Report No: 2014R067



Trengwainton Carn, Madron, Cornwall

Archaeological watching brief and recording



Cornwall Archaeological Unit

Trengwainton Carn, Madron, Cornwall-2009 to 2014

Trengwainton Carn, Madron, Cornwall

Archaeological watching brief and recording

Client	The Bolitho Estate
Report Number	2014R067
Date	2014
Status	Final
Report	Anna Lawson-Jones
Checked by	Adam Sharpe BA MIfA
Approved by	Andrew Young

Cornwall Archaeological Unit Cornwall Council Fal Building, County Hall, Treyew Road, Truro, Cornwall, TR1 3AY Tel: (01872) 323603 Email: cau@cornwall.gov.uk Web: www.cornwall.gov.uk/archaeology

Acknowledgements

This study was commissioned by Edward Bolitho of The Bolitho Estate and carried out by Cornwall Archaeological Unit, Cornwall Council.

The Project Manager was Adam Sharpe.

The views and recommendations expressed in this report are those of Cornwall Archaeological Unit and are presented in good faith on the basis of professional judgement and on information currently available.

Freedom of Information Act

As Cornwall Council is a public authority it is subject to the terms of the Freedom of Information Act 2000, which came into effect from 1st January 2005.



Cornwall Archaeological Unit, Cornwall Council is a Registered Organisation with the

Institute for Archaeologists

Cover illustration

Looking south across the study area in late 2011, while works were still in progress.

© Cornwall Council 2014

No part of this document may be reproduced, stored in a retrieval system, or transmitted in any form or by any means without the prior permission of the publisher.

Contents

1	Summary 1		11
2	Int	roduction	12
	2.1	Project background	12
	2.2	Aims	12
	2.3 2.3 2.3 2.3	Methodology and approach .1 Clearance methodology .2 Watching brief methodology .3 Recording and reporting	13 13 14 15
3	Loc	cation and setting	16
	3.1	Location, extent of study area and access	16
	3.2	Geology, soils, topography and vegetation	18
	3.3	Brief summary of the Trengwainton Estate	18
	3.4 3.4 3.4 3.4	 Historic Landscape Character of the study area .1 Upland Rough Ground .2 Anciently Enclosed Land .3 Ornamental Land 	19 19 19 20
	3.5	Historic Landscape Character of the surrounding area	20
4	The	e watching brief results	25
	4.1 4.1 4.1 4.1 4.1	West of the Madron to Morvah road (northern half) .1 Area A1 .2 Area D .3 Area F2 .4 Area G	25 25 25 26 28
	4.2 4.2 4.2 4.2 4.2	West of Madron to Morvah road (southern half) .1 Area A2 .2 Area A3 .3 Area E .4 Area F1	32 32 33 35 36
	4.3 4.3 4.3	East of the Madron to Morvah road .1 Area B .2 Area C	41 41 42
5	Rhe	ododendron clearance – before and after	52
	5.1	Before clearance works	52
	5.2	Clearance works	53
	5.3	After clearance works	53
6	Ass	sessment of the methodology and lessons learnt	56
	6.1	Contamination precautions	56
6.2 Cutting		Cutting clearance	56
6.3 Burning of selected cut material		56	
	6.4	Mechanical stump pulling	57
	6.5	Mechanical leaf litter clearance	58
	6.6	Mechanical creation of material dumps	58

	6.7	Best practice	59
7	Re	commendations for the future management of the study area	63
	7.1 7.1 7.1 7.1	Management Recommendations 1.1 Northern area – Areas A1, D, G and F2 1.2 Southern area – Areas A2, A3, E and F1 1.3 Eastern area – Areas B and C	63 63 64 64
	7.2	Livestock issues	65
8 Sites and boundaries tables with recommendations for future			
m	anag	ement	66
9	Re	ferences	83
	9.1	Primary sources	83
	9.2	Publications	83
1	D F	Project archive	83
1	1 4	Appendices	84
	11.1	Written Scheme of Investigation	84
	11.2	Phytopthera infected Rhododendron	89
	11.3	General heathland management recommendations	90
	11.4	Scheduled Monuments	96
	11.5	Hedgerow Regulations	96

List of Figures

- Fig 1 Location map showing the area of the site (circled), with Penzance and Mounts Bay. Views from the site look out over eastern Mounts bay and St Michael's Mount.
- Fig 2 Map showing the extent of the study area, site areas, open access land (green) and public footpaths (blue).
- Fig 3 Map showing the HLC zones within the study area (pink is Ornamental Land, yellow is Upland Rough Ground and green is Ancient Enclosed Land).
- Fig 4 Map showing the site on the c1809 First Edition OS 1'' to 1 mile map.
- Fig 5 Extract from the c1840 Tithe Map for Madron Parish, showing the study area.
- Fig 6 Modern mapping showing NMP identified boundaries, Scheduled Monuments in red and HER sites as coloured dots with additional text boxes if referred to.
- Fig 7 Top Extract from the 1880 OS map showing areas A1, D, G and F1. The Site 7 ruins are circled. Bottom enlarged extract showing the ruins in c.1880.
- Fig 8 Area A1, D, G and F2 showing identified sites in blue and NMP identified sites in red.
- Fig 9 Areas A1, D, G and F2 showing boundary numbers in green, 2m contours and peripheral undesignated site 16.
- Fig 10 From top left clockwise: Stream Site 11 looking west from extreme northwest corner of F2; Site 3 footbridge; Boundary 8; pre-clearance west part of

field system 14 (note manhole cover); and leaf litter clearance around the east part of field system 14 (avoiding damage to extant earth and stone banks).

- Fig 11 From top left clockwise: west end of northern Site 35 boundary; the return of wildlife after machining; looking across Boundary 6 from Church path site towards Area G; Mesolithic flint pick (85mm long); and looking from the top of Trengwainton Carn across Areas F1 and F2.
- Fig 12 Top upper 1880 and lower 1907 OS map extracts showing areas A2/A3, E and F1 (with Site 5 in box).
- Bottom Modern mapping showing orthostatic boundary Site 5 with NMP identified rounds and possible structure at northern end.
- Fig 13 Area A2, A3, E and F1 showing identified sites (blue) and NMP sites (red).
- Fig 14 Area A2, A3, E and F1 showing boundary numbers in green, 2m contours and Scheduled sites within the mapped area.
- Fig 15 From top left clockwise: Scheduled Medieval cross Site 1; looking west along Church path Site 2 pre full clearance; looking east along Church path Site 2 post-clearance; late prehistoric orthostatic boundary Site 5 looking north; and the hull Site 12 prior to clearance.
- Fig 16 From top to bottom: Looking northeast towards Trengwainton Carn after leaf litter clearance; the successful re-introduction of cattle to the carn area; a particularly dramatic repaired section of boundary 3 with Area E and Trengwainton Carn behind; and square enclosure structure Site 8 from the south-west corner (note one of the two upright, drilled stones.
- Fig 17 Top Extract from the 1907 OS map showing areas B and C. Note Site 45 (shown in the oval), and to the south the pheasantry.
- Bottom Modern mapping showing Boundary 15, and the approximate position of ephemeral basal walling (including grounders).
- Fig 18 Area B and C showing identified sites (blue) and NMP sites (red).
- Fig 19 Area B and C showing boundary numbers in green, 2m contours, the nearby Scheduled cross and holy well, and HER undesignated prehistoric? field system (dots).
- Fig 20 From top to bottom: orthostatic boundary 24; boundary 22 with later abutting boundary 24; northern terminal end/gate post of former boundary site 39; and a contented pony wandering in leaf litter cleared Area C amidst regenerating vegetation.
- Fig 21 From top left to bottom right: looking north at part of field system site 22; looking west across vehicle damaged site 22 boundary 28; northernmost pit and dump site 44; one of the machine exposed clearance cairns in Area C; and looking north-west up green and narrow hollow way site 24 through the newly widened boundary 18 entrance in to Area C.
- Fig 22 From top left to bottom right: looking south-west up a footpath linking the upper slopes of Area C with the access way/site 38; looking north-west from the southern part of Area C across one of the newly vegetated spoil dumps towards Trengwainton Hill; looking north between the two boundaries 29 (left) and 31 (and showing recent blockage of a former gateway leading in to land beyond the study area; and looking south at the 'pyramid' stone between boundaries 22 (right) and 23 within access way/site 38.
- Fig 23 Aerial photograph taken in 2005 showing the study area lying beneath a swathe of out of control Rhododendron growth.

- 24 Photomontage of 1946 aerial photographs showing the study area at a point when it was largely clear of invasive Rhododendron growth.
- Fig 25 Aerial photograph taken in 2011 showing Areas B and C in the foreground. Arrow points north.
- Fig 26 Aerial photograph taken in 2011 showing Areas F1, F2, D, E, G, A1 and A2 (with parts of B, C and A3). Arrow points north.
- Fig 27 Aerial photograph taken in 2011 showing Area A3 and parts of A2 and E. Arrow points north.
- This project has resulted in a mixture of large platform-like, flat topped dumps and small conical dumps (plus a range of intervening shapes and sizes), located on hill tops, slopes and on lower-lying flat ground - offering an ideal range of dump types which will be suitable for monitoring.
- Fig 28 Top The original Natural England plan for Rhododendron clearance works.
- Bottom The mechanically cleared areas within Area F1 and F2 (shown as green shading). Within these areas a very large number of small 1-2m high leaf litter dumps were created averaging 8-14m diameter.
- Fig 29 Combination map showing mechanically cleared areas and storage dumps within Areas A1, A2, B, C, D and E.

Abbreviations

AEL	Anciently Enclosed Land
CAU	Cornwall Archaeological Unit
HER	Cornwall and the Isles of Scilly Historic Environment Record
МСО	Monument number in Cornwall HER
NGR	National Grid Reference
NMP	National Mapping Programme
OD	Ordnance Datum – height above mean sea level at Newlyn
OL	Ornamental Land
OS	Ordnance Survey
URG	Upland Rough Ground

List of historic periods and dates

	•
Mesolithic	10,000BC - 4000BC
Neolithic	4000BC - 2,500BC
Bronze Age	2,500BC - 800BC
Iron Age	801BC - AD42
Romano-British	AD43 - AD409
Early Medieval	AD410 - AD1065
Medieval	AD1066 - AD1539
Post-medieval	AD1540 - AD1749
Early Modern	AD1750 - AD1899
Modern	AD1899 - present

Trengwainton Carn, Madron, Cornwall-2009 to 2014

1 Summary

This report was carried out by Cornwall Archaeological Unit (formerly Historic Environment Projects), Cornwall Council for Mr Adrian Nicholls (tenant of The Bolitho Estate). The Project Design (prepared by Adam Sharpe, CAU, 10/9/2010) follows the requirements set out in a brief by Ann Reynolds (Countryside Advice Officer, CC) and Ben Jones (Operations Manager, Forestry Commission – Defra HLS), dated to 26/5/2009. The project was undertaken as part of a programme of clearance of *Phytopthera* infected Rhododendron from a *c*.61ha area located to the north of Trengwainton House within the Bolitho Estate in West Penwith. The programme of works included an archaeological desk-based assessment (Lawson-Jones 2010), followed by a four year long intermittent watching brief with recording during manual cutting and burning, mechanical leaf litter clearance and on-site storage dump creation. The works were monitored and, in part, guided by CAU staff. An interim report (Lawson-Jones 2011) was written, which covered the initial stages of these works.

The intention of the project was to create an archaeological record, provide management recommendations and to assess the methodology in the form of a 'lessons learnt' section. This final report presents the results of this project.

The cutting and selective burning of Rhododendron was started in 2009 and completed in 2012. The mechanical clearance of stumps and litter was completed in late 2013. These works have allowed for the regeneration of heathland plants and the reinstatement of grazing on both the carn and the hill, helping to preserve the character of the site and returning the archaeological features on it to something of their former context, after some 20 years of being effectively inaccessible.

The range of site types identified during the project includes, in chronological order, the following:

- Stray sling shot, flint tools including a Mesolithic pick, pebble polishers and a greenstone pounder, all of which were retrieved from the old land surface. These illustrate the varied, early use of this landscape, extending back c10,000 years and focussed around Trengwainton carn and hill.
- Prehistoric and medieval field systems with varied boundaries including earth/stone banks, stone faced earth/stone boundaries, grounder/contour alignments, shallow lynchets, drystone and orthostatic walls. Tracks and paths, stiles and gate entrances will also have been elements of these systems – some of which persisted into the medieval and post-medieval periods.
- The fossilised basal remains of probable Bronze Age round houses.
- A potentially late prehistoric/Romano-British orthostatic boundary and terminal structure.
- Clearance cairns probably spanning the late prehistoric and medieval periods.
- A Scheduled medieval granite cross.
- A possible hull/underground storage structure.
- Medieval (?) and post-medieval stream alterations and leat.
- Post-medieval boundary additions, alterations and repairs including animal route ways and occasional stiles, gateposts etc.
- Post-medieval and early modern constructed enclosures, including the enigmatic square structure in north-east Area A3.
- Ubiquitous post-medieval and modern stone splitting and surface quarrying features, including blasted or split drilled granite blocks left on site, pits and uneven ground.

- A post-1840 orthostatic boundary.
- On-going field boundary repairs, alterations and construction, as well as animal watering points and subsurface modern services.
- The assessment additionally identified ornamental planting, a pheasantry and lodge house, the small ruined complex in northern F2, and Tithe Map references to turbaries and sheep walks.

The above combine to produce the physical evidence for a landscape with a long and varied history. The sites typify the characteristics of Anciently Enclosed Land, Upland Rough Ground and peripheral Ornamental Land. The re-emergence of the study area as a living, vibrant, productive landscape after many years of neglect and dormancy has greatly improved its appearance, accessibility and our understanding of its historic development.

2 Introduction

2.1 Project background

This project examined an area of West Penwith located to the north of Penzance in the parish of Madron, sited just to the west of Madron Village (figure 1). The project area is focussed around Trengwainton Carn (SW 43969 32325) and Trengwainton Hill (SW 44026 32599) and covers an area of just over 61 hectares. A series of briefs, plans and designs have been written to guide these works. They are as follows:

- A written brief for a desk-based archaeological assessment and watching brief to be carried out during Rhododendron clearance works, prepared by Ann Reynolds (Countryside Advice Officer, CC) and Ben Jones (Operations Manager, Forestry Commission FERA Phytopthera Team) in May 2009.
- The production of a Management Plan (with an agreement start date of 1st October 2009) written by Vaughan Robbins in September 2009.
- The work was guided by a Project Design written by Senior Archaeologist and Project Manager Adam Sharpe dating to September 2009.
- A 'follow-up' brief for archaeological assessment and watching brief written in September 2010 by Ann Reynolds.
- A subsequent Project Design for archaeological assessment and watching brief written by Adam Sharpe relating to the 'second phase of clearance' dated to September 2010.

Prior to clearance works the study area had an extensive cover of *Rhododendron ponticum*, much of which was infected with *Phytopthera sp*. This highly contagious plant infection was targeted by Defra as an HLS related project with the aim of removing all infected plant material by cutting, targeted spraying, burning, stump pulling and burying to allow for the regeneration of heathland plants. Rhododendron clearance work began in the autumn of 2009 and extended on in to late summer 2013.

2.2 Aims

The outline aims of this project are presented in Sharpe's 2010 Project Design and follow those outlined in the 2009/2010 Briefs listed above. They are as follows:

• To ensure damage to the historic environment was minimised whilst Rhododendron clearance and heathland restoration works were in progress

- To investigate, describe and understand the archaeological and historic environment resource within the study area through fieldwork and add to the information already collated in 2009-10 and 2011.
- To locate on maps the extent and nature of identified archaeological sites, adding to that detailed in the 2010 and 2011 reports.
- To outline, with justification, any further archaeological recording envisaged if different to that identified in the 2010 and 2011 reports.
- To produce 'lessons learnt' and 'best practice' guidance for similar projects in the future.

2.3 Methodology and approach

All recording work has been undertaken according to the Institute for Archaeologists *Standards and Guidance for Archaeological Investigation and Recording.* The IfA *Code of Conduct* and *Code of Approved Practice for the Regulation of Contractual Arrangements in Archaeology* has been followed. The Institute for Archaeologists is the professional body for archaeologists working in the UK.

Prior to any works taking place a series of on-site meetings took place to discuss the best approach to proposed works. It was agreed that all boundaries should be cleared of Rhododendron by cutting and spraying, but that no brash heaps were to be burnt or mechanical clearance should take place within a 1-2m distance of them. Maps were provided for the contractors and machine drivers as works progressed, pointing out the presence of clearly visible or the likely presence of more ephemeral boundaries and sites. It was agreed that the maps should guide works most of the time, while canes and bunting could mark newly located or ephemeral sites. When on-site visits coincided with machine drivers being on site, areas were walked over or discussed utilising maps. It was also agreed that areas identified as being of potential archaeological significance or of particular complexity should be discussed, marked out and avoided during machine work where possible. Additional guidance would be given as required or requested.

<u>Note:</u> Biosecurity precautions were undertaken following advice provided by the Forestry Commission Phytopthera Team.

Both the clearance and the watching brief methodologies evolved as the project progressed.

2.3.1 Clearance methodology

The site archaeologist liaised with the client, contractors and land managers prior to and during clearance operations. Clearance works included the following:

- The **cutting** down of all infected Rhododendron as close to the ground as possible across all areas.
- The **manual separation** of limited amounts of wood for logs (left in neat piles) and the heaping of brash and excess wood. At site meetings the importance of keeping these away from all boundaries and other agreed archaeological sites, including large or distinctive grounders, was stressed.
- The **burning** of the brash (under the cutters' surveillance to minimise spread, manage heat intensity and minimise thermal fracturing of the surrounding rocks).

The heaping and burning of material was kept an agreed 2m away from identified features, unless a larger area had been discussed, for example around orthostatic Site 5 and round house Site 45.

- The **chemical spraying** of Rhododendron stumps to be left *in-situ*, because of proximity to boundaries or other site types, such as hut circle Site 45. The whole of area A3 underwent a concentrated programme of herbicide spraying. No mechanical clearance took place here.
- **Mechanical stump removal** following site discussion about the least destructive method of removing stumps i.e., twisting and pulling, grabbing and pulling, pulling, or grabbing and cutting below ground. Logistics, price and potential ground disturbance dictated that a pulling approach was best, in conjunction with an agreed 1-2m avoidance zone along all boundaries (or other agreed sites)
- **Mechanical leaf litter clearance** took place across large swathes within all areas, with the exception of area A3 (which was left to regenerate naturally), areas that were not adversely affected by Rhododendron including the carn itself, and areas identified and defined by the archaeologist along boundaries, and around Site 5 and 45 etc. Leaf litter clearance involved the mechanical scraping away of Rhododendron leaf litter down to the pre-litter old land surface with a toothless grading bucket.

This inevitably has involved a great deal of disturbance to all the surface granite across all areas and the topsoil.

- **Questions about the disposal** of the infected material took place on site. Removal by lorry of the unexpectedly large amounts of stumps and leaf litter was not possible because of the potential for spreading the *Phytopthera* infection. This negated the possibility of its disposal either to a land fill site (additionally problematic because of uncertainty about how long the spores were infectious) or to an incinerator.
- **Storage areas** were agreed for the infected material to be kept on site, (although again the volume of material proved problematic).

Initially large dump areas were agreed which took in to account the surrounding archaeology and its visual context, and more general visibility concerns with regard to historic landscape characterisation and the topography of the landscape. Subsequently this approach changed and numerous small dumps were created. This was not an entirely agreeable approach from an archaeological point of view (since the smaller dumps may well mimic archaeological features within this landscape in the future).

2.3.2 Watching brief methodology

The site archaeologist undertook the following approach to recording within the study area, during and after clearance works:

- Liaising on site with those carrying out the cutting, burning and mechanical works, (since they were working closest to the ground and were the most likely to see and report any areas of potential interest). Working maps were produced and discussed on site. This led to some interesting discussions and aided on-site identification and map annotation work.
- Taking **digital colour photographs** to record the works. Photos were taken prior to works, during and after cutting and burning works, and during and after mechanical stump pulling and leaf litter clearance. The before and after shots record the effects of these works on the site as a whole.

Archaeologically, the pre-mechanical work photographs were the most informative, since mechanical clearance has profoundly altered the ground due to the extreme rock content.

- **Prepared base maps** were taken on to site and annotated with additional interpretative information and descriptive details. These showed both known and potential sites.
- **Additional notes** were made where sites were grouped and an area description or interpretation was required. Sketches with measured annotation were made of selected features.
- All **known sites** were identified on site, checked and described as appropriate. These included the Scheduled medieval stone cross, field systems and the hull etc. It also included sites shown on historic mapping, such as the ruined buildings, the orthostatic boundaries, and an enigmatic square enclosure.
- All **potential sites** were searched for and where located were measured and described. Some remained unlocated, including the potential ridge and furrow and an undated enclosure.
- **Un-mapped/previously un-known sites** identified during the walk-over surveys after cutting and burning include the stone slab bridge, the leat works, the two orthostatic boundaries (including the potential Romano-British structure located at the end of one of them), and the probable Bronze Age roundhouses.
- **New sites** revealed in the mechanically stripped ground were checked for. These were largely sub-surface and sealed beneath the leaf litter and include the clearance cairns and occasional finds contained within the old land surface sealed beneath the leaf litter.
- All stray or **residual finds** were collected as and when they were seen. Their locations were noted on the bags and are referred to in this report.

2.3.3 Recording and reporting

2010 Assessment - The assessment presented a rapid summary of the development of the Trengwainton Estate (house and grounds) and an assessment of the historic development and character of the study area following a walk-over survey. It reproduced a series of historic maps, and described and located known designated and un-designated sites within and immediately adjacent to the study area.

2011 Interim statement -The interim statement summarised the results of the watching brief carried out during works including Rhododendron cutting and burning, leaf litter clearance, stump pulling and the creation of storage dumps for the infected material until late 2011.

2014 Final report - This report presents the results of the completed watching brief. It links features/areas at a general level to the three different Historic Landscape Character types identified during the assessment, and ties them in to the chronological development of the area as depicted on historic mapping. In addition it assesses the approach and methodology of the project and makes recommendations for the future research and management of the site.

3 Location and setting

3.1 Location, extent of study area and access

The study area is located in the West Penwith peninsula, in the civil and ecclesiastical parish of Madron, to the west of Madron village, and to the northnorthwest of Penzance. The site straddles the Madron to Morvah road. The area as a whole covers approximately 61 hectares, dividing into a main, broadly triangular shaped area to the west of the road, and a smaller, more rounded area to the east. Each of the two main areas was subdivided into smaller areas by Natural England to facilitate clearance works (figure 2). The main western area consists of areas A1-3, D, E and F1-2. The smaller eastern area contains areas B and C.

The study area is covered by the following landscape designations: AONB (Area of Outstanding Natural Beauty); AGHV (Area of Great Historic value); CNCS (Cornwall Nature Conservation Site); ESA (Environmentally Sensitive Area formerly covering West Penwith), and AGSV (Area of Great Scientific Value). It contains a single Scheduled Monument (Trengwainton stone cross – Site 1), and is close to others. It also contains and is surrounded by a great number and variety of sites identified within the Cornwall and Scilly Historic Environment Record (HER), whilst the National Mapping Programme (NMP) plotting from aerial photographs has highlighted many sites within the study area.

The study area lies within an area dense with prehistoric and medieval remains. Within a four mile radius, sites include: Mulfra Quoit, the Men-An-Tol, Lanyon Quoit, the Nine Maidens stone circle, Boswarva settlements and round house, Trewern Round and nearby the site of a former standing stone, Madron Well, Madron Chapel and several medieval crosses including one near Madron Well on the eastern edge of the study area. In addition, other non-designated sites exist within and around the study area, including a fine rab quarry consisting of short subterranean tunnels leading off from an entrance chamber visible from a small open quarry site on the edge of the Madron-Morvah road between Areas B and northern A1.

The main western area is Open Access Land under the Countryside and Rights of Way (CROW) legislation. It is frequently crossed by dog walkers and horse riders. The eastern area is not open to the public. Both areas contain, and/or are defined by boundaries that fall under the protection of Hedgerow Regulations (in that they pre-date the 1840s Tithe map).



Fig 1 Location map showing the area of the site (circled), with Penzance and Mounts Bay. Views from the site look out over eastern Mounts bay and St Michael's Mount.



Fig 2 Map showing the extent of the study area, site areas, open access land (green) and public footpaths (blue).

3.2 Geology, soils, topography and vegetation

Geologically the study area is located on the Lands End Granite with soils ranging from peat to loam overlying the granite, which is sometimes exposed at surface level. These soils include very acidic granite-based loamy soils with thin, wet peaty surface horizons – often with incipient iron panning (source: BGS bedrock geology layer). All of these can be found within the study area, with frequent bedrock boulders protruding through the thin acidic soils, both on top and around the periphery of Trengwainton Carn and across the top of Trengwainton Hill.

Topographically the study area consists of an approximate north to south running ridge of higher ground, consisting of Trengwainton Hill (180m OD) to the north (in the centre of area B) and Trengwainton Carn (160m OD) approximately 350m to the south (in the centre of area E). The land slopes away to the south and west (on the western side of the main study area) to a low lying, broad, water-logged valley – historically the location for fish and water-fowl ponds associated with Trengwainton House and grounds just beyond the study area. To the east and south east of the smaller eastern part of the study area, the topography drops down to a broad, gently sloping, lower spread of fields extending out from Madron village. The lowest part of the study area is located at the southern corner of the main study area, where it reaches 105m OD, and follows the eastern side of a long valley which runs out towards the south. Views out to the south east extend well beyond St Michael's Mount and the sea.

Vegetation at the time of the initial survey largely consisted of dense, invasive Rhododendron growth with a few cleared grassy paths. Areas in the northern third of the study area, plus pockets of less dense growth in the central-eastern parts of the two main areas existed, but these were frequently covered with a dense spread of brambles and bracken. As the study area was cleared of Rhododendron naturally occurring trees and bushes, including willows and gorse began to emerge, along with dense spreads of bluebells, foxgloves, heather and other flowering plants whose growth was triggered by the scrub clearance. The firs, planted as wind breaks and scenic backdrops for Trengwainton House and garden have long since died, leaving tall skeletal trunks. These have now, sadly been removed. More recent planting exists in southern Area B, and most recently in the north-western of Area C.

Prior to the *circa* 1900s planting of Rhododendron and Firs, the study area had contained a combination of little fields in the east of medieval and possibly earlier origin; and areas of grazed, semi-open heathland to the west.

3.3 Brief summary of the Trengwainton Estate

The Trengwainton Estate is focussed around a 16th century Grade II Listed house, which was altered in the 18th century, remodelled in about 1810 and extended in the 19th century. With each of these major phases came the development, expansion and alteration of the surrounding grounds. In the early 19th century, between 1813 and 1817, George Brown for Sir Rose Price laid out the 'pleasure grounds', the 'landscape park' and the 'walled gardens'. The study area falls within what was the working park area. In the later 19th and early 20th century a number of alterations were made, including in 1925, those made by Colonel Sir Edward Bolitho (with advice from J.C Williams, P.D Williams and Canon Boscawen), who began the transformation of the 6ha woodland garden, where imported species such as camellias, magnolias and Rhododendrons were to be grown. These included the planting of a collection of Rhododendrons raised from seed collected during an expedition to Burma and Assam in 1927-28. Today the main valley area is noted for its wide range of exotic plants and outstanding Rhododendron collection, many of which have been grown and flowered here for the first time in Britain. However, given the ideal climate and growing conditions, the Rhododendron ponticum ran amok - spreading well beyond its original planted location up across much of the study area. Comparison of the 1940s and 2005 aerial photographs of the area (figures 23 and 24) clearly show this invasive spread.

