



Mount Ambrose, Redruth, Cornwall

Archaeological assessment and geophysical survey



Historic Environment Projects

Mount Ambrose, Redruth, Cornwall

Archaeological assessment and geophysics

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Acknowledgements

This study was commissioned by Derek Coyle of First Step Homes and carried out by Historic Environment Projects, Cornwall Council.

The geophysical survey was carried out by GSB Ltd.

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

Freedom of Information Act

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Cover illustration

A view of the site proposed for development from the west.

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Abbreviations

EH	English Heritage
HER	Cornwall and the Isles of Scilly Historic Environment Record
HE	Historic Environment, Cornwall Council
NGR	National Grid Reference
OS	Ordnance Survey

1 Summary

HE Projects was requested by Mr Derek Coyle of First Step Homes to provide a project design and an estimate for an archaeological assessment and geophysical survey of the proposed site for new build at land near Mount Ambrose, Redruth (PA/12/06996). Overall the development covers an area of approximately 0.49 Ha.

The project comprised a desk-based assessment, analysis of a geophysical survey of the site and a walkover survey.

The site derives from former medieval farmland which was developed as an eastern extension of the industrial settlement of Redruth in the early part of the 19th century, but occupies an area of the landscape within which there is some evidence for agricultural and settlement activities during the Iron Age and the Romano-British periods.

The site walkover survey revealed the existence of two areas of earthworks within the field, though the origins of these were not evident. The magnetometer survey tentatively identified two sub-circular features within the eastern part of the site. Again, the identification of these features is unclear, though they may represent early mining activity on the site.

It is recommended that these features be further examined, either through evaluation trenching, and/or through an archaeological watching brief during the groundworks phase of the project.

A report summarising the results of the assessment and its conclusions was prepared for the client.

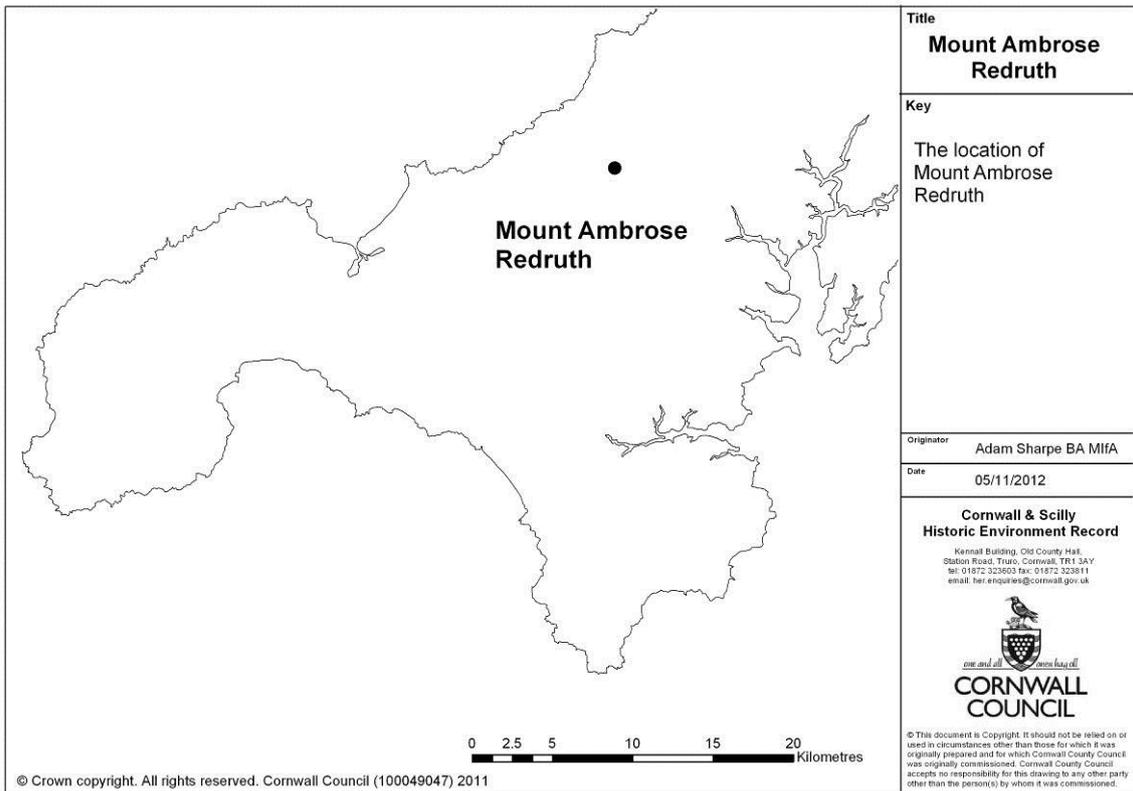


Fig 1. The location of Mount Ambrose, Redruth.

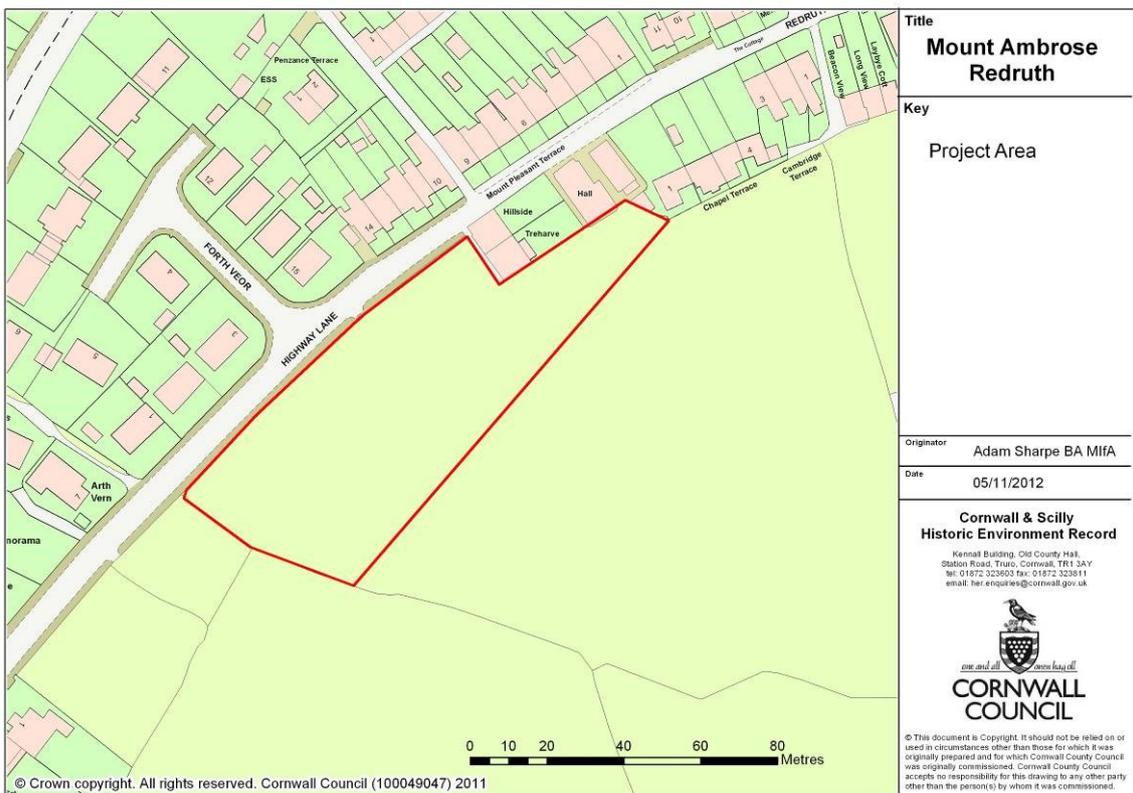


Fig 2. The extent of the site proposed for the development at Mount Ambrose, Redruth.

2 Introduction

2.1 Project background

HE Projects was requested by Mr Derek Coyle of First Step Homes to provide a project design and an estimate for an archaeological rapid assessment and geophysical survey of the proposed site for new build at land off Mount Ambrose, Redruth (PA/12/06996). Overall the development will cover an area of approximately 0.49 Hectares (Figs 1 and 2).

The proposed development area is situated in the eastern end of Redruth, within land that has been classified as 'Anciently Enclosed Land, Farmland Medieval' (Countryside Commission 1996). 'Anciently Enclosed Land' is land which has been settled since at least the medieval period and which often contains archaeological remains dating to prehistoric and medieval times.

The site is located near to the 19th century settlement of Redruth, in an area known as Mount Ambrose, a part of Redruth which saw the development of miners' smallholdings during the early 19th century, and which became increasingly urbanised during the later 19th century.

A model brief outlining the requirements for the assessment was prepared by Mr Phil Markham, Historic Environment Planning Advice Officer, Cornwall Council. It was used to guide this archaeological assessment.

