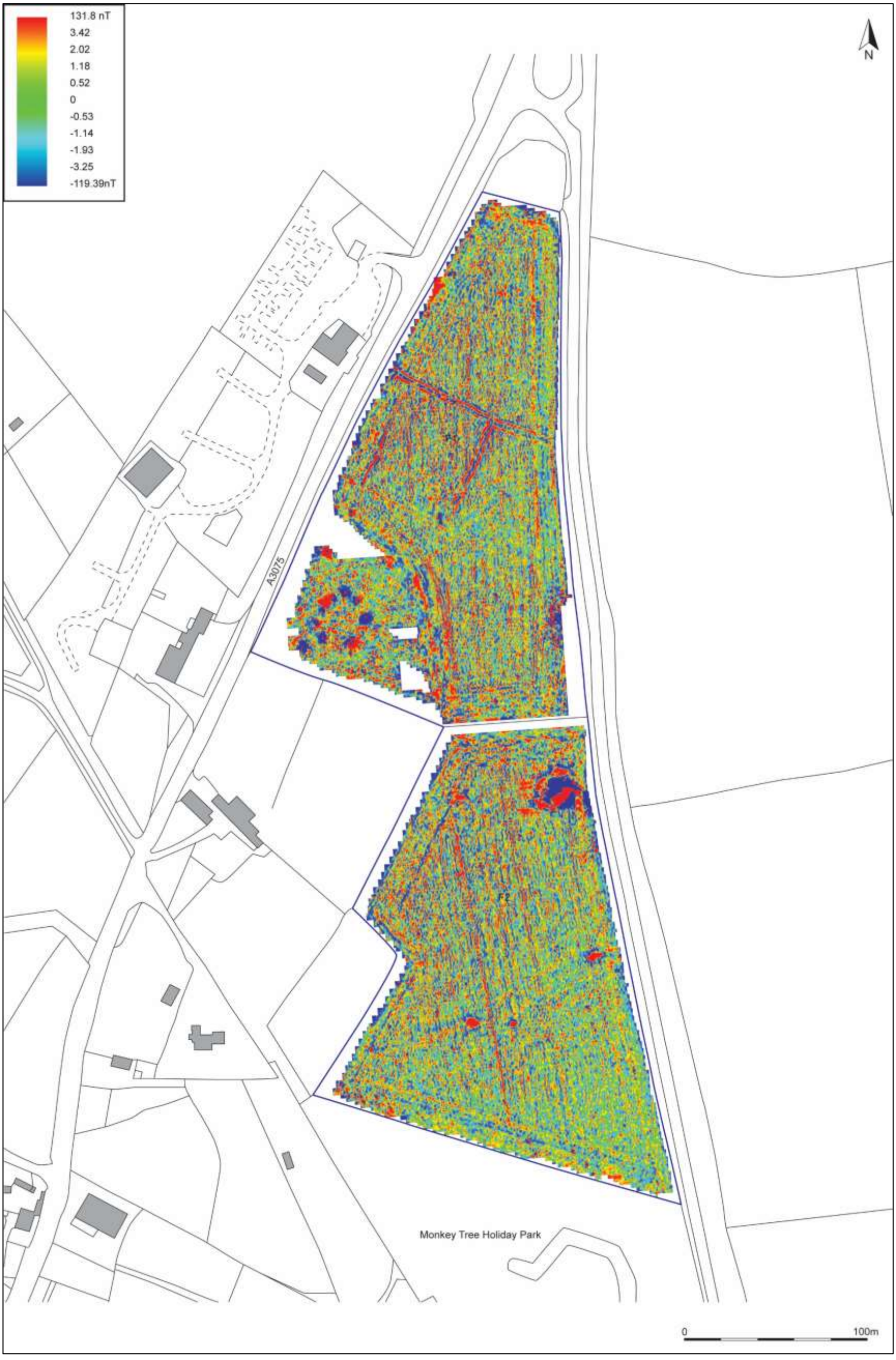
APPENDIX 2: ADDITIONAL GRAPHICAL IMAGES OF THE GRADIOMETER SURVEY



GEOPHYSICAL SURVEY GRID LOCATION AND NUMBERING.

SHADE PLOT OF GRADIOMETER SURVEY DATA; MINIMAL PROCESSING.

RED GREYSCALE BLUE SHADE PLOT OF GRADIOMETER SURVEY DATA; BAND WEIGHT EQUALISED, GRADIATED SHADING.



RED-BLUE-GREEN2 SHADE PLOT OF GRADIOMETER SURVEY DATA; BAND WEIGHT EQUALISED, GRADIATED SHADING.

APPENDIX 3: SUPPORTING PHOTOGRAPHIC EVIDENCE

1. VIEW ACROSS F1 PRIOR TO CROP BEING CUT; VIEWED FROM THE SOUTH-EAST (1M SCALE).

2. DETAIL OF THE EASTERN HEDGEBANK BOUNDARY TO F1; VIEWED FROM THE NORTH (1M SCALE).

3. VIEW ALONG THE EASTERN HEDGEBANK BOUNDARY OF F1; VIEWED FROM THE SOUTH (NO SCALE).

4. VIEW ACROSS F1TOWARDS SAM TWELVE BARROWS (APPROXIMATE LOCATION INDICATED) WHICH ARE BLOCKED FROM VIEW BY WOODLAND SCREENING; VIEWED FROM THE EAST (NO SCALE).