Since 1961 the gardens to the south of the study area (focussed around the house) have been open to the public, under the guardianship of the National Trust. The study area became unintentionally but increasingly neglected through the rapid spread of Rhododendron and the eventual cessation of cattle pasturing. The result was that it became a largely impenetrable part of the estate despite much of it being subject to open access.

The house and working farm remain in private ownership of the Bolitho family.

3.4 Historic Landscape Character of the study area

Historic Landscape Character (HLC) is the predominant historic character of an area of landscape, based on a map-based historic landscape assessment carried out by CAU in 1994, using early map evidence, field patterns and place-names to characterise the landscape (Countryside Commission 1996). The study area falls within land characterised as Upland Rough Ground (URG), with areas of Anciently Enclosed Land (AEL). Ornamental Land (OL) came to overlie parts of both (figure 3).

The historic interaction between URG and AEL is of great significance. These landscape types were co-dependant from later prehistory, with URG providing summer grazing and fuel grounds (see below) for core settlements and farms within AEL. This inter-linkage is shown by the drove ways or sheep walks linking the two landscape types. Changes and shifts in the course of these tracks reflect the advance and retreat of settlements and associated land use.

3.4.1 Upland Rough Ground

Upland Rough Ground is today often distinguished by its habitat and ecology from the surrounding improved and enclosed land. Though often regarded as 'natural', it has a longer history of human interference and use than other HLC types. Environmental pollen analysis has confirmed that many URG areas of West Penwith were heavily wooded up until tree clearance and the start of ploughing during the Neolithic and Earlier Bronze Age periods (between approximately 3000 to 6000 years ago). The resultant impoverished soils now support heath and scrubland vegetation, partly as a result of traditional land management, which until recently combined the use of these areas as seasonal pasture and fuel collection grounds. Until the first half of the nineteenth century this continued to be the case across the majority of the study area.

These areas were usually communally held by nearby farming settlements and until the last 3-400 years maintained an essentially open appearance. Within the last 3-400 years long broadly sinuous pasture-dividing boundaries began to appear, often with associated tracks linking lower AEL with upland areas. Many of these characteristics can be seen within the study area. Though now dominated by gorse and bracken, this landscape type often favours the survival of relatively complete complexes of prehistoric to modern archaeological features. Originally the study area's Upland Rough Ground would have extended up on to Trengwainton Carn and Hill, but since before 1840 it has been hemmed in by (higher) Ornamental parkland and (lower) Ornamental grounds.

3.4.2 Anciently Enclosed Land

Anciently Enclosed Land forms Cornwall's agricultural heartland. Farming settlements are documented before the 17th century and much of it has been enclosed and farmed since the Middle Bronze Age period (*c*1500 BC). It tends to be found on relatively sheltered land, not too steep and not too poorly drained. The eastern part of the study area with its remnant fields covers just this type of ground. It often extends up on to high downs and is crossed by long-lived, often

deeply cutting lanes and roads typically linking irregularly laid out, shrunken farming settlements. Churchtowns and larger villages are scattered throughout this landscape, such as Madron. Field systems reflect two or three thousand years of agriculture spanning later prehistoric, early medieval and later medieval farming practices, ranging from small, irregular clutches of fields, to later extensive strip-field systems or unenclosed furlongs and cropping units associated with co-opting family farms, to the re-arrangement of smaller fields in to larger angular fields suitable for mechanical farming. Across Cornwall this landscape type contains many 'rounds' or later prehistoric to Roman period enclosed settlements, and may contain as many unenclosed ones, more vulnerable to loss through ploughing over generations of land use.

3.4.3 Ornamental Land

Ornamental Land is land that has been manipulated to form parklands and gardens surrounding large country houses. Ornamental landscapes are normally of 18th and 19th century date, although some extend in to the very early 20th century. In Cornwall many of these parks and gardens were created by people made wealthy by local copper and tin mines. Eighteenth century parkland was designed with the great house as its focus. Designed parklands contain carefully positioned clumps of trees, open vistas uninterrupted by hedges – often through the construction of sunken ha-has, and carefully produced 'natural' aspects. Many Ornamental Landscapes included walled gardens, fruit and flower houses and carriage drives. By the 19th century there was a shift towards the planting of specimen trees and shrubs, camellias, Rhododendrons and other more delicate exotics. These gardens were often smaller; more intricately designed and often included planted shelter belts, carefully created ponds and pools, gazebos with carefully positioned urns etc. Most ornamental parks and gardens lie within AEL, many incorporating steep-sided valleys or extending up on to URG. The study area contains a number of these Ornamental Landscape attributes.

Trengwainton Carn and Hill still form highly visible landmarks within the surrounding landscape, and as such attracted the attention of Trengwainton's park designers, who transformed what was an Upland Rough Ground landscape in to an Ornamental Landscape. The 1840 Tithe Map (figure 5) depicts a long north to south running swathe of planted trees, referred to in the accompanying apportionment lists as 'plantation' and 'fir plantation'. They represent part of Sir Rose Price's c1815 landscaping and plantation establishment.

3.5 Historic Landscape Character of the surrounding area

The study area is focussed around two adjoining, prominent areas of high ground which span the Madron to Morvah road - Trengwainton Carn to the south west and Trengwainton Hill to the north east. To the north of the study area lie the medieval settlements and remnant field systems of Boswarthen, Boswarva and Higher Boswarva on the southern periphery of Boswarva Carn. Boswarva Carn marks the nearest part of an Upland Rough Ground area renowned for its important archaeological remains including prehistoric houses, field systems, monuments and rounds (see the recent archaeological management assessment by Parkes - 2011). At the low-lying junction between Boswarva and Trengwainton Carns, and marking the northern periphery of the study area is a shallow east to west running valley which contains a small, but fast flowing and much altered stream. These alterations are the result of medieval and post-medieval activity. To the west of the study area lies a larger and lower lying valley. It runs north to south and is today an often waterlogged wooded area filled with willows, occasional Rhododendron clumps and man-made ponds fed by springs and streams. These ponds represent an extension of the Ornamental Landscape associated with the Trengwainton estate and gardens. This area was used for fishing and was frequented by waterfowl. To the south lies the core of the Trengwainton Estate house and gardens.

To the east of the study area lies former Anciently Enclosed Land. It has been drastically re-arranged during the post-medieval and later periods, in keeping with changing agricultural methods. Old boundaries have largely been removed although some general alignments have been maintained, but on a frequently straightened course. Former small fields have been amalgamated to form larger fields, resulting in a series of regular, rectangular fields. These current boundaries overlie and no longer respect earlier sites including a complex of rounds and enclosures on the south-eastern edge of the main study area. To the immediate northeast of the study area are a series of little fields, typical of the medieval and probable later prehistoric periods that extend into the study area, but with some alteration.

The following figures show the historic development of the study area and its immediate surroundings since 1809. The 1809 OS map (fig 4) focuses on natural features such as rivers, rock outcrops and slopes, and shows main roads and place names. Figure 5 shows the Tithe Map, which shows much greater detail and has an accompanying apportionment list, which lists land owners, tenants, land uses and field names etc. This is an important source of historical detail and captures land use and division prior to many of the later alterations brought about by the relatively recent mechanisation of agricultural activities. Medieval (and earlier) field systems and settlements are particularly well recorded. The subsequent 1880s and c1907 OS (see selected extract figs 7, 12 and 17) record a landscape are increasingly similar to that recorded on modern mapping. They show further landscape change and record well the swathes of ornamental planting associated with the Trengwainton estate.



Fig 3 Map showing the HLC zones within the study area (pink is Ornamental Land, yellow is Upland Rough Ground and green is Ancient Enclosed Land).



Fig 4 Map showing the site on the c1809 First Edition OS 1" to 1 mile map.



Fig 5 Extract from the c1840 Tithe Map for Madron Parish, showing the study area.



Fig 6 Modern mapping showing NMP identified boundaries, Scheduled Monuments in red and HER sites as coloured dots - with additional text boxes if referred to.

4 The watching brief results

Areas in the main western part of the study area are discussed first, followed by the smaller eastern area. Further detail for all sites can be found in table form at the back of this report. Throughout the following text, reference has been made to the historic maps. The current landscape characterisation for each is shown on figure 3 (CC1996).

Four peripheral sites have been included in this report as two subdivided site numbers; Site 16a) and 16b) are a post medieval milestone (an HER site) and the Madron to Morvah road; and Site 34a) and b) are the pheasantry and Carn Cottages. All are located between the eastern and western parts of the project area.

4.1 West of the Madron to Morvah road (northern half)

See figures 7 to 11

Sites here include field system Sites 14 and 17, component boundary Sites 35 and 41, church path Site 2 and associated bridge Site 3, Sheep walk Site 4, stream/leat Site 11 and possibly associated ruins Site 7, possible undated enclosure Site 15 and adjacent possible ridge and furrow Site 13, stone extraction pits and split grounder alignment Sites 9 and 32, track Site 43 and modern animal watering Site 31. Extant boundaries shown on modern mapping and still actively being used as boundaries B2, 6-8 and 10 (which define the edges of the study area) and B11 and 12 (internal divisions, no-longer used to separate landscape use).

4.1.1 Area A1

This area is defined by the Madron-Morvah road **Site 16b** and boundary **B7** to the east, part of boundary **B12** in the southwest and church path **Site 2** to the south. The northwest edge follows what was the junction between a cleared and an un-cleared patch of ground.

Boundaries here relate to a remnant of un-dated but possibly prehistoric field system **Site 14.** Identified boundaries consist of earth and stone banks, some incorporating granite grounders, and sometimes shallow flanking ditches or perhaps later animal paths. The two main boundaries in Area A1 follow a largely curvilinear course from north-west to south-east. They follow the natural contours of the area and may at least in part also relate to medieval and later upland grazing units. The south-western example was visible for the majority of its mapped length (extending down in to Area A2 and across F2); the north-eastern example was much more ephemeral and patchy, with lengths missing. This may well be the result of mechanical clearance and other stone splitting disturbance in the recent past. A series of very large granite stones (several with drill marks) run along the eastern edge of the area to form **Site 32** (to the north and west of the road access gate).

A linking north-east to south-west aligned boundary was not clearly seen, nor was a short east to west boundary, which NMP mapping identified as running across the northernmost part of the area.

<u>Storage dumps in this area</u> – Area A1 does not contain any storage dumps because all the leaf litter was stored on Area D (see figures 28 and 29).

4.1.2 Area D

Defining the northern edge of Area D is the deeply cut Madron-Morvah road **Site 16b** and its flanking, largely banked southern boundary **B7**. The Madron to Morvah road as an approach to Trengwainton House and grounds, as well as to Madron and ultimately Penzance may well have contributed towards the design and planting of parkland within the study area. Trees were planted to span both sides of the road, while views and access to and from the carn on the west were left open.

Along the southern side of the road and **B7** runs a *c*2m wide, shallow postmedieval trackway **Site 43**. The eastern side of Area D is marked by **B6**, with its central gated entrance into Area G and the grounds of post 1840 built Carn Cottages. The south-south-west edge of Area D lies close to the eastern edges of field system **Site 14**. Although NMP highlighted boundaries were not clearly identified here, the lack of extensive Rhododendron growth has had the beneficial affect of protecting the area by not requiring mechanical stump clearance. The potential extension of **Site 14** now lies within a patch of grass and gorse.

<u>Storage dumps in this area</u> – Area D was deemed suitable for the long-term storage of stumps and leaf litter generated in Area A1 because of the lack of archaeological features, and the already significantly disturbed nature of the ground (water pipes, tanks and other services etc **Site 31**). In addition the area is poorly visible from elsewhere, minimising any visual effects on the landscape (see figure 29).

4.1.3 Area F2

This area is defined in the north-west by boundary **B10** and, flanking its eastern side the stream and leat, **Site 11**. **Site 11** lies within a steep and overgrown north-east to south-west aligned pocket of land now fenced off and lying outside the public access land shown in figure 2. **Site 11** is a complicated area of probable medieval and post-medieval water management works, associated with Higher Boswarva and small mill further downstream, or perhaps management associated with the Trengwainton estate and gardens. These stream and leat alterations are not shown on the mapping consulted. Probably linked to the proximity of the stream is former building **Site 7**. This is shown on the 1880 OS map (see figure 7) as a small, ruined, roofed structure with an associated yard or small wall-defined enclosure or garden. If it was ruinous in 1880 it is likely that the structure was present in 1840 but un-mapped on the Tithe map, possibly again because it had become disused at this date.

The stream **Site 11** is crossed by a stone slab footbridge **Site 3**, just before the leat starts to its west. This consists of a series of large flat granite slabs which cross the stream at a suitable low, possibly former ford crossing point. The bridge lies at the north-western end of Church Walk **Site 2** which would have allowed easy access between Higher Boswarva and the site of a medieval chapel (just beyond the edge of the study area) to Trengwainton cross and on towards Madron. 'Church walk' as Langdon (1997, 46) terms **Site 2**, is not clearly defined except at its south-eastern post-medieval/modern altered end in Area A2. It is not deeply eroded suggesting that its route has shifted, or that it was never formalised as a fixed path, and was instead a loosely defined open access route.

For much of its length within area F2 **Site 2** is linked with the Tithe Map depicted Sheep Walk **Site 4**. This partially identified double banked feature broadly follows the natural contours of the ground and is linked to or mirrors the alignment of the main **Site 14** undated field system (extending in to A1). A track was located at the western end of one of the main **Site 14** boundaries, close to postmedieval/modern stone extraction pits **Site 9**. These pits represent just the first of a whole series of pitted stone extraction features located across much of this upland swathe of land. Because of their somewhat ubiquitous presence it was decided that **Site 9** would refer to all features of this type within this part of the project area. Most have not survived mechanical leaf litter clearance. The track running south-east from **Site 9** (as marked on figure 8) may be related to the stone extraction works, or may reflect an earlier track associated with animal movement and field system **Site 14**. It appears closely related to the contours of the area. Certainly its presence attracted or dictated a run of much later manholes along its length associated with modern services. Further south an ephemeral mirror image of the boundary was identified by NMP work, which was only identified in the field as a slight, possibly lynchetted break in slope, representing the former presence of a boundary. Running south-west from **Site 9** and north-east from Sheep Walk **Site 4** is NMP identified boundary **Site 41**. This was identified as a low-lying and patchy stone and earth bank. Running south-west from **Site 4** were two boundaries, which were very ephemeral at their eastern ends but broad and solid at their western ends – part of **Site 35**, where the ground was low-lying and waterlogged. In both instances each boundary appeared to have acted as a causeway linking the valley with its stream, springs and ponds to the higher, drier western slopes of Trengwainton carn.



Fig 7 Top - Extract from the 1880 OS map showing areas A1, D, G and F1. The Site 7 ruins are circled. Bottom – enlarged extract showing the ruins in c.1880.



In the north-eastern part of Area F2 HER has identified three sites; field system **Site 17**, potential ridge and furrow **Site 13** and to its east an un-dated possible enclosure **Site 15**. **Site 17** is a medieval field system extending out from Boswarva settlement and merging with the largely lost north-east to south-west running NMP identified boundary running through **Site 15**. This long boundary was only identified at its southern end and forms a part of **Site 14**. Possible enclosure **Site 15** could not categorically be identified in the field. It is possible that its identification was the result of vehicular turning points perhaps associated the removal of massive stone grounders (**Site 32**) or perhaps linked with wartime activities (given that it is only visible as a site on immediately post WWII aerial photographs). The potential ridge and furrow could not be located in the field.

Following machining in the south-eastern corner of area F2 a rounded granite stone with possible smoothed edges, a probable quartz slingshot pebble and a large diamond-shaped quartz crystal with slight crushed abrasion on its widest point were found. The quartz crystal may have originated from the immediate area. It was strikingly large (7cm long and 4.3cm wide) and well formed, and may well have caught the attention of people using this upland landscape during the prehistoric period. In addition a probable Mesolithic (or earlier?) flint pick or large point (almost 9cm long and 4cm wide at its rounded butt-end), and a further quartzite pebble were recovered by Martin Rule from approximately the middle of this area. This flint tool is the largest piece of flint recovered from the project and is diagnostically the earliest. It is a pebble tool designed for hand held use as a pick-like implement. It is a striking golden treacle colour with cortex retained at its butt-end and down much of one side. The other sides and the working point show a series of hard hammer-removed flake scars. The whole piece is strikingly abraded and could represent an artefact collected in antiquity from the nearby stream which was then brought up on to the site for use.

<u>Storage dumps in this area</u> – Area F2 leaf litter clearance was concentrated between boundaries B2, 10, 11 and 12, in the western part of the area (see figure 28). The green shaded area contains approximately 30 to 40 small storage dumps averaging 1-2m high and 10-14m in diameter.

4.1.4 Area G

This area was not originally included within the plan of works, but was subsequently added because of the density of diseased Rhododendron within its boundaries. It was first enclosed between 1880 and 1907 as a part of Carn Lodge (now shown on mapping as Carn Cottages), and is defined by **B6** on its western and southern sides and the road to its north. This ground was not entered, but viewing across **B6** did not identify any new features. It essentially forms part of the garden and is shown as planted with trees in 1907.

<u>Storage dumps in this area</u> – Area G Rhododendron growth was cut, but no mechanical clearance was undertaken and no storage dumps were created.

Trengwainton Carn, Madron, Cornwall-2009 to 2014



Fig 8 Area A1, D, G and F2 showing identified sites in blue and NMP identified sites in red.



Fig 9 Areas A1, D, G and F2 showing boundary numbers in green, 2m contours and peripheral undesignated site 16.











Fig 10 From top left clockwise: Stream Site 11 looking west from extreme northwest corner of F2; Site 3 footbridge; Boundary 8; pre-clearance west part of field system 14 (note manhole cover); and leaf litter clearance around the east part of field system 14 (avoiding damage to extant earth and stone banks).



Fig 11 From top left clockwise: west end of northern Site 35 boundary; the return of wildlife after machining; looking across Boundary 6 from Church path site towards Area G; Mesolithic flint pick (85mm long); and looking from the top of Trengwainton Carn across Areas F1 and F2.

4.2 West of Madron to Morvah road (southern half)

Sites here include field system Sites 29 and 35, orthostatic boundary Site 5, grounder and bank alignment Sites 26 and 28, structure Sites 8, 12 and 27, Scheduled cross Site 1, clearance cairns 42, Trengwainton carn Site 40, Church path Site 2, Sheep walk Site 6, turf cutting Site 37 and modern trench and animal watering Sites 10 and 30. Boundaries B1, 2 and 6 are shown on modern mapping and actively define the edge of site. Boundaries B3 and B5 are internal but no-longer separate different activity areas on the site. Boundary B4 was not identified on site and is likely to never have been more than a temporary barrier defining an area of ornamental tree planting shown on the historic mapping.

See figures 12 to 16

4.2.1 Area A2

This is a relatively large area running broadly north to south along the eastern side of the carn, defined by **B1** to the east, the likely medieval church path route **Site 2** to the north, boundary **B3** in the extreme south, and by a much more recent, amorphous vegetation defined western edge. In the north-eastern part of this area are a number of modern livestock watering facilities, which include subsurface piping etc, **Site 30**.

Area A2 contains the site's only scheduled monument – a wheel-headed medieval wayside cross **Site 1**. Wayside crosses are quite frequently found on rough ground, either as boundary features or set along routes running across moors and downs (Kirkham in Dudley 2011). The one at Trengwainton marks church path **Site 2** which ran between the farm settlement of Boswarva and Madron churchtown via Trengwainton Carn (Langdon 1997, 46). It may not have always been a formalised path. A sheer sided, 1m wide, mechanically dug modern trench **Site 10** lies on the southern side of **Site 2**.

The southern end of this area contained what appears to be an early orthostatic boundary **Site 5**. This boundary is unlike any of the other boundaries in the study area, and is composed of naturally shaped granite slabs set upright in the ground, sometimes including grounders, or stones placed on top of each other. It is a highly distinctive feature shown on all historic mapping. Half way along its length it kinks markedly, mirroring the edge of the nearest of three late prehistoric/Romano-British round features located just to the east. These round features have not been visible as mapped surface features for well in excess of 170 years because of stone robbing, later field clearance and ploughing. Kirkham (2011, p45) refers to upright stones forming probable stone faced boundaries associated with 'hut circle settlements, rounds and courtyard houses in west *Cornwall'*. It may be that **Site 5** represents an example of this. A second distinct kink and apparent terminal at its northern end may mark the position of a Romano-British circular structure with an entrance in what remains of its edge. Much of it has been removed by stock proof **B1** and a ditch/track. At the southern end of **Site 5**, a change of alignment mirrors that of a field extending east beyond the project area. It terminates at boundary **B3** in the south.

During leaf litter removal works it became apparent that a small number of poorly preserved stone clearance cairns **Site 42** existed on or within the old land surface within this area. Three were noted, the most ephemeral example appearing to tip off the edge of a flat submerged grounder. They were recorded as 1m to 2m wide collections of weathered granite stones, which ranged in size from 0.1 to 0.2m in diameter. Each patch had been further spread during machining. Their presence indicates likely medieval (or late prehistoric) clearance of the land in advance of cultivation. Kirkham (2011, p45 and 49) discusses the presence, appearance and date of clearance cairns on west Cornwall's rough ground. The Trengwainton examples appear to fit well within the range, but no clearly associated or obviously contemporary boundaries were found in the immediate vicinity. They

are likely to be medieval clearance features, but given their proximity to an apparent late prehistoric/Romano-British orthostatic boundary, potential round house and associated rounds they may represent small-scale late prehistoric cultivation.

Following leaf litter clearance and the re-exposure of the old land surface two tapered Neolithic cutting flakes (or un-modified knives) were recovered on the immediate south-eastern side of the carn. One was made from pebble flint; the other came from a large chert core. Both show snapping as a part of the knapping process. In addition a handful of small quartzite pebbles (ideal for use as slingshot) were found from the wider A2 area, within 100m of the carn.

<u>Storage dumps in this area</u> – Area A2 leaf litter clearance and stump pulling was predominantly concentrated in the northern half. All mechanical clearance was kept away to the west of orthostatic boundary **Site 5**. A large *c*.40m by 20m storage dump was created between the north of **Site 5** and the Madron-Morvah road. A second smaller *c*.30m by 15m dump was created to the north-east of the carn (see figure 29).

4.2.2 Area A3

Built in to the western side of contour boundary **B3** is the enigmatic, probable early 19th century structure of **Site 8**. **Site 8** is a square-shaped single, extant enclosure of uncertain function defined by a stone-faced earth and stone boundary. It has two internal upright granite posts with drill marks visible on them. The dominant way in which it is shown on the Tithe map suggests that it was a contemporary structure designed to impress and be seen rather than a structure with an everyday function? Perhaps it was associated with entertaining estate guests on hunting and shooting parties? (Access to the Trengwainton Estate archives might clarify this).

A possible 'hull' **Site 12** recorded in the HER, consisting of a massive granite slab, supported by naturally positioned grounders with some stone infilling and an open western side, lies in the north-western part of this area on a long north to south running slope dropping from east to west. It is likely to have been created by the scooping out of rocks and rab from beneath the slab, while leaving its natural supporting stones. It does not make good sense as a storage chamber since water drains in to it from upslope and its base floods. Neither does it make good sense as a prehistoric chambered monument, since it is built in to the natural slope and designed not to be seen. It is only visible from due west and down slope. It is possible that it was a shooting point – facing the low-lying, watery valley and ponds which are even now so attractive to waterfowl. Or perhaps it was a shepherds rest? It used to be known as Rackham's hut. The function of **Site 12** may only be resolved via study of the estate archives.

A turbary (turf or peat cutting area) **Site 37** was recorded in the Tithe Apportionments towards the southern end of Area A3. In Cornwall's upland areas turf was a vital domestic fuel source. It provided a steady regular fire with furze providing quick heat. It is likely to date from at least the later medieval period, or possibly earlier, and leaves the tell-tale signs of lowered ground levels, diminished soil thicknesses and exposed rock. It can also leave uneven ground with scatters of sub-rectangular or circular platforms surrounded by shallow ditches and low external banks for turf stacking and drying (Herring, in Dudley 2011, 113). No turf drying features of the type described above were identified within the project area although it is possible that large grounders associated with the lower slopes of Trengwainton carn might have been used as drying points. **Site 27**, a possible circular structure, was identified during initial clearance but could not be relocated. This could perhaps have been a hut circle, or perhaps a feature associated with turf cutting. This particular area did not undergo mechanical leaf litter clearance and so this and any other such ephemeral

features that survived the post-medieval splitting and removal of stone will survive, becoming increasingly visible as the Rhododendron stumps decay away and the ground is routinely grazed by livestock.





Fig 12 Top – upper 1880 and lower 1907 OS map extracts showing areas A2/A3, E and F1 (with Site 5 in box).

Bottom – Modern mapping showing orthostatic boundary Site 5 with NMP identified rounds and possible structure at northern end.



Two other ephemeral features were identified; diagonal bank **Site 28** and a grounder alignment **Site 26**. **Site 28** appears to run counter to all other field system alignments or contours in this area. It consisted of a low-lying earth and stone bank linking grounders, suggesting that it was a boundary. It may be part of an early field system, pre-dating the current pattern of fields in this general area or perhaps it is linked to turbary activities. **Site 26** may be a grounder-based contour boundary. It does broadly reflect the alignments of both **B3** to its east and Sheep Walk **Site 6** to its west. **Site 6** was shown and named on the Tithe Map as a track defined by a double boundary. Repairs can be seen along parts of its length. In places it is quite distinct (particularly to the south) but in others it is barely visible. Its flanking boundaries range from stone faced Cornish hedges to very ephemeral, low earthen banks.

Apparently underlying Sheep Walk **Site 6**, the NMP identified a whole series of east-north-east to west-south-west running alignments **Site 29**. Some of these were just visible as low-lying banks interconnecting lines of grounders along the western edge of the site close to **B2**, but they became increasingly unclear as they rose up on to the slopes of Trengwainton Carn and out of the valley. At least one had an associated granite gate post *c*40m east of **B2**. It is possible that they represent a Medieval strip field system that originally extended west beyond the low-lying valley and east up the lower slopes of Trengwainton Carn to **B3**. Possible soil creep associated with their (pre turf cutting?) cultivation might account for the lynchet-like western side of **B3**. It is also possible that natural striations in the exposed geology are responsible in part for their appearance. Manipulation of the stream associated with **Site 11** in area F2 to the north, and the creation of a series of ponds along the valley associated with the Trengwainton estate to the west may have rendered the possible **Site 29** fields too waterlogged to be cultivated.

<u>Storage dumps in this area</u> – Area A3 did not undergo leaf litter clearance and stump pulling and does not contain any storage dumps.

4.2.3 Area E

Trengwainton Carn **Site 40** is a very distinctive local landscape feature, reexposed to view by this programme of works. It dominates ground to the west, and is looked over by nearby Trewern round. It has far reaching views out to the east across Mounts Bay and St Michael's Mount, and stands on the southern end of a raised spur of land, bisected by Boswarva valley but extending north towards an important complex of prehistoric sites associated with Lanyon Farm, including Lanyon Quoit and Men-an-Tol, two of Penwith's best known monuments (Parkes 2011).