The project consisted of a desk-based assessment, analysis of a geophysical survey of the site and a walkover survey.

The geophysical results were received on 12 November 2012 and the walkover survey was undertaken on 14 November 2012.

Known archaeological sites

The project area is situated in an area with some known archaeological potential, the surrounding landscape containing evidence for prehistoric, medieval and later activity. The sites, which have been identified in the vicinity, include:

- A later prehistoric / Romano-British round (enclosed settlement) and field system is located to the east of the proposed development (MCO35729).
- The development area is located to the north of a documented dovecot (MCO10597).
- Two post-medieval non-conformist chapels are sited at Mount Ambrose (MCO33145 and MCO33144).

Potential sites

The brief identified the potential for prehistoric, Romano-British and medieval sites to survive within the project area and for the survival of unrecorded buried archaeological remains and artefacts of all periods.

2.2 Aims and objectives

The principal aim of the study is to gain a better understanding of the impacts which would result from the construction of new build dwellings on land adjacent to Mount Ambrose, Redruth.

The overall project aims are to:

- To identify and describe the archaeological resource.
- To assess the significance of the resource.
- To assess the impact of the proposal on the importance and integrity of the resource.

- To identify ways of minimising impacts upon the archaeological resource.
- To make recommendations for archaeological recording during the development and construction of the scheme.

The objective of the project is to produce a report setting out the likely range of impacts of the development on heritage assets within the site.

2.3 Methods

2.3.1 Desk-based assessment

As part of the desk-based assessment (DBA), historical databases and archives were consulted in order to obtain information about the history of the site and its surroundings, and the structures and features recorded within the site boundaries. The main sources consulted were as follows:

- Published sources available in the Cornwall and Scilly HER.
- Historic maps including
 - Norden's Map of Cornwall (printed in 1728 but mapped *circa* 1600)
 - Joel Gascoyne's map of Cornwall (1699)
 - Thomas Martyn's map of Cornwall (1748),
 - OS 1 inch survey (*circa* 1810)
 - Redruth Parish Tithe Map (*circa* 1839),
 - 1st and 2nd Editions of the OS 25 inch maps (*circa* 1880 and *circa* 1907).
- Modern maps.
- National Mapping Programme transcripts from aerial photographs.
- Other aerial photographs in the Cornwall and Scilly HER.
- Historic Landscape Characterisation mapping.
- Cornwall and Scilly Historic Buildings, Sites and Monuments Record (HBSMR).
- Information held as GIS themes as part of the Cornwall and Scilly HER.
- The Structure Plan and Local Plan will be consulted for historic designations, for example World Heritage site, Conservation Areas, Areas of Great Historic Value, etc.
- The Cornwall Landscape Assessment has been consulted to identify the historic landscape character types in which the proposed development is located.

2.3.2 Fieldwork – walkover survey

A walkover survey of the site at Mount Ambrose was carried out to examine the site for upstanding archaeology and to record the nature of the boundary types which might be impacted upon during the development. This provided for:

- The identification of existing or previous land use that may affect the survival or condition of known or potential sites.
- The identification of any archaeological sites within the proposed development area and make recommendations for their recording.
- The identification of areas which could contain buried archaeological remains.
- The identification of areas which might require further archaeological mitigation (excavation/watching brief, etc).

2.3.3 Fieldwork – geophysical survey

A magnetometer survey of the area proposed for the housing development was undertaken by GSB Ltd. on 23 October 2012 (GSB report ref 2012/71). The survey results have been summarised in this report.

Ahead of the survey the HE Projects liaised with the geophysical survey contractor to:

- Arrange access to the site.
- Supply mapping of the survey area.
- Notify the contractor of any significant risks.

2.3.4 Post-fieldwork

On completion of the project and following review with the HE Project Manager the results of the study were collated as an archive in accordance with: *Management of Research Projects in the Historic Environment (MoRPHE) English Heritage 2006*. The site archive will initially be stored at ReStore, with the eventual aim of deposition at Cornwall Record Office.

An archive report (this report) has been produced and supplied to the Client. This report will be lodged with the Cornwall and Scilly Historic Environment Record (HER) and made available for public consultation once a planning application for the site has been made. A copy of the report will be supplied to the National Monuments Record (NMR) in Swindon, to the Courtney Library of the Royal Cornwall Museum and to the Cornish Studies Library. All digital records will be filed on the Cornwall Council network.

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

3 Location and setting

The site at Mount Ambrose, Redruth is centred at SW 71061 43180 and consists of a single sub-triangular area within the northern part of an agricultural enclosure on the southern side of Highway Lane (Redruth Highway). Existing dwellings abut the site to the north at its eastern end, and are not far to the west of its western end.

The site measures 0.49Ha in extent, averages 155m above OD and is on gently north-sloping land (see Figs 2 and 15). The field also includes a number of intriguing undulations.

The development area is characterised in the Cornwall and Scilly Historic Environment Record (HER) as 'Anciently Enclosed Land' – Farmland Medieval, – that is land whose boundary arrangements were laid down during the medieval period (Fig 11).

The parent bedrock underlying the application site consists of granite, whilst the soils are recorded as being of the Moretonhamstead series loams over granite. No superficial (drift) deposits are recorded by the British Geological Survey.

4 Project extent

The archaeological assessment was focussed on those heritage assets (whether designated or not) which might be physically impacted upon by activities associated with site preparation for the housing development at Mount Ambrose, Redruth, including landscaping, trenching and other groundworks, as well as proposals for including the siting of temporary compounds, equipment, materials and any associated infrastructure.

5 Designations

5.1 International

None apply. The development site at Mount Ambrose lies between two Areas of the Cornish Mining World Heritage Site.

5.2 National

No national designations apply to the site proposed for the development.

5.3 Regional/county

No regional or county designations relate to the site.

5.4 Local

No local designations apply to the site proposed for the development.

5.5 Rights of Way

No rights of way traverse the site. This area is not registered as open access land under the CROW Act 2005.

6 Results of desk-based assessment

The site lies at the eastern end of Redruth adjacent to Redruth Highway on the lower slopes of a north-facing hill in land characterised as that which was enclosed during the post-Conquest period (Anciently Enclosed Land – Farmland Medieval) and which was associated with farming settlements at Trefula to the south east and Treskerby to the east. These fields enclosed a block of remnant downland between North Trefula, Mount Ambrose and Treskerby which was reorganised during the modern period. To the north of Mount Ambrose, much of the land stretching away to Radnor and North Country was also downland until its enclosure during the late 18th century as a result of the creation of large numbers of miners' smallholdings during the industrialisation of the Cornish mining industry. The landscape setting of the site probably accounts for the scattering of archaeological sites which are found on the lower ground around the development area (Fig 12).

Prehistoric

- MCO22914 – Documented site of an earthwork enclosure.
- MCO35729 – Site of a curvilinear cropmark enclosure.

Post-medieval

- MCO10597 – Approximate site of a dovecote.
- MCO35728 – Probable mine shaft.
- MCO33145 – Non-conformist chapel.
- MCO33144 – Non-conformist chapel.

The higher ground to the south of this end of Redruth may well have been unenclosed downland for much of prehistory, this being partially suggested by the place name 'Grambla' at South Trefula, which might indicate the site of a Neolithic (c 2800-3500 BC) chambered tomb. These uplands would have been suitable places for Early Bronze Age (c 2500-1500 BC) barrow cemeteries, ceremonial and funerary monuments which would have been quite deliberately sited so as to be seen as skyline landmarks from settlements in the lower landscapes to the north. During the Middle Bronze Age (c 1500-1000 BC), the lower, more sheltered hillslopes and the plateau stretching out towards the north Cornish coast are likely to have sited roundhouse settlements

exploiting deeper, more fertile soils, having access to areas of woodland in the valleys and to rough grazing and fuel grounds in the uplands. Little evidence for these settlements has been identified locally given the extent to which later agricultural improvement has occurred. It is likely that these areas would have been in agricultural use during the Iron Age (c 800 BC-AD 43).

During late prehistory and into the Romano-British period (AD 43-210) enclosed settlements were established in the more fertile or more sheltered areas of the landscape. Aerial photography has identified the sites of a large number of such farming settlements across Cornwall, whilst in the vicinity of Mount Ambrose, evidence suggests that defended farmsteads were established at Cardrew, Treskerby, North Trefula and Park an Chy not far from Mount Ambrose.

As previously, the higher, more exposed areas of the landscape would have continued to provide areas for rough summer grazing and sources of fuel and animal bedding, whilst the valleys would have provided timber for building and for fuel.

The more marginal land would have remained unenclosed into the historic period, the rough grassland which they supported continuing to provide an important agricultural resource for farming families living in the surrounding landscape. Successor settlements were established off the high ground during the pre-Conquest period, these having names incorporating elements in Cornish (as at Trefula, Treskerby or Treleigh, for example), the rapid development of miners' smallholdings during the late 18th century and of Redruth during the 19th century is attested to by the many place names in English locally (for example Mount Ambrose, North Country, Gilberts' Coombe or Channel View Farm).