5. DETAIL OF THE SOUTHERN HEDGEBANK BOUNDARY TO F1; VIEWED FROM THE NORTH (1M SCALE).

6. VIEW ALONG THE SOUTHERN SCRUB/HEDGEBANK BOUNDARY OF THE SOUTH-WEST CORNER OF F1; VIEWED FROM THE WEST-NORTH-WEST (NO SCALE).

7. VIEW ACROSS THE NOW OVERGROWN BUT FORMERLY STRIPPED AREA IN THE SOUTH-WEST CORNER OF F1; VIEWED FROM THE SOUTH-WEST (NO SCALE).

8. VIEW ALONG THE WEST HEDGEBANK BOUNDARY OF F1; VIEWED FROM THE SOUTH-SOUTH-WEST (NO SCALE).

9. VIEW ALONG THE POSSIBLE REMOVED MODERN SPOIL BUND/BOUNDARY IN THE SOUTH-WEST CORNER OF F1; VIEWED FROM THE NORTH (NO SCALE).

10. VIEW ACROSS THE OVERGROWN FORMERLY STRIPPED AREA IN THE SOUTH-WEST CORNER OF F1; VIEWED FROM THE NORTH-EAST (NO SCALE).

11. VIEW ALONG THE POSSIBLE REMOVED SPOIL BUND/BOUNDARY IN THE SOUTH-WEST CORNER OF F1; VIEWED FROM THE EAST-SOUTH-EAST (NO SCALE).

12. DETAIL OF THE WESTERN HEDGEBANK BOUNDARY OF F1; VIEWED FROM THE SOUTH (1M SCALE).

13. VIEW ALONG THE WESTERN HEDGEBANK BOUNDARY OF F1; VIEWED FROM THE NORTH-NORTH-EAST (NO SCALE).

14. VIEW ACROSS F1; VIEWED FROM THE NORTH (NO SCALE).

15. VIEW ALONG THE NORTHERN HEDGEBANK BOUNDARY OF F1; VIEWED FROM THE NORTH-WEST (NO SCALE).

16. VIEW TOWARDS THE SAM MULTIPLE ENCLOSURE FORT (APPROXIMATE POSITION INDICATED) FROM F1 SHOWING LIMITED VIEWS AND EXTENT OF LOCAL BLOCKING; VIEWED FROM THE NORTH-WEST (NO SCALE).

17. VIEW ALONG THE NORTHERN HEDGEBANK BOUNDARY OF F1; VIEWED FROM THE SOUTH-EAST (NO SCALE).

18. VIEW ACROSS F1; VIEWED FROM THE NORTH-EAST (NO SCALE).

19. DETAIL OF THE EASTERN HEDGEBANK BOUNDARY OF F1; VIEWED FROM THE NORTH-NORTH-WEST (1M SCALE).

20. DETAIL OF THE GATEPOST AND EAST HEDGEBANK BOUNDARY AT THE ENTRANCE TO F2; VIEWED FROM THE NORTH (1M SCALE).

21. VIEW ALONG THE EASTERN HEDGEBANK BOUNDARY OF F2; VIEWED FROM THE SOUTH-SOUTH-EAST (NO SCALE).

22. VIEW ACROSS F2; VIEWED FROM THE SOUTH-EAST (NO SCALE).

23. VIEW ALONG THE SOUTHERN HEDGEBANK AND TREE-LINED BOUNDARY OF F2; VIEWED FROM THE EAST-SOUTH-EAST (NO SCALE).

24. DETAIL OF THE STONE FACING TO THE SOUTHERN HEDGEBANK BOUNDARY OF F2; VIEWED FROM THE NORTH-EAST (1M SCALE).

25. VIEW ALONG THE SOUTHERN HEDGEBANK BOUNDARY OF F2; VIEWED FROM THE NORTH-WEST (NO SCALE).

26. VIEW ACROSS F2; VIEWED FROM THE SOUTH-WEST (NO SCALE).

27. VIEW ALONG THE WESTERN HEDGEBANK BOUNDARY OF F2; VIEWED FROM THE SOUTH-SOUTH-WEST (NO SCALE).

28. VIEW TOWARDS THE SAM MULTIPLE ENCLOSURE FORT (APPROXIMATE POSITION INDICATED) FROM F2 SHOWING LIMITED VIEWS AND EXTENT OF BLOCKING; VIEWED FROM THE NORTH-WEST (NO SCALE).

29. VIEW ALONG THE WESTERN HEDGEBANK BOUNDARY OF F2; VIEWED FROM THE NORTH-EAST (NO SCALE).

30. VIEW ACROSS F2; VIEWED FROM THE NORTH-WEST (NO SCALE).

31. VIEW ALONG THE NORTHERN HEDGEBANK BOUNDARY OF F2; VIEWED FROM THE WEST (NO SCALE).

32. VIEW ALONG THE NORTHERN HEDGEBANK BOUNDARY OF F2; VIEWED FROM THE EAST (NO SCALE).

33. VIEW ALONG THE EASTERN HEDGEBANK BOUNDARY OF F2; VIEWED FROM THE NORTH (NO SCALE).

34. VIEW TOWARDS THE PROPOSAL SITE (THE APPROXIMATE LOCATION IS INDICATED) FROM THE BOUNDARY TO THE FIELD CONTAINING THE SAM MULTIPLE ENCLOSURE FORT DEMONSTRATING WOODLAND BLOCKING; VIEWED FROM THE SOUTH-EAST (NO SCALE).

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