Prehistoric people in the south west had a special regard for natural places and landforms. Distinctively shaped hills and spectacularly formed rocky places such as Carn Brea, Carn Galva, Trencrom and perhaps St Michael's Mount all drew prehistoric attention, and a large number witnessed the construction of tor enclosures and megalithic monuments ranging in date from the Early Neolithic through to the Early Bronze Age arranged on and around them (Kirkham, in Dudley 2011, 128). Later, Bronze Age barrows and Iron Age hillforts and cliff castles continued to often focus on rocky outcrops, for example at Kynance Gate on the Lizard.

The Carn itself has a sheer sided western rock face, with steeply stepped northern, eastern and southern sides allowing only steep and meandering foot access to its craggy look-out-like top. It dominates the whole of the study area to the west of the road and must surely have been regarded as a 'special place' in the prehistoric past. The positioning of the three Trengwainton rounds and enclosures on its southern slopes is likely to be a reflection of continuing later prehistoric interest in this highly visible focal spot. The discovery of a small number of worked flints and a possible quartz pebble sling shot from around its flanks reflect Neolithic and later activity. Rhododendron growth did not extend up on to or immediately around the carn meaning that mechanical works did not extend in to the immediate vicinity. Any evidence for prehistoric activity close to the carn is therefore likely to remain intact. Today **Site 40** is still swathed in gorse, making close study and the search for possible arranged or even decorated stones difficult.

Shown on the 1907 OS map is a long swathe of coniferous and other planted trees within what appears to be an enclosing boundary **B4**. This was very ephemeral and could barely be seen in the field, suggesting that it may never have been more than a fence or slight bank. Its western edge is defined by the much more substantial earth and stone, partially lynchetted, contour boundary **B3**. Remnant firs could still be seen at the time of the assessment, representing the last vestiges of this ornamental landscaping. Following burning and mechanical clearance these have now gone.

In the case of **B3**, clearance has revealed that it marks a definite break in slope marking a natural geological contour with occasionally huge visible surface grounders, which will have prompted its positioning. To the west in particular there is clear evidence for stone removal and splitting which is likely to have further emphasised this slope. A shallow ditch flanks parts of the eastern side of **B3**, along the length of the former plantation. At the southern end of **B3** is a well preserved gate entrance with two *in situ* granite gate posts. This field entrance clearly links Area A3 with the extreme southern tip of A2 and the long narrow strip of land enclosed by **Site 5** and **B1**.

A short stretch of ephemeral earth and stone bank with occasional grounders was located in the northernmost part of Area E. It appears to represent the south-westernmost surviving part of field system **Site 14** (also found within Areas A1 and A2). This short section was recorded as patchy, but spanning an approximate 30m length, with a south-west to north-easterly alignment.

<u>Storage dumps in this area</u> – Area E leaf litter clearance and stump pulling covered the majority of the length of the area to the west of the carn, plus small patches to its north (see figure 29). The storage dumps are scattered in plan and variable in shape and size, ranging from *c*.50m by 17m to 10m diameter. Heights average 1.5m to 2.5m maximum.

4.2.4 Area F1

The northern and southern edges of this area were defined by breaks in vegetation cover and do not correspond with fixed boundaries. The western side is marked by the tall, substantially built earth and stone faced boundary **B2**, which runs along the low-lying waterlogged valley. The eastern side is defined by the northern part of the contour boundary **B3** (discussed above). Within area F1 it is not marked by lynchetting, possibly reflecting a reduction in the amount of stone splitting and the absence of turf cutting – both recorded in area A3 to its south.

Within area F1 is the extension of the **Site 35** field system from area F2. Here it consists of boundaries which appear to be cut across by Sheep Walk **Site 6**. This possibly links with field system **Site 29** to the south. **Site 35** in this part of the study area consists of two curvilinear north-north-west to south-south-east running boundaries that partly mirror each other's courses, forming a linear strip of land 40m to 70m wide. Both boundaries were very patchy and poorly defined in this area, probably due to later activity associated with the Sheep Walk **Site 6** which cuts across them and by later vehicular damage. The maintained boundary **B3** may also have had an affect. Running east-north-east to west-south-west was boundary **B5** which marks the southern side of a post 1907 track. Boundary **B5** is shown on all mapping since 1880. Interestingly, the Tithe Map shows it as being
slightly further north – in line with its continuation west of the study area, suggesting that this boundary has seen some minor re-alignment.

Located approximately half way up the western side of boundary **B5** a single water worn quartzite cobble was located within some of the recently disturbed old land surface. This fits very comfortably in the hand and has a slight, smoothed central depression on each side. This was clearly a utilised piece of probable prehistoric date.

<u>Storage dumps in this area</u> – Area F1 (like F2) now contains many small storage dumps averaging 1-2m high with 10-14m diameters. The eastern side was not affected by mechanical leaf litter clearance (see figure 28), but much of the central and western area was, with the exception of a central patch running north from boundary **B5**.



Fig 13 Area A2, A3, E and F1 showing identified sites (blue) and NMP sites (red).



Fig 14 Area A2, A3, E and F1 showing boundary numbers in green, 2m contours and Scheduled sites within the mapped area.











Fig 15 From top left clockwise: Scheduled Medieval cross Site 1; looking west along Church path Site 2 pre full clearance; looking east along Church path Site 2 post-clearance; late prehistoric orthostatic boundary Site 5 looking north; and the hull Site 12 prior to clearance.









Fig 16 From top to bottom: Looking northeast towards Trengwainton Carn after leaf litter clearance; the successful re-introduction of cattle to the carn area; a particularly dramatic repaired section of boundary 3 with Area E and Trengwainton Carn behind; and square enclosure structure Site 8 from the south-west corner (note one of the two upright, drilled stones.

4.3 East of the Madron to Morvah road

Sites here include field system Site 22, associated hut circle Site 45, boundary Sites 33, possibly 39, 48, peripheral hollow way Site 24, and livestock route Site 38. In addition turf cutting Site 36, late enclosure Site 47, former boundary Site 19, clearance cairns Site 46, large pits and dumps Site 44, and frequent, near ubiquitous disturbed ground and stone splitting activity Sites 18, 20, 21 and 23 (only those specifically identified during the assessment) and modern drainage works Site 25. All boundaries B13-32 are shown on modern mapping. Some define the edges of the study area B13, 14, 16, 18, 29 and 32. Some internally located boundaries still continue to define different areas (B22 and 23 define Site 38, and orthostatic B24 divides ground cleared (during this project) from remnant planted land). Many form component parts of multiphase field system Site 22.

(See figures 17 to 22).

4.3.1 Area B

Area B is located on the top of Trengwainton Hill and lies within a former Ornamental Landscape, taken in from Upland Rough Ground. It has a quite different feel to adjacent Areas A1 and C, feeling exposed and high; with wide ranging views out to the east and south-east. Other direction views are shielded by gnarled, windswept trees, some of which form a small plantation on the southern leeward side. The area is defined by **B32** to the north and **B22** to the east. The southern and western sides are not defined by boundaries.

Rhododendron clearance revealed NMP-identified **Site 39**. This appeared to consist almost entirely of a natural hilltop contour feature consisting of bedrock grounders, with occasional piled stones placed against some of the largest grounders. Some, but not all had drill marks. There was no evidence for a linking bank between the grounders, but there was a single standing granite gate post at the northern end. The southern end of **Site 39** appears to stop at the uppermost part of the hill.

The top of Trengwainton Hill may in the past have had a carn-like appearance, as suggested on the 1809 OS map, but this appears to have been largely lost to subsequent stone removal. Some at least of the stone splitting is likely to relate to the construction of orthostatic boundary **B24**. This post-medieval boundary is composed of free-standing, long, thin and often drill-hole marked granite uprights, with some intervening horizontal stones placed on top of each other. It was not shown on the Tithe Map, but by 1880 had been built and the enclosed southern area had been planted with trees.

Machine access into Area B was via a newly-cleared access way running up the western edge of **B22** from the parking area near the road. The southern end of this had already seen past disturbance and partial clearance. The new access way has had all boulders pushed to the west, forming a low and poorly defined line of redeposited, large stones. No archaeological features were disturbed.

The only artefact found following leaf litter clearance was a single, markedly heavy flattened ball-like pounder of greenstone. It is circular in shape (6cm diameter and 4cm thick), and has been carefully worked down to form a 'fancy' pounder for light hammer or pestle-like use. It has two flattened, partially smoothed working surfaces with striations and wear. The outer surface is degraded, but faint peripheral hollows appear to represent finger grips. It was located centrally along **B22**, 2.0m to its west, and dates to the prehistoric period.

<u>Storage dumps in this area</u> – Area B leaf litter clearance and stump pulling was undertaken across almost the entirety of the area. An additional small area was also cleared along the eastern edge of the Madron-Morvah road (see figures 28 and 29). The dumps here were small and scattered.

4.3.2 Area C

Area C lies within an Anciently Enclosed Landscape. Gradual clearance and patchy cultivation of the well-drained slopes surrounding the eastern side of Trengwainton Hill began in the prehistoric period, and prehistoric activity is reflected in the fossilised partial circuits of probable Bronze Age round houses (**Site 45**), prehistoric and later field system **Site 22**, probable clearance cairns **Site 46** and occasional stray finds.

On the southern edge of field system **Site 22** are what appear to be the remains of a series of round houses Site 45, built in to the main north to south running boundary **B15**. This site is remarkably difficult to photograph and is best represented as an annotated map (see figure 17). Visible as a focussed series of 'wobbles' along the course of the boundary they represent an exciting adjunct to the field system and are potentially of late prehistoric, probable Bronze Age origin. Although only loosely definable in the field, they appear to form the basalcourses of three or possibly four, 9-12m diameter grounder-based structures, with occasional placed stones filling the intervening gaps. These grounders represent the lowermost foundations of drystone walling. They are indistinct, and do not survive well as extant features. Some of the indents in **B15** appear to mark both round houses and the ends of former boundaries (associated with Site 22, for example Site 48), suggesting that originally the contemporary field system was more complicated and extended further than can now be traced. The tell-tale boundary kinks are shown on all historic mapping consulted. Despite stone robbing and no doubt periodic post-occupation repairs to component boundary **B15**, these possible structures may retain floor deposits. Because of this potential for vulnerable internal archaeological deposits an encompassing. approximate 100m by 20-40m area was cordoned off during stump pulling and leaf litter clearance works - meaning that any remains have been left intact.

It is hoped that ongoing spraying of the Rhododendron, the gradual rotting down of stumps and woody roots, and consistent livestock grazing will render these structures more visible as landscape features.

A similar, but more numerous arrangement of round houses can be seen at nearby Bosiliack, set within the remains of contemporary lynchet-defined fields and later overlying field systems. On excavation the round houses were found to retain many internal features (Jones and Quinnell 2011). Other examples of round house settlements with associated and/or adjoining boundaries have been found for example on Bodmin Moor (Johnson and Rose 1994, 49-65). The Trengwainton round houses and field system have not survived in an un-altered state, and have suffered robbing and possibly agricultural re-use, but despite this they are an unexpected and remarkably well preserved pocket of early land division and settlement, set within their remnant contemporary farming landscape.

Occasional quartz beach pebble slingshots and two very similar oval, flat (possibly smoothed) beach pebbles up to 10cm long, 6.5cm wide and 3m thick were found in the southern part of area C; a heavily burnt and fractured flint pebble (recently burnt); and a large flint flake showing two snapped off sections of Late Neolithic to Bronze Age date were also found in this area following machining. These finds attest to the wider prehistoric use of the landscape, and will represent just a tiny proportion of the residual spread of hunting, farming and domestic lithic waste left here. The potential for more strongly diagnostic, more delicate artefacts, including pottery, to exist in the vicinity is reasonably high for pockets of undisturbed ground or more deeply cut features.

<u>NOTE:</u> - It became apparent during the works that because of the amount of post-medieval stone removal and drilling in the area, any similar structures to

Site 45 would be most unlikely to be identified unless their shape had become fossilised within an extant boundary.





Fig 17 Top - Extract from the 1907 OS map showing areas B and C. Note Site 45 (shown in the oval), and to the south the pheasantry.

Bottom – Modern mapping showing Boundary 15, and the approximate position of ephemeral basal walling (including grounders). The multi-phased **Site 22** field system boundaries (see figures 21 and 22) incorporate large granite grounders, large placed stones and smaller weathered stone cleared from the fields, creating small field enclosures. Many have acquired a marked earthen content, with some visible as low lying earth banks only. There is evidence for the long-term use and maintenance of these fields via boundary re-use and alteration identifiable as patchy re-alignment, repair work and occasional insertions of gate posts and probably also stiles, crossing points and footpaths. The earliest phase is contemporary with **Site 45** and potentially extends back to 1000BC. This was then overlain as a result of probable late prehistoric, Iron Age, Romano-British, medieval and post-medieval activity. The stone boundaries have over time come to incorporate a substantial quantity of soil, resulting in earth and stone banks of varied height 0.2-1.4m and width 0.8m-2.0m. A number of the north-south aligned boundaries are slightly lyncheted, reflecting the naturally sloping topography and soil creep plus their level of disturbance via clearance and cultivation over more than two millennia.

These multi-phased boundaries become incorporated into an area characterised by later stone splitting and tree planting activity, particularly in the north of the area. Although some elements can be tentatively phased, the field system as a whole has been given a single multiphase site number **Site 22**. **Site 22** includes boundaries **B15**, **B17-18**, **23**, **25**, **27-31** and **Sites 33** and **48**. All were identified as late prehistoric/medieval elements, and all have been confirmed as largely or partly extant, (although **Site 48** was only visible as a vague line of grounders and the north-eastern end of **B27** had been severely damaged by subsequent **B16**).

A number of additional boundaries were identified by NMP (see figure 18), including two main parallel running west-north-west to east-south-east boundaries. These enclose the majority of the south-western half of the large oval area shown on figure 18. The northern one appears to be largely present as a patchy earth and stone, sometimes faced, boundary incorporating grounders and placed stones as well as smaller, weathered clearance stones. This has seen repairs, some reconstruction and probable realignment and has clearly suffered from stone splitting/removal and tree planting to its north (where ground levels have altered considerably). This northern boundary varies from 1m - 2m wide and 0.3m - 1m high. The southern boundary has an early partially surviving western end defined by little more than grounders and a patchy ephemeral bank. Its eastern end has undergone realignment and re-use. It is 1.5 to 2m wide and 0.3 to 0.8m high. In both the early and the later sections of this boundary the same construction method was followed, the basal course being primarily of grounders with the addition of larger topping stones and steadily smaller infilling stones derived from field clearance. The re-used section turns a sharply rounded corner towards the north, adjoining the main northern boundary. The field contained by these re-used sections of boundary was lower than the ground to the west, implying lynchetting caused by long-term cultivation to the west, and apparently intensive stone clearance to the east. This had the unfortunate effect of attracting Rhododendron growth, requiring mechanical removal. A number of the intervening north to south NMP boundaries are present as a combination of earth and stone boundaries or semi-lynchetted natural alignments on the upper slopes (these are shown on the post clearance/pre-machining 2011 aerial photograph (figure 25 and lower right on figure 22). The curved NMP boundary shown in the north-eastern corner of Site 22 is present as an altered alignment affected by both stone splitting/possible surface guarrying and tree planting. The area affected by tree planting is again clearly shown on figure 25). At the western end of Site 22 is a narrow, boundary lined footpath, which crosses the area diagonally from linear track **Site 38** (see top left of figure 22). All the boundaries have seen physical damage through Rhododendron root growth and tree collapse,

but ironically have probably only survived because of the density of impenetrable Rhododendron growth in the last 50 to 60 years.

Located to the immediate north of Area C, and forming its northern edge is a deeply cut medieval, and possibly earlier track/footpath **Site 24**, which is up to 2.5m deep (lower right image of figure 21). This may have been the main access point into the field system (possibly used in conjunction with **Site 38**), and forms part of a network of interconnected lanes and paths of early origin linking lower-lying cleared and cultivated fields and settlements in the east to the open upland grazing found on Trengwainton Hill. Just beyond the north-eastern edge of the study area is a medieval wayside cross, and beyond that Madron holy well - affirming the medieval use and importance of this route.

During the course of the watching brief a small number of clearance cairns (see figure 21, lower left) were located within the southern two thirds of Area C – **Site 46**. These typify pre-mechanical field clearance and maintenance, can be of prehistoric or medieval date and strongly suggest a former southern extension of cultivation into this area. This formerly more expansive spread of fields has already been suggested by **Site 45/B15**, where some of the boundary kinks appear to fossilise former boundary junctions. It is possible that the patchwork of fields in this southern area was less dense or that it was not rigidly defined by fixed boundaries, perhaps because of the noticeable lack of grounders and other stone in this part of Area C. It is possible that cultivation strips here were defined by more ephemeral, less stony divisions, with sporadic clearance cairns rather than boundaries acting as depositories for the cleared stone.

Separating Areas B and C is a long, north to south aligned double, and sometimes triple boundary-defined corridor Site 38, defined on the west by B22 and on the east by **B23**. This feature is shown on all historic mapping of the area. Site 38 is most likely to relate to the past (probable medieval) regular control and movement of animal livestock up onto the hill. Its flanking boundaries show clear evidence of prolonged use and repairs, with different patterns of horizontal and more jumbled stone facing including occasional upright stones, massive grounders and heaped or deliberately deposited clearance material. In some cases shallow ditch-like depressions can be seen flanking parts of the boundaries. These may relate to the construction of the boundaries themselves by the removal of particularly large rocks, which would otherwise hamper the easy flow of animals, which were then built in to the boundaries, or may relate to later post-medieval stone extraction (see Site 18). Periodically constructed narrow breaks/crossing points allow for access onto the upper slopes of Area C (in one case a partially formalised path can be seen running diagonally from the 'pyramid stone' - see figure 22) or the top of the hill in Area B. The internal strip or corridor is markedly uneven and appears to follow and encompass some of the largest grounders in the area, including the remarkable pyramidal shaped granite grounder in its northern half - visible as a triangle from almost all directions. A number of the massive grounders (although not the pyramidal one) show later drill marks in addition to pits and other disturbance left from surface stone splitting, removal and possible shallow quarrying. The effects of stone splitting, possibly blasting, and the resultant pits and unevenness rendered this landscape feature useless as a safe and easy means of moving animals between grazing areas etc.

A small, probable late post-medieval enclosure **Site 47** was located in the extreme north-eastern corner of Area C. The junction of boundaries **B18** and **B27** formed its eastern angular side, while an arced boundary formed its western side. This was an intact stone faced boundary clearly shown on the 1880 OS map, but not on the Tithe Map (or the 1907 OS map – despite still being extant). It is likely to represent an animal enclosure and may, despite not being shown on the Tithe Map, have early origins. Alternatively it may represent a short-lived post-1840

enclosure, associated with animal husbandry, which rapidly fell into disuse and escaped subsequent mapping. At the extreme north-east corner of this enclosure, on the periphery of the site is a series of modern drainage works **Site 25**, designed to reduce flooding in this area.

Low-lying and often partially waterlogged land along the northern part of Area C would have provided water for both livestock and probably human consumption, and would in the past have offered easy access to a varied range of resources, including wild birds, animals, and water-loving plants, such as reeds used for thatching or willow used for basketry etc. As with the southern end of Area A3, this area developed swathes of densely matted rooty peat-like soil ideal for turf or peat cutting **Site 36**. This is referred to in the Tithe Apportionments and would have been a valuable fuel source during the medieval period (Herring in Dudley 2011), attesting to the ongoing traditional use of the area as fuel grounds. The removal of turf/peat will have significantly reduced ground levels, altered earlier drainage patterns and the capacity for water to be held in the soil on site. It will also have revealed the underlying rock, which in turn attracted the later attention of stone splitters who were helping to provide the building material for the burgeoning development of 19th century Penzance.

Two particularly large pits with surrounding soil and stone dumps were noted in the north-eastern part of Area C – **Site 44**. Interpretation of these similar, closely positioned features is uncertain. They may be related to stone quarrying, or perhaps an effort to provide on-site animal watering. They are certainly post-medieval in date given the relative sharpness of both the pit edges and the surviving raised dumps. The northern pit (8.0m by 12m in plan – see mid right figure 21) is surrounded by approximately 1m high soil dumps, while the southern pit (4.0m -5.0m diameter) has a 2.0m high dump adjacent to it.

Stone quarry pits have been noted across much of Area C, particularly across the south-eastern part **Sites 20 and 21**, and in the north **Site 23**. Stone drilling and splitting tends to be concentrated along the northern and western parts of the area, on the higher ground, where the grounders are frequent and massive, for example **Site 18** (within Site 38). However, no other comparable pits and dumps to **Site 44** were located anywhere else within the project area. It should be stressed that stone drilling, extraction pits and surface disturbances were noted across much of the area – particularly along the east and the north, but that only the first to be identified were given site numbers. **Sites 18**, **20**, **21 and 23** should be seen as examples of a wider spread of post-medieval and later stone extraction.

In the extreme south-east of the area is a short north to south running earth and small stone bank **Site 19** of uncertain date. It did not appear to relate to the stone extraction activity identified to the north. It is possibly a remnant of **B26** to its north – the intervening gap having been removed during the construction of **B14**.

Leaf litter clearance revealed a series of lithic finds from the southern and western end of Area C. One large pebble flint flake with two snapped edges and a short straight knife-like cutting edge was of probable Neolithic date. Also one heavily burnt and fractured flint pebble (possibly the result of this programme of clearance and burning), and a complete oval flint pebble probably represent sling shot. In addition two large, oval, smoothed flat cobbles were found. Both have one smoothed surface visible as polishing and surface gloss. The slightly rough edges would have facilitated hand held use and reduced the potential for slippage. Both are likely to have been used in the processing of leather. All the finds were collected in residual contexts dislodged from the newly revealed old land surface, suggesting a spread of prehistoric domestic activity in this general area. This activity will in part be associated with the **Site 45** round houses, although the potential Neolithic flint suggests an earlier presence.

Storage dumps in this area - Area C was almost completely covered by very densely growing mature Rhododendron until this programme of cutting and burning clearance took place. Leaf litter and stump clearance has inevitably produced a massive amount of material which has had to be stored on site. Large permanent dumps have been positioned in the south and south-east of the area, along with other smaller ones, some of which have been landscaped into retained willow and bushy scrubland patches. In order to avoid the constant tracking over of ground and repeated crossing over of bridged boundaries within Site 22, two landscaped deposits were agreed within specific fields. The smallest is located in the narrow north-to south aligned field to the immediate east of **B15** and north of **B28**. The larger, lower dump is to its immediate west and should soon become invisible. The smaller, narrower dump may not blend into the landscape so successfully. Unfortunately these two fields had the densest, largest Rhododendron growth thanks to generations of field improvement and stone clearance, necessitating significant mechanical disturbance.

Note: Damage caused during fencing

The removal of the remnant, poorly maintained and already severely damaged boundary site **B16** (marking the northern part of the eastern side of Area C), and the breaching of connected boundaries is most unfortunate. This was done during fencing designed to keep in the ponies planned for grazing the area. Boundaries affected include the extreme south-eastern end of **B15**, the south-eastern end of **B17** and the eastern end of **B27** (all of which have had previously small breaches widened mechanically). Boundary **B18**, running along the northern edge of the area has also had an original narrow entrance further enlarged to give access to medieval track/footpath **Site 24**. The extreme northern end of **B17** and **Site 47** in the north-eastern corner of Area C has been breached at its junction with **B18**, again as a result of fencing works.

Trenawainton Carn. Madron. Cornwall-2009 to 2014



Fig 18 Area B and C showing identified sites (blue) and NMP sites (red).



Fig 19 Area B and C showing boundary numbers in green, 2m contours, the nearby Scheduled cross and holy well, and HER undesignated prehistoric? field system (dots).



Fig 20 From top to bottom: orthostatic boundary 24; boundary 22 with later abutting boundary 24; northern terminal end/gate post of former boundary site 39; and a contented pony wandering in leaf litter cleared Area C amidst regenerating vegetation.



Fig 21 From top left to bottom right: looking north at part of field system site 22; looking west across vehicle damaged site 22 boundary 28; northernmost pit and dump site 44; one of the machine exposed clearance cairns in Area C; and looking north-west up green and narrow hollow way site 24 through the newly widened boundary 18 entrance in to Area C.

Trengwainton Carn, Madron, Cornwall-2009 to 2014



Fig 22 From top left to bottom right: looking south-west up a footpath linking the upper slopes of Area C with the access way/site 38; looking north-west from the southern part of Area C across one of the newly vegetated spoil dumps towards Trengwainton Hill; looking north between the two boundaries 29 (left) and 31 (and showing recent blockage of a former gateway leading in to land beyond the study area; and looking south at the 'pyramid' stone between boundaries 22 (right) and 23 within access way/site 38.

5 Rhododendron clearance – before and after

5.1 Before clearance works

Prior to clearance almost the entirety of the study area, on either side of the Madron Road, was swathed in a dense network of mature Rhododendrons, all of which were found to have been affected by *Phytopthera ramorum*. Access was impossible across most of the area, and only possible via actively cleared footpaths. Small pockets of open ground were also occasionally accessible. Despite this, land on the western side of Madron Road was marked on modern mapping as publicly accessible 'Open Access' land (see figure 2). Visibility across most parts of the study area was not possible because of the height and density of the Rhododendron. Views out beyond the confines of the study area were only possible from the top of the highest rock outcrops on Trengwainton Carn and Trengwainton Hill.

Almost none of the historically mapped boundaries were locatable in the field. Those that were found could not then be accurately identified as those mapped from documentary sources or aerial photographs because of the lack of visibility or the extreme short lengths that could be followed. This was particularly noticeable in areas where mapping suggested a potentially dense network of boundaries, including those in the northern part of Area C **Site 22**. Other known sites recorded within the HER were also not accessible or visible prior to works, including the only Scheduled Monument within the study area and the hull.

The effect of un-controlled Rhododendron growth on the study area was a major negative in terms of appearance close up, from Madron village, and as viewed from neighbouring hills and lower lying areas. It was also a major negative in terms of physical accessibility, preventing public access and preventing the re-introduction of livestock grazing. The ground beneath the dense Rhododendron cover was essentially 'dead', with severely limited light levels, a lack of water due to the 'thirsty' nature of Rhododendron, and a significantly reduced range of plant and animal wildlife. From an archaeological point of view the relatively extensive Rhododendron root systems were causing considerable damage, particularly to the boundaries (both the ephemeral and the more substantial ones), through stone displacement – destabilising both the stone and the often inner earth and stone cores and through the disturbance of earthen banks already susceptible to burrowing etc. The stability of the scheduled cross and the hull were also of concern. Unknown subsurface archaeological remains of medieval or earlier date



were deemed to be at considerable risk of root damage and tree fall.

Fig 23 Aerial photograph taken in 2005 showing the study area lying beneath a swathe of out of control Rhododendron growth. Trengwainton Carn, Madron, Cornwall-2009 to 2014



24 Photomontage of 1946 aerial photographs showing the study area at a point when it was largely clear of invasive Rhododendron growth.

Note: A 1922 photograph showing the Trengwainton estate earthstopper (Tregarthen 1922) depicts Trengwainton Carn amidst a landscape of short animal grazed grassy heathland, much as is described on the 1840 Tithe Map and as shown on this photograph.

5.2 Clearance works

Removal of the invasive, diseased spread of Rhododendron from the study area involved the following tasks.