The analysis of historic aerial photographs undertaken as part of the English Heritage National Mapping Programme shows evidence for one of the late prehistoric 'Rounds' (defended farmsteads) just to the east of Mount Ambrose (Fig 13), but little evidence for other prehistoric or medieval activity, in part a reflection of the intensification of agricultural; activity around Redruth during the modern period.

The Domesday Book (1086) does not mention any settlements within this area, and the first known survey of this area, John Norden's map published in 1728, but drawn up *circa* 1600 (Fig 3) depicting the Hundred of 'Penwith', showed the area to the east of Redruth as a hilly landscape lacking any named settlements. Joel Gascoyne's late 17th century map of Cornwall (Fig 4) showed the area between Redruth, Truro and St. Agnes as an almost wholly empty stretch of downland, traversed by two roads, a situation very little changed on Martyn's map of 1748 (Fig 5).

The 1st Edition of the Ordnance Survey 1" to a mile mapping (Fig 6), drawn up during the first decade of the 19th century, gives a good indication of the very substantial changes which occurred within this part of the Cornish landscape during the later part of the 18th century into the early 19th century. The map showed the area to the east of Redruth as a network of roads and lanes, blocks of increasingly fragmented former downland improved to smallholdings, named mines and many individual single cottages fronting roads leading east out of the burgeoning settlement of Redruth.

The large areas of formerly open heathland, including that to the east and north of Redruth, together with medieval farmland edging these roads, had been parcelled up into smallholdings by the rapidly-growing local mining population in order to supplement their at times uncertain incomes. Urban settlement was also beginning to develop, albeit in what was clearly a piecemeal fashion.

Circa 1840, the Redruth Tithe Map (Fig 7) shows that this process of urban development had moved on apace, and many of the cottages fronting Redruth Highway had, by this date become contiguous, as the gaps between formerly isolated cottages were becoming infilled as part of the expansion of the industrial settlement of Redruth along the edges of roads to its east and west. The associated Tithe Apportionment shows how small blocks of fields had been carved out of adjacent farms to provide

smallholdings for some local inhabitants, that covering part of the development site being leased by William Trevena and occupied by Joseph Williams as a smallholding extending to 7 acres and 33 perches to the south east of the road. Plot 2330 was recorded as 'Homestead', 2331 as 'Garden', 2332 as 'Mowhay' and 2333 as 'Above Town'. Plot 2345 at the south-western end of the development area was leased and occupied by Sarah Williams. All of the land in this area (Highway) was recorded as owned by 'John Williams, Michael Williams, William Williams and others'. John Williams' cottage and barn have now been demolished, and many of the field boundaries shown on the 1840 mapping have been removed.

The 1st Edition of the Ordnance Survey 25" to a mile mapping (Fig 8) showed that some of the boundaries which originally subdivided the fields to the south of Redruth Highway had been removed, and that a Primitive Methodist chapel had been established to serve the spiritual needs to the occupants of this part of Redruth, which was increasingly becoming characterised by cottage rows with small front gardens and elongated rear gardens, a housing type typical of the developing industrial settlements of Cornwall. These were built at a prodigious rate in some of the faster-developing settlements to meet the housing needs of the rapidly-expanding industrial population. Nevertheless, many parts of Mount Ambrose were still agricultural land at this date, and these fields remained undeveloped on the 1908 OS 25" mapping (Fig 9) – a reflection of the massive downturn in local mining activity which occurred at the end of the 19th century caused by a substantial fall in world tin prices and the large-scale emigration which accompanied it in Cornwall as most local mines closed for ever.

These factors put a check on any further housing development along Redruth Highway for a considerable period. As the 2005 Cornwall County Council aerial photograph (Fig 10) shows, infill in the form of individual bungalows and planned housing developments has taken place to the north of Redruth Highway in recent years, but to the south of the road the agricultural enclosures have survived more or less undeveloped, the area proposed for the new build being the northern part of one of these long-established fields.

Not unsurprisingly given its location, mining has also taken place within this landscape as can be seen from Figure 14, and though shafts on the outcrops of several lodes can be seen to the south and east of the development site, none are documented within it or to its north and west. This is more likely to reflect an absence of documentation rather than an absence of mining activity, however.

7 Results of site walkover

A site walkover was undertaken on 14 November 2012. The weather was clear and there were no impediments to survey. Visibility was available to the far horizon.

The site proposed for the development was in relatively short, cattle-grazed pasture (Figs 17-20). The site slopes gently to the north and west (Fig 15), though this section of the field contains a number of breaks in slope and semi-platformed areas. The eastern and most of the northern boundaries are granite-faced Cornish hedges, the exceptions being where the boundary backs almost directly onto the former chapel. The western edge of the site is a blockwork yard wall forming the boundary of the adjacent dwelling. The southern boundary of the development site is a line bisecting the field. This is not defined on the ground.

The development site has a principally easterly and northerly aspect, with open views towards Treskerby Woods and towards the north coast. To the south the ground rises, blocking off views, whilst to the west, rising ground and hedgerows again block off views.

The general character of the surrounding landscape to the south and west within views from the site is almost wholly rural; to the north and east in contrast, it is urban and built up.

Archaeological features within the field were hinted at in two areas (Fig 22). The first, a platformed area immediately to the rear of the enclosures occupied by the western terrace of cottages on Redruth Highway and the former chapel is clearly artificial and is up to 0.3m high. It is most clearly defined to the west and south east. To the north west the slope falls from this platformed area towards the field boundary. This may be on the site of a small enclosure (2331) shown on the Redruth Tithe Map, though it unclear what mechanism would have produced the clear platforming of this site, though one interpretation may be that this is the site of an early, now-backfilled mine shaft.

The second and larger feature, taking the form of a large shallow hollowed area containing the timber shed set against the south western boundary and having a counter-scarp falling to the west and north west also seems likely to be artificial in origin. This second feature may in part be a ploughed out lynchet deriving from a now removed curving boundary shown on the Redruth Tithe Map between fields 2340 and 2333, though it is unclear why the area to the west should so significantly hollowed. The former presence of an early backfilled mine shaft at this location cannot be discounted.

8 Results of geophysical survey

The results of the geophysical survey were supplied to HE Projects on 12 November 2012. Significant problems were noted with high levels of ferrous material in the soil over most of the site, though a pair of roughly circular features were suggested in the interpretative mapping (Fig 23). The easternmost of these more or less coincides with the earthwork at the rear of the western cottages on Redruth Highway. To the west of this feature, the interpreted geophysics shows another ovoid feature of similar size, in this case apparently surrounded by parts of a curving outer ditch. The size and relationship of these features (on a bearing similar to that of the general strike of mineral lodes in this vicinity) might suggest a pair of small mine shafts. If the shaft fills were similar in make up and water content to the surrounding bedrock, magnetometry would not make such features clearly distinguishable. However, an alternative interpretation might be that these are prehistoric or post-prehistoric in origin. Their identification could only be tested by excavation (see below) and is presently characterised as 'uncertain'. The geophysics also plotted the route of a probable water pipe (probably agricultural in origin) traversing the western part of the field from north west to south east.

9 Synthesis

Neither the desk-based assessment nor the walkover survey indicated the presence of any significant upstanding archaeology which might be directly impacted upon by the proposed development at Mount Ambrose, though the presence of two anomalous earthworks was recorded, one possibly representing lynchetting against a now-removed boundary, the second being of uncertain interpretation, though possibly representing the site of a small backfilled mine shaft. The geophysical survey results located two features of potential interest, these again possibly deriving from former mining activity and, if so, likely to represent a pair of early backfilled mine shafts.

10 Policies and guidance

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

10.1 National Planning Policy Framework 2012

The following paragraphs within the above document frame planning policy relating to the Historic Environment and are germane to this assessment:

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

129. *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.*

132. *When considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset's conservation. The more important the asset, the greater the weight should be. Significance can be harmed or lost through alteration or destruction of the heritage asset or development within its setting. As heritage assets are irreplaceable, any harm or loss should require clear and convincing justification. Substantial harm to or loss of a grade II listed building, park or garden should be exceptional. Substantial harm to or loss of designated heritage assets of the highest significance, notably scheduled monuments, protected wreck sites, battlefields, grade I and II* listed buildings, grade I and II* registered parks and gardens, and World Heritage Sites, should be wholly exceptional.*

133. *Where a proposed development will lead to substantial harm to or total loss of significance of a designated heritage asset, local planning authorities should refuse consent, unless it can be demonstrated that the substantial harm or loss is necessary to achieve substantial public benefits that outweigh that harm or loss, or all of the following apply:*

- *the nature of the heritage asset prevents all reasonable uses of the site; and*
- *no viable use of the heritage asset itself can be found in the medium term through appropriate marketing that will enable its conservation; and*
- *conservation by grant-funding or some form of charitable or public ownership is demonstrably not possible; and*
- *the harm or loss is outweighed by the benefit of bringing the site back into use.*

134. *Where a development proposal will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal, including securing its optimum viable use.*

135. *The effect of an application on the significance of a non-designated heritage asset should be taken into account in determining the application. In weighing applications that affect directly or indirectly non designated heritage assets, a balanced judgement will be required having regard to the scale of any harm or loss and the significance of the heritage asset.*

139. *Non-designated heritage assets of archaeological interest that are demonstrably of equivalent significance to scheduled monuments, should be considered subject to the policies for designated heritage assets.*

10.2 Former Cornwall Structure Plan

The following policies in the Cornwall Structure Plan relate to the historic environment are currently used to guide responses to applications.

10.2.1 Policy 1

'Development should be compatible with:

The conservation and enhancement of Cornwall's character and distinctiveness;

The prudent use of resources and the conservation of natural and historic assets;

A reduction in the need to travel, whilst optimising the choice of modes, particularly opportunities for walking, cycling and the use of public transport;

Through developing the principles of Policy 1 it is intended to integrate environmental values with land use and transport policies, achieving patterns of development that reflect strong environmental protection and stewardship of resources.'

10.2.2 Policy 2

'Throughout Cornwall, development must respect local character and:

- *Retain important elements of the local landscape, including natural and semi-natural habitats, hedges, trees, and other natural and historic features that add to its distinctiveness;*
- *Contribute to the regeneration, restoration, enhancement or conservation of the area;*
- *Positively relate to townscape and landscape character through siting, design, use of local materials and landscaping.*
- *The conservation and enhancement of sites, areas, or interests, of recognised international or national importance for their landscape, nature conservation, archaeological or historic importance, including the (proposed) World Heritage Site, should be given priority in the consideration of development proposals.'*

10.3 Former Kerrier Local Plan

Although now part of Cornwall Council, Kerrier District Council's 1996-2011 local plan continues to be relevant. This contains policies designed to protect the archaeological resource, using the following elements of policy framework:

Policy B.EN4: Historic Heritage – Mining Remains

Development likely to significantly harm industrial archaeology, mining heritage, historical, industrial and mining buildings and sites, including former mineral railways, tramways, engine houses and chimneys, will not be permitted unless the importance of the archaeology is outweighed by the benefit of the development to the community.

Policy B.EN—1: Historic Heritage - Archaeology Development that would significantly harm sites, buildings and other remains of archaeological and historic importance, or their setting, will not be permitted unless there is a need for the development and the benefits for the community outweigh the archaeological importance. Where it affects archaeology that is found to be of national importance, development will only be permitted if the remains can be preserved *in-situ* without significant harm to them and to their setting; where it affects other sites and on-site preservation is impracticable or unnecessary, the development should include

excavation or recording of significant remains and a planning obligation to secure this will be sought.

10.4 Hedgerow Regulations

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

11 Likely impacts of the proposed development

Archaeological impacts which might result from the proposed development at Mount Ambrose are likely to result from groundworks undertaken during the early stages of the development. These could have direct, physical impacts on the buried archaeology of the site through trenching associated with the provision of services or for foundations, landscaping activities resulting in a lowering of the present ground surface, through the provision of works compounds, access routes and temporary storage areas. Such impacts on the sub-surface archaeology of the site would be **permanent** and **irreversible**. The proposed scheme would affect the hollowed areas and those picked up by the geophysical survey.

12 Mitigation Strategy

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

12.1 Evaluation trenching

In the instance of the site at Mount Ambrose, there is a possibility of at-present unrecorded below ground remains being directly impacted upon by the development proposals as indicated by the results of the walkover and geophysical surveys. The Historic Environment Planning Advice Officer may therefore require an evaluation of these areas of the site to determine the likely impacts and significance of any below ground remains before a recommendation for the granting of planning permission could be made, or may require a watching brief during soil stripping activities within the development area in order to better understand the natures and significances of the features revealed by the geophysical survey and site walkover.

12.2 Archaeological recording

In a case where the finalised site design would seem likely to result in unavoidable impacts on below-ground or above ground features, a brief for work to mitigate these impacts would be prepared by Cornwall Council's Historic Environment Advice Officer (East), setting out its scope. A Written Scheme of Investigation (WSI) to meet the brief would need to be prepared and agreed to establish and direct a programme of mitigating archaeological work.

Archaeological recording in the form of a watching brief (observation by an archaeologist during mechanical ground reduction activities) might be required either where any significant features or areas of ground are to be disturbed, in areas where significant features had been identified through the site walkover, or where the balance of probability suggested that sub-surface archaeology might survive. This approach provides for preservation by record of upstanding or buried archaeological features or artefacts and reduces any impacts on the archaeology of the sites.

In the event that significant archaeological remains being encountered, it is possible that they might require detailed recording.

13 References

13.1 Primary sources

Cornwall County Council 2005 aerial mapping of Cornwall.

Joel Gascoyne's 1699 Map of Cornwall

Martyn's 1748 Map of Cornwall

Ordnance Survey, 1809, *1 inch mapping* First Edition (licensed digital copy at HE)

Ordnance Survey, c1880. *25 Inch Map* First Edition (licensed digital copy at HE)

Ordnance Survey, c1907. *25 Inch Map* Second Edition (licensed digital copy at HE)

Ordnance Survey, 2007. *Mastermap Digital Mapping*

Tithe Map and Apportionment, c1840. *Parish of Redruth* (digital copy available from CRO)

13.2 Publications

Herring, P. 1998, *Cornwall's historic landscape: presenting a method of historic landscape character assessment*, Cornwall Archaeological Unit

Norden, J. 1724, *Map of Cornwall*, reprinted University of Exeter 1972

Padel, O.J. 1988, *Cornish place-names*, Penzance

Thorn, C. and Thorn, F. (eds.) 1979, *Domesday Book, 10: Cornwall*, Chichester

13.3 Websites

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

14 Project archive

The HE project number is **PR146202**

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

1. A project file containing site records and notes, project correspondence and administration.
2. Digital photographs stored in the directory R:\Historic Environment (Images)\SITES.M-P\Mount Ambrose Redruth assessment and geophysics 2012
3. English Heritage/ADS OASIS online reference: cornwall2-137769
4. This report text is held in digital form as: G:\TWE\Waste & Env\Strat Waste & Land\Historic Environment\Projects\Sites\Sites M\Mount Ambrose Redruth assessment and geophysics 2012\Report\Mount Ambrose assessment and geophysics.doc



Fig 3. The proposed development site and its surroundings, as shown on John Norden's Map of Cornwall, published in 1724 but drawn circa 1600. The project area is circled in red.



Fig 4. The project area and its surroundings, shown on Joel Gascoyne's 1699 Map of Cornwall. The project area is circled in red.

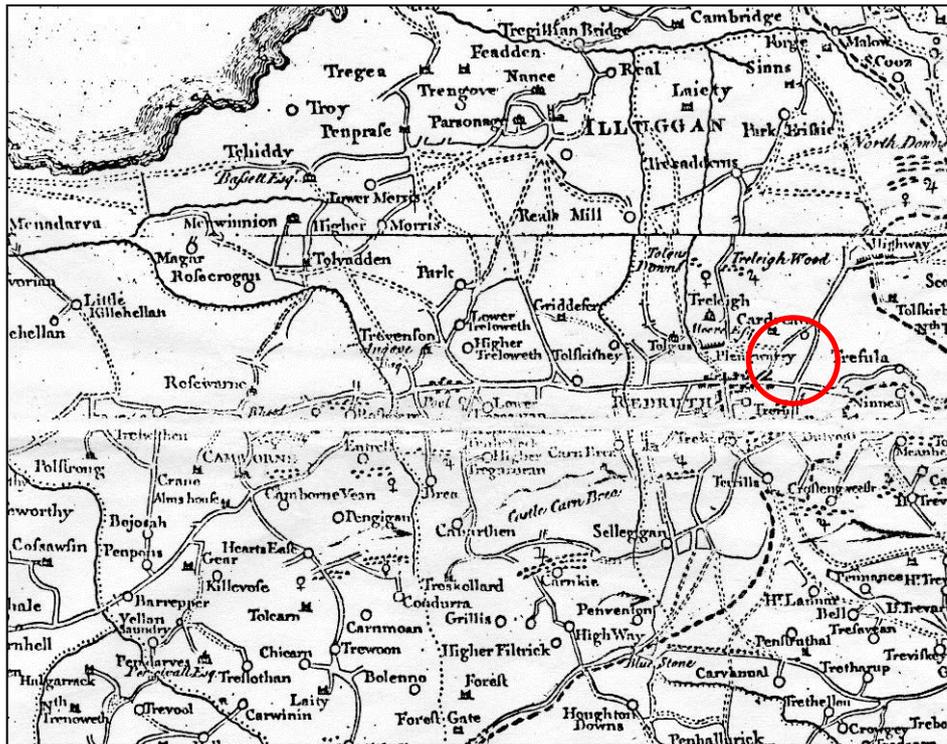


Fig 5. The project area and its surroundings, as shown on Martyn's 1748 Map of Cornwall. The project area is circled in red.