- Cutting each Rhododendron down to its stump, or as near to ground level as proved feasible.
- Separation of the cut material in to piles of logs for stacking/fuel and brash for burning.
- Mechanical pulling of Rhododendron tree stumps and the scraping off of Rhododendron leaf litter to variable depths – dependant on old land surface depth. All boundaries or other sites visible as surface features were avoided during machine work.
- The piling of both stumps and then leaf litter over selected and agreed larger dump areas (or latterly more frequent small dumps).

5.3 After clearance works

The effect of Rhododendron clearance from the study area has been a major positive. It has rendered the site physically accessible and more pleasing visually. The topographical features, including the main carn **Site 40**, the lesser stone outcrops, and the natural slopes of the land are now all visible. Similarly, the surrounding rolling landscape of hills and valleys can be seen from many parts of the site – setting the study area within its broader landscape context. A wide range, number and pattern of boundaries have now been recorded. This has largely allowed for their identification and characterisation. It has also enabled tentative dating of the boundary systems, despite their frequently interwoven, intercut, denuded or damaged state, and should allow for broad future monitoring. The scheduled cross **Site 1** and the hull **Site 12** have been found and their current state and appearance recorded, whilst new features have been

identified and characterised, including the locations of a group of round houses **Site 45** preserved within a boundary, and an early orthostatic boundary **Site 5** mirroring a no-longer visible, plough damaged round (outside the study area) with a potentially contemporary structure at its northern end.

With the removal of the Rhododendrons, formerly dormant species, many of them prolific flowering forms including swathes of bluebells and foxgloves, have reappeared. The re-emergence of heathland plants, particularly heather, plus a range of grasses, reeds, bracken and mosses have allowed for the successful reintroduction of (historically referred to) livestock grazing. Clearance has returned this pocket of landscape back to something of its former self, allowing for the former variation in topography, habitat and the effects of human intervention over the millennia to once again be visible. It has also transformed a large but un-used and under-appreciated part of the west Cornish landscape back into an actively used and greatly more attractive area.

Although this project was not solely undertaken to repair or replace archaeological features, it has at its completion removed the destructive and invasive threat of root damage from archaeological features caused by Rhododendron, has allowed for the rapid recording and monitoring of known and suspected archaeological remains, has identified new, previously unknown archaeological sites, and has returned the area to something of its former AEL, URG and OL landscape type.

The following three aerial photographs – figures 25, 26 and 27 all show the very positive results of these clearance works (and should be compared with figure 23 when it was at its worst and figure 24, at a point prior to the uncontrolled spread of Rhododendron across the whole area.



Fig 25 Aerial photograph taken in 2011 showing Areas B and C in the foreground. Arrow points north.



Fig 26 Aerial photograph taken in 2011 showing Areas F1, F2, D, E, G, A1 and A2 (with parts of B, C and A3). Arrow points north.



Fig 27 Aerial photograph taken in 2011 showing Area A3 and parts of A2 and E. Arrow points north.

6 Assessment of the methodology and lessons learnt

This section assesses the methodology used stage by stage. The advantages, disadvantages and lessons learnt will be applicable to other sites undergoing a similar series of stages, or with a similar goal in opening up a lost or underused area of land.

6.1 Contamination precautions

- <u>Method</u> Spraying of boots and vehicle tyres prior to leaving site with Propellar. Biosecurity advice was provided by Ben Jones (Operations Manager for the Forestry Commission, FERA Phytopthera Team).
- <u>Advantages</u> Helps control or significantly minimise the potential further spread of contagious disease (in this case *Phytopthera ramorum*). Its use can be targeted, and so toxic effects are reduced.
- <u>Disadvantages</u> Not always easy to carry out if raining, windy etc. Toxic for the immediate environment, and potentially spread in the wind or in pools in standing water. Possibly expensive if frequent visits are required: especially if the site covers a large area requiring frequent re-spraying, or if the site is divided into different blocks of ground (requiring re-spraying between blocks).
- <u>Lessons learnt</u> Potential benefits need to be carefully considered. For example, any benefits from spraying boots and tyres would appear to be negated by the cutting / disturbance of the Rhododendron which will have released spores in to the atmosphere, nearby stream and ponds etc.

6.2 Cutting clearance

- <u>Method</u> Cutting the Rhododendron down as low as feasibly possible to ground level (ideally until the branched stump is low enough to have become a single trunk/stump).
- <u>Advantages</u> Lets the archaeologist see at an early stage if there are any obvious extant features that should be avoided, treated with particular care, or assessed prior to further clearance work in the immediate vicinity.
- <u>Disadvantages</u> Cutting (without sorting see area A3) creates a dense mix of vegetation and wood lying on the ground, prevents visibility or access prior to burning, jeopardising extant features requiring care, for example a no burning approach. Cutting (regardless of sorting) will release spores/disease in to the environment and atmosphere.
- <u>Lessons learnt</u> Clear and separate wood from brash as the material is cut. This makes all later tasks quicker and easier and allows landscape survey/monitoring where required at an early stage. The collection of fuel/timber significantly minimises the amount of material to be burnt and prevents needless waste. Imperative to avoid windy days to reduce atmospheric contamination.

6.3 Burning of selected cut material

- <u>Method</u> Selectively pile brash for burning in pre-decided spots (see below).
- Advantages Burning appears to be a very good way of clearing dense, cut, bushy growth without disturbing underlying, often ephemeral features. It can quickly remove large quantities of contaminated vegetation, and when undertaken on dense leaf litter, below ground damage to both archaeological features and the dormant seed bed is minimal. Surface features, however, are at a much greater risk.

- <u>Disadvantages</u> Where fires have been lit on or near to rock outcrops, large grounders or smaller massed/built stone features significant damage can and has occurred through the focussing of heat, which results in fracturing and in some cases the splitting of rock. This reduces formerly distinctive local landscape features and can severely damage and undermine the stability of built features such as boundaries and historically retained/enhanced grounder alignments. The fires can become a serious fire hazard in dry or windy weather, with smoke billowing across roads or fires re-igniting once damped down and assumed to be extinguished.
- <u>Lessons learnt</u> Pile brash to be burnt away from boundaries, other archaeological or historic features, large or distinctive natural rocks, trees or vegetation to be retained or encouraged and away from roads, livestock etc. This should be actively encouraged and monitored.

Naturally occurring fires, which are not concentrated in one area or actively fuelled or fed with cut branches and brash do not attain the high temperatures reached by an actively nurtured fire. As a result these fires can and should be seen as disruptive for both surface and shallow subsurface sites.

6.4 Mechanical stump pulling

Note: see figure 28

- <u>Method</u> Mechanical pulling of Rhododendron tree stumps from the ground as a single stump.
- <u>Advantages</u> Rapidly removes the dormant stump, preventing further growth and minimising the need for possible long-term spraying etc. In this instance it allowed for the depth of the old land surface and dormant seed bed to be seen prior to leaf litter removal. The resultant holes were used to guide leaf litter stripping.
- <u>Disadvantages</u> This can be highly destructive and can disturb and undermine adjacent stone-built structures, including boundaries, round houses etc. It can severely affect the visual impacts of ephemeral archaeological boundary alignments and can significantly reduce the visual appearance of mounds and extractive pits, low banks, shallow ditches or tracks. It can also leave the area with shallow depressions if the ground is not sensitively re-graded, giving the impression of historic features. Likewise stump pulling can create unintentional bumps and ridges when the machine moves along dense lines of stumps, or can remove surface features entirely – particularly in the cases of earth and stone banks, lynchets etc.
- Lessons learnt Ensure that stumps are not pulled from known features including banks and boundaries, tracks and ditches, or any other known or suspected sites until each stump location has been individually assessed by the archaeologist monitoring or advising works. It is best to set agreed distances from identifiable features that should be exempted from stump pulling. For example, on this site, because of the sheer density of stumps a 1-2m distance was agreed for all boundaries. A more rigidly applied and desirable 2-3m space would have required a very large spraying programme. There should be discussion as to the best approach, i.e. dragging the stump, grabbing the stump and pulling it up vertically or twisting the stump. Each method will, however, cause some damage to adjacent archaeological features as lateral roots are pulled out of the ground.

6.5 Mechanical leaf litter clearance

Note: see figure 28

- <u>Method</u> Mechanical scraping off of Rhododendron leaf litter down to the former land surface, making sure that all boundaries or other vulnerable surface features are avoided.
- <u>Advantages</u> Mechanical clearance of leaf litter (and tree stumps) within an extremely stony area does appear to work reasonably well in areas where there are no surface visible archaeological features. The underlying topography and such natural features as rock outcrops do survive. The mechanical exposure of the old land surface quickly allows for the regeneration of its dormant seeds and bulbs. The reduction in ground level by the removal of leaf litter can have the affect of increasing the visible presence of boundaries since boundaries themselves should not be cleared. In addition finds can be exposed that would not otherwise have been known about. This provides useful background evidence for the landscape's use. The final impression (once vegetation has regenerated) is that the ground has never been disturbed.
- Disadvantages It is very easy to distort the alignment or orientation of features, particularly banks and boundaries by the accidental rearrangement of nearby/abutting stones or by clearing around and highlighting grounders. The shifting of apparently unrelated stones can swamp or belittle the physical presence of an earth and stone bank, a stone faced boundary, an orthostatic alignment or any other upstanding remains. Mechanical leaf litter removal in areas with dense spreads of large natural grounders around raised bedrock/carns, plus associated spreads of smaller stones (in conjunction with thin soils) has the immediate short-term visual effect of creating a near complete stone landscape due to the loss of softening vegetation. Leaf litter clearance inevitably results in the loss of any remains that are not completely obvious as surface features. It also can remove shallow features hidden beneath the leaf litter, but on the old land surface, such as clearance cairns, low lying slight banks, lynchets. It will obviously also dislodge or expose find scatters on old land surfaces.
- <u>Lessons learnt</u> If stones have been raised and left balancing or standing upright during this process this may well give the impression of deliberately-positioned standing or propped stones of archaeological significance. Related to this is the inadvertent creation of new stone alignments. This can happen very easily when the digger bucket pulls through the ground, pushing stones to the side and giving the impression of a linear arrangement. This can be a significant problem in places where prehistoric stone settings and Medieval or earlier boundaries in a variety of states of preservation might be expected or are known to exist. Where such features are accidentally created, they should be carefully flattened afterwards to prevent such confusion arising. It is also important to realise that where this type of clearance takes place, almost all unrecognised surface features will be lost and shallow sub-surface sites will be removed, damaged or exposed.

6.6 Mechanical creation of material dumps

Note: - see figures 28 and 29

• <u>Method</u> – The pilling of stumps in to heaps, which were then covered in compressed redeposited leaf litter to create dumps or stores of material on site.

- <u>Advantages</u> Dumps of Rhododendron stumps, covered by scraped up leaf litter removed the potential problem of taking infected material off site, reducing the risk of infecting new areas and reducing the price of off-site transportation and storage. It also significantly reduced the amount of mechanical tracking across site when moving the stumps and litter to lorry loading points. This too was cheaper and greatly reduced potential on-site erosion and damage. The dumps, when agreed and discussed were designed to minimise their physical or visual threat to any identified features on site. It was agreed that these should cover large but selected areas and should not be peaked, but should be compacted and flattened. When the organic matter decays their visible appearance should be recognisably recent and mechanically formed, but not high enough to be obtrusive in terms of the topography, views, archaeological or historical remains or historic context. This appears to have worked very well, and can be seen in areas A1, A2, B, C, D and E.
- Disadvantages Where smaller, unplanned dumps were created, which were not so compacted or flattened in profile, their far more numerous presence and their heaped, frequently peaked profiles gives the impression of historic features such as those associated with extractive pits and surface mining – see areas F1 and F2. In some cases it is possible that they could be misconstrued as barrows due to their appearance, size and landscape setting. Their presence, although no-doubt attractive when re-vegetated and inviting for wild and domesticated livestock, has rendered the historic landscape much less easy to read and understand. It is hoped that their high organic content and small size will, with time, result in less obvious features. It should be stated that they do not markedly alter the topography or the naturally dominant presence of Trengwainton carn, and were not sited over boundaries. They do, however, give a different feel to the area and will cause confusion for those wishing to read and understand the landscape for some decades to come.
- <u>Lessons learnt</u> Agree the type, size and form of dumps to be created and their setting. Do not put them too near to any known features, including boundaries and natural features such as carns or major boulders. Do not allow them to block or funnel views. Do not let them give the impression of being archaeological/historic features once vegetated.

6.7 Best practice

During the course of this project, the following points became apparent. They, in conjunction with the 'lessons learnt' (above), should provide useful initial guidance for future, similar projects.

- Produce mapping to show all known features and highlight areas of potential interest or where particular care is required **prior** to any mechanical works.
- Carry out on-site monitoring during cutting and clearance works in complex or potentially significant areas. Maintain ongoing, periodic monitoring across other areas. This will allow for unexpected sites to be identified and allows for those who are carrying out the work and who are closest to the ground to pass on valuable information regarding small (or easily missed) newly exposed features or other 'oddities' encountered.
- Mark boundaries prior to machine movement or clearance work within the area, particularly where they are markedly ephemeral, of unusual form, or where they follow particularly complex or circuitous routes, for example where footpaths, boundary re-alignments or different types of boundary access points adjoin, or where associated features such as round houses

are known or expected. Inevitably where many ephemeral boundaries exist the digger driver will need to proceed with due care.

- On site discussion between the archaeologist and the digger driver greatly improves results. Boundary alignments, for example, are often more visible from the digger cabin than they are from the ground, allowing more ephemeral flanking banks or ditches to be avoided during machining. The danger is where large supposedly blank areas are unquestioningly cleared as blank areas and where because of a lack of experience in recognising a range of site types, relatively ephemeral unexpected remains may not be seen. This is a particularly difficult problem to deal with. In this instance the sheer quantity of surface stone and the near all-over presence of stone splitting made site identification very difficult for all concerned.
- Keep all machining (stump pulling, leaf litter clearance or storage dump creation) in excess of 1m (preferably 2m+) away from all known visible, suspected or potential sub-surface sites. Such sites would be either obvious or predictable. Very particular care should be taken where boundaries appear to be respecting or following the course of a previously existent surface feature, as with orthostatic Site 5 mirroring a no longer visible round, or features which incorporate or enclose other sites or features such as the Site 45 round houses.
- Work around large stones since they are likely to be in their original positions and may well have acted as focal points for past human activity. Ask those who are cutting and clearing the area or those carrying out the machining to keep their eyes open for 'unusual' features such as propped, balanced, decorated or upright stones.
- Discuss the pros and cons for retaining material on site or removing unwanted/excess material from the site. In this instance the archaeological preference was for excess material to be removed from site, but because of site specific problems (disease/potential contamination, site size, quantity of material to be removed, cost of removal or incineration on site, and density of historic landscape features requiring vehicles to minimise on-site movement) this was not possible.
- Do not place permanent dumps of leaf litter and stumps near known, visible features since they have a major effect on the physical appearance of features, affecting their visibility and setting, and altering or disguising their original function. A new dump might with time appear to be an archaeological feature or a component within a complex of features.
- Do not light fires close to stone settings, built structures or naturally formed landscape rock features because of permanent and significant damage to their shape, size, general appearance or their future resilience to weathering.
- Record initial storage dump dimensions in terms of height and extent. Maintain regular check-ups to monitor the rate of decline in height (due to settling and organic decay) and the extent and rate of spread – if any. This will allow for more accurate estimates of dump impact through time and facilitate decisions made with regard to acceptable heights, shapes and sizes of dumps within particular landscapes, terrain or topography. Differences in the composition of dumps may also have a profound effect on the appearance of dumps over time.

This project has resulted in a mixture of large platform-like, flat topped dumps and small conical dumps (plus a range of intervening shapes and sizes), located on hill tops, slopes and on lower-lying flat ground - offering an ideal range of dump types which will be suitable for monitoring.





Fig 28 Top – The original Natural England plan for Rhododendron clearance works.

Bottom - The mechanically cleared areas within Area F1 and F2 (shown as green shading). Within these areas a very large number of small 1-2m high leaf litter dumps were created averaging 8-14m diameter.



Fig 29 Combination map showing mechanically cleared areas and storage dumps within Areas A1, A2, B, C, D and E.

7 Recommendations for the future management of the study area

General heathland management recommendations found at the back of this report (see Section 11.3) set out the underlying principles and inform the recommendations made for heathland areas under normal circumstances. Parkes's recent management assessment for nearby Lanyon Farm (2011) referred to this, and was itself referred to when writing the individual site by site recommendations found in this reports' sites and boundaries tables (Section 8).

For the Trengwainton site the dense, diseased spread of Rhododendron requiring mechanical removal prior to the reinstatement of heathland has necessitated a slightly different approach to management recommendations. The wide scale alteration to the land surface during stump-pulling and leaf litter clearance has resulted in the removal or disturbance of a number of sites that would normally be seen as forming a significant part of its landscape history and would not normally be actively removed or altered. This has included:

- Disturbance of features likely to be associated with stone extraction and small scale surface quarrying, including shallow pits, dumps, stone-splitting and drilling associated sites.
- Exposure / disturbance of the shallowest of sub-surface features such as low clearance cairns, finds spreads or possibly very low lying banks lying immediately below the leaf litter cover.
- The re-arrangement of most moveable surface rock in all areas covered by mechanical leaf litter clearance, except where identified as part of a recognised archaeological feature. This has had a profound, significant and detrimental effect on the landscape (although in this instance it was unavoidable).

7.1 Management Recommendations

The following recommendations are designed to preserve and conserve the identified sites and boundaries, and to maintain and enhance their visual setting and historic context.

Medieval and earlier boundaries are subject to Hedgerow Regulations – see section 11.5. The Stone cross is a Scheduled Site – see section 11.4.

7.1.1 Northern area – Areas A1, D, G and F2

Specific recommendations for the following sites can be found within section 8:

- Extant NMP identified boundary **Sites 14, 17, 35 and 41**.
- Extant boundaries shown on modern mapping and still actively being used as boundaries **B2, 6-8 and 10** (define the study area edges) and **B11 and 12** (internal divisions, no-longer used to separate landscape use).
- Church path **Site 2** and Sheep Walk **Sites 3 and 4** identified on site as a combination of recorded extant remains and NMP identified alignments in conjunction with Tithe map details.
- Grounder alignment **Site 32** and Post-medieval/Modern track **Site 43** were both noted during the site walkovers.

All of the above should be maintained as visible features. There should be no mechanical activity, including digging, other earth disturbance or vehicular access across them.

Note: - for all boundaries the following applies - Hedge Regulations apply to early (medieval or later prehistoric) and/or 1840 Tithe mapped boundaries.

 Ruin Site 7, Ridge and furrow Site 13 and possible undated enclosure Site 15 were not identified as extant sites during the site walkovers. Mechanical clearance works did not extend across the areas of Site 13 or 15, implying that any sub-surface remains have not been disturbed by works.

These sites could not be accurately identified on site. Sites 13 and 15 (in Area A1) did not fall within the mechanically worked area, and Site 7 could not be identified in the field before, during or after machine works in Area F2.

No specific recommendations for the following sites:

Site 11 is fenced off and no longer accessible due to overgrowth.

Site 9 represents the near ubiquitous spread of this type of activity which was removed during machining.

Modern **Site 31** has been buried beneath a dump.

7.1.2 Southern area – Areas A2, A3, E and F1

Specific recommendations for the following sites can be found within Section 8:

- Scheduled Medieval cross Site 1
- Orthostatic boundary **Site 5** (with associated structure at its northern end)
- Boundary related Sites 29 and 35 (26 and 28)
- Boundaries B1, 2 and 6 are shown on modern mapping and actively define the edge of site. Boundaries B3 and 5 are internal and no-longer separate different areas of activity on site. Boundary B4 was not identified on site and is likely to never have been more than a temporary barrier defining an area of planting shown on historic mapping.
- Church path Site 2 and Sheep walk Site 6
- Structure Sites 8 and 12
- Trengwainton Carn Site 40

All of the above should be maintained as visible features. There should be no mechanical disturbance in their vicinity, or vehicular access across them. They should be monitored periodically to ensure that danger to or damage by livestock is minimised.

- Un-certain possible structure **Site 27**
- Turf cutting **Sites 37 and** Clearance cairns **Sites 42**

Sites 27 and 37 lie within A3 and have not been affected by mechanical works, while Site 42 has an unknown potential extent. All three site types cannot be specifically managed beyond a general 'avoid ground disturbance in the vicinity' recommendation.

No specific recommendations for the following sites:

• Modern trench **Site 10** and animal watering **Site 30** were retained but are not archaeologically significant.

7.1.3 Eastern area – Areas B and C

Specific recommendations for the following sites can be found within Section 8:

• Site 22 including boundaries B15, B17-18, 23, 25, 27-31 and NMP boundary Sites 33, 48 and possibly 39? Livestock movement track Site 38 is an integral part of this site.

- Round house Site **45**.
- Peripheral hollow way **Site 24**.
- Boundaries defining the edges of the study area **B13-14**, **16**, **19-22**, **24**, **26** and **32**
- Post-medieval enclosure **Site 47**

All of the above should be maintained as visible features. There should be no mechanical disturbance in their vicinity, or vehicular access across them. They should be monitored periodically to ensure that danger to or damage by livestock is minimised.

- Bank Site 19
- Pits and dumps **Site 44**.
- Turf cutting **Site 36** (general area of activity with no specifically identified structures) and **Site 46** clearance cairns now hidden by vegetation.

These sites have been disturbed or removed during mechanical works, can no longer be seen as surface features, or cannot be accurately located or predicted and as such they cannot be specifically managed beyond the general 'avoid further ground disturbance in the vicinity' recommendation.

No specific recommendations for the following sites:

- Post-medieval and later disturbance and stone splitting works Sites 18, 20, 21 and 23 were noted as near ubiquitous and were substantially altered during clearance works.
- Modern drainage works **Site 25** has no archaeological significance (but does highlight the low-lying poorly drained character of this part of site).

These sites do not require ongoing monitoring. In the case of the stone splitting sites, any visible remains should be left as intact as possible since they are a reflection of past activity and use of the site.

7.2 Livestock issues

It is recommended that particular notice should be taken of the following selected sites in terms of actively monitoring their condition and assessing the potential or actual threats which might result from the recent re-introduction of livestock (Exmoor ponies) to the east of the Madron Road (areas B and C) and cattle to its west (all other areas).

• Site 1 Scheduled Cross; Site 5 early orthostatic boundary; Site 12 hull; Site 22 filed system; Site 24 late orthostatic boundary; and Site 45 round houses.

Although the re-introduction of livestock is an entirely positive development, bringing the landscape's use, appearance and management back to something approaching its former historic character, there are some risks associated with some of the most significant and vulnerable archaeological remains (see above). It is recommended that these sites should be regularly monitored to ensure that damage does not occur, including the destabilisation of orthostatic stones as a result of cattle/horse rubbing or back scratching, or the scouring away of adjacent deposits by animals congregating around the sites themselves.

8 Sites and boundaries tables with recommendations for future management

Gazetteer of sites within the study area

Site Data	Description	Condition and threats	Recomn
Project Site No: 1 Type: Wheel-headed wayside cross Date: Medieval Designation: Scheduled Monument No. CO490 HER No: MCO 6038 NGR: SW 44052 32193 Area: A2 Importance: National	Medieval stone cross. The cross head is set on the original base, but the shaft and part of the head has been lost (possibly through re-use as a gatepost?). Medieval crosses are frequently found along ancient routes linking settlements and or churches and chapels. A further scheduled cross is located nearby, just to the east of Area C close to the St Madron chapel ruins and spring-fed holy well, renowned for its curative powers. The head includes an equal, broad limbed cross, widening at the edges to each side. Lying on its northern side, at right angles to the cross is at least one large rectangular seating stone. The site lies on the southern side of the church path (site 2).	Currently stable. Now that the site has been cleared of vegetation it is visible and the threat of tree root damage has ceased. Damage by livestock milling around or rubbing against it may render the cross unstable.	Keep th vegetation Keep im maintain and the Monitor necessar
Project Site No: 2 Type: Madron to Boswarva Church path. Date: Probably Medieval HER No: Associated with MCO 9980 NGR:SW44225/32162-43450/32578 Area: Peripheral to A2, A1 & F2 Importance: Local	Church path. First shown on the 1840 Tithe Map. Has a Scheduled medieval cross (Site 1) at eastern end. At western end is a small bridge (Site 3). Path links Madron Church to Boswarva (and originally the 'site of' Higher Boswartha chapel – MCO 9980). Within the study area the eastern half is recorded as in use and maintained. It acts as an entrance point onto the land around Trengwainton Carn. It is defined on northern side by B6, which probably overlies an earlier bank, which is partially visible on its southern side. The southern side is defined by a c1m deep, partially banked face of soil and eroded bedrock – in part the result of mechanical excavation work associated with underlying services and manholes/inspection pits along the southern side of B6. Long-term erosion caused by people (and animals) using the path has as a result resulted in loss at this eastern end. The track continues to be fairly well defined until its junction with B3/B12 and the Sheep Walk (Site 6). West of this it becomes less clear. For reference to Church Path see Langdon 1997, 46.	Currently stable at its eastern end, but prone to vehicular damage along its central length.	Maintain bridge S Ensure presence All flan Regulatio Monitor maintain Avoid ve run-off o
Project Site No: 3 Type: Small stone slab footbridge Date: Medieval - post-medieval NGR: SW 43450/32578 Area: F2 Importance: Local	Stone slab footbridge. Located at the north-western edge of the study area, close to B10 and Boswarva. It spans the fast flowing stream (Site 11). It consists of large horizontally placed granite slabs and lies at the stream's closest point to Boswarva Lane. Lies to the immediate north of the junction between the Site 4 Sheep Walk and Boswarva Lane. Probably a former livestock crossing point. It probably marks the western end of the medieval church path (Site 2). In design it represents one of the earliest and simplest bridging methods, although its current form is probably post-medieval (see stream re-alignment and leat works (Site 11) to its west. Note drill holes in adjacent slabs and boulders. The main bridge slab may be part of an original/Medieval crossing.	Currently stable, but at risk from livestock drinking at the edge of the stream, causing the stream edges to collapse and destabilisation of the bridge stones.	Maintain slippage Ensure c and Bosy Monitor vicinity. Monitor
Project Site No: 4 Type: Sheep Walk Date: Medieval – post-medieval NGR:SW44207/32108-44130/31844 Area: A2 Importance: Local	Sheep Walk. Named and depicted on the 1840 Tithe Map. Ran along the southern side of the western half of the church path (Site 2). It is shown as narrowest at its western Boswarva end, and as gradually opening out as it rises on to what was formerly open, communal rough grazing land. By 1880 the Sheep Walk was no longer shown, and Sites 2 and 4 had merged to form a single curved route. NMP plots identified a bank following the original Site 2/4 alignment, which was recorded during the walk-over survey as an ephemeral, east to west running 0.2-0.3m high, 0.7m wide bank.	Stable and unlikely to attract livestock damage because it is so ephemeral.	Clearanc monitore All flank Regulatic The path the hist livestock

nendations

ne cross clear of invasive and/or destructive on. nmediate vegetation height to a minimum and clear visibility between the church path (site 2) cross. livestock impact / damage to the cross site, and if ry contact EH with regard protection. clarity of route between Madron-Morvah road and ite 3. visibility between Site 1 and path (or indicate e of cross from path via signage). king boundaries are affected by Hedgerow ons and should be maintained. livestock tracking across the boundaries in order to path clarity along the western half. chicular damage. Monitor erosive effects of water on path surfacing. stream bank on either side and so prevent of stone slabs. continuance of link between church path (site 2) warva Lane/Boswarva settlement. livestock usage or disturbance in the immediate condition and ensure public safety.

e should be maintained and any livestock damage ed. Vehicles should not drive along or across it.

ting banks/boundaries are affected by Hedgerow ons. Ideally any damage should be repaired.

n/track should continue to be a visible reminder of oric use of the area (19th century and earlier movement/seasonal grazing).