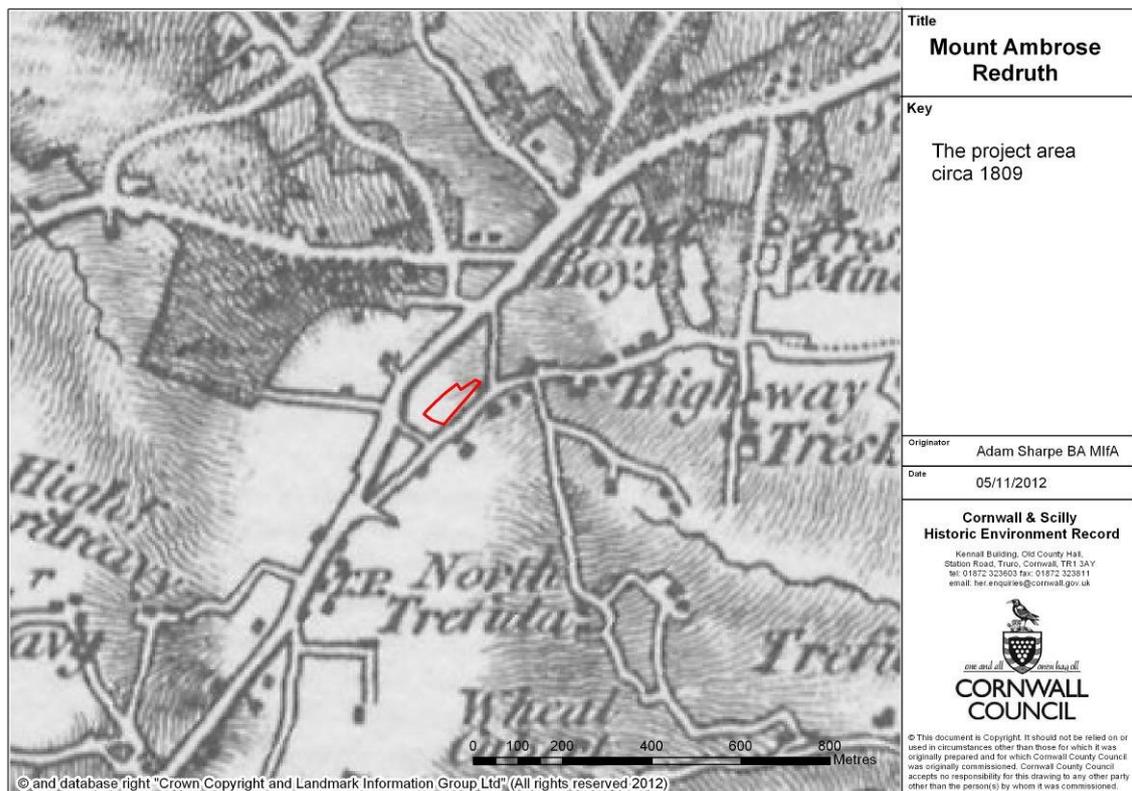


Fig 6. The project area and its surroundings as shown on the circa 1809 1st Edition OS mapping. The project area is slightly offset to the north because of differences in the global model used by the OS in 1809 and today.

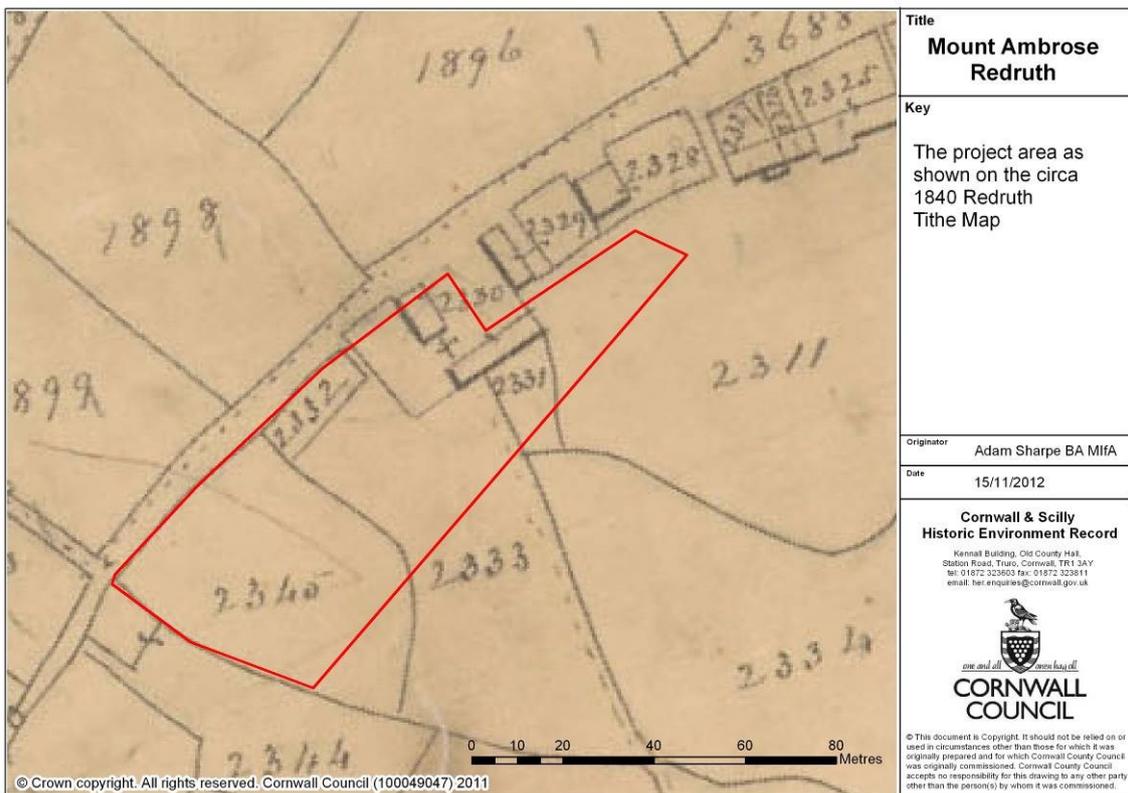


Fig 7. The project area as shown on the circa 1840 Redruth Tithe Map. Two buildings on the northern side of the area have now been demolished, whilst most of the field boundaries have now been removed.

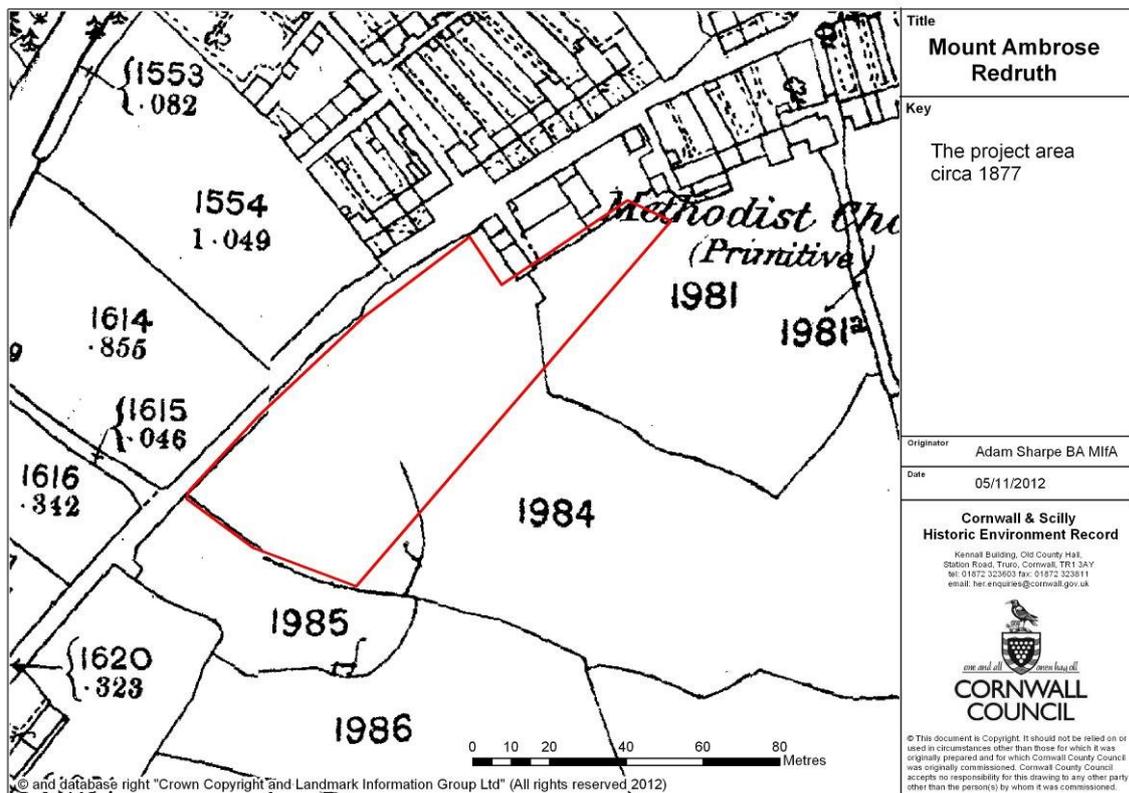


Fig 8. The project area as shown on the circa 1877 1st Edition OS 25" to the mile mapping.