Site Data	Description	Condition and threats	Recomm
Project Site No: 5 Type: Orthostatic boundary Date: Prehistoric / Medieval HER No: Associated with MCO 51238 NGR:SW44207/32108-44130/31844 Area: A2 Importance: Local/Regional?	Early upright stone boundary. Orthostatic boundary consisting of un-shaped free standing slabs (and occasional grounder-like stones) with gaps. The stones range from 0.6 to 1.3m tall. It runs down the western side of B1, gradually diverting to the west as it heads south. At its northern end a c15m long 'indent' or marked kink appears to represent the site of a possible late prehistoric/Romano-British structure, likely to be contemporary with the adjacent round. It had a possible 2m wide entrance within the surviving section. Unfortunately the probable stock enclosure ditch which immediately flanks B1 has removed some of the internal area. The Tithe Map shows it in an area described as ' <i>Waste under Trengwainton Carne'</i> . The 1880/1907 OS (and later) maps show it as unaltered since 1840. It is possible that Trengwainton Estate maps may show additional pre-1840 detail.	It is currently in a state of benign neglect.	A probabl Potential deposits/f disturband monitored against/di Prevention reinstater
	Towards the central southern end a bulbous area mirrors the western side of an adjacent round. This implies that orthostatic site 5 originates from a period when the round was still visible as a landscape feature, and is suggestive of it being a contemporary late prehistoric/Romano-British feature. This would largely confirm the interpretation of the apparent structure at its northern end.		records r survived a
Project Site No: 6	Sheep Walk (and Tinner's Way?). Identified in the in the Tithe Apportions as a 'Sheep Walk'. The southern two thirds of the track are shown on the 1840 Tithe Man, while the northern third	At risk from livestock	Clearance
Type: Sheep Walk / Tinners Way	is marked on the 1880/1907 OS maps as kinking east and linking in with the Church path (Site	ephemeral edges, but	All flank
Date: Medieval / post-Medieval	hill. This site continues south, beyond the southern edge of the study area, and was locally	otherwise stable.	Regulation
Area: A3 and F1	known as a 'Tinners Way'.		The path/ the histo
Importance: Local	This site appears and disappears along its length. Parts of it are very ephemeral, consisting o parallel earth and stone banks, with occasional upright stones or edges of grounders marking its route. In some parts only one shallow bank can be seen. It varies in width between 1.4 and c2m, with banks varying from 0.1 to 0.5m high, by 1m to 1.8m wide.		livestock
Project Site No: 7 Type: Ruined structure Date: Post-Medieval NGR: SW43896/32039 Area: F2 Importance: Local	Ruins. Ruined buildings are shown on the 1880 and 1907 OS maps in the westernmost part of the study area, close to the stream/leat Site 11. The ruinous state of the buildings in 1880, suggest that the buildings were present, but perhaps not in use in 1840 when the Tithe Map was drawn up. The ruins are shown as more substantial in the 1880s when they formed an apparently roofed structure with an attached open yard or very small enclosure/garden area. In 1907 the OS shows only the 'roofed' end of the ruins, suggestive of intervening dismantling and stone re-use. No evidence for this site could be seen during the watching brief, following clearance. These ruins have an uncertain origin, but may relate to a small farmstead. They appear to be too far from the stream to have been directly associated with water management. <u>Note:</u> a second linear 'ruin' was also shown on the 1880 map, just beyond the most western edge of area F2, close to the junction of boundaries B2 and B10. These almost certainly related to water management and may suggest a small mill site or other works associated with the stream at this point.	Uncertain. Close to the edge of mechanically cleared leaf litter. May exist as a sub-surface feature beyond the area affected by mechanical works, or may have been dismantled prior to these works.	Further of Estate rec of this site This site appeared At the mo un-known
Project Site No: 8 Type: Enclosure/Structure Date: Post-Medieval NGR: SW43896/32039 Area: A3 Importance: Local/Regional?	Small, square enclosure. Square enclosure located on the western side of the northern part of B3. It is very clearly marked on the Tithe Map as a near square, wide walled, single entranced building. It was not drawn as roofed and has no explanatory text in the apportionment listings. It would seem unlikely to be an elaborate and substantial animal shelter. It is possible that it could be a turf store (note the Tithe Apportionment reference to 'Turbary' to its south). At present it is assumed to be related to the running of Trengwainton Estate and potentially of 19 th century date. This site is defined by <i>c</i> 1.5m wide earth and stone 'hedge-like walls' standing to an average 0.9m height. It has a <i>c</i> 2m wide, south facing entrance, near its south-western corner. Within the enclosed area stand two upright granite posts, each with a central drill hole at its top. The stones measure 0.8 and 0.9m high. One was positioned near the northern wall in the eastern half, and the other was located near the western wall in the northern half.	The site is currently in a state of benign neglect. Rhododendron root and stump growth has caused marked disturbance to parts of the walling, causing partial collapse and instability. Despite this the site is still distinct.	Maintain of Monitor li surroundii The surro and as su Further of Trengwair interpreta

endations

le late prehistoric survival requiring particular care.

associated remains (cut features, layers, finds) below ground may be vulnerable to ce. Livestock damage should be regularly d to minimise damage caused by rubbing islodging stones or repeated trampling.

n of damage would be preferable to subsequent ment.

locumentary research within Trengwainton Estate may help in understanding how this site has and how it may have changed.

e should be maintained and any livestock damage d. Vehicles should not drive along or across it.

king boundaries are affected by Hedgerow ns. Ideally boundary damage should be repaired.

/track should continue to be a visible reminder of pric use of the area (19th century and earlier movement/seasonal grazing).

documentary research within the Trengwainton cords could significantly help in the interpretation e.

could not be located in the field – no remains to be disturbed or encountered.

oment the date, function or related elements are n.

clearance.

livestock damage to upright stone settings and ing boundaries.

ounding boundaries are shown on the Tithe Map ich are covered by Hedgerow Regulations.

documentary research, particularly within the nton Estate records may help significantly in the ation of this site.

Site Data	Description	Condition and threats	Recomm
Project Site No: 9 Type: Extractive pit Date: Post-Medieval / Modern HER No: Associated with MCO 51245 NGR: SW43668/32560 Area: F2 Importance: Local	Surface extraction features. Probable extractive or prospecting pit measuring 2.5m long by 1.3m wide and in excess of 0.4m deep. The pit is aligned north-west to south-east with a flanking spoil-heap to its south. Other more ephemeral ground disturbance was also noted in the general area. Located approximately 200m to the north, beyond the edges of the study area, are a number of extractive pits possibly suggesting that this feature is an outlier?	Removed by machining.	None
Project Site No: 10	Modern trench. Machine cut trench running along part of the southern side of Site 2.	Weathering naturally as an	None – u
Type: Trench Date: Modern NGR:SW44171/32167-44076/32203 Area: A2 Importance: None	Trench measures 0.4m - 0.5m wide at base, weathered to 0.6m wide at top, c25m long and 0.75m deep trench does not appear to be for drainage.	open feature.	public?)
Project Site No: 11	Stream alterations. This site runs along the north-western edge of the study area from east	Much of this area has now	The steep
Type: Stream / leat works	to west. It has seen significant alteration in the medieval ?/ post-medieval past. The original water course has been subdivided, forming a lower dry and an upper fast flowing stream	been tenced off and is so heavily overgrown with non-	livestock
Date: Medieval / post-medieval	A deeply cutting, forming a low-lying dry former watercourse runs along the northern edge of	has become largely	area. De
Area: F2 Importance: Local	the study area. It is sheer sided and appears largely artificially cut with a c2m depth and up to a 2m width. Walking along its length at least one steep drop or pit-like depression was noted – possibly indicating a former working – possibly a small waterwheel or sluice. Natural steeply- dropping contours indicate that this watercourse is close to the 'natural' watercourse prior to alterations.	Stable.	difficult a Any clear survey in identify a ruins sho
	The higher, shallower fast flowing stream (crossed by the bridge) follows a slightly meandering course 2-6m to the south and approximately 2m higher up the slope than the dry northern course. This course is man-made and of uncertain date.		Documen Boswarva interpreta
	Detailed comments for this site are not possible until considerable further clearance, survey and research has been carried out.		leat etc.
Project Site No: 12 Type: Hull Date: ?Post-medieval/unknown HER No: MCO 27467 NGR: SW43794/31960 Area: A3 Importance: Regional	Partially underground chamber. This site consists of a massive, flat stone slab roof- measuring 3.5-4m in diameter, which slopes back gently towards the east, where it is supported by the ground level and <i>in-situ</i> stones. It is likely that the roof slab is close to/in its original position given its obvious size and weight. This implies that ground was partly hollowed out from beneath it. The date of its creation is unknown. The entrance is 1m high, and approximately 2m wide. The southern edge is supported by a mix of natural grounders and occasional placed stones. The northern wall can be seen internally to consist of both an upright stone slab and a stone and concreted portion of wall 0.7m wide. Much of the surface area of the floor contained a shallow pool in excess of 0.2m deep in wet weather. This feature is of uncertain use, although it features within the HER as a hull or semi- subterranean store. Topography dictates that it would have frequently been waterlogged. It may have functioned as a temporary shelter or look out – associated with shooting parties and	Stable. No obvious threats.	Maintain site. Regularly livestock. It is reco checked f on its use
	hunts. While in the field I was informed that this site used to be known locally as Rackham's or Racko's hut.		

unless deemed a danger to livestock (or general

ply dropping contours and the deeply cut northern rse/leat would pose a significant threat to both and the general public should the fencing be At least 2 stiles invite restricted access in to the ense vegetation makes movement and visibility and potentially dangerous.

rance in this area should include scope for a rapid n order to record the watercourses properly and to any associated or adjacent remains, such as the own on the 1880 OS map.

ntary research within the Trengwainton Estate or a archives would help significantly in the ation, development, significance and dating of this

access to and visibility of this little understood

monitor threats to its stability caused by

commended that Trengwainton Estate records are for any references to this site and any information e.

Site Data	Description	Condition and threats	Recomm
Project Site No: 13 Type: Ridge and furrow Date: Medieval HER No: MCO 51237 NGR:SW 43809/32604 Area: F2 Importance: Local	Potential ridge and furrow. Remnant surface remains of ridge and furrow cultivation were identified within the site 14 field system, during NMP aerial photo plotting. These were possibly seen during the walkover as very ephemeral, vaguely north-north-east to south-south-west aligned ridges. They were very slight, rarely reaching more than 0.05-0.1m height (and could only be seen in the right light). They also appeared to be quite patchy, with variable widths and were interspersed with possible east to west surface disturbance and some deeply cutting wheel ruts associated with the gated road entrance. It is possible that breaking in of the land (and stone extraction) produced some of the features identified by the NMP.	Stable. No obvious threats.	Driving a
Project Site No: 14 Type: Field system Date: Undated / prehistoric? HER No: MCO 20648 NGR: SW43925/32373 Area: A1 (and F2) Importance: Local/? Regional	Field system. Remnant field system identified by NMP as a series of low-lying earth and stone banks. The north-west to south-east running boundaries closely follow natural contours in the area. The main curvilinear western boundary was recorded as having an up to 2m wide earth and stone bank up to 0.5m max. high, incorporating occasional grounders. An occasional shallow flanking depression was also noted. At its western end a more clearly defined former track was identified with flanking earth and stone banks up to 1m wide and 0.4m high with an average 1-6m wide intervening space. This feature clearly became a component of Site 14 and was identified by NMP work as a track hugging a longer contour boundary. Probable recent mechanical disturbance caused by the laying of a pipe trench – visible only because of a run of associated manholes may have altered or removed parts of this track/boundary feature. Mirroring its course to the north and east is another former boundary – visible only for a short length. This appeared to be more of a shallow ditched feature with a flanking 2-3m wide, 0.3m max. high earth and stone bank. Interconnecting elements were not specifically identified and in fact may have been lost following clearance of this area after 1951 (the date of the last aerial photographs to show these features).	Stable. No obvious further threats.	These bo are cover Driving ad Potential system sh
Project Site No: 15 Type: ?Unlocated Enclosure Date: Undated HER No: MCO 21434 NGR: SW43894/32521 Area: F2 Importance: Local/Regional?	 Potential circular enclosure. Identified as an undated enclosure-like, near circular feature within possible field system Site 17. Originally seen on 1946 aerial photographs, it has not subsequently been recorded as an aerial or ground feature. It is possible that this site is in fact a track or vehicular turning point given the proximity of a gate on to Madron Road. This site could not be located on the ground. If it did exist as an enclosure it is possible that as with Site 14 above, it was damaged / removed during later activity in the area. 	The area of the potential site is stable and under no obvious threat beyond potential vehicular damage.	Driving ad
Project Site No: 16a) and b) Type: Milestone and road Date: Post-Medieval HER No: MCO 54428 NGR: SW a) 43984/32503 Area: Peripheral	 Milestone and Madron to Morvah road. a) A post-medieval milestone marked on the 1880 OS map, located just to the east of Area A1. It is not shown on subsequent mapping and was not specifically checked since it is peripheral to the study area. b) The Madron to Morvah road is clearly shown on the 1840 Tithe map as a fixed route. However, Martyn's 1748 map shows its approximate route only as a dashed rather than a solid line, implying that it was still in the process of being formalised. The road does appear to run across some of the earliest field boundaries in the area and so is likely not to be an entirely Medieval route. 	-	None

nendations

cross this area should be avoided if possible.

oundaries are shown on the Tithe Map and as such red by Hedgerow Regulations.

cross this area should be avoided.

l livestock damage to the visible parts of this field should be monitored and if possible minimised.

cross this area should be avoided.

Site Data	Description	Condition and threats	Recomm
Project Site No: 17 Type: Field system Date: Medieval HER No: MCO 51236 NGR: SW43920/32503 Area: F1 Importance: Local	Field system. Appears to represent a northern extension from Site 14. No specific additional elements were located during fieldwork. The watching brief identified several narrow, deeply eroded footpaths and livestock routes which had largely fallen out of use but extended across this approximate area and which may account for some of the features identified by NMP in the wider area.	-	Driving a
Project Site No: 18 Type: Extractive pits Date: Post-Medieval NGR: SW44197/32496 Area: C Importance: Local	Surface extraction features. Two vegetation filled pits located along the western edge of Site 38. Each approximately 3m x 2m x 0.7m deep, with an eroded, low-lying bank of soil around its periphery. The pits were cut down between grounders and probably represent stone extraction. They are not shown on the mapping, and may have had less substantial associated works in the vicinity.	Stable. No obvious threats.	None – u general p
Project Site No: 19 Type: Earthen bank Date: Medieval / post-medieval NGR: SW44389/32178 Area: C Importance: Local	Earthen bank. Ephemeral bank of earth and stone up to 0.3m high, 1-1.5m wide, which runs parallel to boundary B14, but 5m to the west. Possibly a continuation of B26? (with larger stones robbed out and re-used in the subsequent construction of B14), or it may be the remains of a track?	Damaged and partly removed during mechanical leaf litter clearance across the area.	None
Project Site No: 20 Type: Stone clearance/extraction Date: Post-Medieval NGR: SW44389/32242 Area: C Importance: Local	Surface extraction features. At least three ephemeral hollows, mounded material and uneven ground associated with the clearance of grounders (probably carried out in conjunction with the removal of a former boundary - see Site 19). Likely to be contemporary with the construction of new B14. The hollows range from 0.15 to 0.3m deep and range from 3m diameter to 5m long. Associated 0.1 to 0.3m high dumps. Pit edges are slumped and weathered and ran along an approximate 0.5m length of the western edge of B14. The watching brief showed that these and other similar features were fairly ubiquitous. It was decided that if mechanical leaf litter clearance was undertaken, impacts on them were unavoidable.	Largely removed during mechanical leaf litter clearance across the area.	None
Project Site No: 21 Type: Stone extraction Date: Post-Medieval / Modern NGR: SW44417/32332 Area: C Importance: Local	Surface extraction features. Stone extraction hollow possibly functioning as an animal watering hole. An approximate 8m maximum long, 4m wide shallow, sunken area with very weathered edges and much vegetation. Had a low lying bank up to 2m wide and 0.3m high around parts of it. Filled with 0.3m maximum of water when first recorded, but now shallower as a result of machining. Considered likely to have been deliberately left open following stone extraction as a shallow livestock watering pool.	Largely removed during mechanical leaf litter clearance across the area.	None

nendations

cross this area should be avoided.

unless deemed a danger to livestock (or to the public?)

Site Data	Description	Condition and threats	Recomm
Project Site No: 22 Type: Field system Date: Prehistoric / Medieval	Complex of multi-period boundaries. A broadly rectilinear patchwork of boundaries located to the west of early lane Site 24, on the lower eastern slopes of Trengwainton Hill, and to the east of 'The Slip' Site 38. This field system consists of a combination of Tithe Map and later mapped boundaries, plus NMP identified components.	There has been some tree root damage (and limited animal burrowing). Generally stable.	Hedgerow Vehicular A relative halted
HER No: Extension of MCO 20646 NGR: SW44263/32632 Area: C Importance: Regional	Some are clearly late prehistoric in origin see B15/Site 45 huts (associated removed boundary Site 48 and connected Site 38). Others have seen subsequent medieval and later modification, and the later extension or insertion of new boundaries, some of which may be associated with stone extraction – particularly along the northern half and/or tree planting activities in the later 20 th century. Repairs and replacements have taken place. There are associated field entrances, and lyncheting was noticed along the eastern edge of some of the component boundaries reflecting long term clearance/cultivation and the affects of soil creep.	Some visual loss due to the need to store leaf litter in two of the little fields. No damage to any visible boundaries caused by works.	Livestock and pote ideally b interpreti- designed sampling)
	This field system is interconnected with landscape division and livestock route way Site 38, medieval or earlier lane Site 24 and prehistoric hut circles Site 45. Access to its upper slope, north-western side from Site 38 was via a diagonally running boundary defined footpath feeding off of B31.		stiles, gra and impo with this
	The boundaries were predominantly stone faced with earth and stone cores, although some were clearly largely composed of grounders and clearance material. Tree root damage was considerable in some patches and collapse of some of the stonework has occurred. Boundary heights varied very considerably from little more than 0.25m to in excess of 2m. Widths were frequently in excess of 2m. Elsewhere, where machines have run across very low lying or apparently missing sections of boundary has shown that original basal boundary alignments or footings survive – for example at the southern end between B15 and B32.		
	It is clear that this field system is both very long lived and very complex and that further detail, patterning and phasing should be recorded with detailed survey. Component boundaries include B15, 17, 18, 23?, 25, 27, 28, 29, 30, 31 and removed boundary sites Site 38, 39, 48. Associated sites include hut circle Site 45 and clearance cairns 46.		
Project Site No: 23 Type: Disturbed ground Date: Post-Medieval / Modern NGR: SW44410/32601 Area: C Importance: Local	Surface extraction features. Uneven ground, possibly the result of stone extraction or more recent mechanical tree planting. Peripheral areas have been planted with silver birch and other species. The features here consist of a randomly-arranged group of pit-like hollows and related low-lying mounds of earth and small stone. The area in which they lie was quite overgrown with long grass. Rhododendron growth did not extend in to this immediate area. Full extent not recorded. Depths varied from 0.1-0.4m, whilst sizes varied from 1m diameter to 3m long. The associated spoil mounds rarely reached 0.4m high.	Partly removed during mechanical leaf litter clearance across the area.	None
Project Site No: 24 Type: Early lane / footpath Date: Medieval HER No: Associated with MCO 5045/DCO 1280 NGR: SW44476/32560-44189/32768 Area: Peripheral C Importance: Regional	Deeply eroded Medieval or earlier track. Deeply cut medieval lane (with extant wayside cross MCO 5045/DCO 1280 located just beyond its eastern end to the east of the study area). A 1.8 - 4m wide and up to 2.5m deep track or path of medieval or earlier origin. It appears to be a component part of potential late prehistoric in origin Site 22 (and Site 45?). The deeply eroded route testifies to long-term use (and possibly also rain water erosion). It is defined by a mixture of stone facing and exposed bedrock, earth and stone boundaries, stone walling, and slightly stony earthen banks above the deeply eroded western edge of the tree-lined track. A very tranquil, infrequently-used route, with a tunnel-like appearance due to overhanging trees. There are occasional entrances into fields to the east, but many of these are no longer in use. The study area to the immediate west is for much of its length markedly higher and as a result often inaccessible from the lane – although there are occasional entrances. The southern end of the lane is the lowest lying, while the northern end rises up the northeastern slope of Trengwainton Hill. The Tithe Map clearly shows the track connecting up with other paths at this point - forming part of a series of interconnected route ways linking both fields and religious sites such as holy wells, chapels and wayside crosses. Its use is also likely to have been associated with the movement of animals on to and off high, open pasture ground.	The route is essentially clear, but with some limited areas of collapse and overgrowth noted. This site bounds the north- eastern side of area C and is largely peripheral to the project works. However, at least one former gated access point at its eastern end on to site has been widened during these project works. This and similar future disturbance will threaten both the potentially early boundaries and also any buried old land surfaces beneath them.	It is reco that its Ideally s consolidat Hedgerow retain any etc. Should fu sealed be probably developm

endations

v Regulations will apply to this site as a whole.

ely recent programme of tree planting should be

and potential burrowing needs to be monitored, entially repaired. Repair/monitoring works should be carried out in conjunction with a detailed ive measured survey now that the site is clear, to: fine tune phasing (perhaps alongside rapid); identify stone clearance-related features; tree alterations; record past repairs and possible *in-situ* anite uprights and entrances; associated lynchets; ortantly to accurately record changes associated programme of 2009-2013/14 works.

ommended that this historic site is kept clear, and flanking boundaries are sensitively maintained. some tree management and boundary B18 ation work.

v Regulations apply and care should be taken to y extant features such as granite gateposts, stiles

uture work disturb buried old land surface deposits eneath B18 a programme of rapid sampling would provide significant results regarding past use and nent of this area.

Site Data	Description	Condition and threats	Recomm
Project Site No: 25 Type: Ditching/drainage works Date: Modern NGR: SW44466/32570 Area: Peripheral C Importance: None	Modern drainage disturbance works. Probable frequent or ongoing ditch and drainage works. It was noted that a substantial new drainage ditch had been excavated along parts of B16 and B18, particularly at their junction. This is a low-lying point within the landscape and water-logging since at least the medieval period is likely to have required drainage works. There is no clear evidence for earlier drainage activity, but it is unlikely to have been on the scale of that recently undertaken. The ditch where clearly visible had at least a 2m width and a c1.3m depth with flanking spoil dumps up to 1m high.	Stable	None
Project Site No: 26 Type: Grounder alignment Date: Medieval? NGR: SW43948/31844-43894/31929 Area: A3 Importance: Local	Grounder/contour alignment. Has the potential to be an early contour aligned boundary. Largely consists of grounders up to 1m maximum high running parallel to the western side of B3 and the eastern side of Site 4 Sheep Walk, for approximately 40m. It may originally have been longer (but less obvious because of smaller grounders used to form it). This most visible stretch is largely natural, but does appear to have had additional stones added to it. It was not shown on the archive mapping consulted, and may in fact never have been regarded as a true field boundary.	Stable, although tree stumps and root damage were noted along its length.	Retain as
Project Site No: 27 Type: ?Structure Date: Undated NGR: SW43789/31906 Area: A3 Importance: Local / none	Possible structure? Potential small, ovoid structure. Defined by grounders in conjunction with a limited number of possibly-placed, jumbled stones. Approximately 3m diameter on its longest and a variable height up to c0.6m. Uncertain origin, use or date. This is an uncertain feature and could be the result of selective grounder splitting/extraction, although no obvious drilling marks were noted in the very immediate vicinity, or perhaps could have been caused by turf cutting if it extended this far along the valley. Note: If this is an archaeological feature, other similar features may exist in the area. The distorting affect of rhododendron stumps makes identification difficult, and in fact it was not categorically identified again after initial recording. The lack of mechanical leaf litter clearance here does mean that when the stumps rot away any surface archaeology will still be present.	Stable	There is potential gradual r systems a in conjunt of estate their reco
Project Site No: 28 Type: Bank Date: Medieval?/post-medieval NGR: SW43850/31747-43861/31836 Area: A3 Importance: Local	Potential bank. Diagonally-aligned bank. This feature is not shown on modern or archive maps, and appears to run diagonally to the medieval pattern of north-east to south-west aligned field boundaries in this area. It consists of banked earth and stones linking grounders to form a more or less north to south alignment. The bank has a maximum 0.3m height and 1m width, but becomes more ephemeral in places and is difficult to identify in the field, particularly at the lower lying western end. It is possible that this represents a remnant field system element.	Stable, although tree stumps and root damage were noted along its length.	None
Project Site No: 29 Type: Slight ridges/boundaries Date: Medieval? NGR: SW44040/31667-43778/32083 Area: A3 (and F1) Importance: Local	Remnant boundaries. The NMP plotted probable medieval field boundaries, the low lying western edges of many of which were visible, primarily as stony ridges or low earth and stone banks, some with a higher stone content than others. The majority made clear use of <i>in-situ</i> grounders. The banks are ephemeral. Where cleared most had an average 1-1.5m width and a 0.1–c0.6m height. Occasional more massive grounders stand higher than this. The eastern, upper sections of most of these boundaries were not clearly discernable. Some certainly followed cross-contour grounder alignments, but with little or no interlinking banks/stone. At least one field entrance was marked by a short granite upright – approximately 40m east of B2.	Much tree stump and root damage, plus occasional burrowing and wheel ruts have damaged these features, although they are essentially stable as a result of benign neglect.	Avoid veh Hedge Re

a landscape feature

s some potential for this and similarly ephemeral I sites to appear or clarify themselves with the rotting away of rhododendron stumps and root across this A3 area. An awareness of this, perhaps nction with general monitoring of the area as part e management might allow for the possibility of ording.

nicular damage. egulations may apply to these features.
Site Data	Description	Condition and threats	Recomm
Project Site No: 30	Modern livestock watering site. Animal watering features, including hose pipes, watering tanks and animal feeders. Disused when first identified. The presence of a manhole points	-	None
Type: Services/animal watering	towards trenching excavations having taken place within the immediate vicinity, presumably to		
Date: Modern	pipe water in from the nearby road or piping underlying the eastern end of the Site 2 Church Path (where a number of covered manholes were noted)		
NGR: SW44163/32139	The level and extent of underground trenching and disturbance is uncertain, although manholes		
Area: Northern A2	noted in the north-eastern part of F2 (running along the western side of B11) would suggest a		
Importance: None	west-north-west to east-south-east line of trenching disturbance linking Madron Road to Boswarva.		
Project Site No: 31	Modern services with manholes and livestock watering. Services - sub-surface pipe	Buried beneath a leaf litter	None
Type: Services/animal watering	disturbance of uncertain depth and extent. It is likely that a line of disturbance links the	dump.	
Date: Modern	manholes noted in A2 and F2.		
NGR: SW44066/32273	Animal watering - Disused, modern livestock watering features, largely fed by sub-surface		
Area: Eastern D	located along Site 2 close to Area G.		
Importance: None			
Project Site No: 32	Grounder splitting/extraction. An alignment of at least six <i>in-situ</i> grounders and occasional	Stable	Retain
Type: Grounder alignment / splitting	massive (machine moved?) boulders running north to south along the western edge of B7. The largest are approximately 4m long, while smaller ones extend north along the alignment.		
Date: Post-Medieval/Modern?	Many of these stones show post-medieval drill holes and signs of rock splitting.		
NGR: SW43981/32403-43963/32514			
Area: A1			
Importance: Local			
Project Site No: 33	A curvilinear field boundary replaced by the period of the Tithe Map recorded as B26. This has a	Stable, but susceptible to	Monitor d
Type: Former boundary	probable Medieval date (although it could be earlier). It has a north to south aligned length, with an eastern arm extending from its southern end towards post 1840 fields to the east of	gradual livestock erosion.	Hedge Re
Date: Medieval	study area. It is probable that this replaced boundary site was visible, but un-used and so		
NGR: SW 44376/32341-44395/32245	un-mapped in 1840. It is likely to be part of an early curvilinear field system which underlies the post 1840 more angular field system, which has followed some of the earlier alignments		
Area: C	(see eastern extension of this site).		
Importance: Local			
Project Site No: 34a) and b)	The 1840 Tithe map does not show the pheasantry or Carn Lodge, but by 1880 the OS mapped	-	None
Type: Pheasantry and Carn Lodge	both.		
Date: Post 1840	a) The pheasantry (designed to breed and rear pheasants for the estate – almost certainly for autumnal shooting parties) is shown close to the porthern edge of the road where it dog-legs to		
NGR: SW a) 44216/32222 -	the north and east of Area G. It is shown as a rectangular series of 12 enclosed boxes with a		
b) 44144/32210	Although outside the study area, this site does help to characterise the use of this part of the		
Area: G, and immediate east	estate during the later 19 th century.		
	b) Carn Lodge (or Carn Cottages as they are shown on modern mapping), with its associated small garden enclosures was probably built at the same time as the pheasantry. It stands between the road and the eastern end of the Church Path Site 2 . Within its gardens are a series of small covered structures implying links with the running of the wider estate grounds focussed around the Carn and Hill. The larger enclosed area forms Area G. The building no-doubt housed the staff (and family) responsible for monitoring and ensuring that the wider estate grounds were both well maintained and adequately stocked.		

damage. Do not drive across or alter. egulations apply.

Site Data	Description	Condition and threats	Recomm
Project Site No: 35 Type: Banks and boundaries Date: Medieval / Post-Medieval? NGR: SW43732/32275 Area: F2 Importance: Local	Earth and stone banks. Two partially extant up to 2m wide broad ridges of earth and stone running southwest to northeast from B2 to S4. These were low-lying in the west (0.4m max. high), becoming more ephemeral as they moved north and east away from B2. They may in part follow natural ridges or lines of grounders. Occasional placed stones/possible facing was seen where footpath erosion (across their western ends) revealed underlying grounders and build up. The Tithe Map depicts them as footpaths (dashed), but they may in fact have been more like raised walkways, incorporating cleared or collected stone. If correctly interpreted, they appear designed to cross the boggy low-lying ground along this western edge of the project area and represent a boundary type not found elsewhere in the project area. The southern example was shown on the Tithe Map; the more northerly one was identified by NMP work. Neither were shown on the 1880 or later mapping. A third linear 'ridge' was located between the two NMP mapped boundaries, although this is likely to be a natural ridge in the underlying topography.	Stable	Hedgerov boundary Avoid veh
Project Site No: 36 Type: Turf cutting Date: ?Medieval / Post-Medieval NGR: SW4419/3276 Area: B and C Importance: Local	 Turf (or peat) cutting area. The Tithe Map and apportionments refer to the use of two areas within the study area as 'Turbary' – turf or peat cutting areas. Two such areas exist: in the extreme northern edge of Area C around the early track or hollow way, and on the extreme northern edge of Area B around B32. Turf cutting was often associated with open or communally utilised pockets of land in marginal ground. Turf (or peat) was an important fuel source, particularly for poorer households. 	Not visible today at ground level.	None, exc
Project Site No: 37 Type: Turf cutting Date: ?Medieval / Post-Medieval NGR: SW4392/3175 Area: A3 Importance: Local	Turf (or peat) cutting area. The Tithe Map and apportionments refer to the use of Area A3 (probably the lower lying southern end and western side), as a 'Turbary' (see Site 36 above) The presence of turf cutting in this area will in part account for some of the exposed stony character of this area after clearance, and a clear lack of soils.	Visible today as an area of partially exposed bedrock and grounders and extremely thin soils and	None, ex
Project Site No: 38 Type: Contour boundary and livestock movement route Date: Medieval? NGR: SW44191/32190-44158/32616 Area: C Importance: Local	Probable prehistoric landscape division and livestock movement path. Referred to in the 1840 Tithe Apportions as 'The Slip (Adjoining the Great Holt)'. Holt is an Anglo-Saxon word meaning a wooded area, wooded hill or burrowing animal's den. There is, as it happens, a large, active badger sett in the area. All three meanings could and probably did apply to the immediate area of this site. Defined on the higher west by B22 and the lower east by B23, this 'slip' of land separates upper, largely open grazing land from lower cultivated land, with its clearance cairns, hut circles and dense little curvilinear fields and boundaries. B22 and B23 both incorporate many grounders, while contained within the intervening area are a number of very large boulders – including a particularly striking pyramid-shaped block. The Tithe Map shows a track hugging the eastern edge of B22, which is still in places discernable – some of its length defined by a parallel-running inner bank. Site 38 would have been important for the transportation of animals to and from open grazing grounds, but it would also have been important because it formalised the separation between two very different types of land use. The double (and occasionally triple) line of boundaries would have prevented livestock from crossing between upper open grazing lands on to lower cultivated, enclosed land during the medieval period. During the prehistoric period it is likely that a similar boundary division existed. It runs along a marked natural contour line, which may in fact have been further exaggerated by cultivation and clearance on its eastern side. Certainly some of the lower eastern field boundaries are prehistoric in origin – note the little group of hut circles (Site 45) which nestle within B15. It is likely that this site has its origins in the prehistoric period.	Stable	Hedgerow clearance

nendations

w Regulations applies to Tithe Mapped southern y of Site 35.

nicular damage.

ccept to avoid unnecessary vehicular damage.

ccept to avoid un-necessary vehicular damage.

w Regulations will apply. No vehicular access or e for vehicular access should take place.

Site Data	Description	Condition and threats	Recomm
	extended further to the south along this site – accounting for the markedly stony ground surface. The southern end of this site is shown as narrower on the Tithe Map – incorporating only the width of the footpath referred to above. The current trackway (as defined by the boundaries) is at least three times wider. By 1880 the OS map shows that the southern end had been further narrowed via the construction of the short, thin straight boundary B21. Post-medieval rock-splitting and stone removal took place sporadically along its length – indicated by the presence of drill holes in some of the grounders and larger boulders. Some of the rock exposed along its length is markedly large, including one particularly striking, large pyramidal shaped block of stone.		
Project Site No: 39 Type: Contour boundary. Date: Medieval? NGR: SW44099/32478-44091/32629 Area: B Importance: Local	 Hill-ridge or contour alignment. This was not shown on archive mapping but was identified by the NMP as a north to south running boundary. It follows the line of the hilltop contour which circles Trengwainton Hill, is marked by occasional massive grounders and continues north beyond the edge of the site as an extant earth and stone boundary. No clear evidence for a banked or built boundary could be seen following clearance. However, a piecemeal natural alignment of grounders was identified, along with the possible placement of very occasional large stones against them. At the northern end of its alignment a single 0.75m high upright granite gatepost was located marking an entrance and thus the presence of a boundary. 	-	Retain up
Project Site No: 40 Type: Trengwainton Carn Date: Multi-period potential NGR: SW44055/32011 Area: E Importance: Local	 Trengwainton Carn. As an important and visually dominant landscape feature, Trengwainton Carn, like many similar sites in West Penwith is likely to have attracted prehistoric attention because of its strikingly-shaped rock stacks, vertical and horizontal joints, chamber-like voids and at least three solution basins. No logan or rocking stone was found, although weathering of joints may in the past have allowed for movement. Similar locations have in the past attracted prehistoric activity, as for example at Zennor Hill. High, visually striking, rocky outcrops were sometimes enclosed as 'special places,' As was noted by antiquarians (Borlase 1754/1973) and increasingly by modern archaeologists (Tilley 2010, Jones forthcoming etc) Because rhododendron growth had not extended up on to the carn vegetation clearance did not take place on or immediately around the carn itself. Occasional large stones may have been moved or repositioned, but this could not be verified. The degree of stone removal, drilling (or even blasting) could not be assessed because of the gorse cover. It remains very likely that prehistoric interest was focussed around Trengwainton carn. Occasional prehistoric finds, including worked flints and distinctive water worn quartz pebbles – possible sling shots (found during the mechanical leaf litter clearance), confirm the presence of prehistoric activity around the periphery of this site. 	Stable It is unlikely that the reintroduction of livestock poses a significant threat to the site.	It is red vegetation measured should be decorated
Project Site No: 41 Type: Remnant boundary Date: Medieval / ?Post-Medieval NGR: SW43585/32510-43646/32574 Area: F2 Importance: Local	Former boundary. Not shown on the Tithe Map or subsequent mapping but clearly identified by the NMP. Still visible as a low-lying bank, with stony elements, including occasional substantial grounders. Runs north-east from Sheep Walk Site 4 into the main southernmost east to west running component of field system Site 14. Maximum of 1.6m wide and 0.3m high where visible. Very patchy and has not survived machining well. Appears quite denuded – possibly by past livestock?	-	Avoid veh

pright granite and avoid vehicular damage.

ecommended that should fire ever clear the on from this site that a rapid photographic and ed survey should be made. Particular attention be paid to the search for placed, balanced or ed stones.

nicular damage.

Site Data	Description	Condition and threats	Recomm
Project Site No: 42 Type: Clearance cairns Date: Medieval NGR: SW44126/32000 Area: A2 Importance: Local	Clearance cairns. A loose area of approximately three poorly defined clearance cairns revealed after leaf litter clearance. They lay within or on top of the pre-rhododendron land surface and consisted of denuded heaps of un-shaped generally small sized, weathered granite stones. They were recorded as 1-1.8m wide patches of 0.1-0.2m size stones and represent stone collected in to heaps during initial (possibly medieval) ground clearance in the area. No obviously linked early boundaries have been identified from the historic mapping and NMP work has not identified any associated field features. Although stone breaking is likely to have extended across this area, these scattered stone features appeared too focussed and the stones too small and weathered to be associated. As a result they have been recorded as probable medieval clearance cairns.	Exposed during leaf litter clearance.	Avoid all vulnerabl their loca
Project Site No: 43 Type: Track Date: Post-medieval/Modern? NGR: SW44102/32386-44069/32318 Area: D Importance: Local / none	Recent track. Running along the southern edge of the Madron to Morvah road, parallel to boundary B7. A short length of track, with a 2m width and a maximum 0.3m depth. It ran north and west towards the current road entrance in to the project area. This is not an early feature, but does reflect more intensive former working of the site.	Stable.	None.
Project Site No: 44 Type: Large pits and dumps Date: Early Modern / Modern? NGR: SW44430/32542 Area: C Importance: Local	Probable surface stone extraction pits and dumps. Two particularly large pits with surrounding soil and stone dumps were noted in the north-eastern part of Area C. Interpretation of these similar, closely positioned features is uncertain. They are most likely to be related to stone quarrying. They are certainly post-medieval in date given the relative sharpness of both the pit edges and the surviving raised dumps. The northern pit (8.0m by 12m in plan) is surrounded by approximately 1m high soil dumps, while the southern pit (4.0m -5.0m diameter) has a 2.0m high dump adjacent to it. Stone quarry pits have been noted across much of Area C, particularly across the southern and eastern parts, while stone drilling and splitting tends to be concentrated along the northern and western parts of the area, on the higher ground, where the grounders are frequent and massive. However, no other comparable pits and dumps were located.	Stable, but prone to livestock damage.	Avoid veh
Project Site No: 45 Type: Hut circles Date: Bronze Age to ?Iron Age HER No: - Extension of MCO 20646 NGR: SW44284/32480-44296/32436 Area: C Importance: Regional / National	 Prehistoric circular huts and associated boundary. On the southern edge of field system Site 22 are what appear to be the remains of a series of hut circles built in to the main north to south running boundary B15. Visible as a focussed series of 'wobbles' along the course of the boundary, they are thought likely to represent late prehistoric, probable Bronze Age structures. The boundary kinks are depicted on the Tithe Map. Although only loosely definable in the field, they appear to represent the basal remains of three or possibly four, 9-12m diameter grounder-based structures, with occasional placed stones filling the intervening gaps. These grounders represent the lowermost foundations of drystone walling. They are indistinct, and do not survive well as extant features. Despite stone robbing and no-doubt periodic post-occupation repairs to boundary B15, these structures may well retain floor deposits, given the known survival of basal deposits below the visible ground surface on morphologically similar sites. There may also be associated pits, gullies etc associated with these features. They have been tentatively dated to the Bronze Age period on the basis of other known Bronze Age hut circles, for example at near by Bosiliack and further afield on Bodmin Moor. The function of these structures is assumed to be domestic , but given their current lack of clarity and definite measurements or shape, it is possible that some housed animals etc. 	Stable, but prone to livestock damage. Also prone to continuing rhododendron growth unless regularly treated.	These red damage of No driving any rho cutting/sp Detailed interpreta relationsh with form There is associate features focussed use and of See Site 2

nendations

I un-necessary ground disturbance because these le features are not visible as surface features and ation cannot be predicted.

hicular damage.

equire regular monitoring to ensure that no animal occurs.

ng at all should take place within their vicinity and nododendron growth should be treated by spraying and not stump pulling/root removal.

survey would significantly help in their better cation, and perhaps help with working out their chip to B15 and perhaps the original eastern link mer boundary Site 48.

s considerable potential for subsurface deposits ed with remnant floors and/or associated cut such as pits and gullies to survive. A rapid, I evaluative excavation would clarify the date, likely character of these sites.

22 recommendations.

Site Data	Description	Condition and threats	Recomm
Project Site No: 16	Clearance cairns A group of at least two clearance cairns which were guite poorly defined	Exposed damaged during	Avoid all
Type: Clearance cairns	beneath the leaf litter, lying on or within the previous old land surface. They measured 1-2m	leaf litter clearance.	vulnerab
Date: Medieval	during clearance of fields in the area. The two identified cairns probably represent just two of		
NGR: SW44340/32380	very many similar features within Area C given the density and long-lived character of the field system in this part of the project area. It is probable that they are medieval, although		
Area: C	proximity to the probable prehistoric elements of the system might suggest an earlier date.		
Importance: Local	It is uncertain why the stones were not simply put on to the nearby boundaries, but perhaps they were already brimming over with small stones. One at least was closely associated with a grounder, suggesting that the frequent presence of un-movable grounders within a pre- mechanically ploughed field offered good spots for the disposal of stone exposed during cultivation.		
Project Site No: 47	Small angular field enclosure. A small angular enclosure, located in the extreme north-	Stable.	This site increasin whateve
Type: Small angular enclosure	eastern corner of Area C. It is connected to Tithe Map recorded boundaries B27 and B18 and encloses a small area with a curved western side. It was not shown on the Tithe Map, but was		
Date: Early Modern (post 1840)	clearly shown on the 1880 OS map and all subsequent mapping. The whole area was very		
NGR: SW44470/32560	overgrown with non-rhododendron growth. The boundary was stone faced, about 1.3m high and 0.9m wide at base.		
Area: C			
Importance: Local			
Project Site No: 48	Removed former boundary. A former boundary, not marked on the 1840s Tithe or	Largely gone as a surface	Avoid fre
Type: Removed boundary	subsequent mapping, but identified by NMP as an east to west running probable removed boundary. In the field it was visible only as a vague line of large grounders, which in the past	visible feature, except for the largest grounders.	ephemera
Date: probably Medieval (or earlier?)	may have had linking stones and/or a bank. No clear evidence for these were found following leaf litter removal. Interestingly its projected eastern extension would join B15 and the northern edge of huts Site 45, implying that this former boundary may well be early in origin. Its western end coincides with B23, which marks the eastern side of the probable early		Related to
HER No: Extension of MCO 20646			
NGR: SW44189/32503-44244/32488			
Area: C	landscape division and livestock movement Site 38.		
Importance: Local			

nendations

I un-necessary ground disturbance because these ole features are not visible as surface features and ation cannot be predicted.

e should be retained as small enclosures are an ngly rare feature within wider fieldscapes – r their dates.

requent vehicular crossing in the area in case ral basal remains are damaged or destroyed.

to Site 22 recommendations.

List of all major boundaries

Boundary no.s	SW NGR & Area	First mapped	Description and comments	Mi
B1	44227/32157 - 43961/31580 Area A2 (east) and A3 (south east)	1840	Boundary (and probable livestock enclosure ditch) A 1-1.4m high, 1.2-1.6m wide at base, north-north-east to south-south-west aligned boundary. Stone faced, with an earth and stone core and incorporates some grounders. There are sporadic mature trees/bushes along its top, as well as a variety of shade loving plants. Formerly heavily overgrown, with occasional patches of instability. It incorporates at least one <i>c</i> 1.2m wide, post-medieval/modern gate. Although this alignment is shown on the Tithe Map, it is possible that there has been some substantial rebuilding/re-facing work carried out during landscape and animal proofing works associated with the management of the Trengwainton Estate. The western side has a parallel, 1.5 - 2.2m wide ditch-like depression up to 0.5m-0.75m deep, which seems to have functioned as a livestock track/enclosure ditch. Running partially parallel to B1 and crossed/damaged by the ditch-like depression is orthostatic boundary Site 5 and its possible associated structure.	He an col rep
B2	43961/31580 – 43406/32437 Area A3, F1 and F2 (west)	1840	Boundary (and track). This varies in height from c1.2m in south to 1.8m in north and c.1.2-1.5m wide at base. The boundary is north-north-west to south-south-east aligned, with a fairly regular track-like depression running along the majority of its eastern edge. Stone faced with an earth and stone core and incorporates many grounders. Formerly very overgrown along its entire length. Although its alignment is shown on the Tithe Map, it is possible that there has been some substantial rebuilding/re-facing work carried out during landscape and animal proofing works associated with the Trengwainton Estate. The northern part is very waterlogged and low-lying, and is more massive in both height and width. Overgrown, with trees along its top together with a variety of shade loving vegetation. Occasional entrances through to the west.	He an col rep
B3	44107/31729 - 43917/32131 Area A3 (east) and F1 (south east)	1840	Boundary. 0.8 - 1.2m high, 1.0-1.4m wide, stone faced with an earth and stone core. Very frequent, piece-meal repairs were noted along much of its length. The boundary incorporates many grounders ands was formerly completely overgrown. It shows indications of much instability and some partial collapse, with much root damage and probable past livestock crossing damage. The northern half is aligned north to south-south-west, the southern half being aligned north-west to south-east. A broad kink in its alignment implies earlier interconnected boundaries. Varied vegetation was noted along its length. There is a granite gate post at its northern junction with the track (see Site 2). The boundary extending north of this point is B12 .	He an col rep
B4	44071/31765 – 43961/32042 Central Area E	1907	Insubstantial/possibly temporary alignment. Of post 1880 construction enclosing a narrow north-west to south-east aligned area – the western side of which follows earlier boundary B3. The 1880 OS map shows the start of tree planting to its north. By 1907 this had become an enclosed <i>plantation</i> . Occasional dead (and dying), tall trees remained and could still be seen from the top of the Carn. The feature was totally overgrown, patchy and barely visible, having the form of a very low-lying possible earthy alignment not exceeding 0.15m maximum in height. Severely damaged by Rhododendron growth. Possibly never more than a fenced or cleared plantation edge.	Sh lar mo
B5	43917/32131 – 43691/32072 Area F1	1840	Boundary and flanking trackway. About 1.3m high and up to 2m wide. East to west aligned and incorporating at least one collapsed stile. Formerly fairly substantial, with stone facing and an earth and stone core (substantial soil content was noted in a collapsed section close to its western end). Incorporates many grounders. The boundary is less substantial in its eastern part – being 1.1m high and 1.3m maximum wide at base. Very overgrown with much collapse and root damage. The trackway extends from ' <i>Sheepwalk'</i> - Site 6 - to the boggy ground west of B2 (extending west beyond the edge of the study area). Typically 1.2 – 1.8m wide, with an adjacent 0.3m maximum deep depression. At the eastern end of the track an upright granite stone marks its edge (possibly a former granite gate post).	He an col rep
B6	44227/32170 - 44102/32280 Area G (south and west side)	East -1880, west -1907	Boundary. A substantial stone faced, earth and stone boundary marking the northern side of the 'Church Way' track and western edge of Area G. The maximum boundary height is c1.5m against the track, dropping to c.1m high, 1.2m max wide at west. The eastern half is well maintained and faced with possibly 19 th century, shaped granite blocks. This south-eastern section probably overlies an original, low bank which flanked the northern edge of the Church path – Site 2. Overgrown with patches of root damage. At its junction with Madron Road it has a substantial stone stile composed of long, narrow, drill-cut granite slabs at east end, plus a 2m wide gate.	To po Ch sho
B7	44102/32280 - 43827/32747 East side of Areas A1, D, G and F2	1840 / 1809	Boundary. This defines the western edge of Madron Road and has a variable height of $c1.2$ - 1.7m. It is a stone-faced, earth and stone boundary, which on its northern (road) side is in part a stone faced edge or cut – the result of the road having been excavated down into the bedrock. The boundary is noticeably less substantial in its northern part, where the road is at a higher elevation. There are scattered small trees along its length. There are at least two 2m wide gates with granite gateposts in its northern section. Some repairs were noted.	He ad so da ma

itigation & Hedge Regulations

edge Regulations apply and consent in advance of by significant alteration should be sought. Areas of llapse, instability or livestock damage should be paired using traditional materials and methods.

edge Regulations apply. Consent in advance of y significant alteration should be sought. Areas of llapse, instability or livestock damage should be paired using traditional materials and methods.

edge Regulations apply. Consent in advance of ny significant alteration should be sought. Areas of ollapse, instability or livestock damage should be paired using traditional materials and methods.

nould be retained as a part of the ornamental ndscape, where visible. Avoid vehicular ovements across the feature.

edge Regulations apply. Consent in advance of by significant alteration should be sought. Areas of illapse, instability or livestock damage should be paired using traditional materials and methods.

b be retained and repaired as necessary. The otential for an underlying bank associated with the nurch Path – Site 2, along its east to west length hould be borne in mind.

edge Regulations may apply and consent in dvance of any significant alteration should be bught. Areas of collapse, instability or livestock amage should be repaired using traditional aterials and methods.

Boundary no.s	SW NGR & Area	First mapped	Description and comments	Mit
B8	43827/32747 - 43635/32616 Area F2 (part of north)	1907	Boundary. 1.4m high and c1.3m wide at its base. Post-dates the 1880 OS mapping, and is constructed entirely of stone. A solid and substantial boundary, of jumbled appearance, incorporating many grounders. It partially defines the edge of a rise in ground level. The boundary is overgrown with bracken and brambles. It is associated with field intake and grounder clearance.	To tra
B9	-	-	Outside study area	-
B10	43604/32870 - 43401/32442 Area F2 (north- west)	1840 / 1809	Boundary. Running north-north-east to south-south-west, the northern part runs along the eastern side of Boswarva Lane, while the southern two thirds runs south along the western side of the stream. North of the Site 3 footbridge the stone faced earth and stone boundary was recorded as c1.5m high on the western lane side. It supports a wide range of flowering plants and bushes. Opposite Site 3 a 2m wide gate and a 1m wide stone stile allow access through the boundary. South of Site 3 the boundary suddenly drops down c1.8m and becomes a very substantial stone faced wall-like boundary up to 2.3m high. Running along the eastern side of this part of the boundary is an approximately 1.5m wide track-like feature, which may originally have been the stream course. The stream from this point has been diverted east, 2m above the old course in to a narrow, rock-cut leat or culvert. The boundary height gradually reduces to 1.3m high, at about the same point as a deep, waterlogged hole in the old stream bed appears. Before the southern end of this B10 boundary, the new stream reaches the same level as the old stream course, and the steep slope defining the eastern edge of the track is lost within a mass of grounders and boulders. This boundary is of probable medieval and post-medieval construction, is closely linked to local water management and has patches of repair work.	Hec of a of be me
B11	43488/32675 – 43853/32442 Northeast part of Area F2	1840	Boundary. A north-west to south-east aligned, stone faced, earth and stone boundary. The majority of this feature was swathed in bracken, bushes and brambles, and still supports a varied range of plants. The feature is up to 1.7m high and c1.4m wide at its base at its western end. The eastern part is smaller, with an approximate 1.5m maximum height and a c1m wide base. The Tithe Map shows a kink in B12 to the north of the current B11/B12 junction suggesting that the eastern part of B11 had been rebuilt by 1840 on a slightly different, more southerly alignment. The boundary incorporates at least one stone stile, and shows evidence of piecemeal rebuilding and repairs. Walking the length of this boundary after clearance it was possible to see that it altered significantly in character along its length, ranging from a round topped earth and stone faced bank to a stone faced, sheer sided near flat topped boundary. A line of modern manholes run to the southern side of this boundary – probably marking the course of a pipe trench linking Boswarva to Site 2 Church Lane and Madron Road.	Hec any coll rep
B12	43917/32131 – 43943/32650 Part of Area F2 (east)	1840	Boundary. A north to south aligned curvilinear boundary, with occasional sinuous kinks indicative of past boundary junctions (see B11). It runs south from the Madron road to the Site 2 Church Path. Its northern half includes massive grounders and stones with an earth and stone core. The central part of the boundary is made up of a c1m high earth and stone bank with remnant stone facing topped with formerly dense vegetation. It has an approximate 1.3m width and shows some evidence for patchy repairs in the past. A stone stile was noted, plus occasional gaps or more damaged areas. B12 is likely to have its origin as an Upland Rough Ground pasture-dividing boundary.	Hec any coll rep
B13	44274/32170 – 44402/32155 Area C (south)	1840 / 1809	Boundary. Stone faced, east to west boundary running along the deeply cut northern edge of Madron Road, marking the southern boundary of Tithe named ' <i>Farther Higher Croft'</i> . The eastern road-side stone face was recorded as up to 1.8m high, topped with an earth and stone bank, which was 0.3m high in the west, increasing to 1.3m high in the east. The road-side facing and bank was quite well maintained, but the study area northern side was less so, with evidence for some collapse and past repairs. Some tree root damage.	Heo any coll rep
B14	44402/32155 - 44451/32319 Area C (east)	1907	Boundary. North to south aligned. This represents a post 1880 realignment of a former Tithe mapped field - ' <i>Farther Higher Croft'</i> . The original northern, pre 1907 part exists as B26 . 0.5-0.9m high stone and stone rubble construction. Partially overgrown, with the northern /central length containing some notably large grounders. The ploughed field to its east is slightly lower than the ground level within the study area, suggesting that some of the grounders come from this deeper, eastern modern ploughing and land clearance. Others will have come from the removed original boundary.	Pre nec

be retained and repaired as necessary, using aditional materials and methods.

edge Regulations may apply. Consent in advance any significant alteration should be sought. Areas collapse, instability or livestock damage should repaired using traditional materials and ethods.

edge Regulations apply. Consent in advance of y significant alteration should be sought. Areas of llapse, instability or livestock damage should be paired using traditional materials and methods.

edge Regulations apply. Consent in advance of y significant alteration should be sought. Areas of llapse, instability or livestock damage should be paired using traditional materials and methods.

edge Regulations apply. Consent in advance of y significant alteration should be sought. Areas of llapse, instability or livestock damage should be paired using traditional materials and methods.

eferably to be retained and repaired manually as accessary.