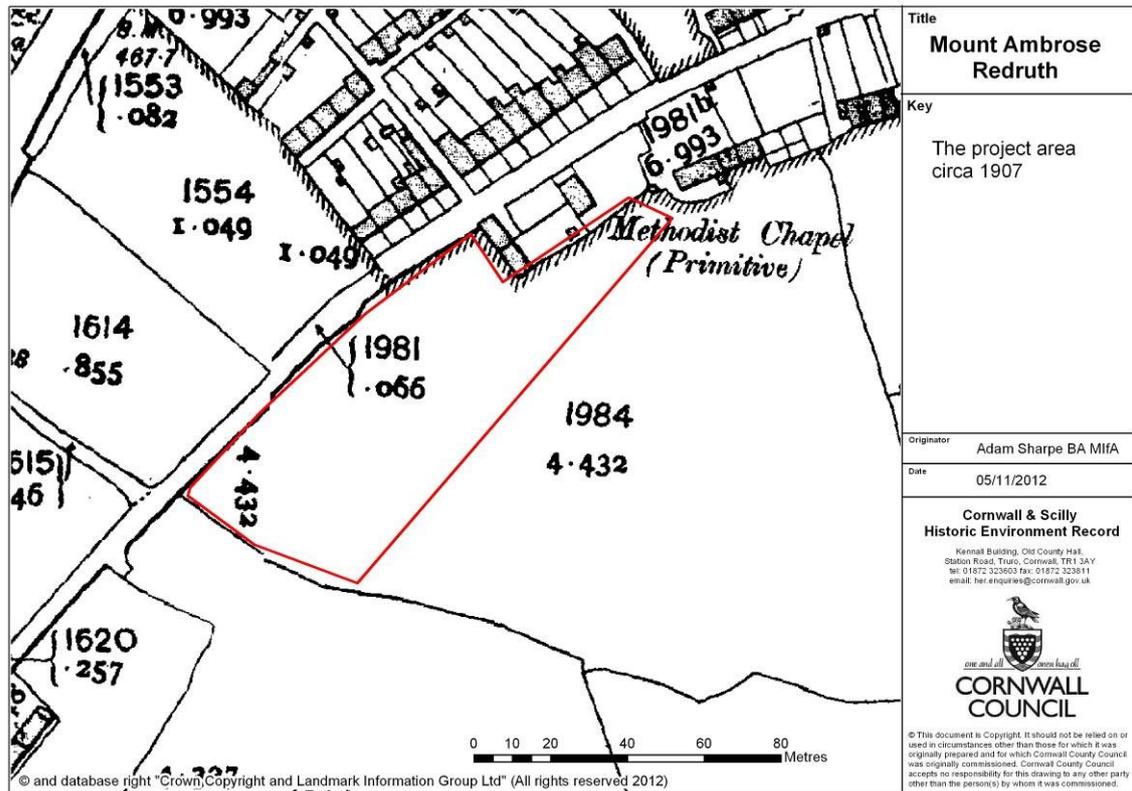


Fig 9. The project area as shown on the circa 1907 1st Edition OS 25" to the mile mapping.

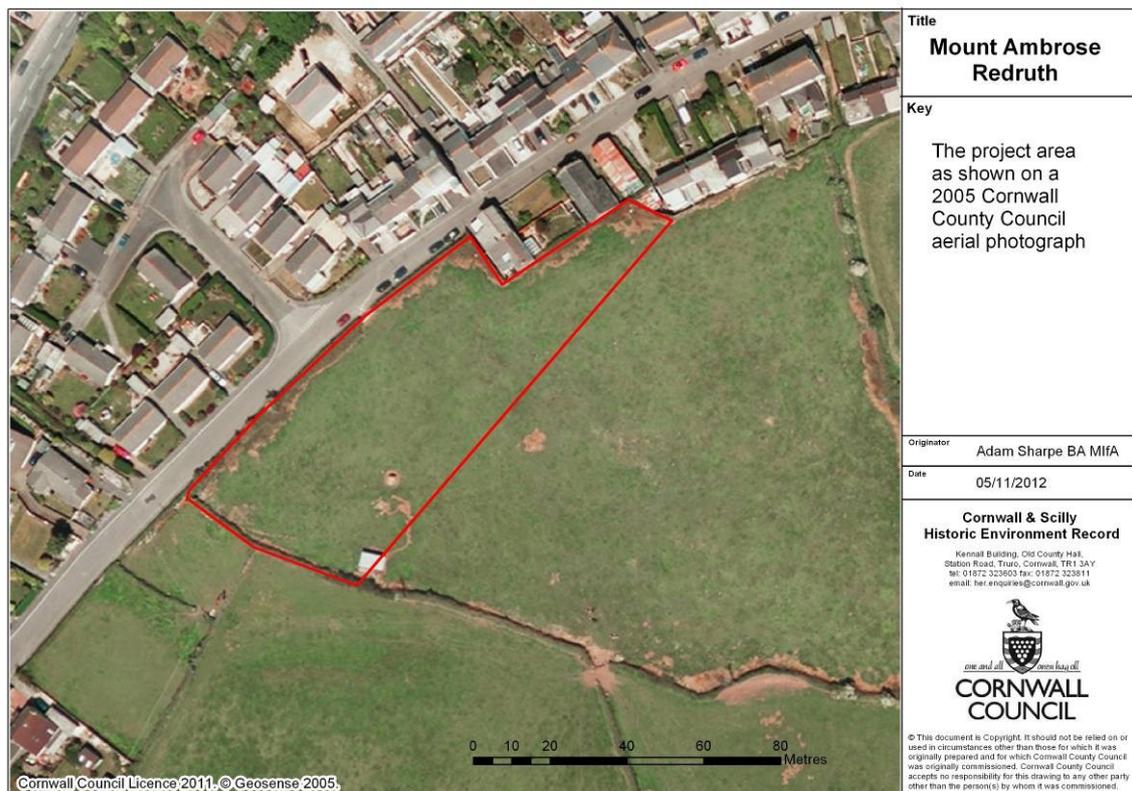


Fig 10. The project areas as shown on a 2005 CCC aerial photograph.



Fig 11. Historic Landscape Character mapping showing how the project area is mapped as having been derived from medieval farmland (green).