Boundary no.s	SW NGR & Area	First mapped	Description and comments	Mit
B15	44322/32598 – 44381/32342 Area C (central)	1840	Boundary (and hut circle Site 45). An ancient, curvilinear earth and stone bank boundary with partial facing running south from B28 . It has an eastern arm extending from its rounded southern end, which is joined by the northern end of B26 , and terminates at B17 (just before which it has been damaged by recent fencing works). Beyond B28 this boundary becomes a part of Site 22 . At the northern end of B15 (close to B28) it measures c1-5-2m wide and 0.5-1m high. At the eastern end of its eastern arm it measures 1-2m wide and 0.2-0.5m high with a shallow ditch running along its northern side. Along its length some collapse caused by roots and animals was noted. Repair works were seen, but most were old and had re- collapsed. A number of large grounders are visible, which probably helped dictate the original boundary course.	Hec any Are shc me Gre sou etc
			(see Site 48). <u>Note</u> : Machine tracking across B15 to the west of B26 cut down in to the ground and showed that B15 continues down at least 0.5m below current ground level. This may well apply to a number of the boundaries in the area.	Ani acc
B16	44402/32396 – 44469/32560 Area C (east)	Pre 1840 bank? with Post 1946 boundary	Boundary. A just visible bank of earth and stone up to 2m wide and 0.2m high runs on this alignment. At its northern end it joins curvilinear boundary B27 . The 1946 aerial photograph does not show it, implying a post 1946 date for its construction. Today it has a recent post and wire fence placed on top. The banked material appears disturbed or recently deposited and the stones do not represent a made boundary, but rather pushed and dumped material – probably created while dismantling the former post-medieval boundary to its east outside the study area.	Нес
B17	44451/32319 – 44435/32598 Area C (north east)	1840	Boundary. Northern part aligned north-east to south-west and is probably equivalent to B27 . To the east the ground level is approximately 1m lower, implying either that B17 is lynchetted, or that it has seen stone removal and possibly turf cutting along its eastern side, (which is waterlogged in wet weather). The lynchet-like earth and stone bank is 2-3m wide, drops 1m in depth from west to east and is defined by an earth and stone bank 0.3-0.76m high and 1-1.4m wide at base, with a partially orthostatic element of uncertain date. Appears to represent a combination of bank, lynchet and quarrying with possible more recent disturbance during tree planting in the mid 20 th century which may have created or added to the earth and stone bank.	Heo of a of be me
			The southern main part consists of a simpler 1.8m maximum wide at base, 0.3-0.7m high earth and stone bank with at least one former gate entrance at its southern end. It is aligned north to south-west. Some damage, collapse and past repairs noted.	
B18	44469/32560 – 44184/32755 Area C (north)	1809	Boundary (see also track/path Site 24). The stone faced southern edge of a deeply cut or eroded medieval or earlier track, incorporating huge grounders with infilling boulders and smaller clearance associated stones. North-west to south-east aligned. Shown on the Tithe Map as marking the north-east edge of ' <i>Part of Homer Croft Inclosed'</i> . This is an approximately 0.7m high stone faced earth and stone boundary at its eastern end, and an up to 2.4m high stone faced track edge topped by a stone faced earth and stone bank/boundary near its centre where the track cuts through higher, uneven ground (and at least one former boundary). At the western end it has an approximate height of 1.3m and a 1.5m width at base. Some collapse and instability was noted, along with numerous repairs, including a probable in-filled former gate, which must have been in use prior to the extreme deepening of the track through human, animal and water erosion. This is likely to be an early, potentially late prehistoric track and boundary alignment, based on its associated lynchet boundaries and the probable link with late prehistoric boundary B15 and probable roundhouse Site 45 – see the distinct kink due north of the current northern end of B15 (part of Site 22).	Hec any coll rep Car forn side
B19	44197/32247 - 44286/32362 Area C (within southwest)	1840	Boundary. This defines the eastern side of a small triangular field called ' <i>Three cornered slip</i> ' (on the Tithe Map). It is north-north-east to south-south-west aligned, 0.3-0.6m high and up to 1.8m wide at its base. It includes massive 3-4m long grounders, is overgrown and in a state of gradual collapse. Roots have dislodged the stone facing. Follows a curvilinear alignment and includes several kinks in its course. It appears to be an early i.e. Medieval or earlier element of the field system here. The kinks – not clearly shown on the Tithe Map, but shown on all subsequent mapping, are similar to those associated with probable roundhouse Site 45. No evidence for roundhouses could be seen in the field, but it is possible that remains exist below the current ground level – see note for B15 (above).	Heo any reta dar ma
B20	44235/32326 - 44202/32337 Area C (west)	1840	Boundary. Near east to west aligned, short and straight. This defines the northern side of the Tithe Map named ' <i>Three cornered slip'</i> . Recorded as a collapsed and slumped earth and stone bank 0.3-0.7m max. high and 1-1.4m wide, incorporating huge grounders. The boundary has partially damaged the stone facing, which has also seen some root damage. The western end is marked by a huge low-lying grounder running across the 'track' to its west.	Heo any coll rep
B21	44199/32239 – 44197/32337 Area C (west)	1840	Boundary. This defines the western side of ' <i>Three cornered slip</i> '. Recorded near its central point as up to 5m wide because of grounders included in its make-up, and up to 1.4m high. Appears to have seen some alteration and/or rebuilding since the 1840s. The Tithe Map shows a long narrow rectangular strip of land with a more formalised, (possibly just a more level) western side which formed a right of way or the southern end of an apparent drove way – Site 38 . It is likely that B21 marks that formalised eastern side of the track. Only a very small northern part of this boundary falls within the study area.	Heo any coll rep

- edge Regulations apply. Consent in advance of y alteration should be sought.
- eas of collapse, instability or livestock damage ould be repaired using traditional materials and ethods.
- eat care and archaeological advice should be ught for any damage, repairs, future clearance c in the area of **Site 45**.
- imal damage should be avoided and no vehicular cess across the area should take place.

edge Regulations do not apply.

edge Regulations may apply. Consent in advance any significant alteration should be sought. Areas collapse, instability or livestock damage should repaired using traditional materials and ethods.

edge Regulations apply. Consent in advance of by significant alteration should be sought. Areas of llapse, instability or livestock damage should be paired using traditional materials and methods.

are should be taken not to damage lynchet-like rmer boundary alignments joining its southern de.

edge Regulations apply. Consent in advance of by significant alteration should be sought. To be tained. Areas of collapse, instability or livestock image should be repaired using traditional aterials and methods.

edge Regulations apply. Consent in advance of by significant alteration should be sought. Areas of llapse, instability or livestock damage should be paired using traditional materials and methods.

edge Regulations apply. Consent in advance of y significant alteration should be sought. Areas of llapse, instability or livestock damage should be paired using traditional materials and methods.

Boundary no.s	SW NGR & Area	First mapped	Description and comments	Mit
B22	44189/32180 – 44150/32621 Area C/B	1840	Boundary. This formed the western side of Tithe map field ' <i>Slip adjoining (The Great Holt)'</i> – Site 38 . It is north to south aligned and slightly curvilinear. The boundary in places appears to be on raised ground –probably because of the removal of stone from its east edge in an attempt to form a usable drove way running around the lower slopes of Trengwainton Hill – see Tithe Map. The southern end was recorded as being up to 1.5m high, in a good state of repair, and comprising a stone-faced earth and stone wall-like boundary. Further north it quickly broadened to between 1.2 and 2m and reduced in height to <i>c</i> 1m. The northern end of boundary was slightly less clearly defined. Root damage and collapse was noted, plus an area of partially slumped stone facing. Piecemeal repairs were noted along the northern and central part of the boundary. This boundary may have a medieval origin.	Hec any coll rep
			NOTE: This boundary forms the higher western edge of a long narrow strip of naturally steep land which was used to separate pasture to the higher west and lower cultivated land to the east. The Tithe Map additionally shows a track hugging the eastern edge of this boundary.	
B23	44209/32339 – 44163/32616 Area C (west)	1840	Boundary. Aligned north to south and runs parallel to the eastern edge of B22 – forming Site 38 . It is shown on all maps as more curvilinear and less smoothly linear than B22 , suggesting a probable medieval origin. Some of the slight bulges follow huge grounders, but others might suggest the former junctions of now lost boundaries. Approximately 50% of its route is composed of grounders or exposed pockets of bedrock. Linking these long stretches of rock are low-lying stony banks, which because of the depth of leaf litter sometimes appear largely earthen. There are a number of patches where repair work has taken place in the past. There is also at least one stile-like crossing into the ground to the east. At its junction with the more recent B21 is a huge low-lying granite grounder. To the north of this the boundary is recorded as 0.4-1.2m high and up to 2m wide along its length. Much of it is in a tumbled state and any original stone facing is barely visible. The northern part of the boundary sometimes appeared to be raised above the ground level to its immediate west due to partial clearance to form a track or drove way on that side.	Hec any coll rep
B24	44058/32342 – 44181/32444 Area B (south)	1880	Boundary. Unusual orthostatic construction, using relatively regularly shaped drill-split granite slabs, probably collected from the immediate surrounding area. Semi-decorative appearance resulting from the use of predominantly vertically placed 1.2m high, narrow rectangular slabs and occasional broader, 0.5m high, horizontally placed pairs of slabs – one above the other. Frequently the upper slab had been pushed (or collapsed) south or east providing convenient boundary crossing points. This is an post-medieval boundary built between 1840 and 1880, when it was first shown on mapping as defining a tree planted area. The boundary appears to be a decorative/ornamental division separating planted trees from animals grazing on the adjacent upland rough ground. It will have been a visible landscape feature from the lower slopes out towards the east.	Thi sigi Tre Reg doe
B25	44240/32650 - 44258/32711 Area C (north)	1840	Boundary. This defined the eastern edge of ' <i>The Little Holts'</i> . It is shown on the Tithe Map, the 1946 aerial photograph and modern mapping, (but not on either the 1880 or the 1907 OS maps). It is composed of occasional grounders and banked stone overlain by soil/leaf litter. Vegetated. It varies in width from 0.5-3m. It is in a poor state of repair and patchy and until clearance work marked the side of a broad grassed path.	Heo any coll rep
B26	44381/32247 – 44379/32342 Area C (within southeast)	1840	Boundary. Originally the eastern boundary of ' <i>Farther Higher Croft'</i> - as shown on the 1840 Tithe Map. Recorded as 0.3-0.8m maximum high, by 1-1.5m wide earth bank with occasional large stones at its base. Probably constructed from stones taken from its pre-cursor Site 33 (an NMP curvilinear boundary partially following its same alignment). Boundary 26 was probably robbed of stone during the construction of B14 to its east – the present day eastern side of area C. Boundary 26 forms part of the former medieval field system.	Heo any coll rep
B27	44435/32511 – 44381/32483 Area C (east)	1840	Boundary. This forms the southern boundary of ' <i>Part of Homer Croft Inclosed'</i> shown on the 1840 Tithe Map. Recorded as a sinuous earth and stone bank, 0.3-0.7m high and 1-1.8m wide. The northern part of B17 mirrors its course. The north-eastern end of B27 has been absorbed in to later B16 , at a point where the low-lying ground is frequently quite waterlogged, while its south-western end links in to B17 . Some evidence for small scale repairs of different date.	Heo any coll rep
B28	44376/32516 – 44302/32529 Area C (central)	1840	Boundary. This was shown on the 1840 Tithe Map as defining the northern edge of ' <i>Middle Croft'</i> . Recorded as a 1-1.2m high maximum, 2-3m wide earth and stone bank, incorporating occasional massive granite stones. Leaf litter / soil cover overlies much of its length, but it includes a clear underlying stone clearance element. Some collapse and root damage. May originally have had some stone facing, but this has largely collapsed – if ever present. Possible repairs, but these are not very clear.	Heo any coll rep
B29	44161/32614 – 44176/32750 Area C (north west)	1840 / 1809?	Boundary. A north to south aligned field boundary, forming the western edge of a steep track/drove-like feature shown on the Tithe Map. It is visible today as a fairly dramatic 2-3m high slope dropping down to the east from the higher fields to its west. It is very overgrown and covered in dense gorse growth etc. The slope follows a pronounced natural contour, which may have been exaggerated by the removal of stone to its east. It is topped by a low earth and stone boundary.	Hec any coll rep

edge Regulations apply. Consent in advance of y significant alteration should be sought. Areas of llapse, instability or livestock damage should be paired using traditional materials and methods.

edge Regulations apply. Consent in advance of y significant alteration should be sought. Areas of llapse, instability or livestock damage should be paired using traditional materials and methods.

is boundary post-dates the Tithe Map, but is of gnificance because it appears to be part of the engwainton Estate Ornamental landscape.

egularly monitor to ensure that livestock damage es not occur.

edge Regulations apply. Consent in advance of y significant alteration should be sought. Areas of llapse, instability or livestock damage should be paired using traditional materials and methods.

edge Regulations apply. Consent in advance of y significant alteration should be sought. Areas of llapse, instability or livestock damage should be paired using traditional materials and methods.

edge Regulations apply. Consent in advance of y significant alteration should be sought. Areas of llapse, instability or livestock damage should be paired using traditional materials and methods.

edge Regulations apply. Consent in advance of y significant alteration should be sought. Areas of llapse, instability or livestock damage should be paired using traditional materials and methods.

edge Regulations apply. Consent in advance of y significant alteration should be sought. Areas of llapse, instability or livestock damage should be paired using traditional materials and methods.

Boundary no.s	SW NGR & Area	First mapped	Description and comments	Mit
B30	44186/32675 – 44233/32647 Area C (north)	1840	Boundary. A west-northwest to east-southeast boundary, marking the southern edge of ' <i>The Little Holts'</i> – a diamond shaped field shown on the Tithe Map. It survives as a low-lying, broad and incomplete earth and stone boundary approximately 2m wide and up to 0.1m high. It has suffered a lot from tree root damage and possibly burrowing and animal erosion, and like many of the boundaries in this area had not been used a formal boundary for many years. A diagonal track? Appeared to run through it from west to east.	Hec any coll rep
B31	44179/32575 – 44202/32742 Area C (north)	1840 / 1809?	Boundary. A north to south aligned field boundary, forming the eastern edge of a steep track/drove-like feature shown on the Tithe Map. Runs parallel to the eastern side of B29 . Heavily overgrown with tree root damage. 2m plus wide. An earth and stone bank, although likely originally to have been substantial and of stone construction if the area between it and B29 was used for the transporting of livestock to and from high ground.	Heo any coll rep
B32	44323/32333 – 44422/32351 Area C (south east)	1840	Boundary. Runs east from the southern end of medieval/prehistoric boundary B15. This boundary is associated with B26 and its precursor Site 33. It is marked on the 1840 Tithe Map. At its clearest eastern end it was recorded as an earth and stone boundary bank varying from 1-1.8m wide, and 0.2-0.5m high. On its northern side was a ditch or possible narrow track/path 1.6m wide and up to 0.2m deep. It ran for an approximate 70m length.	Hec any coll rep

edge Regulations apply. Consent in advance of ay significant alteration should be sought. Areas of llapse, instability or livestock damage should be paired using traditional materials and methods.

edge Regulations apply. Consent in advance of y significant alteration should be sought. Areas of llapse, instability or livestock damage should be paired using traditional materials and methods.

edge Regulations apply. Consent in advance of y significant alteration should be sought. Areas of llapse, instability or livestock damage should be paired using traditional materials and methods.

9 References

9.1 Primary sources

Ordnance Survey, 1809. 1" to 1 mile (licensed digital copy at HE)

Tithe Map and Apportionment, c1840. Parish of Madron

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

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

Ordnance Survey, 2007. Mastermap Digital Mapping

9.2 Publications

- Borlase, W.C., 1872. Naenia Cornubiae, a descriptive essay, illustrative of the sepulchres & funereal customs of the early inhabitants of the county of Cornwall.
- Countryside Commission, 1996. *Cornwall Landscape Assessment 1994*, report prepared by CAU and Landscape Design Architects.
- Dudley, P., 2011. Goon hal, cliff and croft: the archaeology and landscape history of west Cornwall's rough ground. HE, CC: Truro
- Johnson, N. and Rose, P., 1994. Bodmin Moor –An archaeological survey, Vol. 1. English Heritage and RCHM England
- Jones, AM. And Quinnell, H., 2011. Bosiliack: A later prehistoric settlement in West Penwith, Cornwall & its context. In *The Archaeological Journal*, **168**
- Kirkham, G., 2011. *Managing the historic environment on west Cornwall's rough ground.* HE, CC: Truro

Langdon, A., 1997. Stone crosses in West Penwith.

- Lawson-Jones, A., 2010. Trengwainton Carn, Cornwall An archaeological assessment and watching brief. HE, CC: Truro Report no 2010R070
- Lawson-Jones, A., 2011. Trengwainton Carn, Phase 2, Cornwall Archaeological watching brief and recording. HE, CC: Truro Report no 2011R128
- Parkes, C., Lanyon Farm, Madron, Cornwall Archaeological management assessment. HE, CC, Truro Report no 2011R097
- Tilley, C., 2010. Interpreting landscapes: geologies, topographies, identities. Left Coast press

Tregarthen, J.C., 1922. Wild Life at Lands End.

10 Project archive

The CAU project number is 146177

The project's documentary, photographic and drawn archive is housed at the offices of Cornwall Archaeological Unit, Cornwall Council, Fal Building, New County Hall, Station Road, Truro, TR1 3AY. The archive contents are as listed below:

- 1. A project file containing site records, annotated drawings and notes, project correspondence and administration.
- 2. Digital photographs stored in the directory: Sites\R:\Historic Environment (Images)\SITES.Q-T\Trengwainton phase 2
- 3. English Heritage/ADS OASIS online reference: cornwall2-190042

This report text is held in digital form as: Sites\G:\TWE\Waste & Env\Strat Waste & Land\Historic Environment\Projects\Sites\Sites T\Trengwainton 2nd Phase 20100930\2013 REPORT-Final

11 Appendices

11.1 Written Scheme of Investigation

Project Design for archaeological assessment and watching brief during a second phase of clearance of Phytopthera infected *Rhododendron ponticum*

Client:	Mr Adrian Nicholls (tenant of The Bolitho Estate).
Client contact:	Edward Bolitho
Client tel:	N/A
Client email:	Edward@bolithosestates.co.uk

Site history

Trengwainton Carn, centred at SW 43969 32325 and rising to a maximum height of 180m is a granite outcrop overlooking Mounts Bay. It is part of the Trengwainton Estate, the core of which lies immediately to the south, and is itself part of the Bolitho Estate. Such prominent carns were often a focus for prehistoric activity and it is possible that prehistoric artefacts or the remains of a structure may be found there (a number of prehistoric enclosure are noted in the immediate vicinity but outside the area of study). The project area has been managed by the Bolitho family as part of the Trengwainton Estate since the 1860s. The 1st Edition of the OS 1:2500 mapping shows the Carn to have been predominantly open scrubby heathland at the end of the 19th century. During the following 120 years it developed a dense cover of *Rhododendron* ponticum, mixed with some gorse scrub to the west of the Madron-Morvah road. To the east of the road some areas have been planted as woodland, though these have developed a dense understorey of *Rhododendron ponticum*.

Project Background

Phytophthora ramorum is an exotic fungus-like plant pathogen which causes damage to trees, shrubs and other plants. Since the mid-1990s, it has caused widespread death of millions of trees in forest environments in coastal California and Oregon in the USA. Because the most commonly affected trees that have been killed are tanoaks (not true oaks) as well as several true oak species, this extensive phenomenon is commonly known as 'Sudden Oak Death' in the USA. The pathogen was first found in the nursery trade in the USA/Canada in 2001. It was first detected in the UK in 2002. Following the first finding emergency measures were introduced in Great Britain. The initial measures included destruction of infected plants, a ban on imports of susceptible material from affected areas of the USA, and notification of movements of susceptible nursery stock.

In the course of surveys in 2003 for *P. ramorum* a species of *Phytophthora*, now named as *Phytophthora kernoviae*, was found in Cornwall causing similar damage to beech trees and Rhododendrons. This pathogen is taxonomically a distant cousin of *P. ramorum*. It appears to behave in a similar fashion, sporulating on Rhododendrons and causing lethal stem cankers on trees. However, there is some evidence that it may kill Rhododendron more rapidly under UK conditions than *P. ramorum*.

Since the first confirmations in 2002 there has been a coordinated approach to disease control within GB aimed at containment and eradication whilst evidence was gathered to make a decision on future policy. During that time the disease has continued to spread, albeit slowly and mainly in the southern and western parts of GB. A new 5 year programme, which began on 1 April 2009, includes research and development, an awareness programme and disease control through funding clearance of host plants in high risk areas. The *Rhododendron ponticum* which covers a substantial part of Trengwainton Carn has been found to be very significantly infected with *Phytopthera sp.* and has been targeted by a DEFRA HLS related project for removal of all of the infected plant material by cutting, spraying and burning, followed by *Rhododendron* litter removal and heathland reversion. The initial phase of work was undertaken during the Autumn of 2009. The clearance of the *R. ponticum* leaf litter is programmed to be undertaken in the Autumn of 2010, followed by clearance of further areas of *R. ponticum* from the Carn and Hill in the winters of 2010-11 and 2011-12.

A brief for an a watching brief during leaf litter stripping, assessment of the areas to be cleared of *R. ponticum* and for reports following clearance work in 2010-11 and 2011-12 was received from Clare Fitzgibbon of Natural England in early September 2010.

Project extent

Areas on the western slopes of Trengwainton Carn (Area A1 being 2.58Ha and Area A2 measuring 3.86Ha) were cleared during the Autumn of 2009. Overall, it is proposed to treat an area of 61.158 hectares on Trengwainton Carn and Hill, Areas B-E measuring 15.41Ha being proposed for clearance during 2010-11 and Area F measuring 11.36Ha being proposed fro clearance in 2011-12.

Previous archaeological work

All accessible sections of the Project Area were assessed during 2009 by HE Projects (Lawson-Jones 2010) and a report produced summarising the results of a desk-based assessment, a walkover survey and the results of the watching briefs carried out in Areas A1 and A2.

The results of the assessment and watching briefs confirmed the results of aerial photograph mapping carried out as part of the National Mapping Programme, which showed that a number of former field boundaries survived on the site (PRN's 30528, 52957). These appear to be medieval in origin but there is a suggestion of more than one phase of enclosure on the site. An area of possible medieval ridge and furrow was also identified from aerial photographs (PRN 52958), as was a curvilinear enclosure of uncertain date and function (PN 30527). The survival of a possible hull (underground storage chamber) was also recorded (PRN 30537). A Scheduled and Listed cross (PRN 30536) is located close to the main trackway onto the site and is likely to have been a wayside cross. The south-western part of the site is bordered by the Grade II* registered Park and Garden of Trengwainton. A 'droveway' constructed of orthostatic stones on the south-western edge of the site was thought possibly of prehistoric date, and associated with a now ploughed down late prehistoric settlement in the fields immediately to its south-west.

The success of the first phase of the clearance of *R. ponticum* was variable; in some areas, removal of the bushes and stumps was very successful, allowing the assessment of the archaeology to be carried out with a considerable degree of confidence. To the south of the Carn much of the ground remained obscured by stumps and cuttings following clearance, and whilst some broad conclusions confirming the findings of the DBA could be reached, survey of the detail of the archaeology of most of this part of the site proved impossible. Within those parts of the site where no clearance had taken place, the density of *R. ponticum* stands made survey impossible.

Project aims and objectives

The aims of the assessment element of the project follow those outlined in the NE brief and are as follows:

- To ensure damage to the historic environment is minimised whilst Rhododendron clearance and heathland restoration works progress
- to investigate, describe and understand the archaeological and historic environment resource within the study area through fieldwork methods to add to the information already collated in 2009-10
- to locate on a map the extent and nature of identified archaeological sites, adding to the map produced in the 2010 report
- to outline, with justification, any further archaeological recording envisaged if different to that identified in the 2010 report
- to produce 'lessons learnt' and best practice guidance for similar projects in the future in 2012.

Specifically, the brief requires the archaeological consultant to:

- produce a map of the extent of all sites clearly relating to modern features which adds to the 2010 report
- describe, condition assess and photograph each site as necessary to add new information to the 2010 report

- show areas of archaeological sensitivity, adding to that of 2010
- suggest future management requirements that are additions to the 2010 report, and map these clearly to enable future management input.

The results of the works carried out in 2010-2011 are to be summarised in a report, which is to comprise:

Brief background and methodology

Map of archaeological sites with brief descriptions

Map showing areas of archaeological sensitivity and recommended working practices/areas

Requirement for further archaeological works

Bibliography

Archive

The results of the archaeological watching briefs and assessments carried out in 2011-12 are to be summarised in a final report, which is to comprise:

A summary of the findings of the three year works programme

A summary of lessons learnt including any changes in methodology over the work programme

A summary of best practice guidance to inform the archaeological aspects of and future projects that involve *R. ponticum* removal with subsequent heathland restoration.

Working methods

All recording work will be undertaken according to the Institute for Archaeologists *Standards and Guidance for Archaeological Investigation and Recording.* Staff will follow the IfA *Code of Conduct* and *Code of Approved Practice for the Regulation of Contractual Arrangements in Archaeology.* The Institute for Archaeologists is the professional body for archaeologists working in the UK.

Leaf litter watching brief

The site archaeologist will liaise with the client, contractors and land managers prior to and during operations to remove leaf litter from Areas A1 and A2.

The site archaeologist will carry out an archaeological watching brief during the removal of leaf litter from Areas A1 and A2, which it is anticipated will be achieved using a minidigger. The results of the watching brief will be recorded using site notes, additions to a composite base map produced as a result of the first phase of works and by digital photography.

Archaeological assessment following the clearance of R. ponticum from areas B-E (2010-11) and Area F (2011-12).

An area of 15.41Ha will be cleared of *R. ponticum* during the winter of 2010-11 (Areas B-E) and an area of 11.36Ha (Area F) will be cleared during the winter of 2011-12.

The site archaeologist will liaise with the contractors to explain the archaeological implications of their work, and to work with them to devise a clearance plan and methodology suitable to the sensitivities of the archaeology of the Carn and Hill. Maps of known archaeological sites and potential sensitivities will be produced for the contractors in advance of the works.

The site archaeologist will carry out archaeological watching briefs during the clearance of *R. ponticum* from Areas B-E and F. Sites revealed during the works will be recorded and, where required, further advice and guidance will be given to the contracting teams. The watching brief will comprise:

The checking of cleared areas for previously unrecorded archaeological features, or for those which have been concealed by dense vegetation. These will be added to the assessment survey base map. Previously unrecorded detail will be plotted using a handheld GPS unit, and by reference to already mapped points or features. Relevant photographs of archaeological features will be taken, as well as general views of the site from key viewpoints. The checking of the impacts of the work on archaeological features within those areas which have been cleared. Where avoidable negative impacts are noted, the project officer will discuss with the contractors means by which these could be lessened or avoided.

Full biosecurity precautions will be taken, following the advice provided by the Forestry Commission Phytopthera Team.

On completion of the clearance work a walk-over assessment will be carried out over the whole of the areas cleared (A-F) to check and update the results of the initial archaeological assessment and watching brief (Lawson-Jones 2010).

Post-fieldwork tasks

All desktop survey and fieldwork products will be archived according to HE guidelines.

Product

The desktop study and walkover survey will result in the following outputs:

Amended annotated plan of the site.

Survey and watching brief field notes and descriptions

Digital photographs (archived according to the Historic Environment's guidelines) and supplied to the client on CD.

A concise written report summarising the results of the 2010-11 works, to include;

Summary

Introduction/background/terms of reference/methods

Relevant historic maps, plans and illustrations, and other supporting material.

Map of archaeological sites with brief descriptions

Map showing areas of archaeological sensitivity

Requirement for further archaeological works

Bibliography

Archive

Copies of historic maps, photographs etc will be incorporated into the report where they help inform the clearance works. This report will be circulated in draft to inform the clearance work and will be updated following the completion of the archaeological watching brief (see below).

A report following the completion of the 2011-12 works which will summarise the findings from the three year project, sum up lessons learned from any changes in methodology during the work programme and produce best practice guidance to inform the planning of any future *R. ponticum* removal and heathland restoration on other sites in Cornwall.

Monitoring

Any proposed variations in the project design will be submitted in writing to the site owner, FERA Project Officer and Historic Environment Advice Team, Cornwall Council.

Copyright

Copyright of all material gathered as a result of the project will be reserved to Historic Environment, Cornwall Council. Existing copyrights of external sources will be acknowledged where required.

Use of the material will be granted to the client.

Freedom of Information Act

As Cornwall Council is a public authority it is subject to the terms of the Freedom of Information Act 2000, which came into effect from 1st January 2005.

HE will ensure that all information arising from the project shall be held in strict confidence to the extent permitted under the Act. However, the Act permits information to be released under a public right of access (a "Request"). If such a Request is received HE may need to disclose any information it holds, unless it is excluded from disclosure under the Act.

Timetable

The leaf litter removal is anticipated to be undertaken during October/November 2010, the first stage of *R. ponticum* removal fro the winter of 2011-12 and the second stage of clearance for the winter of 2011-2012.

Historic Environment, Cornwall Council

Historic Environment (Projects) is the contracting arm of Historic Environment of Cornwall Council (HE). HE employs some 20 project staff with a broad range of expertise, undertaking around 80 projects each year.

HE is committed to conserving and enhancing the distinctiveness of the historic environment and heritage of Cornwall and the Isles of Scilly.

Project staff

The project will be carried out by HE field staff and will be managed by a nominated Senior Archaeologist (Adam Sharpe BA MIfA) who will discuss and agree the detailed objectives and programme of each stage of the project with the field officers, including arrangements for health and safety; monitor progress and results for each stage and edit the project report. It is anticipated that the site archaeologist will be Anna Lawson-Jones who undertook the reporting on the first phase works.

Contract

The HE projects team is part of the Historic Environment, within Environment and Heritage, Cornwall Council. If accepted, the contract for this work will be between the Client and Cornwall Council.

The views and recommendations expressed will be those of the Historic Environment projects team and will be presented in good faith on the basis of professional judgement and on information currently available.

Standards

HE follows the Institute for Archaeologists' Standards and Code of Conduct. As part of Cornwall Council, HE has certification in BS9001 (Quality Management), BS14001 (Environmental Management), OHSAS18001 (Health, Safety and Welfare), Investors in People and Charter Mark.

Health and safety statement

HE follows the Council's *Statement of Safety Policy*. For more specific policy and guidelines HE uses the manual *Health and Safety in Field Archaeology* (2002) endorsed by the Standing Conference of Archaeological Unit Managers and also the Council for British Archaeology's Handbook No. 6 *Safety in Archaeological Field Work* (1989). Prior to carrying out on-site work HE will carry out a Risk Assessment.

Insurance

As part of Cornwall Council, HE is covered by Public and Employers Liability Insurance.

Adam Sharpe BA MIfA Senior Archaeologist 10 September 2010

11.2 Phytopthera infected Rhododendron

The following is taken from the Food and Environment Research Agency (FERA) website www.fera.gov.uk/plants/plantHealth/pestsDiseases/pKernoviae.cfm

Phytophthora ramorum is an exotic fungus-like plant pathogen which causes damage to trees, shrubs and other plants. Since the mid-1990s, it has caused widespread death of millions of trees in forest environments in coastal California and Oregon in the USA. Because the most commonly affected trees that have been killed are tanoaks (not true oaks) as well as several true oak species, this extensive phenomenon is commonly known as 'Sudden Oak Death' in the USA. The pathogen was first found in the nursery trade in the USA/Canada in 2001.

In Europe, including the UK, *P. ramorum* has been found mainly on container-grown *Rhododendron*, *Viburnum* and *Camellia* plants in nurseries. It was first detected in the UK in 2002. Following the first finding emergency measures were introduced in Great Britain. The initial measures included destruction of infected plants, a ban on imports of susceptible material from affected areas of the USA, and notification of movements of susceptible nursery stock *i.e.* Rhododendron (other than *R. simsii*), and viburnum. These measures were notified to the EU Standing Committee on Plant Health, which agreed EU-wide emergency measures in November 2002, based largely on GB's action. Those measures are still in place.

In January 2009 the first finding in the wild of *Phytophthora ramorum* on Bilberry, *Vaccinium myrtillus*, was confirmed at a site in Staffordshire. In the course of surveys in 2003 for *P. ramorum* another species of *Phytophthora*, now named as *Phytophthora kernoviae*, was found in Cornwall causing similar damage to beech trees and Rhododendrons. This pathogen is taxonomically a distant cousin of *P. ramorum*. It appears to behave in a similar fashion, sporulating on Rhododendrons and causing lethal stem cankers on trees. However, there is some evidence that it may kill Rhododendron more rapidly under UK conditions than *P. ramorum*.

As *P. kernoviae* is a recently described species our understanding and knowledge about its development, spread and survival is still relatively limited. Unlike *P. ramorum* it seems to have spread mostly by natural dispersal through woodland (spores may be carried locally by rain splash, wind-driven rain, irrigation or groundwater) rather than by movement on nursery stock. It has not been reported from any other country, although expert speculation is that it, too may have been introduced from the areas from which Rhododendrons have been collected by plant hunters. Outside Cornwall, where around 40 beech trees and two oak trees have been found affected, the only findings have been on Rhododendrons at a nursery in Cheshire (from which it has now been eradicated) and three parks on the outskirts of Swansea. In December 2007 *P. kernoviae* was confirmed on bilberry (*Vaccinium myrtillus*) at a woodland site in Cornwall and in February 2008 in open heathland in Cornwall.

Since the first confirmations in 2002 there has been a coordinated approach to disease control within Great Britain aimed at containment and eradication, whilst evidence was gathered to make a decision on future policy. During that time the disease has continued to spread, albeit slowly and mainly in the southern and western parts of Britain. Following a review of the historic and current situation, available scientific and economic evidence and public consultation on options for management of the pathogen in the future, Government ministers concluded that more needs to be done to contain and eradicate *Phytophthora ramorum* and *Phytophthora kernoviae*.

A new 5 year programme, which began on 1 April 2009, included research and development, an awareness programme and disease control through funding clearance of host plants in high risk areas. This will involve an increased level of activity, aimed at reducing the level of inoculum to epidemiologically insignificant levels; by removal of infected sporulating hosts in woodlands and the wider environment and proactive clearance of uninfected areas to protect high risk sites; combined with enhanced containment and eradication measures in infected gardens and nursery sites, as well as the identification and control of any new outbreaks.

11.3 General heathland management recommendations

Introduction

The following is taken from the Generic Advice prepared for the overall HEATH programme and is intended to provide broad guidance on managing heathland in west Cornwall in ways that are beneficial not only for biodiversity but also for the 'historic environment'. The term 'historic environment' includes all aspects of the environment resulting from the interaction between people and places through time. In west Cornwall upland and coastal rough ground has been used for grazing since at least the Bronze Age i.e., for the last 3,500 years. This use has played a major part in creating the distinctive historic landscape and accompanying semi-natural heathland vegetation.

From an environmental view point, positive management for Cornish heathland in the present is aimed at replicating the outcomes of past land management practices, particularly controlling dense, invasive Rhododendron (as is the case for this study area), bracken and furze scrub and encouraging other communities. This form of management is also 'good for archaeology': reducing bracken and scrub means that vegetation damage to below-ground archaeological remains is avoided and that above-ground traces of the past are more easily visible.

The aims of managing heathland for the historic environment

- To preserve archaeological and historic remains.
- To maintain and enhance historic landscape character, including characteristic seminatural vegetation.
- Where appropriate, to increase the visibility of above-ground archaeological and natural/geological features such as carns.
- To increase public access, appreciation and understanding.
- Through the above, to achieve practical and economic benefits which contribute to sustaining the local economy.

The methods of managing heathland for the historic environment

Grazing

Increasing grazing levels to reduce scrub and bracken cover

Rhizomes, root systems and woody stems can damage both buried archaeology and standing features: bracken has a particularly severe impact on below-ground remains. Tracking of animals through dense scrub can also cause significant surface erosion. Reintroducing grazing or increasing grazing levels will have a beneficial effect in breaking up scrub cover and reducing bracken vigour, although the potential impact on any particularly sensitive archaeological remains or specific biodiversity interest should be assessed.

Stockproof boundaries

Creation of stockproof boundaries on areas to be grazed may require repair of existing boundaries, the building of new hedges or walls or installation of new fencing. Where there is open access to heathland areas the creation or repair of stockproof boundaries may require provision of new stiles etc. These should resemble existing stiles in the area.

Hedges and walls

Where new hedges, walls or banks are to be created, they should generally be sited away from remains of earlier boundaries and other features. The effect of inserting a new hedge or other boundary on adjacent archaeological remains and patterns of features should be considered: does it confuse or obscure the historic pattern, making it less coherent? Is there another location where this could be avoided.

Where an existing or former boundary is to be re-used, it may be necessary to take advice on an appropriate approach. Some heathland boundaries in west Cornwall date from the medieval period, the Iron Age or even the Bronze Age: disturbance to a boundary which it is suspected is early should be avoided as far as possible. If a boundary is required in the same location a wire fence running alongside may be preferable.

On later boundaries repairs to make them stockproof should use traditional forms of patching - preferably based on techniques which can be seen in the boundary itself - and

re-use stone from the boundary itself where possible. It is particularly important that hedgers and wallers do not source stone or earth fill from other archaeological remains, including ruined boundaries. **NB.** Some Cornish hedges and earth banks – specifically those where a row of bushes grows along the top of the boundary – may be subject to the Hedgerow Regulations 1997. For hedges which come under these regulations, actions which constitute removal, in whole or in part, require formal notification to the local planning authority in the form of a 'Hedgerow Removal Notice'; informal consultation in advance of a notification is advisable.

Fences

New fence lines should preferably follow existing or ruined boundaries, leaving the historic pattern clear and understandable .If installation of a high tensile fence involves trenching this could have an impact on archaeological remains and the fence should ideally be rerouted. Alternatively, archaeological recording may be necessary before and / or during the work.

Gates and gateways

Gates should be located in existing breaks in boundaries wherever possible in order to avoid disturbing historic structures. Where there are existing gateposts they should be reused. New gates should be similar to traditional gates in the area. Where a gateway is needed and there is no existing break, the terminals on either side of the new break should be finished in a traditional form. **NB.** Where there is a possibility that the boundary in which a new break is to be made is medieval or earlier, archaeological advice should be sought in advance (Historic Environment).

Water supplies

Natural water sources on rough ground are likely to have been the focus of human activity over a long period. Archaeological advice should be taken in advance of any works or grazing re-introduction. New water troughs should be sited away from archaeological and historic features and located in positions where the development of new stock paths to access them will not have a negative impact. Pipeline trenches should avoid known archaeological remains and pipes should be tunnelled underneath rather than cut through any boundaries they cross.

Vehicular access

Routes for inspection vehicles etc. should be considered carefully in terms of their potential impact on prehistoric boundaries, clearance cairns and medieval cultivation ridges etc. Use of vehicles should be particularly avoided in wet seasons if it is likely to compact or churn up surfaces over or around potential archaeological features.

Scrub reduction

Manual - Manual clearance methods using hand or power tools should always be used where archaeological elements are known to be present which might be damaged by vehicle-mounted methods.

Mechanical - Mechanical methods enable larger areas to be tackled, with resulting benefits for the visibility of historic features and understanding of historic landscape character, as well as cost-effective natural environment benefits. Mechanical treatments should be restricted to areas with no known sensitive archaeological remains, however, as tractors and flails could easily cause damage or disturbance.

Root grubbing - Roots should not be grubbed out on areas of known archaeological remains. In areas where there is a high incidence of historic remains (including much of the rough land in west Cornwall) grubbing should ideally only be done after the site has been checked to ensure that archaeology which may be damaged by the operation is not present.

Spraying - Manual spraying is often the most appropriate technique for vegetation reduction on small-scale operations. It is essential where there is a risk to known archaeological remains from carrier vehicles and where application from the air is not an option.

Fire - Burning is often seen as the main 'traditional' method of scrub reduction on heathland. However, in the past grazing and harvesting of furze, bracken and other useful materials would have kept vegetation low and burning would have been seen as

destructive of a valuable resource. There may have been times, however, when limited burning was undertaken to refresh grazing or clear ground for temporary cultivation.

Use of fire within modern heathland management can sometimes be useful (to remove build-up of vegetation litter or create areas of bare ground, for example), but demands careful planning and control to avoid damage to historic features and areas that it was not intended to treat. Where scrub is dense, with a significant layer of surface 'litter', fires may burn so intensely that there is damage to surface features (heat spalling of stones, for example), or the surface is opened up to erosion. Peaty soils and root mats can themselves burn, lowering the surface level of the soil, creating a further risk of erosion and exposing archaeological remains which were previously protected within the soil.

Where firebreaks are required on heathland they can be positioned in order to increase the visibility of archaeological features. **NB.** Firebreaks should only be created by manual or mechanical removal of vegetation, however: they should not be bulldozed or scraped because of the risk of damage to buried and surface archaeology.

Disposal of removed vegetation

Where scrub is to be cut the options of burning the arisings/brash on site, chipping and removing or mulching and removing must be carefully considered: a balance must be struck between potential damage to features and surfaces from tractor movements across possibly sensitive areas, plus the costs of disposing of the chip or mulch, as against the possible impact of burning material on site.

Brash fires should be carefully sited, well away from known archaeological features, and kept small. It is preferable to re-use established bonfire sites where reasonably possible so that damage is not multiplied across an area. Sheets of corrugated iron have been used successfully as bases for fires and should be considered near archaeological sites where there is the possibility of buried remains.

Habitat creation

Soil surface exposure including litter stripping, 'back' burning, bare-ground creation, disturbance (harrowing, perturbing) and deeper disturbance or inversion (ploughing, scrapes, stump removal).

Ground disturbance techniques are frequently used in heathland re-creation programmes. On Recently Enclosed Land (that is, land enclosed in the 19th and 20th centuries), the recreation of heathland is likely to enhance the broader historic landscape character of the area and is generally to be welcomed. However, the potential impact on both archaeological remains and historic landscape character of surface disturbance techniques should be carefully considered (for example, the openness, smoothness, sense of enclosure, etc, of a particular area). The creation of new earthworks and landforms may also have an impact on the ease with which the historic landscape can be 'read' and understood.

Any mechanical disturbance of the soil or measures taken to remove vegetation and the litter layer may damage or expose archaeological deposits or buried structures. Such works should not be undertaken lightly and only after archaeological assessment of the area in which the disturbance is proposed. Clearly, however, the potential impact on archaeology is likely to be greater on sites where previous disturbance is minor than on improved land where there has been a sustained period of deep ploughing.

Where disturbance is carried out, a post-disturbance visit by an archaeologist is advisable to record features which might have been revealed and recover scatters of flints or other artefacts which have been disturbed; this is strongly advised where the more invasive techniques have been used such as ploughing, soil removal or scraping.

In general, both on Recently Enclosed Land and on rough ground, an approach to habitat restoration based on allowing time for reversion rather than through significant physical disturbance is strongly preferable. In general, heathland restoration methods based on deep soil disturbance and the creation of earthworks is to be discouraged.

An alternative approach to topsoil stripping in heathland restoration is de-acidification, most commonly undertaken by dressing with sulphur and lightly ploughing or rotovating it into the surface. This approach is likely to be substantially less damaging to archaeology than stripping but specific archaeological advice should be sought before applying it to any particular area.

Former industrial sites

Where it is proposed to reinstate heathland on industrial sites (for example, former mining or quarry sites), care should be taken that associated works such as surface preparation do not damage or obscure archaeological features. These may include elements such as working floors and spoil heaps, the shape, position and content of which may all be significant for a full understanding of the site.

Creation of pools and water features

Liddens (from Cornish **lyn**, 'pool') and fowling pools are historic features of some areas of coastal rough ground, particularly around south-west Penwith, and many areas of upland rough ground preserve the remains of water management systems related to streamworking, mining, ore processing and other industrial activities. For obvious topographic and water-supply reasons, the same or adjacent sites may be attractive for creating new open water features. Where such features are proposed, care should be taken that the remains of earlier structures, together with associated components such as leats, dams, sluices, hides, etc, are not damaged or obscured. Where it is desired to reinstate an historic feature such as a fowling pool, archaeological and environmental assessment, including surveys/recording, should take place prior to any works being undertaken; a watching brief on the work may also be appropriate to record any archaeological features or deposits which are exposed.

Springs and watercourses within rough ground are likely to have been the focus for human activity over a long period and any actions having an impact on these should be considered in terms of their possible archaeological implications.

Positive management of archaeological remains

Consolidation and repair of structures

Measures to repair or consolidate standing structures will enhance their visibility and comprehensibility to interested visitors and should also aid their long-term survival. Where interventions of this kind are envisaged, however, it is important that archaeological advice is sought well in advance and that archaeological recording (drawings, photographs, etc) is carried out on the remains *before work begins*.

Repairs and consolidation should use methods and materials appropriate to the particular structure, based on what is identified by the recording work carried out in advance. **NB.** Restoration (that is, substantial reconstruction) of historic buildings is not generally favoured unless there is clear documentary evidence of their previous form (for example, historic photographs).

Safety works

Many areas of rough ground include extensive remains of former mining and quarrying activity. Open, collapsing or partially blocked shafts, surface workings, adits, open quarry pits and other features represent major potential hazards to visitors and stock.

Some of these features may be identified from maps or documents, but field survey will often find much greater numbers. Even after survey, additional scrub clearance, a major fire or ground disturbance will often reveal previously unknown and unsuspected hazards. Ongoing survey and careful plotting are therefore important, coupled with appropriate mine and health and safety assessments to establish which shafts or other features are considered to be safety risks.

The best approach to safety works will vary according to the form and the location and accessibility of shafts and other features. The primary aim is to ensure that in achieving appropriate safety levels on sites, archaeological remains, historic landscape character and ecological value are not unnecessarily compromised. A range of possible measures are available but in many cases secure fences and built hedges, which have minimal impact on remains and landscape character, are considered adequate safety provisions.

HES has developed a set of principles for dealing appropriately with dangerous shafts and similar features and these are available in the guidance laid out in the Cornish Mining World Heritage Site Management Plan.

Vegetation control

Targeted scrub reduction (see above)

This has a beneficial impact in terms of reducing root damage and the potential for fire damage to standing and buried remains, and also in increasing the visibility of the remains for public interest.

Careful positioning of firebreaks can open up archaeological remains currently obscured by scrub. Hand clearance may be necessary in the immediate area of archaeological features to avoid damage.

Bracken control

Recent research on Dartmoor has shown the very severe impact which bracken has on buried archaeological deposits. Buried features such as the floor deposits in prehistoric roundhouses can be badly disturbed and effectively destroyed for archaeological purposes by the development of a dense mat of rhizomes.

Bracken is most often treated by spraying and this is in most instances preferable to mechanical methods such as rolling or flailing, where the presence of mechanical devices and tractors may itself be damaging to surface remains. However, bracken spraying can be a problem for archaeological and ecological interest where it is carried out on steep slopes or thin soils. Total removal of the bracken canopy can result in bare soil which is quickly eroded. An alternative approach may be preferable on steep slopes, thin soils, loose soils such as sand and where there is no vegetation layer below the bracken. In some locations of this kind mechanical control by hand or machine may be preferable

Japanese knotweed removal

Japanese knotweed is highly invasive and its powerful root growth can threaten archaeological features. Control methods on sites with standing historic features or potential for buried archaeology should not involve ground disturbance measures such as grubbing-up. **NB.** Advice on outbreaks of Japanese knotweed is available through Cornwall County Council's Living Environment Service.

Crocosmia removal

The most successful approach to eradication of *Crocosmia* (Montbretia) has been found to be systematic manual digging out of the corms and removal from site. This is clearly not appropriate on or in the vicinity of known archaeological sites and advice should be sought in advance for any location where this approach is being considered. Herbicide treatment offers a less damaging alternative.

Animal disturbance

Animal burrowing in archaeological sites can disturb buried deposits and should be discouraged (within the relevant legislation) where it may affect important remains.

Poaching and erosion of surfaces around standing features caused by animals using them as shelter or as scratching aids may damage sub-surface deposits and can also destabilise the adjacent structures. This is most often a consequence of over-stocking but can be made worse by visitor erosion at particular 'honeypot' sites such as standing stones or stone circles. Potential counter-measures include reductions in stocking levels, stock exclusion and, in extreme cases, creating protective surfaces within the erosion hollows (see below).

Footpaths and vehicle tracks

Paths and tracks which pass over or close to archaeological remains can beneficially be rerouted away from sensitive remains unless the risk of damage has been assessed and found to be within acceptable limits. Care should be taken, however, that new routes do not themselves impact on other sites or features.

Where a heavily-used path crosses an earthwork feature such as a barrow or hillfort rampart, and there is no practical alternative route, further erosion can be avoided by installing a pitched stone surface or, in extreme cases, a wooden walkway and / or steps to carry walkers over the feature. In such cases a balance is required between protecting buried surfaces from erosion and the visual intrusiveness of the possible remedial measures.

Where access is being increased, historic routes for paths should be re-used unless use is likely to be very heavy and may then cause significant damage to the evidence for the former routes such as hollow-ways.

Visitor pressure

As with animals, the concentration of erosion in particular places arising from large numbers of visitors can be damaging to surfaces and the stability of monuments. Seeking co-operation from visitors through appropriate signage may have an effect but other measures such as temporary barriers or covering eroded areas with pegged-down cut blackthorn, furze, etc, to enable vegetation to regenerate may also be appropriate.

In some instances, however, repairs to erosion hollows will be necessary to resist further stock and visitor damage, protect buried archaeological layers and stabilise the adjacent structure. For monuments such as standing stones, stone circles and stone crosses, this has been successfully achieved through careful removal of loose material from the eroded area and infilling with a layer of carefully set stones, sand and rab prior to re-turfing. Considerable expertise has been developed with such interventions in Cornwall and advice is available through the Historic Environment). **NB.** For works of this kind it is essential that archaeological advice is taken at the planning stage and that appropriate archaeological recording is carried out. For Scheduled sites, Scheduled Monument Consent *must* be sought in advance of any works.

Soil improvement

Inputs of chemical fertilisers and similar materials are unlikely to be beneficial in maintaining or enhancing rough ground environments, and should be avoided on those grounds. They may also cause damage to buried archaeological deposits, so it is even more important that they should be avoided in areas where buried archaeology is known or suspected.

Reporting casual finds and new discoveries

Casual finds of artefacts – for example, flints and other worked stone, or sherds of pottery – can make a significant difference to our understanding of heathland areas if they are properly recorded and reported. The same is true of earthwork features or built structures revealed by increased grazing or fire. Locations should always be recorded as precisely as possible.

The initial point of contact for reporting such finds is the Historic Environment).

Metal detecting

Best practice guidance on metal detecting is that it should only be carried out over ploughsoil (that is, surfaces which have been disturbed and are *currently* in cultivation); even in ploughsoil objects should not be removed from depths greater than 300mm (12 inches) so that intact buried deposits are not disturbed. Heathland is, by definition, not in cultivation and metal detecting should therefore not be carried out there.

Detecting should never take place on known archaeological sites other than as part of a carefully planned research project and should always be accompanied by a parallel process aimed at recovering non-metallic objects such as pottery, flint and other worked stone.

Metal detecting must only take place with the permission of the relevant landowners or authorities, whether on private or public land; detectorists who do not obtain permission in advance could be charged with a criminal offence and sued for damages. 'Finds' made by metal detecting are legally the property of the landowner and it is highly advisable that detectorists are required to sign a written undertaking in advance. It is an offence for anyone to use a metal detector on a Scheduled Monument without the written consent of the Secretary of State for Culture, Media and Sport, and there are restrictions on detecting on other areas such as Sites of Special Scientific Interest (SSSIs), land under Stewardship agreements and National Trust properties.

All metal detecting finds of potential archaeological interest should be reported with details of where they were found. In most instances this will be through the Portable Antiquities Scheme, the Historic Environment Service or a museum. There are particular legal requirements for reporting items defined as 'treasure'.

11.4 Scheduled Monuments

Scheduled Monuments have Statutory Protection under the Ancient Monuments and Archaeological Areas Act 1979. These are sites that have been identified by English Heritage, the Government's archaeological advisory body, as being of national importance, and are included in the County Lists maintained by the Secretary of State for Culture, Media and Sport. A schedule has been kept since 1882 of monuments whose preservation is given priority over other land uses. The current legislation, the Ancient Monuments and Archaeological Areas Act 1979, supports a formal system of Scheduled Monument Consent for any work to a designated monument. This must be obtained in advance and in writing from the Secretary of State for Culture, Media and Sport. 'Works' may be above or below ground level and are defined as 'demolishing, destroying, damaging, removing, repairing, altering, adding to, flooding or tipping material onto the monument'. 'Works' includes operations such as tree planting and the digging of holes.

11.5 Hedgerow Regulations

Within the current legislation (Hedgerow Regulations 1997) the following extract explains the criteria used to assess the archaeological and historical importance of hedgerows:

For the purposes of Section 97 (hedgerows) of the Environment Act 1995 and these Regulations, a hedgerow is "important" if it or the hedgerow of which it is a stretch:

(a) has existed for 30 years or more; and

(b) satisfies at least one of the criteria listed in Part II of Schedule 1.

Part II of Schedule 1 provides the following 'historic' criteria:

1. The hedgerow marks the boundary, or part of the boundary, of at least one historic parish or township; and for this purpose "historic" means existing before 1850.

2. The hedgerow incorporates an archaeological feature which is included in the schedule of monuments compiled by the Secretary of State under section 1 (schedule of monuments) of the Ancient Monuments and Archaeological Areas Act 1979; or recorded at the relevant date in a Sites and Monuments Record.

3. The hedgerow is situated wholly or partly within an archaeological site included or recorded as mentioned in paragraph 2 or on land adjacent to and associated with such a site; and is associated with any monument or feature on that site.

4. The hedgerow marks the boundary of a pre-1600 AD estate or manor recorded at the relevant date in a Sites and Monuments Record or in a document held at that date at a Record Office; or is visibly related to any building or other feature of such an estate or manor.

5. The hedgerow is recorded in a document held at the relevant date at a Record Office as an integral part of a field system pre-dating the Enclosure Acts; or is part of, or visibly related to, any building or other feature associated with such a system, and that system is substantially complete; or is of a pattern which is recorded in a document prepared before the relevant date by a local planning authority, within the meaning of the 1990 Act, for the purposes of development control within the authority's area, as a key landscape characteristic.