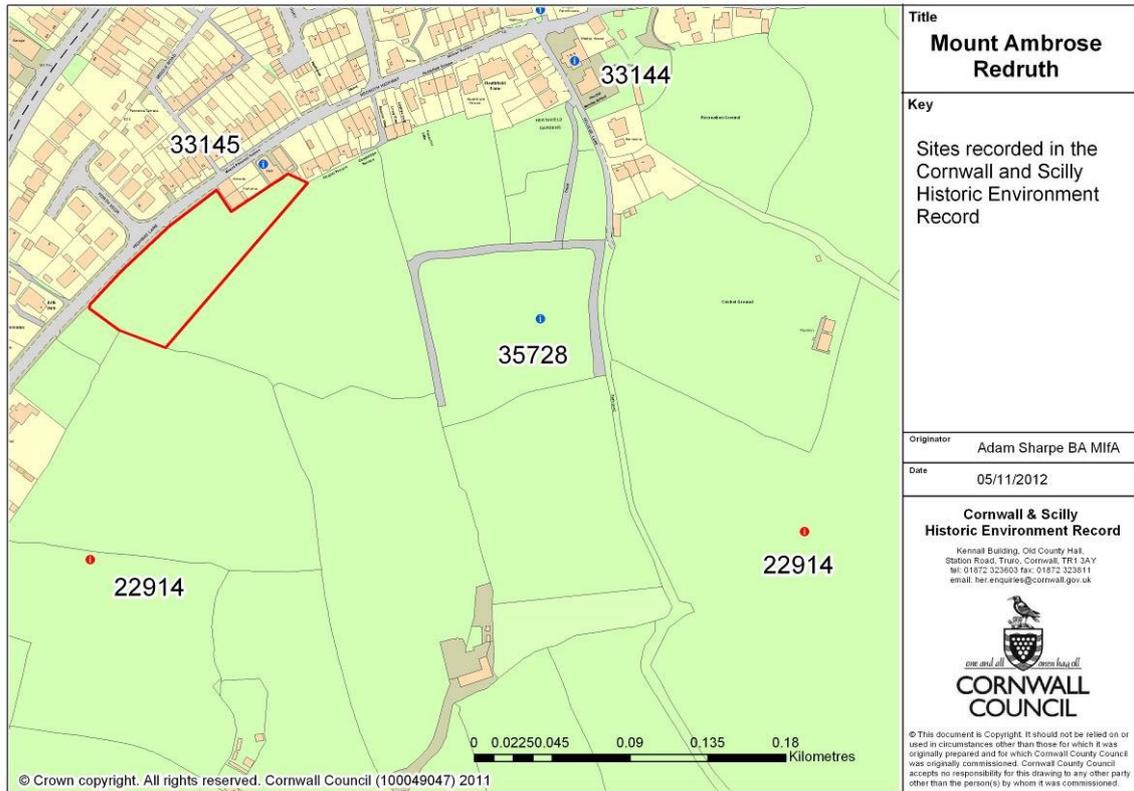


Fig 12. Sites recorded in the Cornwall and Scilly Historic Environment Record in the immediate vicinity of the proposed development site. MCO3579 represents a Romano-British round (defended farmstead), MCO10597 is a medieval dovecot site, MCO35728 is a documented mine shaft and MCO33145 and MCO33144 are the sites of non-conformist chapels.

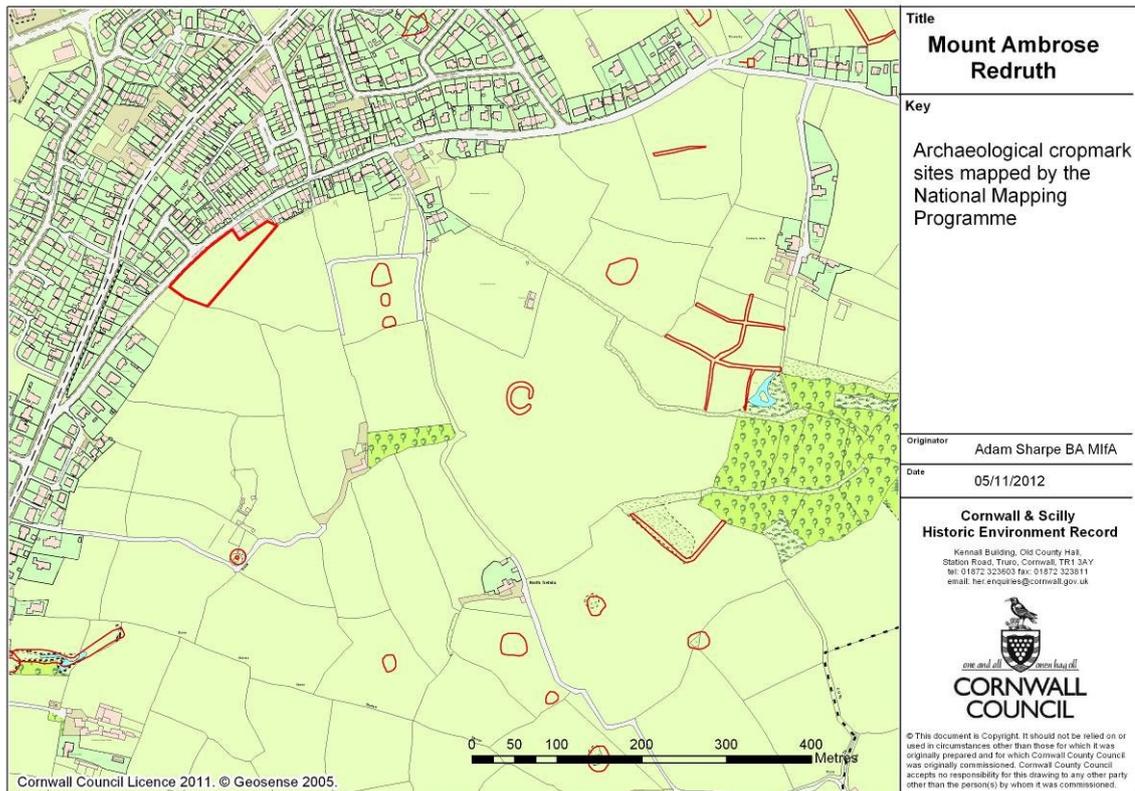


Fig 13. Archaeological sites within the vicinity of Mount Ambrose recorded from aerial photographs by the NMP team include mining features, early field systems and a prehistoric enclosed settlement (centre).

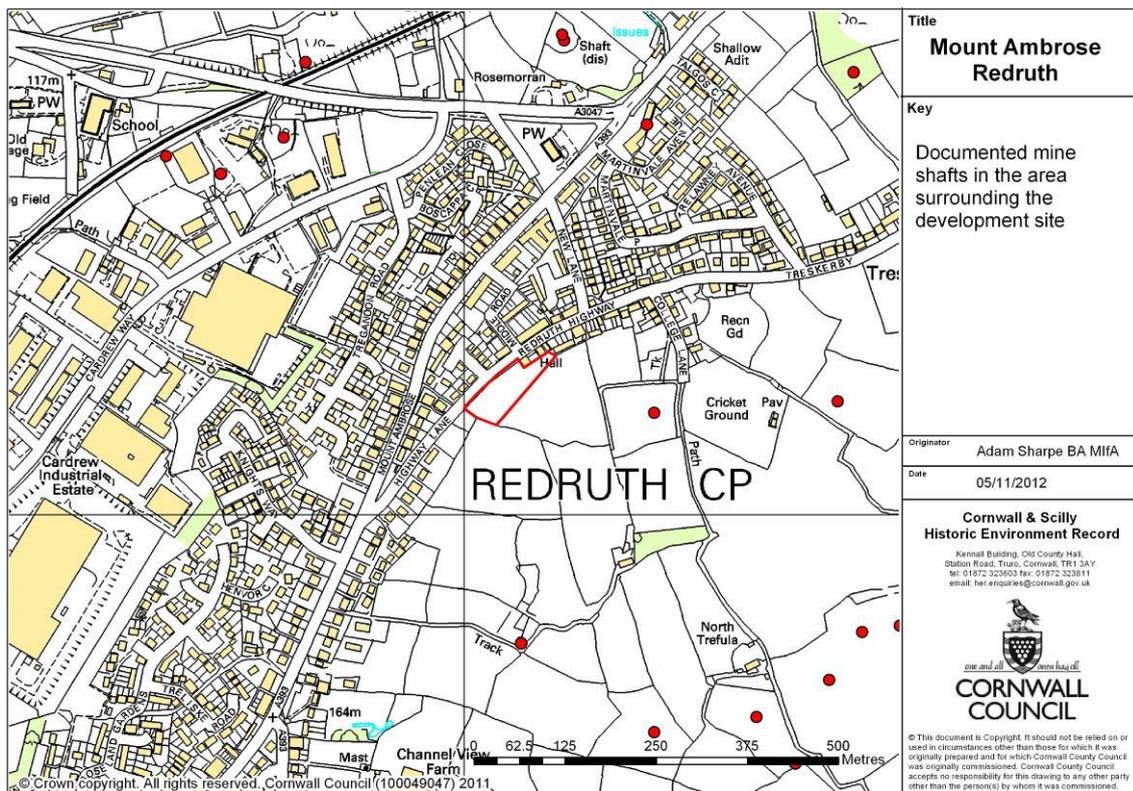


Fig 14. Documented mine shafts within the vicinity of Mount Ambrose, Redruth.

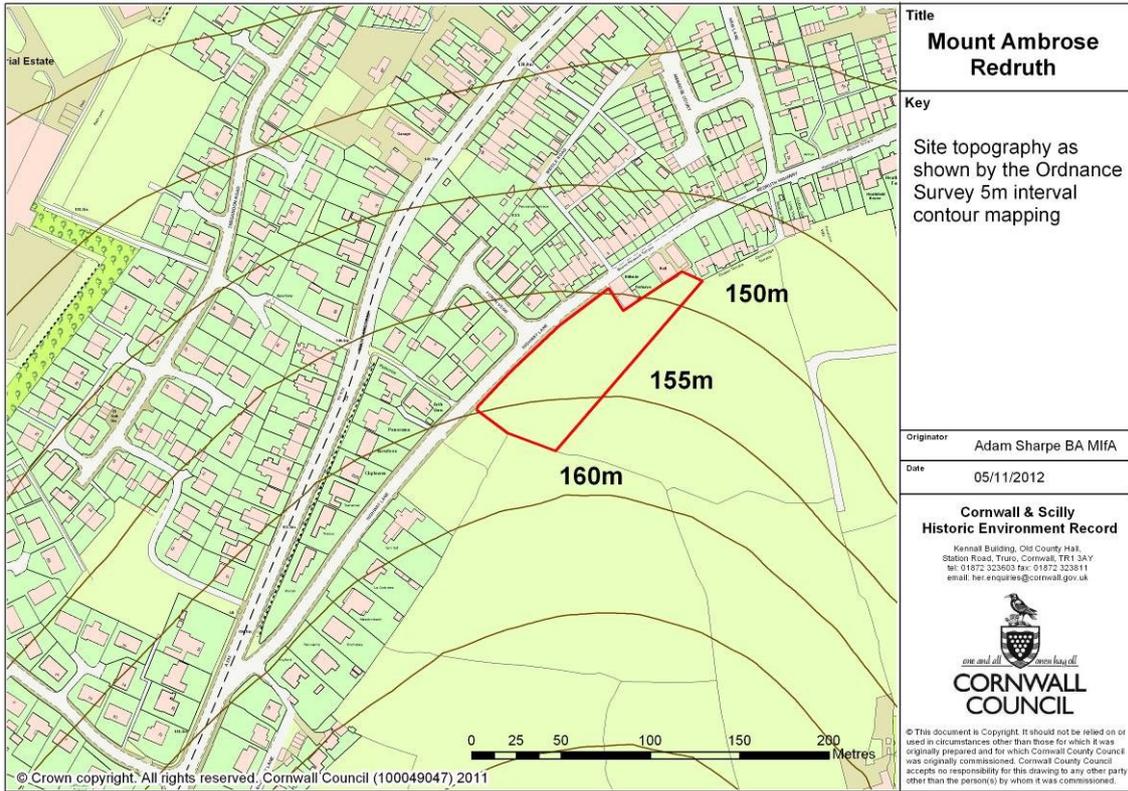


Fig 15. OS contour data for the area immediately surrounding the proposed development shows its site located on a north-facing hillslope.

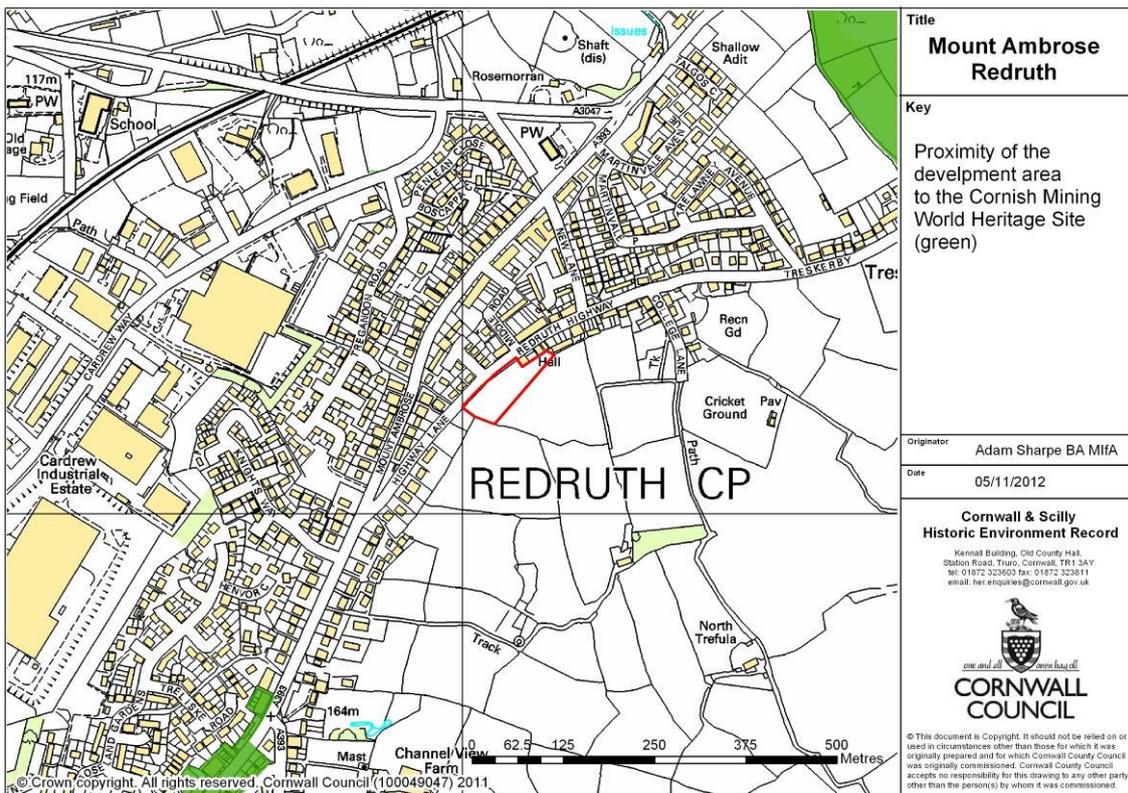


Fig 16. Mapping showing the physical relationship between the proposed development sites and Areas of the Cornish Mining World Heritage Site (green).



Fig 17. Looking upslope at the western end of the field, showing the hollowed area at the centre of which is the timber shed.



Fig 18. Looking downslope at the western end of the field, again showing the edge of the hollowed area (left and centre) and the cottages and former chapel on Redruth Highway.



Fig 19. Looking westwards from the platformed area adjacent to the westernmost cottage on Redruth Highway.



Fig 20. Looking south west from behind the former chapel, showing the undulating nature of the field.

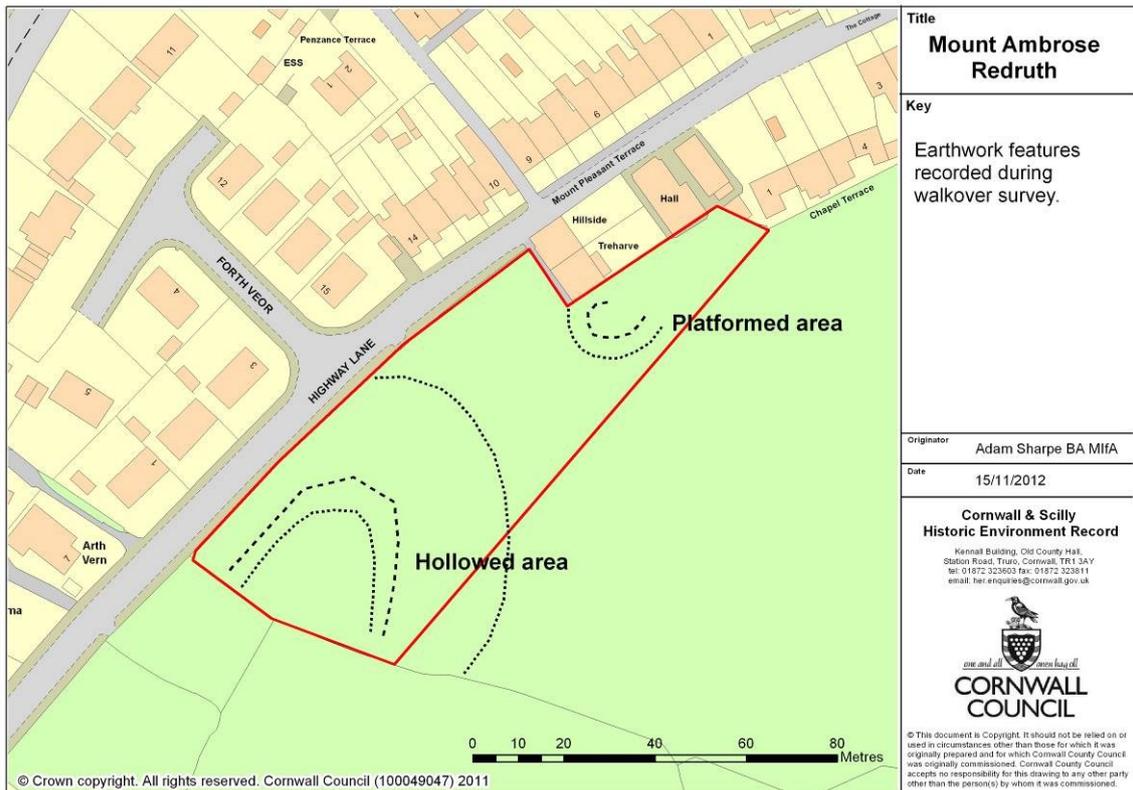


Fig 21. Earthwork features revealed during the walkover survey.



Fig 22. The interpreted GSB magnetometer survey results, showing the two sub-circular areas (centre) and the water pipe (left).